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Driving Social Sustainability and Resilience of SMEs Amidst Turbulence: The Role of Information Technology and Dynamic Capabilities

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Abstract

Research background and purpose: Amidst turbulences, there is an increasing recognition of capabilities factors in driving SMEs' resilience. Besides, turbulences have casued difficulties for SMEs in sustaining their social sustainable practices, resulting in adverse effects on employees and society at large. Thus, SMEs need to leverage their capabilities to enhance their resilience and contribute to fair labor practices and local communities. This research aim to investigate the relationships between capabilities, resilience, and social sustainability in SMEs amidst turbulence.

Theoretical framework: Based on the resource-based view (RBV) theory and dynamic capabilities view (DCV), three hypotheses were proposed to examine the relationships between the four factors: IT capabilities, dynamic capabilities, resilience, and social sustainability. In addition, two hypotheses were formed to evaluate the mediating role of organizational resilience.

Methodology: This study applied the explanatory sequential mixed methods, with a focus on the quantitative approach. The PLS-SEM technique was implemented to analyze data collected from 81 managers working at SMEs in Vietnam to test the five proposed hypotheses. The qualitative method, with multiple-case approach, was implemented to interview seven companies' representatives to seek explanations for the deviating result from the quantitative phase.

Findings: There was a positive relationship between resilience and social sustainability. Besides, while the positive connection between dynamic capabilities and resilience was formed, IT capabilities did not link with organizational resilience. In addition, this study indicated four elements hindering the role of IT capabilities in enhancing SMEs' resilience, which were industry and size, internal factors, alternative resources and capabilities, and time lags.

Implications: This study contributes to the scarce litarature connecting social sustainability with other organizational factors. This study also enriches understandings of DCV as a theory complementing the RBV. Furthermore, empirical results diversify the current literature on IT capabilities, highlighting the variability in the role of this capability among firms. This study provides practical recommendations for SMEs' managers to bolster resilience and promote social sustainability amidst turbulence.

Keywords: social sustainability, organizational resilience, information technology, dynamic capabilities, turbulence

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Abbreviations

SME – Small- to medium-sized enterprise

IT – Information technology

PLS-SEM – Partial least square structural modeling equation

OR – Organizational resilience

RBV – Resource-based view

DCV – Dynamic capabilities view

SS – Social sustainability

DC – Dynamic capabilities

FP – Firm performance

HTMT – Heterotrait-monotrait ratio

CR – Composite reliability

AVE – Average variance extracted

TBL – Triple bottom line

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CHAPTER 1: INTRODUCTION

In this section, we present the background of our study, highlighting the importance of examining small and medium enterprises in the context of turbulence in Vietnam. We will also state the research gap problems that serve as motivations for us to conduct this study. Furthermore, this part includes the research purpose and questions that we will later on address them. Finally, we briefly introduce the outline of this thesis.

1.1 Research background

In the rapidly evolving global business landscape, small and medium enterprises (SMEs) play a crucial role in driving economic growth, innovation, and employment, especially in developing countries. SMEs are the backbone of these emerging economies as they are driving job creation, fostering industry innovation, and enhancing overall productivity (Do et al., 2022). Thus, any adverse effects experienced by SMEs could also have far-reaching consequences for the broader economy. Recently, SMEs' resilience has been challenged by several external factors, including economic uncertainties, technological advancements, and unexpected events. Of which, the COVID-19 pandemic from a few years back exemplifies widespread instability and disruptions across the global economy. The pandemic's high transmissibility and associated health dangers triggered global chaos, leading to widespread measures such as lockdowns, the closure of ports and airports, stringent workforce regulations, and trade restrictions. This has consequently led to economic shutdowns leading to downgrades in manufacturing, increased layoffs, and slowing demand (Rai et al., 2021). Similarly, previous trade wars between the United States and a series of countries have resulted in significant increases in tariffs, which has resulted in the inaccessibility of products from some companies' main suppliers, which has greatly increased the procurement costs of affected companies and threatened their supply chains (Manners-Bell, 2017). The recent war between Ukraine and Russia has further caused a surge in commodity prices, threatening many businesses that rely on agricultural products and energy as key inputs. (Ben Hassen & El Bilali, 2022). Meanwhile, SMEs are important participants in global value chain supply chains (Harvie & Charoenrat, 2015), and those above-mentioned external shocks put the value chains and SMEs who rely on global business cooperation at risk. On the one hand, the key raw materials and parts

they rely on for survival may be difficult to obtain or face price shocks. On the other hand, their main products may be difficult to sell abroad, threatening their income capabilities. In such cases, SMEs have been particularly vulnerable due to their limited resource base (Zahoor et al., 2022), raising significant questions about their resilience amidst the turbulence.

Besides, it needs to be emphasized that social sustainability is being undermined in the process of the dramatic changes and shocks in the business environment mentioned above (Rai et al., 2021). As a widely concerned concept, sustainable development focuses on the protection of future generations, which includes three aspects: environmental, social, and economic (Eikelenboom & de Jong, 2019),also known as the triple bottom line (TBL) approach. Among them, social sustainability involves a series of aspects important to business and society. This may include aspects such as well-being and equality, decisions that take into account the interests of local communities, responsible supply chains, diversity, and good working conditions and benefits (Martinez-Conesa et al., 2017). As highlighted, disruptions in the external environment can greatly affect both business operations and societal sustainability. Consequently, resilience is acknowledged as crucial for managing increasing worldwide challenges (Barasa et al., 2018). Chowdhury and Quaddus (2017) define resilience as the capacity of a company to swiftly bounce back from unexpected, specific incidents that expose vulnerabilities and necessitate distinct crisis management strategies. Based on the definition, this capability helps organizations develop preventive capabilities to cope with unexpected disruptions while taking necessary and rapid actions to respond and recover (Ozanne et al., 2022). A series of literature, including Rai et al. (2021), contend that organizational resilience and social sustainability are interrelated. This view is supported by some evidence: many organizations recovered faster than others and contributed to the community even after being impacted by disruptions. For example, Sharma et al., (2020) mentioned that during the COVID-19 lockdown in India, Nestlé was hardly affected by the pandemic and was able to stay resilient, and safeguard its performance and employee welfare.

For this relatively broad concept of how to develop organizational resilience, a range of differentiated approaches to developing it have emerged in business practice. Barasa et al. (2018) identified several factors that contribute to organizational resilience, including physical resources, preparation, information management, redundancy strategies, governance, leadership, company culture, the skills of the workforce, and the ability to network and collaborate. Particularly, there is a significant focus on the concepts of dynamic capabilities and IT capabilities. Previous studies

have established that dynamic capabilities, especially the ability to seize opportunities and reconfigure resources, are vital for organizational resilience (Khurana et al., 2022; Ozanne et al., 2022). In environments marked by fast and unpredictable changes, these capabilities become a keystone for maintaining a competitive edge and are critical for organizational resilience, aiding in capitalizing on opportunities and reallocating resources efficiently. Information capabilities, on the other hand, involve additional information technology investments in response to disasters and shocks. It is also considered to contribute to and shape competencies involving flexibility and resilience (Bustinza et al., 2019), through more secure protection and recovery of data, analysis of the current situation, use of more flexible working styles, and more efficient connections. Companies across various industries are increasingly recognizing the importance of IT in enhancing efficiency, innovation, and competitiveness. As a result, many are directing significant resources towards adopting and leveraging IT systems and tools to develop their capabilities in this area.

1.1.1 Small and medium-sized enterprises

In the dynamic global business environment, SMEs are crucial for spurring economic growth, fostering innovation, and creating jobs. SMEs constitute the bulk of businesses worldwide and are pivotal in generating employment and advancing the global economy. The World Bank's 2017 data shows that SMEs make up around 90% of global businesses and provide over half of job opportunities. Specifically, in emerging markets, formal SMEs account for 40% of gross domestic product (GDP), a figure that significantly rises when including informal SMEs. In developing nations, especially in countries like Vietnam, Thailand, and India, SMEs form the economic foundation, catalyzing job creation, propelling industry innovation, and enhancing productivity (Do et al., 2022). Not only creating entrepreneurial opportunities, but SMEs in these developing countries also actively join global value chains and division of labor systems, thus promoting the creation of a society ready to do business with the rest of the world. Heather (2019) highlights that small and medium-sized enterprises (SMEs) often serve as the entry point for young and inexperienced workers into their careers, emphasizing their role in social sustainability.

As mentioned above, how to deal with economic uncertainty is becoming a lesson that more and more companies must learn. However, SMEs are more vulnerable to the threats of these challenges and their resilience and sustainability are more difficult to maintain. For instance, when facing

severe challenges like financing problems, it is more difficult for them to obtain bank loans, unable to issue stocks, and difficult to issue bonds (Zahoor et al., 2022). Meanwhile, larger companies benefit from vast facilities compared to SMEs. Svetličič et al. (2007) present that the bank debt ratio for SMEs with revenues between 10-20 million euros ranges from 5-10%, in contrast to 30% for larger enterprises with revenues around 100 million euros. Additionally, a distinguishing feature of SMEs is their familial ownership structure (Nordqvist et al., 2014), which often leads to challenges such as intergenerational transitions and a lack of managerial depth (Matlay et al., 2005). Typically, the owner is deeply involved in daily operations, a factor that can limit the capacity for strategic foresight. Moreover, a predominant focus on short-term objectives is common among SMEs (Holátová et al., 2015). While SMEs do enjoy certain advantages over larger companies, such as their agility in adapting to changes and their ability to respond quickly to disruptions, not all SMEs possess the necessary resources and capabilities to fully leverage these benefits. Undoubtedly, these characteristics all result in SMEs generally being less structured and vulnerable to shocks when faced with some challenges and difficulties, and also involving a lower level of organizational resilience than large companies.

1.1.2 The situation in Vietnam

Economic reforms since the launch of the Doi Moi (Renovation Plan) in 1986 have allowed Vietnam to develop rapidly in the past few decades and become a middle-income economy (World Bank, 2023). As a developing country, Vietnam faces all the challenges mentioned above. First, Vietnam has a large number of SMEs (98.06%), and this is more important relative to the OECD average: they contribute about 44% of Vietnam’s labor force and 40% of GDP, as well as 30% of exports (Tuan, 2020). In addition, these SMEs in Vietnam are particularly dependent on the global industrial chain and the international trading system: the processing and assembly industry is an important part of its economy: in 2021, the country's manufacturing industry accounted for 25% of the country's total GDP. Leveraging its labor price advantage, Vietnam is becoming a clear leader in low-cost manufacturing and sourcing: it is proposing the so-called "China + 1" strategy, thereby becoming an effective relocation destination for Chinese manufacturing companies. This mainly involves serving as a foundry for international companies, providing production outsourcing and product assembly. This means that the country's small and medium-sized enterprises are very dependent on international orders and imported raw materials, which therefore

leaves them fully exposed to international trade risks. The aforementioned pandemic, the Russia-Ukraine conflict, and the trade war will all have a significant impact on the local processing industry SMEs. Additionally, Vietnam's economy is significantly affected by its geographical location and climatic conditions. Umair Jamal (2021) reports that Vietnam ranks among the top six economies most severely impacted by climate change, based on analyses from 1999 to 2018. In this timeframe, Vietnam experienced 226 extreme weather incidents, leading to yearly economic damages exceeding 2 billion USD. Extreme weather events brought about by climate change are also key aspects that may have a major impact on businesses.

Combined with the above factors, this means that Vietnam's economy may face more severe challenges when faced with shocks. In this regard, a series of evidence supports this assertion. Evidence was provided from two surveys of 1,000 SMEs in five major ASEAN countries, Indonesia, Malaysia, Singapore, Thailand, and Vietnam, conducted in July 2019 and May 2020, before and during the Covid-19 pandemic. Following the pandemic, 47% of Vietnamese SMEs have indicated plans to delay investments in the current year, with another 2% foreseeing no alterations in their plans (Umair Jamal, 2021). Similarly, research by Kroeger et al. (2020) utilizing data at the firm level evaluated the financial well-being of Vietnam's non-financial corporate sector right before the pandemic hit. This study highlighted that smaller local firms in Vietnam faced more significant challenges compared to their counterparts in other regions.

1.2 Research problem

The research background depicted the importance of social sustainability in relation with resilience and other organizational capabilities. When examining the concept of sustainability in the context of turbulence within SMEs, several studies have focused on the dimension of environment (Khoja et al., 2022; Yacob et al., 2019), while less attention has been paid to other dimensions, such as society and economy (Rai et al., 2021). In addition, previous research tends to argue that social sustainability is often associated with large organizations because they are believed to have more resources and capabilities to contribute to society (Chowdhury & Shumon, 2020). For example, a review study by Chiesa and Przychodzen (2020) shows that research on social sustainability aspects of large companies in the apparel, food, and electronics industries has attracted the most attention, with Asia, Europe, and North America being the most scrutinized area. Furthermore,

while large companies and corporations have made considerable progress in implementing social sustainability practices, SMEs are lagging far behind in achieving their social sustainability goals (Chowdhury & Shumon, 2020; Nakamba et al., 2017). Although social sustainability could bring a huge benefit for SMEs to attain competitive advantage, there are not many studies thoroughly examining this issue in SMEs, serving as a motivation for us to conduct this research.

Apart from a sparse literature on social sustainability and resilience in SMEs (Rai et al., 2021), our review revealed a gap in applying the concepts of the resource-based view (RBV) and dynamic capabilities view (DCV) to comprehend how SMEs in emerging countries leverage their limited resources and capabilities. There are several studies argue that the DCV can to better address the static view of the RBV in a changing business landscape (Pisano & Teece 1994, Teece et al., 1997), supporting the understanding of resource utilization in SMEs. This gap implies the need to explore how these theoretical frameworks can be utilized to help SMEs enhance their resilience and perform better in terms of social sustainability, given the context of the Vietnamese market.

Furthermore, when it comes to SMEs in emerging countries, many studies have pointed out various antecedents of organizational resilience, such as dynamic capabilities, learning and culture (Pal et al., 2014), IT capabilities (Oh & Teo, 2006), leadership capabilities (Lisdiono et al., 2022), in the context of both large corporations and SMEs. However, there is a lack of research into how these factors are interconnected, especially in relation to social sustainability, and considering contextual factors such as disruptions or market turbulences. In addition, regard to this interconnectedness, we are also interested in understanding the role of organizational resilience in the relationship between capabilities and social sustainability. There is unclear whether organizational resilience can act as a mediator, supporting firms in enhancing their social sustainable practices by utilizing internal competencies and resources. While a few studies have shed light on this issue by indicating some direct and indirect antecedents of sustainability (Schrettle et al., 2014; Tsai et al., 2013), their findings are insufficient to address the role of resilience as a mediator in the specific context of market turbulence. This presents a gap for us to explore and confirm the relationships between capabilities with resilience and social sustainability, with a focus on the mediating role of organizational resilience.

1.3 Research purpose, contributions, and research questions

In this study, we aim to examine the role of organizational capabilities, particularly IT capabilities and dynamic capabilities, in driving SMEs' resilience and social sustainability. Our research underscores that in the face of a complex business landscape, resilience and the social aspect of sustainability contributes to the development of SMEs in an emerging economy like Vietnam. As discussed previously, SMEs play an important role in the economy; yet they are less resilient amidst turbulence compared to larger players in the market. Thus, we conduct this study with the purpose of contributing to the understandings of organizational capabilities within SMEs, supporting them to leverage internal capabilities and resources to become more resilient.

Besides, we expect to provide a managerial insights for SMEs' managers and owners, especially in the context of the Vietnamese market. Vietnam provides a typical example of the systemic weaknesses that SMEs operating emerging econmies may encounter. Challenges such as intense competition from both domestic and foreign businesses, difficulty in consumer markets, lack of capital, and limited understanding of relevant laws exemplify the significant barriers that Vietnamese SMEs face during the process of integration into regional markets such as the ASEAN Economic Community (AEC) (Tran, 2015). Given the importance of SMEs as presented in the background and the characteristics of Vietnam as an emerging market, effectively addressing this challenge is crucial for researchers, entrepreneurs, and the Vietnamese government. Therefore, this study also seeks to provide strategies that enhance the organizational resilience of Vietnamese SMEs, focusing on identifying key resilience factors and assessing their impacts on social sustainability. This comprehensive approach is designed to bolster the adaptive capacities of SMEs, enabling them to manage risks effectively and contribute more robustly to Vietnam's social sustainability and economic landscape.

This study delivers many values from both theoretical and practical perspevtives. By employing the mixed methods, this research contributes to the understandings of the organizational resilience and social sustainability of SMEs in an emerging economy like Vietnam. Furthermore, we will conduct hypothesis testing and use Partial least squares structural equation modeling (PLS-SEM) to establish a quantifiable link between organizational resilience and social sustainability. In addition, the specific mechanisms through which SMEs' IT capabilities and dynamic capabilities influence the development of organizational resilience will also be revealed. Based on the above-

expected results and contributions, the empirical results of this study will enrich the existing literature on resilience and sustainability. It will provide a comprehensive theoretical framework linking organizational resilience, dynamic and information technology capabilities and social sustainability. This thus enriches the theoretical basis of these constructs. On the practical side, the key capabilities and factors it reveals for developing organizational resilience will provide valuable insights for SMEs. In the final part of the study, we will introduce to some extent feasible strategies for SMEs and explain how to develop dynamic and information technology capabilities. These specific management implications and recommendations can help enhance its preparedness for potential future crises, thereby promoting its sustainability and competitiveness.

To address our objectives and highlight the contributions we intend to make, we present the following research questions:

Research question 1: Does organizational resilience contribute to the social sustainability of SMEs amidst market turbulence in Vietnam?

Research question 2: Do dynamic capabilities and IT capabilities influence organizational resilience?

Research question 3: Do organizational capabilities indirectly influence social sustainability through organizational resilience?

Research question 4: What do SMEs do in order to utilize their capabilities to enhance their resilience and social sustainability?

1.4 Delimitation

This study focuses specifically on small and medium-sized enterprises (SMEs) within Vietnam, a rapidly developing country with unique economic and cultural contexts that significantly influence the behavior and resilience of SMEs. While the findings provide valuable insights into the role of information technology and dynamic capabilities in enhancing the social sustainability and resilience of SMEs, the generalizability of these results to other emerging markets should be approached with caution. Vietnam's specific economic reforms, market conditions, and socio-political landscape present a distinctive set of challenges and opportunities for SMEs that may not be present in other emerging markets. For instance, the historical context of economic

liberalization in Vietnam and the current geopolitical tensions in the region play a significant role in shaping business operations and strategies that may not be applicable to other countries with different economic paths or regional influences (Hultman, Iveson, & Oghazi, 2021).

Furthermore, the dependency of Vietnamese SMEs on the global industrial chain and international trading systems may differ in intensity and nature from SMEs in other emerging markets that might have more diversified or localized supply chains. The Vietnamese government's policies and support mechanisms for SMEs, as outlined in the current research, also add a layer of specificity that might not mirror the governmental frameworks or economic policies of other emerging economies (Temouri, Shen, & Pereira, 2022).

Therefore, while this study contributes to a broader understanding of SMEs in emerging markets, stakeholders such as policymakers, entrepreneurs, and researchers should consider the local economic, cultural, and regulatory environments when applying the insights from this research to other contexts. It is also essential to recognize that the saturation of traditional foreign markets and the subsequent internationalization efforts of SMEs from different origins can present varied challenges and strategies, further complicating the direct application of findings across diverse emerging markets (Akbar et al., 2018).

1.5 Outline of the thesis

In the following second chapter, this study begins with a comprehensive review of the existing literature. It explores the relationship between topics such as organizational resilience, Vietnamese SMEs, IT capabilities, organizational dynamic capabilities, and social sustainability, and gives a conceptual map. Subsequently, Chapter 3 provides an in-depth discussion of the research methods applied in this study and will elaborate on the research paradigm, data types used, and theoretical models. Chapter 4, which follows, summarizes the empirical findings and provides a basis for answering the research questions. The subsequent discussion chapters will combine previous literature and data analysis results to effectively achieve the four research goals provided previously. Finally, it summarizes the main research conclusions in the last chapter and provides insights and recommendations for SMEs in Vietnam, as well as present limitations and suggestions for future studies.

CHAPTER 2: LITERATURE REVIEW

In the section, we provide the main theoretical frameworks of our study, which are the resource-based view (RBV) and dynamic capabilities view (DCV) to understand how firms, particularly SMEs, leverage their unique resources and capabilities to sustain competitive advantage in a dynamic environment. Our review particularly focuses on four key factors: dynamic capabilities, IT capabilities, organizational resilience, and social sustainability. We explore how dynamic and IT capabilities enhance organizational resilience, which in turn positively impacts social sustainability and propose five corresponding hypotheses

2.1. The resource-based view theory (RBV)

We draw upon the resource-based view (RBV) of the firm as a conceptual framework to examine how SMEs maintain and develop their competitive advantage through organizational capabilities (Barney, 1991). The RBV has emerged as one of the most widely accepted strategic management theories, offering profound insights into the sources of competitive advantage and the role of resources and capabilities in driving firm performance (Ferreira & Fernandes, 2017; Kellermanns et al., 2016; Newbert, 2007). The fundamental premise of the RBV theory posits that a firm's competitive advantage relies on its resources and capabilities (Barney, 1991; Wernerfelt, 1984). By employing resources as the primary unit of analysis, the theory seeks to explore the degree to which an organization is able to maintain a position of competitive advantage over time (Lockett et al., 2009). Over the years, scholars have agreed that firms endowed with valuable, rare, inimitable, and non-substitutable (VRIN) resources are positioned to achieve sustained competitive advantage (SCA) (Barney, 1991, 2001; El Nemar et al., 2022; Lin & Wu, 2014). Specifically, valuable resources enable a firm to capitalize on opportunities or mitigate threats from the external environment. Rarity ensures that these resources and capabilities are not commonly possessed by competitors, thereby conferring a degree of exclusivity. Meanwhile, inimitability signifies the difficulty for competitors to replicate or imitate these resources and capabilities, providing a sustainable advantage. Lastly, non-substitutability underscores the irreplaceable nature of these resources and capabilities, making them indispensable for maintaining competitive superiority over the long term (Barney, 1991; Kraaijenbrink et al., 2010; Mahoney & Pandian,

1992). By following the VRIN framework, firms can strategically allocate resources and develop capabilities to remain competitive in dynamic market landscapes. Specifically, companies that explore opportunities based on VRIN resources can secure early-mover benefits in distinct markets and experience ongoing expansion as the market evolves (Finney et al., 2008). Furthermore, these VRIN resources also empower firms to enhance their current offerings and broaden their range of products and services. Although firms with non-VRIN resources might implement identical strategies within their businesses, the inability to complement these initiatives with VRIN resources or to protect the benefits derived from their own initiatives will limit their growth potential in comparison to VRIN-rich firms (Lin & Wu, 2014; Nason & Wiklund, 2018). From the discussion, it can be inferred that in contrast to theories emphasizing external factors for enhancing firm performance, the RBV features the significance of internal resources (i.e. tangible and intangible assets, capabilities, firm attributes, information, knowledge, and competencies) in shaping a firm's ability outperform its competitors in the industry (El Nemar et al., 2022; Madhani, 2010). This argument primarily stems from the understanding that a firm can have control over its internal strengths while possessing limited influence over external factors (Shibin et al., 2020). Consequently, the firm can operate effectively and remain competitive by utilizing its unique strategic resources and organizational capabilities that set it apart from direct competitors over time and thereby, achieving the SCA (El Nemar et al., 2022).

In this research, we also utilize the RBV to understand how resource utilization can vary from one firm to another and lead to diverse outcomes. There is also a growing interest in exploring how the RBV can be applied differently to clarify the complex issues to propose specific strategies for firms in the volatile business landscape (Do et al., 2022; Shibin et al., 2020; Sipos et al., 2023). Particularly, the application of the RBV presents differences among firms and their competitors, especially between large corporations and SMEs (Terziovski, 2010). In addition, the significance of a particular resource can only be evaluated relative to those possessed by competitors, as only a competitively distinctive and superior capability can generate economic value (Makhija, 2003). Thus, we suppose that understanding the discrepancy in the RBV application among firms holds particular significance for the SME community because they can benefit from aligning resources with their unique position, rather than adopting strategies tailored for their counterparts in a different context.

The first difference in the outcome of the RBV application lies in the business scale, in which the RBV in larger firms, where multi-divisions are present, traditionally involves the strategic allocation of resources across various business units or divisions (Beamish & Chakravarty, 2021; Markides & Williamson, 1996). This perspective differs from small, undiversified firms where the RBV is typically directed toward the firm level. It implies that the decision-making process and resource utilization in these firms act as a cohesive unit instead of waiting for consensus among multiple divisions as in large corporations, leading to differences in performance (Beamish & Chakravarty, 2021). Besides, larger firms, compared to SMEs, are supposed to have control over abundant resources, which include financial capital, technology, and human capital. One advantage lies in the notion that large corporations, which are often less constrained by financial capital, tend to have larger bargaining power in relation to their suppliers or customers (Makhija, 2003). With these resources, they could heavily invest in research and development, acquisitions, and diversifications to maintain their market positions and be more resilient amidst turbulence. In contrast, as smaller firms operate with limited resource pools, they often find themselves with fewer options available, highlighting the need to prioritize resource efficiency and focus on leveraging their core competencies to compete effectively in the market (Do et al., 2022). Similarly, a former study concluded that insufficient financial resources can severely limit SMEs in enhancing production, upgrading management systems, and ensuring their survival in the future (Salikin et al., 2014). Furthermore, since VRIN resources are more commonly found and utilized by large firms, SMEs have to actively seek out and capitalize on alternative sources of competitive advantage rather than relying on traditional ones to both attain and sustain such advantage effectively over their larger competitors (Darcy et al., 2014). In short, the RBV differentiates the strategies for resource-limited SMEs based on their business scale, which is recombining available resources and acquiring new resources (Woschke et al., 2017).

The second difference comes from the distribution of resources. Previous studies indicate that resource allocation is heterogeneous among firms, and that the value of particular resources varies across organizations (Barney, 1991; Rangone, 1999). Certain firms may possess abundant resources in one area but be deficient in others, leading to unique resource profiles and competitive advantages. The RBV has been employed to clarify the competitive heterogeneity, denoting as “enduring and systematic performance differences among relatively close rivals” (DeSarbo et al., 2007; Peteraf & Bergen, 2003). To be more specific, even between the most closely matched

competitors have distinct combinations of resources and capabilities (Barney, 1986; Wernerfelt, 1984), leading to different competitive positions and influencing their performance outcomes. Moreover, only certain resources and capabilities may contribute to the SCA, as their impact on actual performance can vary (DeSarbo et al., 2007). This implies the need for firms to strategically identify and prioritize those resources and capabilities that are most likely to confer the SCA in their specific context (Srivastava et al., 2001). Briefly, the distribution of resources represents a fundamental difference among firms, influencing their competitive positions and strategic capabilities and leading variations in firms' performance outcomes (Lockett et al., 2009). Therefore, we argue that even the closest SMEs competing with each other within the same industry can also draw different outcomes due to the different bundles of resources they possess.

The third difference concerns how a firm can utilize its resources and capabilities effectively. Although the RBV states that firms possessing VRIN resources are better positioned to maintain their competitive advantage over their rivals (Barney, 1991), it is essential to recognize that merely possessing these resources is not sufficient (Song et al., 2007). We argue that a firm's competitive advantage and outcomes also depend on how the firm strategically deploys, integrates, and leverages its resources and capabilities to create value and achieve organizational objectives. Capabilities are widely characterized as complex combinations of skills and accumulated knowledge that empower firms to coordinate activities and leverage their assets (Lin & Wu, 2014; Peteraf & Bergen, 2003). The empirical results from previous studies indicate that simply possessing or acquiring additional resources and capabilities, whether through external acquisition or internal development, does not always lead to improved performance. Instead, what matters is how effectively a firm deploys its limited resources, maximizes its capabilities, invests in strengthening its existing infrastructure, and supplements its capabilities in relevance to their counterparts (DeSarbo et al., 2007; Nath et al., 2010; Peteraf & Bergen, 2003). The effective utilization of resources and capabilities entails strategic decision-making, innovative thinking, and dynamic adaptation to changing market conditions. It requires firms to not only recognize the value of their resources and capabilities but also harness their potential in an innovative way to create unique value propositions, differentiate their offerings, and capture market opportunities (Madhani, 2010; Teece et al., 1997). In summary, the three abovementioned differences in the RBV application underlie the potential variations in resource utilization outcomes among firms. This

also emphasizes the necessity for distinct strategies in business management to assist SMEs in sustaining their SCA and enhancing resilience in the face of challenges.

2.2. Organizational Resilience

Over the years, the concept of organizational resilience has been examined and developed considerably; however, there is little consensus regarding the precise definition of resilience and its constituent elements in general (Duchek, 2020; Ma et al., 2018; Vercio et al., 2021), resulting in various interpretations of this concept in different contexts (Annarelli & Nonino, 2016). Several studies highlight the fragmented nature of research on organizational resilience across multiple research streams, and each of these research areas has developed its own definitions, conceptualizations, frameworks, and measures of resilience (Conz & Magnani, 2020; Duchek, 2020; Linnenluecke, 2017). Traditionally, resilience has been viewed primarily through the lens of recovery, and it has been defined as an organization's ability to quickly rebound from unexpected, specific incidents that expose vulnerabilities and necessitate distinct crisis management strategies (Chowdhury et al., 2019; Somers, 2009; Trieu et al., 2023). Following this definition, resilience enables organizations to proactively develop measures to address the consequences of unforeseen disturbances while promptly implementing necessary actions to recover (Ozanne et al., 2022). Meanwhile, other research characterizes resilience as the firm's ability to respond to unexpected situations and to capitalize on those situations that may pose a risk to an organization's continuity (Duchek, 2020; Lengnick-Hall et al., 2011; Ponis & Koronis, 2012). This perspective emphasizes the importance of building robust systems and processes that can withstand shocks and quickly adapt to changing circumstances (Saad et al., 2021). It also places a greater emphasis on the firm's proactive readiness to manage adversity rather than solely addressing the aftermath of disruptions (Williams et al., 2017). However, we suppose that these separate definitions have not fully covered organizational resilience from a comprehensive perspective, as the abilities to rebound from disruptions and to prepare to mitigate them before they occur are equally important. Therefore, it is necessary to further clarify both perspectives and conceptualize resilience in a way that better aligns with the purpose of this study.

On the one hand, organizations have recently been facing an unprecedented escalation in both the severity and diversity of challenges that threaten their operations and stability, especially the

COVID-19 pandemic that brought disruptions and transformations of a magnitude never before experienced (Huang et al., 2020; Rai et al., 2021). If we adopted the traditional view, organizational resilience would be framed passively as a response to crisis scenarios, characterized more as a pattern of behavior rather than a rigid sequence of predefined steps or activities (Lengnick-Hall & Beck, 2003; Somers, 2009). This conventional notion of resilience focuses primarily on assisting firms in defending themselves when disruptions arise but neglects the possible aspect of preparing the firm to effectively handle similar future events and even entirely different ones that may demand a distinct set of strategies. On the other hand, former studies have highlighted the importance of understanding how firms can not only react to disruptions but also enhance themselves to remediate adversity before it arises (Van Der Vegt et al., 2015; Williams et al., 2017). This perspective implies a more dynamic understanding of resilience, one that views organizational resilience as extending beyond mere survival. It comprises the recognition of potential risks and the proactive implementation of measures to foster the growth of the firm amidst turbulence (Longstaff, 2005; Somers, 2009). For instance, organizational engagement in risk preparedness, employee training, and the firm's ability to respond promptly and constructively have been demonstrated as proactive measures that contribute to the firm's resilience during crises (Koronis & Ponis, 2018). In addition to the traditional view of resilience, several studies have advocated for incorporating the concept of active resilience which refers to a deliberate effort to enhance the organization's ability to effectively cope with unexpected challenges (Trieu et al., 2023; Wildavsky, 1988). Hence, considering the two perspectives, we conceptualize organizational resilience as an attempt to enhance the capacity to address problems stemming from unexpected disruptions, endure adversity, and proactively implement measures to mitigate their impact.

In this study, our focal point lies in investigating how firms enhance organizational resilience within the context-specific framework of turbulent environments, thereby clarifying the role of resilience as both mechanism and outcome in the process of organizational development. In organizational development, strategy research often delves into understanding the factors that account for performance variations among competitors, as well as how individual actions and their interactions shape firm outcomes (Molina-Azorín, 2014). This perspective revolves around the strategic decisions made by organizations in response to changes in their environment. It primarily focuses on competition and highlights how organizational resilience is crucial not only for survival but also for achieving successful growth and gaining a competitive advantage in turbulent times

(Hillmann, 2021). In connection with the RBV, fostering resilience to attain a competitive edge will emerge as the pivotal success factor for firm performance (Beuren et al., 2022; Trieu et al., 2023) because it signifies that an organization can effectively interpret its environment, identify opportunities, and reallocate its resources more swiftly than its competitors. Besides, other studies state that resilience has been often examined in connection with various events and closely linked to the attributes of the environment, such as its dynamic, complex, and turbulent nature (Hillmann & Guenther, 2021; Kurtz & Varvakis, 2016; Richtnér & Löfsten, 2014). For instance, research suggests that organizational resilience acts as a mechanism that leverages the advantages of social capital, team empowerment, and goal interdependence, translating them into effective organizational functioning during times of crisis (Shani, 2020). By framing organizational resilience within turbulent environments, these studies portray it as a mechanism that not only enables firms to overcome challenges but also provides stability, allowing them to foster change and thrive in such contexts (Bingham & Davis, 2007; Farjoun, 2010). In contrast, other scholars view organizational resilience as an observable outcome, instead of a mechanism, of several antecedents (i.e. resources and capabilities) that can be used to leverage resilient performance (Ilseven & Puranam, 2021; Su & Junge, 2023). They have pointed out many antecedents, such as organizational characteristics and resources that appear to be significant contributors to resilience (Cotta & Salvador, 2020; Iftikhar et al., 2021; Pal et al., 2014). Another study supposes that resilience arises from the strategies and actions implemented by organizations, manifesting as an outcome that can be observed in the aftermath of adversity (Hillmann, 2021). Similar perspectives posit that resilience, rather than being a mechanism itself, actually emerges as an outcome resulting from various underlying mechanisms (Acquaah et al., 2011; Sheffi & Rice Jr, 2005). In this study, organizational resilience is viewed as an outcome that emerges after firms utilize their capabilities to respond to changes and disruptions amidst turbulence. Simultaneously, it is recognized as a crucial antecedent that enhances firms' performance and provides them with a competitive advantage that could help them uphold their commitment to stakeholders (i.e. employees and the local community). Building on the above literature review, we view organizational resilience as both an outcome of organizational capabilities and an antecedent promoting social sustainability among SMEs.

2.3 Organizational capabilities and relation to organizational resilience

Organizational capabilities are typically perceived as socially constructed entities, structured within networks of knowledge-sharing relationships among individuals and firm assets, and these capabilities are collectively geared towards efficiently and effectively accomplishing specific tasks (Spanos & Prastacos, 2004). From the RBV perspective, organizational capabilities are examined as a firm's ability to oversee managerial processes that influence how the firm makes decisions and exercises controls to sustain competitive advantage (Garengo & Bernardi, 2007; Teece et al., 1997). The focus of the RBV aligns with managerial literature in recognizing organizational capability as a significant source of competitive advantage, regardless of its specific definition (Collis, 1994). Accordingly, organizational capabilities serve as the foundation for companies' competitive advantages and their ability to adapt to internal and external changes and are essential for firms to efficiently resolve their organizational challenges (Inan & Bititci, 2015). There are various organizational capabilities relating to business management, and previous research categorized them into different groups to serve specific purposes. For instance, Collis (1994) proposed four categories of organizational capabilities. Following his paper, the first category involves the capacity to execute the fundamental functional activities of the firm. The second category includes dynamic improvements of the firm's activities. The third category revolves around recognizing the inherent value of other resources or devising innovative strategies ahead of competitors. The fourth category, termed 'higher order' or 'meta-capabilities,' mentions the ability to learn how to learn. Meanwhile, to examine the organizational capabilities in the context of micro-enterprises, Inan and Bititci (2015) categorized these capabilities as either dynamic or operational. Similarly, Zahra et al. (2006) distinguished dynamic and substantive capabilities in which each has different antecedents and delivers different outcomes among new versus established companies. Other scholars selected managerial, capital, and output-based capabilities to examine how these capabilities connect to core employees and competitive advantage (Lopez-Cabrales et al., 2006). Drawing from these studies, we argue that the categorization and selection of organizational capabilities can differ considerably depending on the specific objectives of each research. In other words, researchers may prioritize different capabilities based on their specific research questions, theoretical frameworks, or practical applications.

In this study, we chose to explore the literature on IT capabilities and dynamic capabilities and their interrelation with the resilient performance of SMEs for two reasons. Firstly, the current business landscape, characterized by rapid technological improvements, highlights the growing importance of information technology as a key capability in driving firm performance (Lyver & Lu, 2018). There is a widespread acknowledgment that IT critically contributes to a firm's ability to identify and respond to market changes (Tallon, 2008). As the common IT-based resources can be assessed more easily nowadays, competitive advantage and business success are now lying on the ability to deploy and integrate them into daily operations, especially amidst market turbulences (Ilmudeen, 2022). In today's business environment, IT has become an essential component of both operational and strategic management for the majority of firms (Wang et al., 2012). Besides, IT capabilities are supposed to enable SMEs to enhance their resilience (Mandal, 2021) by providing the tools and resources necessary to adapt to changes and disruptions in the digital era. Assessing IT capabilities helps organizations understand how well-equipped they are to adapt to changes and disruptions in their environment to become more resilience, which in turn, contributing to the society. Furthermore, IT capabilities can inherently include the IT-related aspects of other capabilities, such as IT-enabled knowledge management capability (Mao et al., 2016) and IT human capability (Park et al., 2011). Therefore, scrutinizing IT capabilities can also provide insights into other relevant capabilities to a certain extent. Secondly, in considering capabilities and resilience amidst external pressures, several scholars advocate for incorporating the dynamic capabilities view alongside the RBV (Trieu et al., 2023; Wilden & Gudergan, 2015), as the RBV alone may not fully capture the intricate nature of resilience (Do et al., 2022). In the context of SMEs operating in volatile markets and resource constraints, the insights from dynamic capabilities are critical for explaining how they can compete with each other by leveraging and mobilizing their current resources. In other words, it is crucial to explore how SMEs navigate resource disadvantages (Lee et al., 1999) in a dynamic environment rather than solely relying on acquiring unique resources, which can pose significant cost challenges for them. Therefore, this paper focuses on investigating the roles of IT capabilities and dynamic capabilities as primary targets in leveraging resilience and social sustainability.

2.3.1 Dynamic Capabilities View (DCV) and organizational resilience

The Dynamic Capability View (DCV) is recognized as one of the most vibrant approaches within the field of strategic management over the past decades (Fernandes et al., 2017; Vogel & Güttel,

2013). It was initially introduced by Pisano and Teece (1994) and further expanded by Teece, Pisano, and Shuen (1997) to address the constraints identified in the RBV theory (Cavusgil et al., 2007). As discussed in the previous section, the RBV emphasizes the importance of organizations utilizing VRIN resources and developing their capabilities to navigate challenges and obtain competitive advantage (Barney, 1991). However, the conventional perspective of the RBV fails to define capabilities effectively amid dynamic changes and uncertain environments (Chowdhury & Quaddus, 2017). Following the research of Hart (1995), the challenges stemming from the natural environment are among the most crucial factors shaping the new paradigm of resource development and organizational capabilities, the perspective that is not included in the RBV. In addition, critics have pointed out that the RBV lacks precision in identifying the specific competencies needed for success and does not adequately address the process of renewing essential resources when needed (Bromiley & Rau, 2016; Trieu et al., 2023). Given that resilience often correlates with external pressures or triggering events like COVID-19, the RBV, being a static theory, may not fully explain the complicated nature of resilience, encompassing both its precursors and consequences, on its own (Do et al., 2022). Besides, scholars have long been arguing that embracing a dynamic capability approach presents a promising chance to understand how smaller firms can achieve resilience (Martinelli et al., 2018). Historically, the academic focus has predominantly centered on large corporations and multinational enterprises (Teece, 2007), leaving small entrepreneurial ventures comparatively understudied (Zahra et al., 2006). Therefore, the DCV could be well applied in this study to bridge these gaps as it can strategically organize suitable resources and capabilities to adapt to context-specific changes, effectively addressing the unique aspects of various contingencies (Chowdhury & Quaddus, 2017; Eisenhardt & Martin, 2000).

The fundamental principle of the DCV is a company's ability to assimilate, develop, and adapt organizational resources through its operations, which enables it to address environmental fluctuations and uncertainties while promoting innovative strategies for value creation (Cavusgil et al., 2007; Teece et al., 1997). These capabilities are grounded in competencies, procedures, structures, decision-making frameworks, and specialized fields that encourage and facilitate the identification (sensing) and exploitation (seizing) of opportunities to reshape (transform) their capabilities (Teece, 2007). Besides, the DCV examines how private enterprises generate and seize opportunities for wealth creation amidst environments characterized by rapid technological

advancements (Teece et al., 1997). It comprises recognizing strategic organizational processes, adjusting resources (by integrating, acquiring, and divesting), and determining the trajectory to achieve competitive advantage (Chowdhury et al., 2019; Teece et al., 1997). The primary difference between the viewpoints of the RBV and DCV is the source of competitive advantage. Specifically, the DCV argues that competitive advantage is derived not only from a firm's distinctive resources like in the RBV but also from the resource configurations forged through dynamic capabilities (Cavusgil et al., 2007). Furthermore, the dynamic capability is crucial in identifying competitive advantage under environmental volatile circumstances that are not differentiated under the RBV (Wu, 2010). Table 1, adopted from the study of Cavusgil et al. (2007), presents a basic comparison between the RBV and DCV.

Table 1: A basic comparison between the RBV and DCV

	Resource-based view (RBV)	Dynamic capabilities view (DCV)
Conceptualization	Heterogeneous resources	The particular processes within organizations through which managers adjust their resource base
Resources or Capabilities	Idiosyncratic	Commonalities with some idiosyncratic details
Consideration of dynamic environments	No	Yes
The source of competitive advantage	From VRIN resources and capabilities	From valuable somewhat rare, substitutable DCs Depends on resource configurations developed from DCs

Source: Cavusgil et al. (2007)

Dynamic capabilities have been proven to facilitate the adaptation of existing resources and capabilities to allow firms to maintain a competitive edge in turbulent markets (Kurtz & Varvakis, 2016; Teece, 2007). Specifically, they serve as the mechanism through which SMEs mobilize critical resources essential for the resilience-building process (Ozanne et al., 2022).Dynamic capabilities help firms optimize their resource allocation by identifying areas where resources can be reallocated or repurposed to better align with shifting market demands or strategic priorities (Haarhaus & Liening, 2020; Lengnick-Hall & Beck, 2016). Existing research strongly indicates that the readiness, response, and recovery aspects of organizational resilience are bolstered by the

ability to sense, seize, and reconfigure capabilities in unforeseen circumstances (Ozanne et al., 2022). As dynamic capabilities are established on both internal organizational processes and external stakeholder relationships (Bhamra et al., 2011), they can be leveraged to improve organizational readiness, response, and recovery (Ozanne et al., 2022). Furthermore, dynamic capabilities are poised to foster a culture of innovation and creativity within organizations (de Aro & Perez, 2021; Ferreira et al., 2021). We suppose that by encouraging experimentation, learning, and knowledge sharing, dynamic capabilities enable organizations to develop new products, services, and business models that can help them navigate uncertainty and seize new opportunities. Many former studies have revealed positive associations between various dimensions of dynamic capabilities and adaptability and agility which can also serve as indicators of organizational resilience of entrepreneurial firms (Akpan et al., 2022; Prayag et al., 2024; Teece, 2016). For instance, Kurtz and Varvakis (2016) posit that dynamic capabilities promote a competitive edge by strengthening resource management and adaptive capabilities, motivating SMEs to attain resilience. Similarly, Mikalef and Pateli (2017) proved that information technology-enabled dynamic capabilities allow firms to mobilize resources, rearrange priorities, and generate new values that are suitable for building resilience. Based on the above discussion, we proposed the following hypothesis:

H1: Dynamic capabilities have a positive relationship with organizational resilience.

2.3.2 IT capabilities and organizational resilience

The concept of IT capabilities, or IT-based capabilities, involves the strategic management and utilization of IT resources, alongside complementary assets and competencies, to fulfill organizational objectives and achieve competitive advantages (Cepeda & Arias-Pérez, 2019; Trieu et al., 2023; Venkatraman et al., 1993; Zhou et al., 2022). According to the RBV, IT capabilities represent a meta-level construct that illustrates how IT resources are deployed to support and enhance various business processes. (Dutta et al., 2005; Neirotti & Raguseo, 2017). Specifically, this capability typically includes a combination of several IT-related factors, such as technical proficiency, IT management competencies and infrastructure, IT practices, IT proactive stance, and so on (Chakravarty et al., 2013; Lu & Ramamurthy, 2011). These factors collectively form an overall IT capabilities construct (Tallon, 2008). In other studies, IT capabilities refer to application and infrastructure deployment, information management, and fostering behaviors conducive to

innovative information usage in order to respond to the changing business landscape (Bharadwaj et al., 2009; Marchand et al., 2001). The traditional literature predominantly perceives IT units as the primary source of IT capabilities within the organization, taking responsibility for the design, implementation, and maintenance of IT infrastructure to streamline the business processes (Li & Chan, 2019; Pavlou & El Sawy, 2006). However, given the limited business scale of SMEs, we advocate for viewing IT capabilities as an integral part of overall business operations rather than confining them to a separate IT unit. In the context of SMEs, where resources are often scarce, they may not have the resources to hire many IT specialists (Kim & Jee, 2007) or establish an additional business division for managing IT; thus, recognizing IT capabilities as intrinsic to core business functions is crucial (Trieu et al., 2023). By embedding IT capabilities throughout the organization, SMEs can employ technology faster to optimize processes, improve agility, and remain competitive in their respective markets (Tallon, 2008).

Prior studies categorized IT capabilities into two types: internally-oriented and externally-oriented (Brosig et al., 2020; Maia & Frogeri, 2023; Neirotti & Raguseo, 2017; Stoel & Muhanna, 2009). Accordingly, internally-oriented IT capabilities are centered on utilizing IT systems to manage and optimize the flow of information within a firm's internal operations, while externally-oriented ones assist firms in navigating and influencing their external environment. Given that SMEs are often more vulnerable to external environmental pressures compared to larger enterprises (Kim & Jee, 2007), directing the focus of their IT capabilities towards external risks holds promise for enhancing their ability to proactively identify and mitigate risks within dynamic and turbulent environments. Moreover, externally-oriented IT capabilities serve as essential prerequisites for firms seeking to pursue exploratory paths in response to market dynamics and capitalize on emerging opportunities (Neirotti & Raguseo, 2017). Since this perspective aligns well with the context of this study, we adopt the notion of externally-oriented IT capabilities to understand how SMEs can proactively identify and mitigate risks in a dynamic and turbulent environment.

IT capabilities serve as a fundamental driver for firms to not only detect but also effectively respond to both market opportunities and challenges (Trieu et al., 2023). It has the potential to confer a competitive advantage upon certain firms, with the manifestation of value creation varying depending on the unique organizational and environmental context (Neirotti & Raguseo, 2017). Strategic utilization of IT can offer significant advantages to SMEs, which often face greater susceptibility to external environmental factors compared to larger corporations and contend with

limited operational resources (Kim & Jee, 2007). Indeed, companies with superior IT capabilities have been proven to outperform those that lack and fail to leverage such capabilities effectively across industries (Bharadwaj, 2000; Chae et al., 2014). Previous studies reveal that IT capabilities enable SMEs to enhance operational efficiency and flexibility (Banker et al., 1990; Lucas Jr & Olson, 1994; McAfee, 2002; Mishra et al., 2013). Particularly, when IT infrastructure is integrated into increased levels of collaboration between firms, it can enable comprehensive information exchange and streamline disorganized upstream operations (Gosain et al., 2004). With the business environment becoming increasingly complex and globalized, SMEs face greater exposure to supply chain disruptions, such as natural disasters and geopolitical tensions. In the event of an unexpected disruption in the supply chain, firms and their partners relying on IT to efficiently share pertinent knowledge have been found to be able to promptly adjust purchase planning and material delivery (Gu et al., 2021). IT capabilities can also assist them in enhancing information processing to briskly respond to disruptions (Mandal, 2021) and maintain resilience as a competitive edge (Wided, 2023). In a broader view, we suppose that by leveraging information technologies, such as cloud computing, automation, and enterprise resource planning (ERP) systems, SMEs can facilitate their business processes, reduce operational costs, and improve resource allocation. This operational efficiency not only enhances productivity but also enables SMEs to respond quickly to changing market conditions and customer demands. Besides, IT capabilities can promote better decision-making and strategic planning in SMEs (Temtime et al., 2003). By exploiting data-driven insights, SMEs can make informed decisions, identify emerging trends, and anticipate market changes, which in turn, enables them to better prepare for potential disruptions and respond flexibly (Xie et al., 2022). Moreover, adopting a proactive IT approach empowers businesses to establish and implement innovations swiftly through rapid reconfiguration and restructuring of processes and resources (Cepeda & Arias-Pérez, 2019). This represents a crucial facilitator for firms to maintain resilience amidst disruptive market conditions and compete with their competitors. A recent systematic review of literature spanning from 2016 to 2020 reveals the important role of information technology management, particularly driven by artificial intelligence (AI), in bolstering the resilience of firms' business models (Mao et al., 2021). In general, IT capabilities, such as advanced infrastructure and technical expertise, empower businesses to protect themselves from diverse disruptive market scenarios and maintain resilience (Bustinza et al., 2019). Particularly, in the context of the COVID-19 pandemic, multiple studies have also

highlighted the critical role of firms' ability to utilization of IT in bolstering their resilience amidst the challenges, which suggests a direct correlation between these two factors (Forliano et al., 2023; Giotopoulos et al., 2022; Heredia et al., 2022; Trieu et al., 2023). From an opposing perspective, we suppose that it is crucial to consider the factors that may hinder SMEs from adopting information technology (IT) to become more resilient. Those factors could be business scale (Yao et al., 2003), CEO characteristics (Thong, 1999), and competiveness of environment and information intensity (Thong & Yap, 1995). However, these studies did not directly link the utilization of IT with a firm's resilience. Furthermore, we have not been able to find any articles that reject the causal link between these two factors, indicating a weak theoretical framework to argue that IT capabilities are not relevant to organizational resilience. Thus, the positive viewpoint is deemed more appropriate. Based on the above discussion, we proposed the following hypothesis:

H2: IT capabilities have a positive relationship with organizational resilience.

2.4. Social sustainability

Sustainability in SMEs encompasses a strategic framework that integrates economic viability, environmental responsibility, and social equity, facilitating their adaptation to global sustainability demands. According to Baporikar (2018), SMEs are vital for equitable development and innovation in sustainable solutions, indicating their crucial role in promoting economic growth and sustainability simultaneously. Another study elaborates elaborate on the challenges Asian SMEs face in adopting corporate sustainability practices, suggesting a model to enhance their strategic management of sustainability issues (Das et al., 2020). In addition, Shields and Shelleman (2015) proposed a structured approach for SMEs to integrate sustainability into their strategies, recognizing the acceleration in global reporting requirements and the need for proactive sustainability considerations. Together, these studies highlight the diverse approaches SMEs across the globe are adopting to embed sustainability into their operations, stressing the importance of innovative practices, strategic supply chain integration, and comprehensive management frameworks to navigate the complexities of sustainable development effectively.

Built-in social sustainability and Corporate Social Responsibility (CSR), are two ideas that have reached considerable impression and this has happened within the contemporary years. In this study we review the notions of social sustainability and CSR together with their role within the

framework of Carroll's Pyramid with each segment weighed accordingly. A framework based on the Pyramid of Carroll's Corporate Social Responsibility (CSR) describes four levels of responsibility which companies must provide for the society. The Carroll's pyramid which was subsequently published in 1991 is made up of economic, legal, ethical, and societal obligations (Carroll, 2016). The base of the pyramid is economics, implying that the economic responsibility lies in the need to be profitable for businesses that provide goods and services demanded in the society. As the legal responsibilities of companies are to comply with the laws and regulations, they have to pay attention to abide them. Ethical concerns deal with behaving in an open, fair, and responsible way, keeping in mind that the law may not compel to do that. One of the responsibilities of an organization, at the top of the pyramid, is forming the basis for activities that deal with the promotion of human welfare and the development of goodwill (Carroll & Shabana, 2010).

Carroll's pyramid basically illustrates the extent of CSR as businesses have responsibilities which extend far beyond the limited sphere of merely complying with laws and only making profits. It states that businesses should not only generate profits but also be legitimate societal entities that actively take part in societal development (Wang et al., 2016). Through their awareness of ethical and philanthropic responsibility, business can raise their reputation, gain the trust of stakeholders, and end up improving their worth for the company as well as society at large (Carroll, 2016). The elements of Carroll's Pyramid have a direct relationship with strategic management principles which shape the social sustainability motion. Social sustainability centers around having a fair and equitable society, which contributes towards better living conditions of the current generation and also for present and future generations (Eizenberg & Jabareen, 2017). Companies do that by ensuring that all these responsibilities are met: they supply jobs, respect laws and regulations, behave ethically and even engage in activities that better the society at large.

Sustainability of social welfare, which is the core of the sustainable development that focuses on social aspects of sustainable development, is integral to the sustainable development. As Dempsey et al. (2011) define, "social sustainability is a process that creates places where people can live and work, being successful and ensuring their well-being, by understanding in their locations what people truly need". It involves the issues like equity of social classes, social cohesion, quality of life (Vallance et al., 2011). Certainly, Corporate Social Responsibility Profitability, the most basic economic obligations underpin the whole pyramid, as businesses become extinct if they cannot be

profitable to survive. Legal obligations are like capturing of this complex modern world which comes with several guidelines, norms, and statues. Besides all of this, ethical responsibilities also entails the concept of just and fair which stirs far from legal requirements. Although social sustainability and CSR are overlapping in aspects where they both focus on social issues, there are differences as well. Social sustainability is the view of social problems more as the actual situation in communities that would benefit from the well-being of the whole society. CSR, as opposed to responsibilities of businesses, is mainly interested in the social responsibilities of enterprises. While social sustainability can encompass and include philanthropy, it deepens well beyond to issues of social equity or community cohesion that might be overlooked in CSR (Hutchins & Sutherland, 2008).

In this study, we center our exploration of the relationship between organizational resilience and social sustainability on the perspectives of employee well-being and job creation. Organizational resilience is the ability to withstand and adapt to challenges, and to maintain core business in a crisis (Lengnick-Hall et al., 2011). Resilient SMEs, by virtue of their ability to adapt and evolve, are better positioned to address and integrate social sustainability into their business practicesFurthermore, as discussed by Nyika et al. (2020), the integration of rural SMEs into policy-making economic activities reveals how these businesses can be integrated into wider economic policies to promote resilience and sustainable development in local communities. By integrating the operations of SMEs with sustainable development strategies, these businesses can better address socio-economic challenges to become more resilient and contribute to more equitable growth and social sustainability.

The engagement of resilient SMEs with their local communities and stakeholders is particularly noteworthy. Such firms understand the importance of building strong relationships and networks, which are vital for mutual support during turbulent times. These connections enhance the firm's social capital and contribute to its social sustainability by promoting equity, inclusivity, and community cohesion (Kot & Dragon, 2020). Empirical evidence supports the linkage between resilience and social sustainability. For instance, studies by Torugsa et al. (2013) demonstrate that resilience practices in Australian SMEs not only help them weather adverse conditions but also enhance their social sustainability initiatives. These firms utilize their resilience to foster a supportive and thriving environment, thereby contributing to societal well-being. Furthermore, the research of Rai et al. (2021) directly pointed out that resilience, which includes robustness,

recoverability, and crisis anticipation, has a connection with social sustainability. Based on the support of the above arguments, we thus propose the following hypothesis:

H3: Organizational resilience has a positive relationship with social sustainability.

2.5 Organizational capabilities, resilience, and social sustainability:

We have so far contended that organizational capabilities, including IT capabilities and dynamic capabilities, enable SMEs to reinforce their resilience, which in turn, supports them to uphold social sustainability. Still, the extent to which these capabilities contribute to the advancement of social sustainability directly or through organizational resilience has remained uncertain. We argue that while organizational capabilities play a crucial role in driving sustainability initiatives within SMEs, they may prove insufficient to fully fulfill the firm's commitments to its stakeholders, particularly employees and local communities, in the face of turbulence. In other words, organizational resilience acts as a mechanism through which capabilities could contribute to maintaining a firm's social sustainability.

Many former studies have examined the relevance of sustainability from the perspective of organizational capabilities (Akram et al., 2018; Amui et al., 2017; da Cunha Bezerra et al., 2020). Particularly, these capabilities signify firms' ability to *redesign* and *adjust* operations to align with their sustainability-oriented strategies (Annunziata et al., 2018). This includes integrating sustainability considerations into various aspects of organizational functioning, such as product development and supply chain management, and *mobilizing* corresponding resources to implement those strategies. Explicitly, organizations prioritizing these sustainability-oriented strategies often contend with heightened unpredictability, particularly within unstable environments (Beske, 2012). The study of Amui et al. (2017) suggests that in order to deal with these unpredictabilities, real progress toward sustainable practices necessitates *changes* and *adaptations* to dynamically *readapt* over time. This line of reasoning suggests that resources and capabilities aimed at sustainability should initially strengthen the firm's ability to navigate changes and adapt to the environment, which emphasizes the importance of resilience as a connection between organizational capabilities and sustainability.

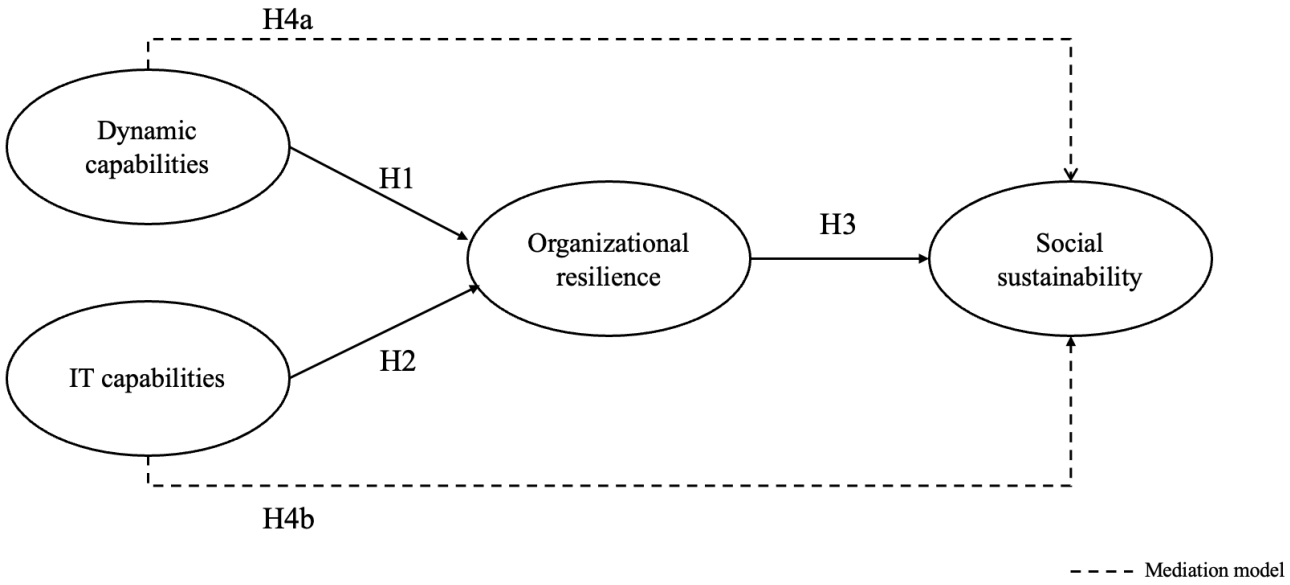
Schrettle et al. (2014) in their research addressed the sustainability challenge by identifying the key drivers of sustainability, which they categorized into two groups: exogenous (external) and

endogenous (internal) drivers. Accordingly, the exogenous factors include environmental regulation, societal values and norms, and market drivers, while endogenous drivers comprise culture, strategies, and resources. Notably, external factors are supposed to have a direct influence on a firm's sustainability. For instance, environmental policies and regulations set forth by governments and supranational organizations are crucial sustainability drivers that firms must adhere to (Baum & Gross, 2017; Lankoski & Thiem, 2020; Porter & Linde, 1995), and failure to comply may result in legal consequences and negative impacts on reputation and image (Schrettle et al., 2014). Besides, market drivers can also influence a firm's sustainability through the market environment that the firm operates within, and stakeholders involved in these mechanisms include consumers, suppliers, competitors, and shareholders (Rivera-Camino, 2007). By responding to a firm's sustainability initiatives and innovation, consumers can create demand and urge the firm to perform its sustainability commitment based on certain values and norms (Delmas & Toffel, 2004). In contrast, internal drivers do not seem to directly lead to sustainability. Particularly, in order to achieve sustainability, a strategy oriented towards sustainability must be dynamic and innovative to serve as a competitive factor aligned with adaptation and resilience (Amui et al., 2017). Similarly, in research examining the direct and indirect drivers of sustainability within an organization, Tsai et al. (2013) posit that external constructs directly affect sustainability, but the internal constructs alone are not able to do so. Furthermore, they pointed out several indirect factors that drive organizational sustainability through competitive advantage, which include dynamic capabilities and information technology. This leads to a suggestion that firms have to leverage their competencies or capabilities to create or maintain a competitive advantage, which can subsequently lead to sustainability (Tsai et al., 2013). As discussed previously, resilience can be viewed as a source of competitive advantage within SMEs (Webb & Schlemmer, 2006), implying that organizational resilience serves as a bridge connecting indirect factors, such as capabilities, with sustainability. In summary, while IT capabilities and dynamic capabilities are essential enablers of organizational resilience, their impact on enhancing a firm's social sustainability is indirect. They must first contribute to building organizational resilience, which then enables the firm to effectively address social challenges and pursue sustainable initiatives. Hence, organizational resilience serves as the critical link between IT capabilities, dynamic capabilities, and the enhancement of a firm's social sustainability. Based on the above discussion, we proposed the following hypotheses:

H4a: Organizational resilience mediates the relationship between dynamic capabilities and social sustainability.

H4b: Organizational resilience mediates the relationship between IT capabilities and social sustainability.

Image 1: Research model



Source: Authors proposed

CHAPTER 3: METHODOLOGY

In the following section, we will present an explanatory sequential mixed methods approach, with a focus on the quantitative phase. This approach integrates quantitative and qualitative data to provide a comprehensive understanding of the relationships between organizational capabilities, resilience, and social sustainability. The research begins with a quantitative phase involving designing a cross-sectional survey to collect data for testing the proposed hypotheses. This is followed by a qualitative design, data collection and analysis through interviews. Finally, we address concerns about reliability and reliability, research ethics, and limitations in the chosen methods.

3.1 Research approach and general research process

In this thesis, we implemented the explanatory sequential mixed methods approach, with a focus on quantitative approach, to examine the relationships between organizational capabilities, resilience, and social sustainability. In general, a mixed methods research approach involves collecting both quantitative and qualitative data, utilizing a specific procedure or design, integrating the two forms of data within the design, and drawing conclusions about the insights emerging from the combined databases (Creswell & Creswell, 2017, p.5). Meanwhile, the explanatory sequential design, known as two-phase design, involves a two-phase data collection process where the researcher gathers quantitative data in the first phase, analyzes the findings, and then utilizes them to design (or expand upon) the second, qualitative phase (Creswell & Creswell, 2017; Ivankova et al., 2006). We present below three reasons why we selected the explanatory sequential mixed methods, with a priority given to the quantitative stage, as our main approach for this thesis.

Firstly, the chosen method was considered appropriate for this thesis because it enables a comprehensive examination of the research problems raised initially, ones that cannot be fully elucidated by implementing either a quantitative or qualitative method alone. According to Creswell and Clark (2017), the fundamental premise behind mixed methods is that the integration of quantitative and qualitative approaches may offer a deeper understanding of research problems than using either approach in isolation. Specifically, quantitative analysis provides a detailed

evaluation of patterns through numerical data, while qualitative methods offer more profound insights that cannot be obtained from the quantitative survey (Leavy, 2022). Considering the objectives of this study, as we aimed not only to test the relationships between constructs but also to clarify how SMEs can utilize their capabilities to enhance their resilience and maintain social sustainability in practice, the quantitative method alone would not suffice to address the latter objective. Thus, when employed together, quantitative and qualitative methods complement each other, enabling us to obtain a more comprehensive analysis by leveraging the strengths of each approach (Greene & Caracelli, 1997; Ivankova et al., 2006).

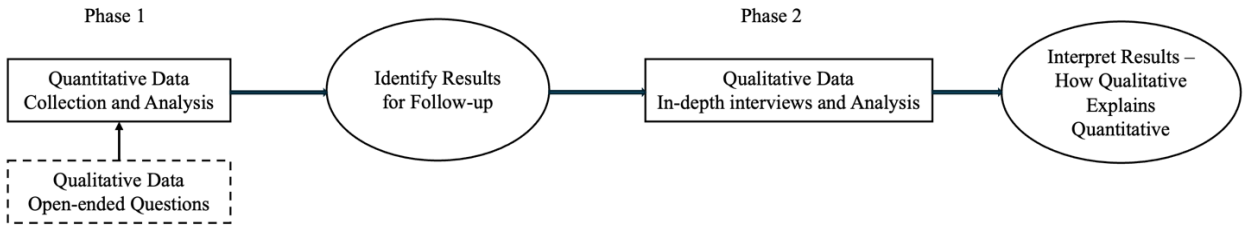
Secondly, we selected this approach based on the assumption that the qualitative phase could explain the deviating results obtained from the quantitative phase, which is in line with the suggestion of Creswell and Creswell (2017). In addition, the sequential nature of this approach allows for a dynamic interaction between the quantitative and qualitative phases, which serves the purpose of "explaining" and "expanding" (Creswell & Creswell, 2017; Gelo et al., 2008). Specifically, after encountering unexpected quantitative results from one of our proposed hypotheses (i.e. the relationship between IT capabilities and organizational resilience), we deliberately supplemented our numerical data by conducting follow-up interviews with selected respondents who had previously participated in the quantitative phase to explain the unusual findings. This iterative process will enhance the depth and richness of not only the unexpected outcomes but also the research findings in general, ultimately leading to more informed conclusions (Greene & Caracelli, 1997).

Thirdly, mixed methods grant us the flexibility to assign more weight to one method or prioritize one over another to effectively address the research problems. Research method priority refers to the extent to which a researcher focuses on either the quantitative or qualitative (or both approaches equally) during the data collection and analysis process in the study (Creswell et al., 2003; Ivankova et al., 2006). Furthermore, researchers can decide on this priority either at the study design stage before data collection begins or later during the data collection and analysis process (Ivankova et al., 2006). Reflecting on this study, our initial intention was not to conduct in-depth interviews; rather, we only included some open-ended questions in the quantitative survey to gain more practical insights. It was the unexpected results drawn from the quantitative data analysis and contradicting answers from open-ended questions that prompted us to intentionally incorporate a formal qualitative phase into our research process to further explain the issue. Additionally,

although we implemented mixed methods, we prioritized quantitative as the core approach and decided to give it more weight. This decision is justified by several former studies (Creswell & Clark, 2017; Creswell & Creswell, 2017; Ivankova et al., 2006; Tracy, 2019). The logic behind this decision is that we built our model based on previous similar studies and intended to test the proposed hypotheses in the context of SMEs in Vietnam, demonstrating a strong quantitative orientation. Also, Creswell and Creswell (2017, p.16) suggested that the explanatory sequential mixed methods design is suitable with those projects starting with quantitative approach. Besides, only when the proposed hypotheses in the model were statistically validated, could the responses from the respondents in the subsequent qualitative phase be considered valid and reliable to be integrated into the final results. Based on the above reasonings, we concluded that the explanatory sequential mixed methods approach, with an emphasis placed on the quantitative phase, was the most suitable method to support our study.

In general, the research process of this study begins with the quantitative approach, which involves data collection through surveys and subsequent analysis. During this phase, four open-ended questions were included to gain practical insights that cannot be captured through quantitative data alone. The quantitative results were then compared with the responses from the additional questions, and follow-up actions were undertaken accordingly. In the next step, the qualitative phase was initiated with in-depth interviews conducted with representatives from selected companies. These enterprises were chosen from the larger quantitative sample gathered previously (see below). The qualitative data was then analyzed separately. Finally, the qualitative results were used to interpret the quantitative findings, leading to the final integrated outcomes. This whole process is illustrated in Image 2.

Image 2: The general research process of this study



Source: Adopted from Creswell and Creswell (2017) with minor adjustments

3.2 Research design

3.2.1 Quantitative design

Survey design

The primary objective of the quantitative approach is to test and confirm the five proposed hypotheses regarding the relationships among the selected constructs. In order to do so, we designed a cross-sectional survey that can be completed by a single respondent at one specific time (Creswell & Creswell, 2017; Rindfleisch et al., 2008). The main purpose of the survey is to collect primary data in numerical form to examine the relationships among the four proposed constructs (IT capabilities, dynamic capabilities, organizational resilience, and social sustainability) and the mediating role of organizational resilience. According to Creswell and Creswell (2017), apart from cross-sectional design, a survey can be formed in a longitudinal way with data collected over a period of time. However, since we did not aim to observe changes and compare differences over time due to time constraints, designing a longitudinal survey was not ideal and necessary. Hence, the cross-sectional one is more suitable.

The survey begins with questions regarding general information about the companies and the respondents, covering details such as the company name, respondent's name, company size, annual revenue, business sector, years of operation, number of employees, and the main region of operation. The second part of the survey comprises 19 statements for evaluation, or items, related to the four target variables of interest: IT capabilities, dynamic capabilities, organizational resilience, and social sustainability. For these questions, we used a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to assess all multi-item constructs. All four factors were operationalized using reflective measurements adapted from previous studies with some adjustments to better align with the business landscape in Vietnam and the context of this thesis. Additionally, we included four open-ended questions to gather additional insights; however, these questions were optional, and respondents provided answers on a voluntary basis. The initial version of the survey was written in English and then translated into Vietnamese. The survey was subsequently sent to two company representatives and two academic experts (one of the academic experts received the English version), to verify the meanings and ensure the wording's accuracy before being distributed to other companies. Details of the questions are provided in Appendix B.

Dependent variable

Social sustainability is the dependent variable of this study. This construct encompasses various dimensions that have evolved and developed over time, leading to several assessment frameworks (Atanda, 2019; Dempsey et al., 2011). As discussed previously, in this study, our focus is on employee well-being, a fair working environment, and job creation for the local community. Therefore, we adapted the measurement scale for social sustainability from the research of Rai et al. (2021). Their study assessed social sustainability in the context of the COVID-19 pandemic (market turbulence) in India (an emerging economy), which is relatively similar to ours. Specifically, the original scale in their study included nine items. However, considering differences in research background and the overlapping content of the items, we decided to remove four items and slightly adjust the other five to make them align with our study's focus. The qualitative question included in this construct is to explore how the company could support the well-being of employees and the wider community.

Independent variables

Dynamic capabilities and IT capabilities are the two independent variables in this research. The measure for the construct "dynamic capabilities" was adopted from the study of Nguyen et al. (2021). The measurement scale consists of five items that can evaluate a firm's ability to mobilize and configure resources effectively to deal with different situations. In addition, it evaluates how well the firm adapts to changing situations through its knowledge and skills, and how well it applies the best practices in the industry to enhance performance. Meanwhile, the measurement scale for IT capabilities was taken from the research of Trieu et al. (2023). This scale also comprises five items designed to measure a firm's IT skills and investment in its IT infrastructure. Notably, we did not make any major adjustments to these two measures, as they were originally developed in the context of market turbulence in Vietnam, which is similar to our research context. Additionally, two open-ended questions were added to gain further insights into "how the firm creates resilience to stay competitive within the industry" and "how it leverages IT capabilities to foster its resilience to disruptions."

Mediating variable

Organizational resilience acts as a mediating variable connecting the two capability factors with social sustainability. The measures for this factor include one item taken from the study of Rai et

al. (2021) and three items from the research of Trieu et al. (2023). Particularly, These studies were conducted during the COVID-19 pandemic, and the authors directly linked market turbulence to the pandemic. However, in our study, we aim to examine organizational resilience in the context of market turbulence in general, without reference to any particular event. Hence, we slightly adjusted the items by replacing the term “COVID-19” with the term “disruption”. These items evaluate how well an SME can improvise solutions and prepare itself to flexibly deal with unexpected disruptions in the future. The added qualitative question in this part is “How is your organization building resilience against unforeseen disruptions?”

3.2.2 Qualitative design

The qualitative approach in this study serves two main purposes: (1) to address the research question: "How do SMEs leverage their capabilities to enhance resilience and social sustainability?" and (2) to explain the deviating results regarding the relationship between IT capabilities and organizational resilience, as observed in our quantitative data analysis. To fulfill the first objective, we integrated four open-ended questions into the quantitative questionnaire and distributed them concurrently during the quantitative phase (see Table 10 in Appendix A). By adding these questions, we were able to gather responses that go beyond numerical values, focusing on aspects like "how" and "why" (Saunders et al., 2009). As noted by Creswell and Creswell (2017), the combination of qualitative and quantitative designs can enhance measures, scales, and instruments by integrating feedback from participants who received the instruments. Thus, these questions could address the concern that respondents might need to express and explain their ideas beyond the confines of the five-point Likert scale used in the quantitative phase, enabling them to freely provide detailed, more accurate responses. The responses to these questions would provide insights to broaden our understanding of the relationships among the four constructs and offer a practical perspective on how SMEs can enhance their resilience and social sustainability by utilizing capabilities.

However, we perceived that the responses gathered from the open-ended questions alone were not sufficient to address the second objective. Hence, we decided to conduct interviews with selected companies that had previously taken part in the quantitative phase. The multiple-case approach was implemented in the qualitative phase as it is deemed to provide a stronger basis for explaining or exploring a phemonenon compared to a single case study (Yin, 2009). Multiple case studies

enable researchers to compare individual cases, represent a variety of characteristics and extremes to enhance depth, and comprehend a broad phenomenon without sacrificing the uniqueness of each individual case study (Baxter & Jack, 2008). In the multiple-case approach, researchers examine several case studies to understand both differences and similarities, and they can analyze data both within individual case and across cases (Gustafsson, 2017). Furthermore, multiple case studies can yield either contrasting results for expected reasons or similar results across the studies (Yin, 2003). In the qualitative phase, as we aimed to explain the deviating results regarding the IT-OR relationship, single case study would not be able to deliver comprehensive and diverse insights. Therefore, the multiple case study approach is appropriate for our study to seek explanation for the rejected hypothesis.

One major consideration in the follow-up qualitative design is whether researchers can compare the qualitative results obtained from interview questions with the statistical results from quantitative phase (Creswell & Creswell, 2017). Creswell and Creswell, in their book, particularly advised against this practice, noting that the qualitative databases represents a subset of the quantitative data, resulting in overlapping samples. This implies that using qualitative insights to compare with quantitative outcomes is not optimal, but those insights should focus precisely on the themes that require “further explanation.” In addition, Creswell and Creswell (2017) stated that instead of confirming or agreeing, the results from qualitative phase in the explanatory sequential mixed methods should represent an expansion of the quantitative results, providing further refinement of information. In practice, we paid particular attention to this aspect when formulating the interview questions. Specifically, our qualitative questions were to “explain” deviating quantitative results but not to "confirm" the proposed hypotheses. Taking these factors into account, we designed a set of questions (see Appendix B) particularly centered around the rejected relationship between IT capabilities and organizational resilience (H2), rather than using interviews to clarify the other direct positive relationships (H1 and H3) that have been already confirmed by statistical data. These questions were later examined by an academic expert and tested with the first two companies. Since no issues were observed with the question list, further adjustments were not necessary.

3.3 Research sampling and data collection

3.3.1 Quantitative phase

a. Target population and sample size determination

Identifying the target population for research, particularly in business and management studies, is a common and crucial practice (Bell et al., 2022; Short et al., 2002). We conducted a survey aimed at SMEs operating across different industries in Vietnam to test the proposed hypotheses. The rationale for selecting SMEs in Vietnam can be supported by the following two reasons. Firstly, SMEs are considered the backbone of many emerging economies, including Vietnam. They play a crucial role in job creation, innovation, and economic growth (Aremu & Adeyemi, 2011; Tahir et al., 2018). By focusing on SMEs, the research can provide insights into how these key economic actors navigate challenges and contribute to sustainability. Furthermore, as mentioned previously, SMEs often face unique challenges that are different from those of larger corporations (Kim & Jee, 2007). They have limited resources, fewer capabilities, and less resilience to external shocks. Hence, studying how SMEs manage to maintain resilience and sustain social sustainability despite these challenges can offer valuable lessons for both SMEs themselves and policymakers. Secondly, there is now an increasing interest in strategic management and business research in Vietnam (Do et al., 2022). This growing interest is particularly notable due to the country's unique standards for conducting business and maintaining social sustainability, which differ significantly from those of developed countries. As highlighted by Do et al. (2020), Vietnam operates under a socialist-oriented market economy, setting it apart from other emerging markets. This distinct economic model combines elements of socialism with market-oriented policies, leading to a unique business environment characterized by opportunities and different market turbulences. Therefore, selecting SMEs in Vietnam for this study offers diverse perspectives and valuable insights into how SMEs of the country can enhance their resilience and promote social sustainability, which is in line with our research purposes.

We adhered to the definition provided in Decree 80/2021/ND-CP issued by the Vietnamese government in 2021 to determine which companies qualify as SMEs and are thus eligible to participate in this study. According to this decree, the classification of an SME depends on several criteria, including the business sector, number of employees, and annual revenue. In general, we followed the following definition: SMEs are companies with no more than 200 employees and

total annual revenue of less than 200 billion Vietnamese Dong VND (equivalent to approximately 8 million USD). However, depending on the business sector, the threshold for the number of employees could be raised to no more than 300 people, and the one for annual revenue shall be no more than 300 billion VND (equivalent to around 11.8 million USD). Considering the variations in definition and other previous studies with the same context (Do et al., 2022; Trieu et al., 2023), we implemented two sampling constraints, which are (1) the target firms shall have no more than 200 employees and (2) generate less than 200 billion VND of revenue per year.

In terms of sample size determination, Hair et al. (2019) supposed that studies using partial least squares structural equation modeling (PLS-SEM) can achieve reliable results with small sample sizes, especially when the models involve many constructs and items. Specifically, the '10-times rule' method is a commonly used approach for estimating the minimum sample size in PLS-SEM (Hair et al., 2011). Accordingly, this method is based on the principle that the sample size should exceed 10 times the maximum number of inner or outer model links pointing at any latent variable in the model (Barclay et al., 1995; Hair et al., 2011; Kock & Hadaya, 2018; Latan, 2018). Following this principle, the minimum sample size required for this study is 20, regardless of the strength of the path coefficients. However, other scholars argue that although this "rule of thumb" provides a general guideline, the requirement on the minimum sample size should take into account the statistical power of the estimates (Hair Jr et al., 2021a; Kock & Hadaya, 2018). Therefore, we decided to conduct a *statistical power analysis* using G*Power software to assess the statistical power and establish the minimum sample size for this study (Creswell & Creswell, 2017; Faul et al., 2009). We used default settings, where the effect size f^2 and the significance level were respectively set at 0.15 and 0.05, but adjusted the number of predictors (independent variables) to 2 and power level to 80%, as most researchers typically suggest this rate (Hair Jr et al., 2021a; Onwuegbuzie & Collins, 2007). The calculation indicates that we need a minimum sample size of 68 to conduct this research (see Image 4 in Appendix A). In total, we collected 81 valid samples, which is sufficient for the subsequent data analysis phase.

b. Data collection

The data collection process began with identifying key informants who would receive and be eligible to complete the survey. In order to obtain evaluations that accurately address the research objectives, we have identified individuals in management positions within SMEs in Vietnam as

key informants. These individuals possess a comprehensive understanding of their companies' resources, capabilities, and other relevant strategic management practices, which enables them to evaluate the firms' resilience and social sustainability initiatives effectively. Before reaching out to the companies, we conducted a pretest of the preliminarily structured questionnaire with two academic experts and two representatives from selected SMEs within our network to check for relevance, errors, biases, or ambiguities. The survey was then transformed into the online version by using Google Forms, and the link was sent to 1200 companies in our pre-defined list via email and other social connections and online platforms. By adopting this approach, we expect to effectively access a broader range of SMEs while minimizing costs, physical travel, and paper-based surveys. Moreover, online survey grants participants autonomy and convenience to fill in their respective surveys (Do et al., 2022), while protecting their confidentiality as they will not need to show up or disclose any personal information against their will. Simultaneously, we can track progress and execute follow-ups as needed to ensure the timeline of data collection. Besides, we also employed the snowball sampling technique by asking the participants to send the provided links to other managers within their social networks. The snowball sampling method, which is common in qualitative research but also works well in quantitative research, relies on referrals from initial participants to identify additional potential participants (Faul et al., 2009). Through this cost-efficient approach, we gained access to more organizations relevant to our study, allowing us to collect many samples within a limited timeline. Besides merits, this technique also has limitations, as we had minimal control over the chain-referring process. Moreover, because individuals tend to refer others with whom they share traits, this sampling method is prone to sampling bias. However, since SME managers, whom we targeted, are often difficult to reach, the snowball sampling technique helped us build trust with them through referrals, increasing our chance of gathering more data and connecting for follow-up interviews if necessary. Therefore, despite its limitations, the benefits of snowball sampling outweigh its drawbacks in this particular research context, and we considered it an appropriate tool for collecting quantitative data. In Section 4, we conducted a statistical test to detect common method bias (CMB) in our structural model, and the result indicated that bias is not a problem in our quantitative phase. Besides, we also conducted a pilot test with the initial 30 responses to assess the internal consistency of items, refine questions, or provide clearer instructions (Creswell & Creswell, 2017). Since the pilot test results revealed no issues regarding internal consistency, reliability, or discriminant validity, we

made no further adjustments to the survey content. In total, we collected 90 samples, of which 81 were considered valid for the analysis step.

The sample for this study comprised a diverse range of enterprises, categorized by ownership, years of operation, number of employees, annual revenue, respondents' job positions, and business sectors. Notably, private enterprises constituted the majority at 59.3%, followed by foreign-invested enterprises at 34.6%. Regarding years of operation, most enterprises had been operational for less than 5 years (32.1%) or between 11 and 20 years (29.2%). In terms of workforce size, a significant proportion of enterprises employed fewer than 20 employees (37%), while another substantial segment had 101 to 200 employees (32.1%). When examining annual revenue, 42% of the enterprises earned less than 20 billion VND. The respondents' job positions were predominantly in middle management (33.3%) and lower management (38.3%). The business sectors represented were diverse, with a strong presence in services (51.9%) and information technology (19.8%). In collecting the sample we tried to make the demographic profile as representative as possible to ensure that the research sample covers a wide range of businesses, enabling it to achieve its aim of enhancing the robustness and generalisability of the findings. The profiles of companies and respondents are presented in Table 11 in Appendix A.

3.3.2 Qualitative phase

a. Selection of case companies

In the qualitative phase, we selected the companies from those that had previously completed the quantitative survey to participate in the interview process. There are two reasons justifying our decision. Firstly, the deviating results of the quantitative phase serve as a base for the qualitative phase to seek further explanation. According to Creswell and Creswell (2017), if a researcher aims to delve deeper into explaining the quantitative results, it is logical to choose the qualitative sample from individuals who joined in the quantitative phase. Furthermore, Creswell and Creswell (2017) caution that using different research samples for each phase of the study in sequential mixed methods could lead to invalid results. Thus, having the individuals that participated in both phases ensures that the qualitative data complements and enriches the quantitative results. Secondly, selecting qualitative samples from the pool of previous participants ensures a level of familiarity and continuity in the research process. This familiarity can facilitate smoother transitions into the qualitative phase, reducing the need for extensive explanations or introductions. In practice, all

participants had a level of familiarity with the concepts explored in the quantitative survey, such as disruption, IT capabilities, social sustainability, and resilience. This prior exposure enabled the interviewees to quickly grasp the relevant concepts when reminded them, thus we could delve directly into discussing these topics without spending additional time on detailed explanations.

We employed purposeful (purposive) sampling technique to choose the companies for the interviews. Purposeful sampling is a commonly utilized method in qualitative research to identify and select cases that provide rich information, maximizing the efficiency of limited resources (Patton, 2002). This comprises determining and choosing individuals or groups who possess significant knowledge or experience related to the phenomenon of interest (Palinkas et al., 2015). We presented subsequently three reasons for choosing purposeful sampling for our qualitative phase. Firstly, this sampling technique allowed us to obtain specific insights into the deviating results regarding the relationship between IT capabilities and organizational resilience by focusing on information-rich cases with limited resources (Duan et al., 2015). Specifically, we attempted to first reach out to those companies that had responded to our open-ended questions in the survey distributed during the quantitative phase and invited them to participate in the interviews to further clarify their informative answers. Secondly, purposeful sampling enabled us to choose specific companies for two groups based on their evaluation of IT capabilities, with one group serving as a control group for the other (the method for case selection will be explained shortly below). This decision aligns with a suggestion from Onwuegbuzie and Collins (2007), who recommend that if the objective is not to generalize to a whole population but to gain insights into an issue, the researcher can intentionally choose individuals, sub-groups, and settings for this stage to enhance understanding of the underlying phenomenon, which is, in our case, the rejected hypothesis in the previous quantitative phase. Finally, by using this sampling technique, we were able to approach suitable participants while capitalizing on their availability and willingness to participate. Apart from knowledge and experience, Bernard (2017) emphasized the significance of being accessible and open to participation, as well as the ability to effectively communicate experiences and opinions in a clear, expressive, and thoughtful manner. This approach addresses one of our ethical considerations, which prioritizes the voluntary participation and consent of the invited interviewees. Apart from benefits, this sampling technique also contains a few limitations, such as risks of bias. In an effort to reduce bias, we tried to run a statistical test to obtain a threshold for

company selection. Both limitations and details on the statistical test will be presented in the subsequent parts.

In terms of criteria for case selection, as we drew qualitative cases from previous quantitative samples, the first criterion of being an SME in Vietnam has been fulfilled. We then selected seven companies and divided them into two groups. Two of the chosen companies were from a group with higher differences between the summed mean scores of IT and organizational resilience (OR), while the remaining four were chosen from a group with lower differences. The decision to interview companies in two groups was made to ensure that there are differences in the role of IT capabilities for organizational resilience between businesses that evaluated two different directions in the previous quantitative phase. If companies in two different groups shared the same opinion regarding IT-OR relationship when asked the same set of questions, then the interview results would be deemed unreliable. Therefore, dividing the groups of interview companies based on statistical threshold can be considered a method to increase the reliability of interview results while minimizing bias in selecting interview companies.

In a previous article of Ivankova et al. (2006), the authors utilized group means and summed mean scores to select interviewees. We opted to adopt this for our study with some modifications. Firstly, since our study focused on the relationship between IT and OR, involving two factors, we could not use a single summed mean score. Instead, we chose to calculate the difference between the two summed mean scores of IT and OR to better present this relationship. Secondly, in a later phase, Ivankova et al. (2006) conducted a cross-tabulation process to select interviewees within one standard error of the mean. We perceived an advantage of this additional test; however, due to the small sample size of our study, the additional test would extremely limit our options, leading to the more lengthy process. We consider this point as one of our limitations and will present it in detailed later.

To determine the threshold for the group division, we first calculated the summed mean scores of the five IT items and four OR items for each of the 81 participants. Then, we computed the difference between these two sets of summed mean scores for each participant and took the absolute values of these differences. Finally, we divided the sum of these absolute values by the total number of participants (81) to obtain an average value of the difference between IT and OR

(0.896). Based on that, we divided the companies into two groups: one above and one below the threshold (See Tables 2 and 3).

We subsequently contacted companies in each group to invite them for interviews, subject to their availability and willingness to participate. As a result, we invited two companies from Group A and five from Group B. The unequal numbers of chosen companies from the two sets were explained by our objective of seeking insights into why we obtained a rejected hypothesis which indicates no positive relationship between IT and OR (See Section 4). Additionally, the two firms from Group A were utilized as the control group to ensure the validity of the questionnaires. Although they are not the primary focus of our study, insights from this group, which were expected to differ from those of the other, could help further explain the deviating result.

Table 2: Selection of companies for interviews based on the average difference of summed mean scores

Total number of companies	81
Average difference between IT and OR's summed mean scores	0.896
Group A - Number of companies above the average value	32
Group B - Number of companies below the average value	49

(Source: Authors calculated and summarized)

Regarding sample size, there is no agreement on the minimum number of cases or interviewees required for quanlitative research (Brod et al., 2009; Creswell & Poth, 2016). Instead, researchers are suggested starting with a predetermined notion of sample size based on the variability of the target population characteristics, and data collection should be stopped when categories or themes are saturated or no longer have new insights (Guest et al., 2006). Furthermore, as mentioned earlier, the quantitative approach is the primary design of this study and carries more weight than the qualitative phase, which is added to provide further explanation of the results. Therefore, considering these factors, seven case companies were considered sufficient for our research to find out the reasons for the rejected hypothesis. The profile of interviewees is presented in Table 3.

Table 3: Profile of the interviewed companies

No	Group	Size	Business sector	Position of the interviewee	Interview time (mins)	Difference of IT-OR summed mean scores

1	A	M	Gaming	Customer Acquisition Manager	65	0.50
2	A	M	Manufacturing	Business Development Manager	49	0.40
3	B	M	Marketing	Planning Manager	45	2.00
4	B	S	Consulting	Country Manager	31	2.00
5	B	S	Manufacturing	Business Development Mananger	30	1.65
6	B	M	Logistics	Vice Director	40	2.75
7	B	S	Manufacturing	Business Development Manager	30	1.20

(Small: S, Medium: M, Source: Authors summarized)

We were aware of a few limitations in our qualitative approach. Firstly, the purposeful sampling method was susceptible to research bias due to its non-probability sampling nature. However, given the availability of participants, this sampling technique provided an optimal solution at the time this study was conducted, allowing us to quickly approach suitable interviewees to address our research objectives. In an effort to mitigate bias as much as possible, we utilized the difference of summed mean scores as a statistical tool to select companies for interviews, as described above. Secondly, the small sample size in the quantitative phase also posed challenges in choosing companies for the follow-up phase. While the average difference score helped us reduce bias in company selection, it was not the most ideal technique due to the limited sample size. Thus, we recommend that future studies collect a larger quantitative sample (at least double the minimum sample size suggested by statistical test in the quantitative phase) and perform nonparametric test and multi-group analyses, which would better explain the group selection, reduce bias, and enhance validity of the qualitative phase through statistical confirmation.

b. Data collection

We conducted semi-structured interviews to gather insights from seven representatives holding managerial positions in SMEs across various industries in Vietnam. These interviewees are also the ones who filled in the quantitative survey. Semi-structured interviews are the favored data collection method when the research aim is to comprehend the participant's individual perspective rather than achieving a generalized understanding of a phenomenon (McGrath et al., 2019). While other data collection methods have their place in qualitative research, a key advantage of semi-structured interview is their ability to keep interviews focused while allowing the researcher the freedom to explore relevant ideas that arise during the interview (Adeoye-Olatunde & Olenik,

2021). In practice, the flexibility characteristics of semi-structured interviews was deemed critical for our study because it allows us to further explore the unexpected insights from the firms' managers regarding the impact of IT capabilities on their companies' resilience. This type of interview can also be utilized to enrich the depth of quantitative data when employed in combination, as in a mixed methods approach (Adeoye-Olatunde & Olenik, 2021).

After identifying suitable companies for each group (Group A and B), we sent invitation letters to them via email and other online platforms. One of the challenges we encountered was that some SMEs we wished to invite had not provided any personal information for further contact, so we had to rely on the referees from the quantitative phase to connect with representatives from those firms. In order to reduce bias, we did not disclose the reason why they were chosen or the group they would be assigned to. We used a list of questions formerly designed (see Appendix B) as a protocol for our semi-structured interviews, with the option to add questions and probes as needed to further validate the responses to the previous questions. All seven interviews were conducted online via Zoom, with the duration ranging from 30 mins to more than an hour (see Table 3). The online setting allowed us to connect more conveniently and saved on travel costs, particularly due to differences in locations. Six interviews were conducted in Vietnamese, while one was conducted in English, as most of the interviewees preferred to speak in their native language to express themselves more confidently and share additional insights. The data recording procedure (i.e. notes, audio and/or video recording) was clearly informed to the interviewees beforehand and all of them were aware and approved us to record the interview sections.

3.4 Data analysis

3.4.1 Quantitative data analysis

We implemented the partial least squares structural equation modeling (PLS-SEM) technique with SmartPLS software to analyze collected data and conduct path analysis of the proposed research model. The structural equation modeling (SEM) examines and analyzes the structural connections among a group of constructs. Of which, certain constructs might stand for concepts that can't be directly observed, like depression or quality of life, and are instead deduced from other constructs that are directly observed, known as indicator or manifest variables (Riou et al., 2016). There are two SEM techniques: (1) covariance-based SEM (CB-SEM) and (2) variance-based partial least

squares (PLS-SEM) (Hair Jr et al., 2017). According to Hair Jr et al. (2017), CB-SEM is mainly utilized for confirming established theories, whereas PLS is an approach to SEM that focuses on prediction. PLS is thus primarily used for exploratory research but is also suitable for confirmatory research. In addition, PLS-SEM resolves the apparent dichotomy between confirmatory and predictive studies, because scholars using this technique expect their models to achieve high predictive accuracy while still placing an emphasis on well-developed causal explanations (Hair Jr et al., 2017; Sarstedt et al., 2021). Moreover, PLS-SEM, which is a nonparametric approach, is considered as a flexible modeling approach that doesn't require strong assumptions regarding distributions, sample size, or measurement scale (F. Hair Jr et al., 2014). Because PLS-SEM doesn't rely on these restrictive distributional assumptions, it's often a more practical choice than CB-SEM (F. Hair Jr et al., 2014).

We chose the PLS-SEM technique for this study for three reasons. Firstly, as indicated by Hair et al. (2019), PLS-SEM is well-suited for "testing a theoretical framework from a prediction perspective," particularly in cases where the structural model is complex and involves many factors. Additionally, it is considered an optimal tool for demonstrating both direct and indirect effects of the independent variables. In our research, we investigated both the direct effects among the four constructs and the mediating role of organizational resilience in the context of SMEs in Vietnam. Hence, PLS-SEM was chosen as the appropriate analytical tool. Secondly, PLS-SEM allows researchers to obtain solutions from a limited sample size without concerns about identification or convergence, a feature that benefits business-to-business research as stated by Hair et al. (2019). Accordingly, PLS-SEM enables researchers to achieve high levels of statistical power even with small sample sizes, and it avoids possible identification issues associated with limited samples (Hair Jr et al., 2021a). These characteristics justify the number of samples collected in our study (81). Thirdly, this method can address issues related to construct reliability and discriminant validity through crucial indicators such as standardized factor loadings, Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), and the heterotrait-monotrait ratio of correlations (HTMT) (Nguyen et al., 2021). Moreover, regarding parameter estimates, PLS-SEM can produce unbiased and consistent results when estimating data from composite models (Hair Jr et al., 2021a), providing reliable indicators to ensure validity and mitigate common method bias. In summary, for the reasons stated above, we assert that PLS-SEM is an appropriate method for conducting the empirical analysis in this study.

3.4.2 Qualitative data analysis

We followed the seven-step qualitative data analysis process suggested by Creswell and Creswell (2017, p.208). Firstly, we made transcripts for all interviews by using a voice-to-text programme, and listened to the recordings again to ensure the accuracy of the texts. Secondly, we reviewed all the transcripts to gain a general understanding of the information. At this stage, we also sorted the respondents' answers according to predetermined questions and organized them into groups of interviewees defined previously. Thirdly, we filtered relevant information, coded the text chunks, and assigned words representing categories or codes. Specifically, we labeled 11 categories track the role of IT capabilities in each company as well as between two groups. We also used the QSR NVivo software to expedite and streamline the text organization process (Creswell & Creswell, 2017). As we conducted the qualitative phase to explain the unusual results from the quantitative phase, we did not have any predetermined codes, and this step was to explore potential codes. We adopted a gradual approach to coding after each interview, as suggested by Creswell and Creswell (2017). This method proved beneficial as it allowed us to explore new insights without being constrained by our initial framework. It also helped us to clarify issues in subsequent interviews. The fourth step involved identifying themes, which are the major findings of the qualitative phase. In this study, our themes can be considered as reasons why IT capabilities do not contribute to enhancing organizational resilience. In general we narrowed down 11 codes into four themes, which are (1) industry and size, (2) internal factors, (3) alternative capabilities and resources, and (4) time lags. Fifthly, we connected the themes, or developed a storyline interpretation, to identify similarities and differences among the firms in each group. In the next step, we analyzed insights and findings from the case studies across the two groups, highlighting contrasting perspectives. Finally, we presented and interpreted the results, including insights from each group and cross-comparisons between them.

3.5 Research quality and ethical considerations

3.5.1 Reliability and validity

In both quantitative and qualitative approaches, numerous threats to validity in the research design can impact the quality and outcomes of a study (Creswell & Creswell, 2017; Morse et al., 2002). Therefore, ensuring the validity and reliability of a research study is crucial for researchers at all

stages of the research process, including designing measurement scales and executing interviews (Bell et al., 2022). It's crucial to identify and carefully control both internal and external threats to validity to ensure they don't compromise the quality of the research (Creswell & Creswell, 2017). Specifically, internal validity refers to the confidence level in which a study's cause-and-effect relationship cannot be attributed to other factors. High internal validity ensures the credibility and trustworthiness of conclusions regarding a causal relationship (Cook et al., 2002). On the other hand, external validity relates to the extent to which the results of a research study can be expected to apply to different settings, and past or future situations (Creswell & Creswell, 2017). Establishing external validity is crucial because it indicates that the findings can be generalized to similar individuals or populations (Johnson, 1997; McDermott, 2011). On the one hand, we found that history could pose a significant threat to internal validity (Campbell & Stanley, 2015). Specifically, the historical occurrence of the COVID-19 pandemic might influence respondents while they fill out the quantitative survey or during the qualitative interviews. To address this issue, we replaced the term "COVID-19" in our measurement scale with the more general term "disruption" and refrained from directly mentioning the pandemic. On the other hand, while we did not identify any significant threats to external validity, we were conscious of the potential for sample selection bias in both phases of our study as we utilized snowball sampling and purposeful sampling methods to collect data. As discussed previously, we implemented many strategies to reduce bias in our research. Firstly, we sought input from both academic experts and companies to ensure the quality and clarity of our measurement scale. Secondly, we mitigated the risk ok ambiguity by providing the definitions of the terms used in the survey to ensure that respondents understand the concepts before evaluating. Thirdly, to guarantee that only our target respondents completed the survey, we included criteria to identify them. For instance, surveys filled out by individuals working at large companies and/or not in management positions were considered invalid and excluded from our analysis. Consequently, we removed nine invalid samples from the total of 90 samples collected in the quantitative phase. Moreover, to enhance data reliability, we requested respondents to disclose at least their first name and company name. Meanwhile, we provided the option to not disclose their email and other personal information to ensure that our data collection would respect their privacy preferences. Finally, we conducted a pilot test with an initial 30 surveys and later performed several tests to ensure the internal consistency, construct validity, and reliability of our study.

In qualitative literature discussing validity, terms like trustworthiness, authenticity, and credibility are frequently mentioned (Creswell & Miller, 2000). As suggested by Creswell and Creswell (2017, p.213), we applied many strategies to ensure the validity of our qualitative phase. First of all, we clarified the bias that could affect our study's validity. Specifically, we were aware that the choice of interviewed companies might fall into the bias trap. To mitigate this, we computed a threshold and chose the companies for interviews based on that. Furthermore, we did not disclose the reason why they got chosen for the interviewing to ensure their sharings would be accurate in accordance with what they had previously done in the quantitative survey. We also included a group that highly evaluated IT capabilities in order to ensure the validity of our interviewed questions. Secondly, we integrated triangulation into the qualitative process. Triangulation entails strengthening and validating collected data by utilizing additional complementary data sources that support the identified information of the research (Creswell & Creswell, 2017). We cross-checked the information provided by respondents by using available reports or company websites to complement and validate their insights. Thirdly, during the interviews, we offered definitions for specialized terms and addressed any concerns raised by the interviewees carefully, assisting them in delivering clear and accurate insights. Lastly, we reviewed our transcripts and contacted the interviewees to clarify points we didn't fully understand, thereby enhancing the reliability and validity of our research.

3.5.2 Ethical considerations

Ethical considerations in this study primarily involve data privacy and obtaining informed consent from participants in both quantitative and qualitative phases. In our survey and interview invitations, we clearly explained the study objectives and how we would handle and utilize participants' information for educational and research purposes. We ensured that all information and data provided by respondents were used with their explicit consent. Before interviews, we reiterated the study's purpose and obtained participants' consent to be recorded. Participation in surveys and interviews was, therefore, entirely voluntary, without any coercion. We were conscious of potential biases arising from the selection process of companies for interviews; however, we prioritized anonymity to respect participants' rights to privacy, as stated in our invitations. Thus, we made extensive efforts to minimize bias and ensure data reliability while keeping data privacy and data protection as our top priorities.

CHAPTER 4: RESULTS

In this chapter, we present our quantitative results and key findings in qualitative analysis. These include the results of measurement model and structural model tests. Briefly, our quantitative results showed strong reliability and validity for the four constructs and indicated no issues regarding discriminant validity and common bias method. In addition, the structural tests confirmed three three hypotheses while rejected the other two. The qualitative results revealed varied perspectives on the significance of IT capabilities in enhancing SMEs' resilience. While some firms acknowledged the benefits of IT integration, others noted minimal impact, highlighting the importance of alternative capabilities such as human resources and leadership in fostering organizational resilience, often more pivotal than IT capabilities in certain operational contexts.

4.1 Quantitative results

4.1.1 Measurement model

The initial stage of assessing PLS-SEM results consists of assessing the measurement model, which is different between reflective and formative constructs (Hair et al., 2019). Multiple tests were performed to ensure the reliability and validity of the measurement model. These tests were carried out in accordance with established methodologies to validate the research findings. According to Hair Jr et al. (2021b), the "rules of thumb" for reporting PLS-SEM measurement results typically comprise four steps, which are evaluating (1) indicator reliability, (2) internal consistency reliability, (3) convergent validity, and (4) discriminant validity.

Firstly, the indicator reliability and its significance are assessed through the indicator loadings. As suggested by Hair et al. (2011), the standardized loadings should exceeed 0.708, as they demonstrate that the construct accounts for over 50% of the indicator's variance. In this study, nearly all obtained factor loadings surpass the recommended threshold (range from 0.716 to 0.956), indicating satisfactory indicator reliability. There is an exception that the indicator loading of the item SS5 in the construct "social sustainability" is 0.542, which is less than the suggested value of 0.708. Several scholars have proposed a practical approach for handling weaker factor loadings (Hair Jr et al., 2021b; Sarstedt et al., 2022). Specifically, instead of immediately removing items with loadings below 0.708, researchers are advised to thoroughly assess the impact of eliminating

items on other reliability and validity measures. Typically, an indicator should be removed from the measurement model if its loading is below 0.4. Nevertheless, indicators with outer loadings between 0.4 and 0.708 should be considered for removal only if deleting them can enhance internal consistency or convergent validity above the recommended threshold, as will be discussed in detail in the subsequent sections. In this study, we found that Cronbach's alpha, Composite Reliability, and Average Variance Extracted (AVE) for the "Social Sustainability" factor already surpassed the required levels; therefore, removing item SS5 was unnecessary. In general, the reliability of all indicators in this research is ensured and 19 items were kept for the next step.

Secondly, Cronbach's alpha and Composite Reliability (CR) are utilized to assess factor reliability and internal consistency. In particular, Cronbach's alpha is a traditional method for assessing the reliability of a measurement model, with the recommended cutoff point being above 0.7 (Taber, 2018). The Cronbach's alpha values for all constructs in this study range from 0.824 (SS) to 0.960 (IT), meeting the recommended level and indicating strong and reliable measurements. However, in the PLS-SEM technique, Cronbach's alpha is considered less precise for measuring reliability due to the unweighted nature of items. Consequently, CR is recommended to address this issue because it does not assume equal weighting for each indicator but is built on the individual loadings of the construct indicators. (Hair et al., 2019; Purwanto, 2021). In this research, we applied the exact (or consistent) value of reliability coefficient (rhoA) suggested by Dijkstra and Henseler (2015). This rhoA value typically falls between the "too-conservative" Cronbach's alpha and the "too-liberal" composite reliability, making it an appropriate compromise between these two indicators (Dijkstra & Henseler, 2015; Hair Jr et al., 2021b). Accordingly, it is recommended that the reliability of a construct be at least 0.70 or 0.6 in exploratory study, and a high composite reliability indicates that all items consistenly measure the same construct (Ab Hamid et al., 2017). Our results indicate that all CR values (rhoA) exceed the compulsory point of 0.7 and even surpass the good threshold of 0.8. This, together with Cronbach's alpha results, confirms that there are no issues related to the reliability of the four constructs in this study.

Thirdly, we evaluated the convergent validity of each construct's measure by calculating the average variance extracted (AVE) for all items within the construct. Convergent validity is a form of criterion-related validity which indicates how effectively an item correlates with other items of the same factor (or the variance of the factor's items) (Carlson & Herdman, 2012; Hair et al., 2019). Specifically, it pertains to how closely the new scale is associated with other variables and

measures of the same factor. The factor should not only correlate with related variables but also should not correlate with dissimilar ones (Krabbe, 2016). In order to pass the test of convergent validity, a construct must achieve a minimum AVE of 0.5 because any AVE value exceeding this threshold indicates that a latent variable could explain 50% or more of the variance of the observed variables that build up the latent one (Fornell & Larcker, 1981). In this study, the AVE indicators for the constructs are 0.597 (SS), 0.743 (DC), 0.736 (OR), and 0.864 (IT), and all exceeded the required level of 0.5. Thus, the convergent validity of the measurement is supported. The results of descriptive data (mean and standard deviation), reliability, and convergent validity tests are presented in Table 4.

Table 4: Results of the measurement model assessment

Constructs	Indicators	Mean	SD	Indicator loadings	Cronbach's Alpha	Composite Reliability (rho_a)	AVE
Dynamic Capabilities	DC1	3.951	0.830	0.844	0.913	0.914	0.743
	DC2	4.000	0.889	0.838			
	DC3	4.160	0.881	0.876			
	DC4	4.049	0.888	0.842			
	DC5	4.025	0.860	0.908			
IT Capabilities	IT1	3.728	1.257	0.954	0.960	0.965	0.864
	IT2	3.802	1.221	0.944			
	IT3	3.630	1.232	0.940			
	IT4	3.531	1.315	0.937			
	IT5	3.395	1.244	0.868			
Organizational Resilience	OR1	4.074	0.979	0.907	0.881	0.893	0.736
	OR2	3.963	0.881	0.856			
	OR3	3.852	0.957	0.821			
	OR4	4.148	0.818	0.844			
Social sustainability	SS1	4.222	0.903	0.831	0.824	0.852	0.597
	SS2	4.506	0.739	0.748			
	SS3	4.309	0.748	0.865			

	SS4	4.469	0.771	0.833
	SS5	3.778	1.030	0.542

(Source: Authors analyzed and summarized)

The final step in assessing a measurement model is to confirm discriminant validity. Discriminant validity ensures that a measurement of a construct is distinct and represents aspects of interest not captured by other measures in a structural equation model (Rasoolimanesh, 2022). If discriminant validity is lacking, it raises doubts about the conclusions drawn from the data, suggesting that results might be influenced by the reuse of a construct within the model (Hair, 2009; Henseler et al., 2015). Previously, Fornell and Larcker (1981) introduced the Fornell-Larcker criterion for evaluating discriminant validity; however, subsequent research has shown that this metric does not perform appropriately, especially when the outer loadings on a construct are only slightly different (Henseler et al., 2015). Therefore, the heterotrait-monotrait ratio (HTMT) of the correlations has been proposed to test the discriminant issue in the measurement model (Henseler et al., 2015). Accordingly, HTMT values nearing 1 suggest a lack of discriminant validity. Employing HTMT as a criterion involves comparing it to a predefined threshold. If the HTMT value exceeds this threshold, it indicates a lack of discriminant validity (Ab Hamid et al., 2017). In many previous studies, the threshold of below 0.85 has been commonly used, though a value up to 0.9 in several cases is also considered acceptable (Hair et al., 2019; Henseler et al., 2015). The highest HTMT value in our study is 0.809, while the others range from 0.485 to 0.786, all well below the recommended threshold. Hence, it can be concluded that the measurement model fulfills the requirement for discriminant validity (The HMTM result is presented in Table 5). In summary, our study's assessment of the measurement model confirms that there are no issues related to reliability and validity, qualifying it for the next phase of structural model testing.

Table 5: Heterotrait-monotrait ratio (HTMT) for discriminant validity

	DC	IT	OR	SS
DC				
IT	0.604			
OR	0.722	0.485		
SS	0.786	0.551	0.767	

(Source: Authors analyzed and summarized)

4.1.2 Structural model

After confirming the validity and reliability of all the constructs through the measurement model analysis, the structural equation model is utilized to assess the relationships between latent variables: dynamic capabilities, IT capabilities, organizational resilience, and social sustainability. According to Hair et al. (2019), the standardized assessment criteria consist of the coefficient of determination (R^2), the blind-folding-based cross-validated redundancy measure (Q^2), and the model's predictive power that is derived from the PLSpredict process. The final results include the evaluation of the significance and relevance of the path coefficients, which are demonstrated through t-statistics and p-values.

The structural relationship analysis began by assessing if the model contains any collinearity issues to ensure that the regression results are free from bias. Multicollinearity is a potential issue in a multiple regression models analysis, and it can occur when highly correlated predictors are tested together in the model (Thompson et al., 2017). Collinearity can often lead to unstable parameter estimation, unreliable models, and poor predictive ability (Cheng et al., 2022), and larger collinearity values can also inflate and distort path coefficients (Kock, 2015). Several scholars have suggested that the complete collinearity test can identify common method bias (CMB) within a model (Kock, 2015; Kock & Lynn, 2012). In this test, the variance inflation factor (VIF) for all proposed hypotheses is the primary indication showing whether a model could be contaminated by CMB. Typically, VIF values above 5 suggest potential collinearity issues among predictor factors, but problems can also arise at lower VIF values of 3 to 5 (Hair et al., 2019). Ideally, if all VIFs from a collinearity test are 3.3 or lower, the model can be deemed free from CMB (Hair et al., 2019; Kock, 2015). In this study, VIF values were computed for each group of exogenous factors to evaluate the existence of collinearity problems. As demonstrated in Table 8, all VIF values obtained for all the latent contructs in our structural model are under 3.3 ($VIF_1 = 1.475$, $VIF_2 = 1.475$, $VIF_3 = 1.000$), indicating that the proposed model does not have any collinearity issues and is free from CMB.

The next step is to assess the coefficient of determination (R^2) of the endogenous variables. This indicator depicts the variance explained in each endogeneous variable and serves as a metric of explanatory power for the proposed model (Hair Jr et al., 2021b, p.118). It can also be considered a measure that expresses a model's goodness of fit (in-sample model fit) and explanatory power.

Specfically, R^2 values can range from 0 (indicating no prediction of the outcome) to 1 (perfectly predict the outcome). Acceptable R^2 values depend on the research context, with an R^2 as low as 0.10 considered satisfactory (Falk & Miller, 1992; Hair Jr et al., 2021c). In this study, the R^2 values of organizational resilience and social sustainability are 0.428 and 0.439, respectively, indicating that explanatory factors in the model explain 42.8% and 43.9% of the variance of these two endogenous constructs. The results of the coefficient of determination are shown in Table 6.

Table 6: Results of the coefficient of determination R^2

In-sample model fit	
R^2 (Organizational Resilience)	0.428
R^2 (Social Sustainability)	0.439

(Source: Authors analyzed and summarized)

In addition to the coefficient of determination, we conducted the PLSpredict/CVPAT test, as proposed by Shmueli et al. (2016) in order to evaluate the predictive power of the statistical model, based on the prediction error and statistics. Specifically, the Q^2 value in PLSpredict is applied to assess the prediction errors of the PLS path model compared to simple mean predictions (Ringle et al., 2024). A positive Q^2 value signifies that the prediction error of the PLS-SEM results is lower than that of simply using mean values. In such cases, the PLS-SEM model demonstrates a larger predictive power (Ringle et al., 2024; Shmueli et al., 2019). As demonstrated in Table 7, we found that Q^2 values of both endogenous factors are positive ($Q^2_{OR} = 0.398$, $Q^2ss = 0.373$), and that all associated indicators yield the Q^2predict values above zero. This indicates that the predictions in our model surpass the most naïve benchmarks which refer to as "the indicator means from the analysis sample" (Hair et al., 2019). After the Q^2 values were confirmed, we evaluated the prediction statistics by comparing the root mean squared error (RMSE) generated by PLSpredict technique (PLS-SEM RMSE) with that of a naïve benchmark (i.e. linear regression model LM-RMSE). According to Shmueli et al. (2019), if the $RMSE_{pls\text{-}sem}$ values of all indicators are smaller than their corresponding $RMSE_{lm}$ values, a model is considered to have a high predictive performance. We perceived that all $RMSE_{pls\text{-}sem}$ values in our meet this criterion, implying that our proposed model exhibits high predictive power.

Table 7: Results of the PLSpredict/CVPAT test

Predictive relevance of model fit

Constructs	Q^2predict	RMSE	Indicators	Q^2predict	PLS-SEM RMSE	LM RMSE
Organizational resilience (OR)	0.398	0.813	OR1	0.346	0.806	0.889
			OR2	0.233	0.784	0.832
			OR3	0.171	0.886	0.940
			OR4	0.369	0.662	0.706
Social sustainability (SS)	0.373	0.872	SS1	0.267	0.785	0.818
			SS2	0.146	0.693	0.728
			SS3	0.232	0.668	0.682
			SS4	0.309	0.650	0.662
			SS5	0.127	0.978	1.030

(Source: Authors analyzed and summarized)

Finally, we performed bootstrapping with 5000 subsamples to assess the significance of the path coefficients through p-values in the structural model. Bootstrapping is a nonparametric method used to evaluate the variability of a parameter. It involves examining the distribution of estimates by resampling from the existing sample data, rather than relying on parametric assumptions to determine the precision of the parameter (Becker et al., 2023). The results from testing the structural model presented that dynamic capabilities have a direct positive relationship with organizational resilience ($\beta = 0.590$, $t = 5.103$, $p < 0.01$), thereby supporting Hypothesis 1. Similarly, the Hypothesis 3 was also accepted ($\beta = 0.668$, $t = 8.999$) with a significant p-value of less than 0.01; therefore, the positive relationship between organizational resilience and social sustainability was affirmed. In contrast, empirical results indicated that IT capabilities does not have direct positive effect on organizational resilinece ($\beta = 0.119$, $t = 0.922$) due to the insignificant p-value ($p = 0.357 > 0.1$); thus, the Hypothesis 2 was rejected.

In terms of indirect effects, the significant influences of dynamic capabilities and organizational resilience on social sustainability suggest the presence of a mediating effect. Specifically, the organizational resilience plays a mediating role in the relationship between dynamic capabilities and social sustainability, with $\beta = 0.394$, $t = 4.000$, and $p < 0.01$, thereby supporting H4a. However, there was insufficient evidence to demonstrate that organizational resilience plays a similar role in the relationship between IT capabilities and social sustainability ($\beta = 0.079$, $t = 0.899$) since the p-

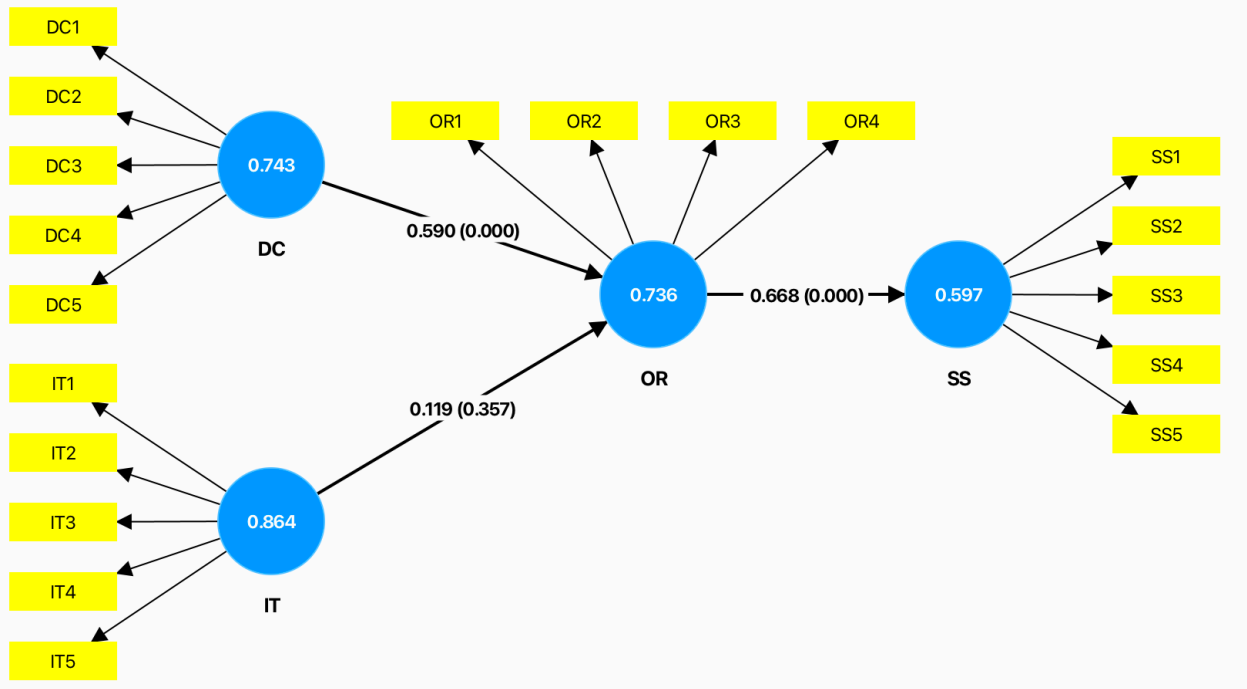
value is 0.369, significantly larger than 0.1. Therefore, we rejected the Hypothesis 4b. All results for structural model tests are presented in Table 8 and visualized in Image 3.

Table 8: Results of the structural model assessment

	Path coefficient	t-values	p-values	Results	VIF
Direct effect					
H1 : DC → OR	0.590	5.103	0.000	Supported	1.475
H2: IT → OR	0.119	0.922	0.357	Rejected	1.475
H3: OR → SS	0.668	8.999	0.000	Supported	1.000
Indirect effects					
H4a: DC → OR → SS	0.394	4.000	0.000	Supported	
H4b: IT → OR → SS	0.079	0.899	0.369	Rejected	

(Source: Authors analyzed and summarized)

Image 3: Structural model



(Numbers shown in the model: Inner model - path coefficients and p-values, Constructs - AVE, Source: Authors calculated by SmartPLS 4.0)

4.2. Qualitative results

4.2.1 Case description:

The aim of this section is to offer readers a concise overview of each company involved in this phase. This information is derived from interviews and general online data about the companies. To maintain anonymity, the names of the companies are not revealed. The first interviewee works as a customer acquisition manager in a gaming company. This medium-sized studio specializes in developing online PvP games for mobile platforms. The second interviewee is a business development manager for the Vietnamese market at a foreign-invested company. This medium-sized firm primarily produces confectionery and toys for children, with additional distribution services. The third company operates in the marketing sector as a medium-sized provider of advertisement services for B2B clients in Vietnam, with the interviewee holding the position of planning manager. The fourth company is a small service provider, offering consulting and trade services for foreign investors interested in Vietnam and neighboring countries, with the interview conducted with the country manager who also heads the Vietnam office. The fifth firm is a small manufacturer specializing in producing and distributing water valves for B2B clients, with the interviewee serving as the business development manager. In the sixth firm, we spoke with a vice director of a medium-sized logistic company operating in a southern province of Vietnam. Lastly, the seventh firm, which is in a small scale, produces and distributes coffee in various forms. We conducted an interview with the company's business development manager. General information can be found in Table 3.

4.2.2 General perspectives on the role of IT capabilities

In general, the insights gathered from seven interviewees representing both groups revealed a diverse range of perspectives on the role of IT capabilities in their respective firms. Besides, the extent to which IT is utilized varied significantly, especially between the two groups. Specifically, the two interviewees from group A expressed total agreement on the importance of IT in their companies, with one stating that these capabilities are "*important and crucial to our company*" (Respondent #1 - R1) and the other emphasizing that they are "*particularly critical in business*" (Respondent #2 - R2). Meanwhile, five respondents from group B expressed views that IT capabilities are not deemed significant within their companies. One respondent stated that IT is

"*not the important part of our company*" (R4, R7), another mentioned it is "*not the main aspect*" (R3), while others described it as being "*at a very low or basic level*" (R3, R5, R6). The contrasting responses from interviewees in groups A and B further validate the selection criteria for these groups, which was based on the average difference of summed mean scores as described in Section 3. These insights also clarify the divergent responses we obtained from the open-ended questions included in the quantitative survey. Companies with lower scores (group A) gave high evaluations of IT capabilities, while firms with higher scores (group B) did not appreciate the role of IT within their organizations. Thus, the threshold for selecting companies has now been justified.

The responses regarding the application of IT within an SME have exhibited significant variation as well. Particularly, some companies are using IT extensively across various functions, such as operations, marketing, human management, or customer service, while the others limit its use to specific areas. As an example, Company #1 mentioned that they employ IT across their entire organization, utilizing platforms like Slack to improve communication both within teams and across departments. In contrast, Company #6 revealed that their IT application is restricted to just one administrative office, with employees in other offices hardly using any IT tools to carry out their tasks. A notable finding is that, among the SMEs we asked, aside from Company #1 operating in the gaming industry, all other firms do not maintain a separate IT department or office to handle IT-related matters. Instead, they rely on a few employees who hold dual roles (main role and IT role) or engage third-party IT service providers. Furthermore, in discussions with the seven companies, it became apparent that while each of them has a different perspective on the role of IT capabilities, they all agree that decisions regarding the application and investment in IT capabilities are influenced by a complex interplay of several factors. This insight will be explored further in the following sections.

4.2.3 Company size and industry

All interviewed companies in Group B emphasized that the application of IT capabilities to enhance business resilience greatly depends on the scale of a business and the industry in which it operates. Specifically, when asked about the role of IT capabilities and why the company do or do not apply IT in daily operations, interviewee #3 responded that the smaller size of the company does not require strong IT capabilities to remain resilient. In addition, this person shared that "*other larger companies in the field, like TikTok, have a very sophisticated IT infrastructure that helps*

them keep track of their employees' activities," implying that the business scale affects the decision to prioritize IT capabilities within the marketing industry. Additionally, Company #3 also compared small businesses with their larger counterparts, arguing that smaller firms benefit from their relatively small size. They can swiftly implement changes across departments to maintain resilience without encountering the multiple layers of bureaucracy that often impede rapid adaptation in large corporations. Similarly, Company #4 presented that "*due to the small scall of the firm, most basic IT applications and tools like Microsoft can meet the current need, and therefore, the company sees no need for further investment* [in IT systems]." Additionally, this interviewee also shared that "*we have searched for a few IT tools, but we haven't found any that meet our needs at a reasonable cost for small companies. Therefore, we are not in a hurry to adopt IT.*" Likewise, as a small manufacturing company new to the market (operating for less than five years), Company #7 emphasizes that there is no significant demand for IT to be widely applied in the company. They cited the small number of employees and low communication needs as reasons for this stance. This perspective is supported by Company #5, also in the manufacturing industry: "*Just imagine, a business with a few dozen people doesn't necessarily need to apply IT, but in a factory with thousand workers, IT becomes a core issue."*

When it comes to the industry, our results indicated that the differences in IT capabilities exist between industries, as all interviewees shared the same point of view. They noted that the IT needs and infrastructure requirements can vary greatly depending on the sector. However, the key difference between the two groups lies in their perceptions of the importance of IT capabilities in various fields. Interviewees in group A believe that IT capabilities play a significant role, albeit at varying levels, across different industries. Specifically, Company #1, without regarding to any specific industry, said "*in my opinion, SMEs in Vietnam are generally are applying IT quite well…, and after facing with distruptions, they learned valuable lessons and even pay more attention to IT now*." Also, Company #2 viewed that "*depending on the field, industry, and size of the company, organizations will decide to invest in an IT system that addresses data management, data security, and other tools to support their business development*,… *but companies IT industry will, of course, have an adoption in a different level.*" In contrast, interviewees in group B supposed that IT capabilities are not particularly crucial in their industry compared to IT-related sectors, implying that the effect of IT capabilities on resilience also differs. Notably, we recognized an interesting insight about the characteristics of the consulting sector from the interviewee #4. This person

shared that the consulting industry includes networking and extensive communication relationships, often requiring face-to-face meetings and participation in sideline activities rather than relying solely on applications. This type of communication cannot be entirely replaced by IT, and human effort remains essential. The interviewee concluded that "*the decision not to adopt and promote IT capabilities in our company depends on business scale and the nature of the industry,.. and IT capabilities mainly determine whether the company can scale up the business rather than supporting the company to stay resilient*."

4.2.4 Internal factors

We found that in six cases (excluding #1), respondents reported that internal policies and the mindset of owners determined whether a company would adopt IT in its daily operations and to deal with turbulence. In SMEs where management power is often concentrated in the hands of a few individuals, the will and policies of the owner or top managers are often pivotal. As shared by the respondent #3, the low level of IT capabilities in the company was primarily due to "*the internal management decision,…as our top managers are somewhat hesitant to adopt the latest technologies frequently.*" Furthermore, this interviewee added, "*our management team has a non-IT background, so they are not familiar with IT's potentials,... and the team, along with other influential people inside the company, do not think IT is worth investing in.*" Similarly, Case #5 commented, "*The Board of Directors doesn't recognize the importance of the IT issue. The general direction of the board is not to focus on IT capabilities, as they see spending a large amount of money without seeing any benefits or feedback from the market as wasteful*." To support this viewpoint, the manager in Company #7 reported using IT tools in daily tasks, but clarified that this decision was entirely personal and not a policy of the company or an order from the company's owner.

Besides, the implementation of IT faces many barriers, including training process and employee attitude, and there are four companies reporting this situation (R1, R2, R4, and R6). Specifically, case #2 shared that "*when implementing IT systems, it's crucial to provide training for personnel so they can quickly understand and use them smoothly, and thus, the application of these systems will depend on the skills of each employee*." Other SMEs encounter resistance from employees when the adoption of IT introduces new changes in doing business that requires them to adapt. The vice director of Company #6 detailed, "*I don't highly rate the adaptability of our employees, as*

they prefer stability over innovations and changes... so they continue to perform tasks manually despite my efforts to provide IT training sessions." The interviewee further added, "*As the company has been successful over the past years, employees don't see any compelling reasons to adopt IT. Additionally, being from an older generation, they often resist change.*" From Company #4, we gained new insight that the process of training and convincing the employees to use IT in their daily work is not simple, as it depends on whether the employees themselves are willing to learn and perceive that IT really helps them perform tasks. Reponses of Company #1 share a similar point: "*During the disruptions caused by the COVID-19 pandemic, we were forced to transition to remote work and heavily rely on IT. Now, employees recognize that having IT capabilities can be beneficial, so they advocate it*."

4.2.5 Alternative resources and capabilities

We recognized a consensus among all businesses that there are alternative resources and capabilities to improve resilience without necessarily relying on IT capabilities. Interestingly, while our focus was to identify the factors leading to the rejected hypothesis in the firms in group B, the insights from the two firms in group A also exhibit significant similarities. However, it's important to note that businesses in group A still acknowledge the role of IT capabilities in enhancing SMEs' resilience. Thus, insights from this group should be seen as a supplement to those from group B and do not entirely negate the importance of IT capabilities, as observed in group B.

Firstly, when we asked if there are any other alternative capabilities or resources that can help their companies remain resilient, six respondents (excluding #1) highlighted human resources as a key factor in enhancing their firms' resilience amidst turbulence. Of which, four companies even stated that this is the most important resource in their respective firms (R3, R4, R6, and R7). For instance, Company #3 supposed, "*the human factor is the most important due to the nature of the service industry. Our products are driven by our people.*". Company #4 also emphasized the significance of human resources in relation to the industry's nature. As a consultancy-oriented company, the capacity of employees is critical, "*in order to complete a project, we need employees that can establish strong connetions and possess extensive experience to ensure the company's success*." Besides, the importance of human resources in relation to IT capabilities is evident in case #6. In particular, this respondent believes that "*IT capabilities only serve as support for decision-making in our industry, but we need human resources more. Unless in the future, cars can drive themselves*

or operate without human intervention, then IT will have a significant impact. Otherwise, I don't see the role of IT capabilities being as significant."

Secondly, leadership is poised to have an impact on the way how firms deal with turbulence to remain resilient. There are four companies agreed with this. Respondent #1 emphasized the importance of leadership, stating that it determines the vision and strategies for the whole company. This person cited, "a leader must establish strategies, decide how things are done, plan for the next move, and all of these rely on the power of leadership." The manager of Company #4 also considered leadership capabilities as crucial in supporting employees and determining how tasks are carried out. As previously discussed in the theme "internal policies", though Company #3 did not directly mention the importance of leadership, but stated that mindset of the owner could decide how the company adopted IT and reacted to changes. This perspective is also shared by Company #6. Overall, these cases underscored that effective leadership not only motivates and empowers employees but also plays a crucial role in shaping the overall direction and success of the company.

Thirdly, two cases demonstrated how dynamic capabilities supported their firms in overcoming challenges and addressing threats from the market without relying on IT capabilities. Notably, interviewee #3 emphasized the importance of being able to quickly respond to changes within the company, stating, "*The key to resilience is to act like a giant - being able to swiftly change our way of thinking, our structures, and our processes to deliver our services is vital for maintaining competitiveness*." This sharing implies that SMEs can utilize dynamic capabilities like large companies to compete in the market. Meanwhile, the vice director in Company #6 detailed the situation: "*Sometimes our clients change their requests at the last minute or we confront to unexpected incidents, then I realized that our firm has the ability to allocate resources quickly to fulfil those requirements,…but I don't see the role of IT here, it totally depends on our employees, as I shared before*." These insights illustrate that dynamic capabilities, such as flexibility and adaptability, are instrumental in helping SMEs navigate market challenges and uncertainties.

Finally, we highlighted resources and capabilities that we considered industry-specialized, meaning they could be significantly more important in specific industries than in others. Specifically, there are two companies supported the importance of manufacturing capabilities in competing with competitors (R5 and R7), while two companies highlighted business network as valuable resources and capabilities (R4 and R6) as they are operating in service-oriented industries.

In brief, manufacturing capabilities might be challenging to detect in service-oriented sectors, while business networks could be present in the manufacturing sector but might not play as crucial a role for survival as they do in logistics and consulting fields. For instance, SMEs #5 and #7 emphasized that it's manufacturing capabilities, not IT capabilities, that enhance production performance and reduce costs, thus improving competitiveness. Meanwhile, service businesses face industry-specific challenges that make it difficult to assess their need for manufacturing capabilities. However, business networking emerges as a key factor in their competitive landscape. Respondent #6 disclosed that many global logistics service providers could not win the Vietnamese market because their local partners are more flexible in terms of expanding business relationships with other firms and local authorities, added that "*without these connections, your business loses*." Company number 4 also highlights business connections as crucial resources for finding customers and maintaining competitiveness in the market. In essence, besides alternative capabilities and resources that can be applied across industries, specific sectors possess other unique capabilities and resources that could help them compete and stay resilient.

4.2.6 Time lags

Our findings indicated that time lags exist in three companies (R1, R4, and R6), and this phenomenon also explains the rejected IT-OR hypothesis. In this study, we refer to "time lag" as the delay or interval between two related events or actions. It represents the time it takes for something to happen or for a response to occur after a stimulus or action is initiated. In the context of this research, it indicates that SMEs have to wait for a certain amount of time after adopting IT in order to recognize its obvious influences on their outcomes and resilience. And it is this waiting period for IT to become effective that will partly prevent SMEs from reacting promptly to the impacts of disruptions or turbulence that occur too quickly. Respondents #4 confirmed that "*When IT is implemented in a company, it requires a period of time (time lag) for the benefits of IT to become apparent. We have experimented with several IT tools, but they ended up causing more inconvenience than support…Additionally, providing training for our employees would also consume a significant amount of time.*" Company #6 also shared a similar viewpoint, emphasizing that SMEs have limited resources. If the benefits of IT adoption are not realized quickly, it may lead to resource wastage, making it difficult for the SME to recover from disruptions. Although time lag is not a problem affecting the firm's resilience, the interviewee #1 disclosed that "*for minor disruptions such as power outages or temporary loss of internet connection, we can still*

handle them flexibly. However, for more serious disruptions like COVID-19, even if we applied IT immediately, it would still take a long time for the entire company to adapt." This suggests that the impact of time lag on resilience may vary depending on the type of turbulence firms are facing. For those causing severe disruptions, such as natural disasters or pandemics, the time it takes for a company to realize the benefits of IT can be significantly longer. The summary of qualitative results is represented in Table 9.

Table 9: Summary of qualitative findings

Factors	The factors present in the following companies							Total
	1	2	3	4	5	6	7	
Size and Industry	•	•	•	•	•	•	•	7
Internal factors	•	•	•	•	•	•	•	7
Internal policies and mindset of owners		•	•	•	•	•	•	6
Training process and employee attitude	•	•		•		•		4
Alternative resources and capabilities	•	•	•	•	•	•	•	7
Human resources		•	•	•	•	•	•	6
Leadership	•		•	•		•		4
Dynamic capabilities			•			•		2
Manufacturing capabilities					•		•	2
Connections or relationships				•		•		2
Time lags	•			•		•		3

(Source: Authors summarized)

CHAPTER 5: DISCUSSION

This section provides our discussion for both quantitative and qualitative results, in comparison with previous studies. In general, our supported hypotheses are in line with existing literature review, while the rejected hypotheses deliver a contradicting perspective. The qualitative findings, therefore, supported us in explaining the deviating quantitative results. While some aspects are compatible with former research, some need a cautious approach and thus, scholars are encouraged to expand our findings in future research. We also integrated in this part our thoughts, based on empirical results, and provide recommendations for SMEs to implement our findings in practice.

5.1 Dynamic capabilities and organizational resilience

The empirical findings of this study reveal a positive relationship between dynamic capabilities and organizational resilience. In reviewing the literature, the result aligns with several studies that confirm the significant role of dynamic capabilities in developing SMEs' resilience amidst turbulence (Kurtz & Varvakis, 2016; Ozanne et al., 2022; Putritamara et al., 2023). In an emerging economy like Vietnam, resilience is crucial for SMEs to withstand and recover from disruptions such as economic changes and unforeseen events, and by possessing dynamic capabilities, SMEs can quickly identify changes in their external environment, anticipate potential threats, and respond effectively to minimize their impacts. One of the key roles of dynamic capabilities for SMEs is adaptation to changing market conditions. In turbulent environments, traditional business models and strategies may become obsolete quickly. Dynamic capabilities allow SMEs to sense changes in the market, seize emerging opportunities, and adjust strategies accordingly, thereby enhancing resilience (Martinelli et al., 2018). Furthermore, they are also essential for SMEs to maintain competitiveness in turbulent environments. In today's globalized and digitalized economy, competition is fierce, and new competitors can emerge rapidly. SMEs need to continuously differentiate themselves to stay ahead of the competition. Dynamic capabilities enable SMEs to innovate not only in terms of products and services but also in processes, business models, and market approaches. This perspective is supported by the research of Kurtz and Varvakis (2016).

The finding underscores the importance of a firm's capacity to mobilize resources and continuously learn new knowledge and skills for its resilience. On the one hand, effective resource mobilization allows SMEs to respond briskly to changing circumstances, especially when dealing with disruptions. Resources are the lifeblood of any organization, encompassing financial capital, human capital, physical assets, and intangible resources like brand reputation and organizational culture. When disruptions occur, SMEs must be able to reallocate resources quickly and efficiently to address the challenges they face. One respondent highlighted that the ability to mobilize resources quickly during the pandemic was a unique strength of her company, allowing it to outperform same-sized competitors who were struggling at the time. This situation has become increasingly common nowadays as we face growing uncertainties that force SMEs to leverage their capabilities to maintain resilience instead of relying on external resources and support. During a period of financial instability, an SME with strong resource mobilization capabilities can reallocate its limited funds from less critical areas to essential operations, ensuring its continued viability by addressing the emergent issue. This also necessitates managers' ability to organize, combine, and utilize various resources to formulate strategies according to their assessment of environmental uncertainty, which is in line with the perspective of Temouri et al. (2022). Furthermore, effective resource mobilization enhances a firm's resilience by enhancing it to invest in risk management and contingency planning. By allocating resources to identify and mitigate risks, firms can minimize the impact of potential disruptions and build a more resilient business model. This ability is particularly important in several industries that are vulnerable to disruptions, such as supply chain (Kamalahmadi & Parast, 2017; Simchi-Levi et al., 2015), technology (Chen et al., 2019), and manufacturing (Kanike, 2023).

On the other hand, from the empirical result, we highlighted the continuous acquisition of new knowledge and skills as critical components of dynamic capabilities contributing to SMEs' resilience. In a rapidly changing business landscape, knowledge quickly becomes outdated. This is particularly evident in Vietnam, where the business environment is rapidly evolving as the country started adopting advanced technologies, requiring a vast amount of new knowledge. Continuous learning enables SMEs of the country to stay up-to-date with the latest industry trends, technological advancements, and best practices. This implication is supported by the research of Do et al. (2022). Zahra and George (2002) also propose a similar perspective, suggesting that absorptive or learning capacity is a crucial component of dynamic capabilities. This includes four

fundamental routines of "acquiring, assimilating, transforming, and exploiting knowledge." The ability to transform new knowledge opportunities to enhance resilience involves more than just identifying them; it also entails effectively leveraging these opportunities to gain a competitive edge. Furthermore, the learning process should encompass an understanding of the organization's weaknesses and how to mitigate them, as well as its strengths and strategies to enhance them. These comments are further supported by the research of Kurtz and Varvakis (2016). We agree with them that transforming new knowledge opportunities into increased resilience requires an organization to capitalize on these opportunities to strengthen its competitive position. This involves not only identifying and acquiring new knowledge but also effectively applying it to gain an advantage over competitors. Additionally, the learning stage should involve a critical assessment of the organization's weaknesses, identifying areas that require improvement and developing strategies to address them. Similarly, recognizing the organization's strengths is essential, accompanied by strategies to further enhance and leverage them to achieve resilience and competitiveness.

5.2 IT capabilities and organizational resilience

Our quantitative findings indicate that there is no positive relationship between IT capabilities and organizational resilience, presenting a contrasting viewpoint compared to previous studies (Bustinza et al., 2019; Forliano et al., 2023; Mao et al., 2021; Trieu et al., 2023). In reviewing the literature, we formulated our hypothesis based on the argument that IT capabilities could support SMEs in an emerging market like Vietnam, aiding them in protecting themselves and maintaining resilience in disruptive market scenarios. Moreover, the majority of the articles we reviewed previously confirmed the significance of IT capabilities, which indeed presents challenges for us to explain our contrasting results. We therefore conducted an additional qualitative phase to explore the reasons and possible factors that could alternatively assist SMEs in the country in enhancing resilience without necessarily implementing IT. These qualitative findings serve as the main arguments and reasons explaining our quantitative result.

Firstly, we reviewed recent articles analyzing the relationship between IT and OR, with contexts similar to ours, to identify possible reasons for our rejected hypothesis. Specifically, we found two articles which also examine IT capabilities and resilience of SMEs in emerging markets, such as

Vietnam (Trieu et al., 2023) and Saudi Arabia (Wided, 2023). These two studies were conducted slightly after the COVID-19 pandemic and specifically referenced the pandemic as a research background. Particularly, in the study of Trieu et al. (2023), the measurement scale for the OR construct mentioned the epidemic in two out of three items, while Wided (2023) explicitly stated the purpose of "seeking to enrich IT literature... in such turbulent environments and avoid negative scenarios of COVID-19." When comparing the insights shared by some of the interviewed companies, we realized that the importance of IT capabilities becomes more evident when attached to the pandemic because almost every business had to adopt IT to solve the immediate needs of maintaining connection and surviving at the time. Meanwhile, as discussed in the methodology section, we have generalized our research context as turbulence (or disruption) without mentioning any special events. This step, as suggested by Campbell and Stanley (2015), is to eliminate an internal threat to validity, which is history. Therefore, the results of our study can be explained based on differences in the research background and the time when we conducted this thesis, in comparison with previous research.

Secondly, the empirical results indicate that size and industry contribute to explaining the deviating IT-OR result. Our finding could be supported by one of the perspectives provided by the RBV theory, as we argued in the literature review section. Specifically, we supposed that business scale could be a factor explaining the difference between SMEs and large corporations. According to the RBV, competitive advantages are derived from the firm's distinct set of resources (Barney, 2001; Peteraf & Bergen, 2003); however, larger firms typically have more extensive resources, they tend to perform better than SMEs, especially in hostile environments. This view is in line with the study of Terziovski (2010). In practice, larger firms typically have more financial, human, and technological resources at their disposal, enabling them to invest more heavily in IT infrastructure and adapt more quickly to disruptions. This resource advantage gives them a greater ability to withstand challenges and maintain resilience in turbulent environments compared to SMEs. Furthermore, the size of the company also influences how IT is utilized within the organization, which in turn can affect resilience. Previous studies have argued that business scale is a significant determinant of IT adoption in small businesses (Yao et al., 2003), and larger firms are more likely to integrate IT in their operations better (Thong & Yap, 1995). These studies provide a solid foundation for explaining our finding that business scale is an issue determining the influence of IT capabilities on organizational resilience.

In terms of industry, our interviewees agreed that there are differences in the role of IT capabilities in enhancing resilience among industries. However, we are less confident in concluding that type of industry, especially IT and non-IT ones, could fully explain our results. We present two reasons. First, there are scarce previous studies directly confirming this, providing no theoretical framework and reliable evidence for us to draw conclusions. Although the study of Grover and Teng (1992) did find that industry plays a role in the utilization of database management systems, which represents only a small portion of IT, this evidence alone is insufficient for us to draw a solid conclusion. Second, among our interviewees, only one worked in an IT-relevant industry, which we feel it is too subjective to deliver a conclusive statement for the whole industry. Therefore, we call for further studies to explore whether the type of industry could be a factor influencing the relationship between IT capabilities and resilience.

Thirdly, the results indicated that internal factors, particularly the owner's mindset and internal policies, could explain the rejected relationship between IT and resilience. These factors determine whether or not an SME integrates IT into its daily operations, invests in IT systems, or provides training sessions to improve its employees' IT skills. Additionally, they influence the extent to which IT is applied in the company, and as discussed previously, this is crucial because if the level of IT utilization is low, it is obvious that IT capabilities cannot be relied upon to enhance resilience. Our explanation is supported by former studies (Chuang et al., 2007; Mirchandani & Motwani, 2001; Thong, 1999), which indicate that several CEO characteristics, such as knowledge, experience, and enthusiasm, are significant predictors of IT adoption within small firms. Therefore, our study adds to existing literature by suggesting that owner mindset could be another characteristic affecting the adoption of IT in SMEs. In practice, if the owner perceives IT as essential for the company's growth and resilience, they are more likely to prioritize IT investments and initiatives. Conversely, if the owner is skeptical about the benefits of IT or resistant to change, they may not allocate sufficient resources or support IT integration within the company. Furthermore, this mindset directly influences other internal factors, such as the development of internal policies related to IT adoption, budget allocation, training programs, and IT infrastructure upgrades. These factors could, therefore, affect the utilization of IT in enhancing firms' resilience.

Fourthly, the presence of time lags was identified as one of the factors explaining our rejected hypothesis. After thoroughly reviewing many articles, we have not found any research that specifically pinpoints time lag as a factor hindering SMEs from utilizing IT capabilities to bolster

resilience. However, we could provide discussion from a practical viewpoint. Unlike large corporations with ample resources and well-established IT infrastructure, SMEs often have limited budgets and expertise to implement IT solutions effectively. Consequently, the process of selecting, acquiring, and integrating IT capabilities into their operations can be time-consuming. Specifically, SMEs may encounter challenges related to resistance to change and compatibility issues with existing systems, all of which contribute to delays in realizing the benefits of IT investments. Additionally, the process of developing an appropriate IT system for the company and training staff to use new system is time-consuming, which requires a clear business strategy (Chen et al., 2008). Our result is in compatible with this research. Moreover, in today's fast-paced business environment, the ability to respond promptly to market changes and customer demands is a key to survival (Christopher, 2000; Naidoo, 2010). Thus, the time lag effect not only hinders flexibility but also exacerbates the vulnerability of SMEs to disruptions. From a theoretical perspective, we believe that our finding could be a new point complementing the existing literature. Simultaneously, we also encourage further research to delve deeper into this issue for a comprehensive understanding.

Finally, there are many alternative resources and capabilities that could aid an SME in improving resilience without the need of IT capabilities. Specifically, human resources, leadership, dynamic capabilities, manufacturing capabilities, and business networks or relationships are expected to serve as the most prominent alternatives to IT capabilities. This finding is consistent with many previous studies that have shown organizational resilience to have a wide array of antecedents. Since we have already examined dynamic capabilities in the preceding section, we will now concentrate on discussing the remaining four factors. For instance, Pal et al. (2014) delved into the factors influencing organizational resilience amidst crises, focusing particularly on the roles of network, leadership, and human resources. This viewpoint is similar to ours and also backed by other studies (Lengnick-Hall et al., 2011; McManus et al., 2008; Mousa et al., 2020; Suryaningtyas et al., 2019). Accordingly, organizations with extensive and well-maintained networks are better equipped to access resources, information, and support during crises. In addition, valuable and attentive leadership can significantly mitigate the impact of large-scale economic turbulences on SMEs in many cases (McManus et al., 2008; Pal et al., 2014). Effective leadership can shape organizational culture, fostering adaptability, and making crucial decisions during crises. Leaders who effectively communicate the organization's vision, promote innovation, and empower

employees to take ownership of challenges contribute significantly to organizational resilience. Besides, we agree that human resources is a critical factor, as employees bring knowledge, skills, creativity, and dedication in navigating challenges and driving growth. In times of crisis, such as economic downturns, market disruptions, or unexpected events like the COVID-19 pandemic, the resilience of SMEs heavily relies on the resilience of their human resources. Last, manufacturing competence ensure the agility, adaptability, and overall performance of SMEs (Romero et al., 2021; White, 1996). Indeed, a flexible manufacturing setup allows SMEs to adjust production volumes, customize products, or introduce new offerings in response to shifting market trends or customer preferences. Also, manufacturing capabilities directly impact cost efficiency and operational resilience. Efficient production processes and optimized supply chains enable SMEs to reduce costs, improve resource utilization, and maintain competitiveness.

5.3. Organizational resilience and social sustainability

The results of the study confirm hypothesis H3 that organizational resilience is positively correlated with social sustainability. This positive relationship highlights the importance of resilience not only as a means to withstand economic shocks or disruptions, but also as a strategic approach to improve the ability of firms to engage in socially sustainable development activities. These initiatives include employee well-being, community engagement and social stewardship, which are increasingly recognised as key to long-term social sustainability. In essence, H3 takes into account the ways in which Vietnamese SMEs can utilize its capacity and competence to support the well-being of their employees and contribute to the development of local communities in an increasingly complex and demanding global marketplace.

Our finding is strongly supported by the findings of Rai et al. (2021). In particular, their study highlights that resilience, which includes three aspects of crisis prediction, organizational robustness, and recoverability, is crucial for maintaining and enhancing social sustainability under adverse conditions. Their research also states that the ability to anticipate potential crises enables organizations to develop proactive strategies to maintain social commitment and ensure that social welfare-oriented initiatives continue even during disruptions. Besides, organizational robustness was also highlighted as key to sustaining social programmes, with strong systems and processes acting as a buffer to maintain stability and support social initiatives in times of turbulence. This

aspect is similar to our result, which we argue that a resilient firm could contribute to maintaining the welfare of the local community. Resilience extends this discourse by illustrating how organizations can not only bounce back from crises, but also improve their social sustainability practices and enhance their community roles and impacts in the aftermath. We also saw that our finding aligns with Rai et al's insight that by integrating resilience into an organization's strategic framework, organizations are empowered to maintain their social objectives, further contributing to their overall sustainability and social impact.

Through a further review of the literature, several studies corroborate that resilient organizations are better equipped to navigate the complexities of sustainable development. According to Baporikar (2018), orgnizations play a crucial role in sustainable development by balancing economic growth with social equity. This balance is a cornerstone of sustainable social development, highlighting how resilience in managing these elements can improve the ability of companies to sustain social contributions under challenging conditions. This view is further aligned by a study of Shields and Shelleman (2015) that focuses on adapting to global sustainability needs by proposing a structured approach to integrating sustainability into corporate strategy. In other words, by preparing to meet and adapt to changing global markets, SMEs are able to maintain social sustainability. This perspective is in line with our paper which emphasizes anticipating and adapting to meet challenges as important parts of a resilient firm. In addition, the Carroll Pyramid outlines the role of businesses in meeting societal expectations economically, legally, ethically, and philanthropically (Carroll, 2016). The model shows how resilient businesses effectively manage these responsibilities as they are adept at navigating social expectations and crises, ultimately enhancing their social sustainability practices. Our synthesis of these insights provides further evidence that organizational resilience enables businesses to effectively engage in socially sustainable practices, ensuring their long-term viability and positive social impact.

From the empirical results, we reflect on the role of social sustainability in SMEs in Vietnam. The concept of social sustainability encompasses not only corporate social responsibility, but also the integration of core elements such as equity, fairness and soial stewardship into daily business practices. For SMEs in the country, adopting these practices is not only about complying with ethical norms or meeting market demands, but also about laying a sustainable foundation for future growth and stability. While the integration of social sustainability by Vietnamese SMEs is still in its infancy, it is gaining momentum as businesses begin to recognise its benefits. This shift is

particularly evident in how these enterprises address social issues and worker welfare, areas that are increasingly becoming points of difference in competitive markets. In addition, the community-centered model followed by many Vietnamese SMEs can significantly amplify the impact of their sustainability efforts. By increasing their resilience in times of turbulence, SMEs can develop strong local ties and focus on community well-being, creating a supportive ecosystem that can further underpin socially sustainable development.

5.4 Organizational resilience as a mediator between capabilities and social sustainability

The empirical findings of our study revealed that organizational resilience can serve as a mediator between dynamic capabilities, but not IT capabilities, and social sustainability. Due to limited literature on the relationship between organizational resilience and social sustainability, we were unable to find previous studies directly highlighting the mediating role of resilience in situations similar to ours. However, these findings are both consistent and contradicting to existing literature review in some aspects. We will, therefore, discuss the results from the most relevant studies we could find and from our own perspectives.

Firstly, our supported hypothesis H4a contributes to existing literature by confirming the mediating role of organizational resilience between dynamic capabilities and social sustainability. From a theoretical perspective, the mediating role of organizational resilience in the relationships among various organizational factors, including capabilities, has been demonstrated in existing literature. For instance, a recent study of Zabłocka-Kluczka and Sałamacha (2023) considered organizational resilience a mediating factor between brand performance and organizational performance. Similarly, orgnizational resilience has been poised to link human resources management with crisis management in a research of Channa et al. (2019). Notably, we identified that the research of Tsai et al. (2013) could also be close to our result, in which the author indicated that dynamic capabilitity has an indirect effect on organizational sustainability through competitive advantage. Specifically, scholars explain that dynamic capability serves as the primary source of competitive advantage for companies capable of *integrating, learning, constructing, and reconfiguring their internal and external resources to adapt to changes* in the business environment and maintain that advantage (Gebauer, 2011; Tsai et al., 2013). We noticed that these characteristics also resemble those of a resilient firm, which conceptualizes organizational resilience as a critical factor in

competitive advantage. Therefore, the mediating role of resilience in the relationship between DC and SS in this study can be supported by the paper mentioned above. From a practical view, we suppose that dynamic capabilities enable SMEs to anticipate and respond effectively to external pressures and disruptions, thereby enhancing organizational resilience. Furthermore, dynamic capabilities enable SMEs to build strong networks and partnerships with stakeholders such as suppliers, customers, NGOs, and government agencies as alternative resources to enhance their ability to respond to social challenges. For example, a food manufacturing company with dynamic capabilities may build a partnership with local farmers to promote sustainable agriculture practices, thereby contributing to both environmental and social sustainability. Besides, dynamic capabilities can foster a culture of adaptability and agility within an SME, allowing it to embrace change and empower its employees to innovate to better navigate uncertain and turbulent environments. SMEs with strong dynamic capabilities may implement flexible work policies to not only enhance its flexibility but also accommodate employees' diverse needs, thereby enhancing employee well-being and contributing to social sustainability.

Secondly, we rejected our hypothesis H4b based on the statistical evidence. This finding contradicts a previous study from which we developed our research model. Specifically, Trieu et al. (2023) supported the indirect effect between IT capabilities and firm performance (FP) through organizational resilience. Meanwhile, we indicated that organizational resilience does not play a role in mediating the relationship between IT capabilities and social sustainability. Although the relationships examined in our study (IT - OR - SS) differ from those in Trieu et al.'s study (IT - OR - FP), it is primarily the rejected IT - OR relationship that led to the rejection of the indirect effect in our study. The direct IT – OR relationship in their research has been supported, while we dismissed it in our study (H2). From a theoretical perspective, since the direct relationship between IT capabilities and organizational resilience was not statistically established, the indirect effect was evidently invalid as well. This is the main reason for the contrasting results between their study and ours. In practice, when IT capabilities fail to make a business resilient in the face of market turbulences, the SMEs might encounter obstacles in surviving and adapting. In such scenarios, SMEs must prioritize critical areas for survival, often at the expense of other aspects like social sustainability. They may need to allocate their limited resources and capabilities strategically to focus on immediate survival needs. Consequently, they may temporarily sacrifice certain aspects, such as social sustainability, until they can recover from disruptions. And this explains why firms

that are not resilient often face difficulties in ensuring employee well-being and maintaining sufficient resources to perform community-contributing activities.

CHAPTER 6: CONCLUSION

This study applied an explanatory sequential mixed methods approach to examine the influence of organizational resilience on social sustainability and the roles of capabilities in small-to-medium-sized enterprises (SMEs) in Vietnam. Based on the theoretical framework provided by the RBV theory and DCV, we developed three direct hypotheses and two indirect relationships among the four factors. Through the implementation of the PLS-SEM approach in the quantitative phase, we found a positive relationship between organizational resilience and social sustainability. Additionally, this study confirmed the correlation between dynamic capabilities and resilience, while at the same time, rejected the role of IT capabilities in enhancing a firm's resilience. In the qualitative phase, we identified several factors that led to the rejected hypothesis, diversifying our understanding from both theoretical and managerial perspectives. This section provides general conclusion, theoretical and practical implications, limitations of this study, and recommendations for future research.

6.1 Theoretical implications

This thesis has three main theoretical contributions. Firstly, the positive relationship between dynamic capabilities and organizational resilience contributes to the DCV. Specifically, the integration of dynamic capabilities and organizational resilience within the context of Vietnamese SMEs intensifies the notion which emphasizes the DCV as a theory complementing the RBV perspective (Eisenhardt & Martin, 2000; Wilden & Gudergan, 2015; Wu, 2010). While the RBV may explain the importance of resources and capabilities in enhancing resilience in a static context, our result supported that the DCV perspective can better explain the firm's ability to mobilize and configurate resources, given the changing environment and complicated nature of market turbulences (Cavusgil et al., 2007).

Secondly, the rejected hypothesis concerning IT capabilities and resilience diversifies the current literature on IT capabilities, highlighting the significant variability in the role of this capability among firms. The qualitative approach allows us to identify potential factors that may hinder the utilization of IT to enhance SMEs' resilience. These factors represent an interesting contribution amidst several articles confirming the important role of IT capabilities in bolstering SMEs'

resilience (Bustinza et al., 2019; Trieu et al., 2023; Wided, 2023). Furthermore, our thesis reinforces the RBV perspective, which emphasizes how a firm effectively utilizes its resources and capabilities. Specifically, it highlights that merely possessing resources and capabilities is not sufficient; the outcome depends on how the firm deploys them to gain a competitive advantage (Nath et al., 2010; Peteraf & Bergen, 2003).

Finally, our study enriches the current literature on social sustainability and resilience within SMEs in emerging countries. As discussed previously, while many studies have focused on the environmental aspect of sustainability in both large corporations and SMEs, the issues surrounding social sustainability in SMEs remain underdeveloped. Moreover, the mediating role of resilience in the relationship between capabilities and social sustainability also contributes to the current scarce literature on this issue. We expect that our study offers theoretical support for future research by demonstrating how resilient organizations, strengthened by robust dynamic capabilities, are more capable of engaging in socially sustainable practices. This connection provides a theoretical foundation for asserting that social sustainability in business goes beyond mere compliance with ethical standards; it involves creating a resilient foundation that ensures long-term viability and ethical integrity in operations.

6.2 Practical implications

On a practical level, the implications of this study are manifold and particularly relevant for SMEs operating in volatile environments like Vietnam. First, enhancing dynamic capabilities is crucial for SMEs to swiftly adapt to market changes and disruptions, thereby ensuring sustained competitiveness. This enhancement necessitates fostering an organizational culture that values innovation, continuous learning, and flexibility in business processes. Key to this process is effective resource mobilization, where SMEs must develop robust systems to quickly allocate financial, human, and technological resources as market conditions dictate. Moreover, the ability to configure these resources to cope with varied scenarios enhances operational resilience and supports strategic management in response to external pressures. Continuous skill development is equally critical; members of the organization must rapidly acquire new knowledge and skills aligned with evolving job requirements. This can be facilitated through targeted training programs and access to learning platforms that focus on emerging industry trends and technologies.

Furthermore, maintaining a proactive attitude towards industry best practices is vital. This involves staying abreast of industry innovations, participating in professional gatherings, and incentivizing the adoption of these practices within the firm. Since high adaptability to rapid market changes is indispensable. SMEs should cultivate flexible business models and operational strategies that leverage change. By strategically investing in these areas, SMEs can build a dynamic capability framework that not only supports immediate responsiveness but also drives long-term sustainability in the face of global economic fluctuations

Secondly, we recommend that SMEs thoroughly evaluate their firms before deciding to invest in IT systems. Our empirical results advocate for a cautious approach to the application of IT within SMEs in Vietnam. SME managers in Vietnam should first consider the needs and characteristics of their companies in relation to the expected benefits derived from the application of IT, in order to avoid wasting a large amount of money on IT infrastructure. This includes determining the level of IT adoption, carefully training and persuading employees to use the new system, adjusting internal policies, and anticipating time lags in adoption. Furthermore, the country's SMEs should not rely solely on IT capabilities. Instead, they can explore alternative resources and competencies that best suit their firms, aiming to enhance resilience and performance.

Thirdly, we advise SMEs to incorporate resilience into their operational strategies, enhancing their capacity to adapt and recover in the face of market volatility. Effective resilience involves the ability to improvise and adjust operational workflows swiftly, ensuring that business continuity is maintained during disruptions. It also requires a systematic approach to information gathering and decision-making, where the potential outcomes of various actions are evaluated thoroughly to guide strategic choices during crises. Furthermore, fostering a flexible work environment through cross-training and job rotation equips employees with a broader skill set, preparing the organization to cope with unexpected changes and personnel shifts. By adopting these practices, SMEs can build a robust foundation that not only supports immediate adaptation to market requirements but also positions them for long-term sustainability and growth amidst ongoing uncertainties.

Lastly, the study highlights the importance of integrating social sustainability into the core strategy of SMEs. In Vietnam where the standards for social sustainability have not been well-established, those SMEs wishing to gain competitive advantage could take lead by moving beyond mere

compliance to implementing fair labor practices and actively developing local communities. By focusing on these areas, SMEs can significantly contribute to the local economy and enhance the well-being of their employees, ultimately fostering a supportive and sustainable community environment. These actions not only enhance the social license to operate but also build robust stakeholder relationships, crucial for business survival and success in socially aware marketplaces.

6.3 Limitations and recommendations for future research

Our study has certain limitations which serve as research gap for future studies. First, we only examined two aspects of social sustainability, which are employees and local communities, leaving many other aspects unstudied, such as social equity and quality of life. Second, as discussed in the methodology part, our sampling methods could subject to bias and a few other limitations. Though we respectively applied statistical methods to reduce bias and address those limitations, future studies with no time constraints could utilize better approach and increase the sample size to ensure reliability and validity of the research. Third, due to several reasons, we narrowed our target population to SMEs in Vietnam, with a small number of samples collected. This may limit the generalizability of the findings to other regions or business contexts. With this in mind, we could not make recommendations for SMEs in a broader context of emerging economies. Future research could increase the sample size and expand research scope by exploring issues in different geographical or cultural settings. In addition, we suggest examining additional factors like government policies, industry-specific variables, or emerging technologies, providing a broader understanding of organizational resilience and social sustainability.

In the future, we posit that expanding the qualitative phase to involve a broader range of stakeholders could be a potential avenue. By engaging with employees, customers, suppliers, and industry experts, studies can gain deeper insights into the factors contributing to resilience and social sustainability in SMEs. This approach could uncover previously overlooked perspectives and enrich the understanding of the mechanisms driving organizational success amidst turbulence. Longitudinal studies could also play a crucial role in future research by tracking changes over time. This method would enable researchers to monitor the evolution of organizational resilience and social sustainability, providing a dynamic view of how SMEs adapt to changing market conditions. By capturing these trends, future studies could offer more robust conclusions and guide SMEs in

developing strategies that remain relevant over time. Another promising direction is the exploration of the role of emerging technologies in enhancing resilience and sustainability. With rapid advancements in artificial intelligence, blockchain, and threats from disruptive technologies, future studies could investigate how these innovations are reshaping SME sustainable practices. By examining the adoption of these technologies, researchers could identify new pathways for SMEs to enhance operational efficiency, improve risk management, and foster organizational resilience.

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Note: This word count has been approved by the supervisor.

References

Ab Hamid, M. R., Sami, W. & Sidek, M. H. M. (2017). Discriminant Validity Assessment: Use of Fornell & Larcker Criterion versus HTMT Criterion, in *Journal of Physics: Conference Series*, Vol. 890, 2017, IOP Publishing, p.012163 Available online:https://doi.org/10.1088/1742-6596/890/1/012163

Acquaah, M., Amoako-Gyampah, K. & Jayaram, J. (2011). Resilience in Family and Nonfamily Firms: An Examination of the Relationships between Manufacturing Strategy, Competitive Strategy and Firm Performance, *International journal of production research*, vol. 49, no. 18, pp.5527–5544 Available online:https://doi.org/10.1080/00207543.2011.563834

Adeoye-Olatunde, O. A. & Olenik, N. L. (2021). Research and Scholarly Methods: Semi-structured Interviews, *Journal of the american college of clinical pharmacy*, vol. 4, no. 10, pp.1358–1367Available online: https://doi.org/10.1002/jac5.1441

Akpan, E. E., Johnny, E. & Sylva, W. (2022). Dynamic Capabilities and Organizational Resilience of Manufacturing Firms in Nigeria, *Vision*, vol. 26, no. 1, pp.48–64 Available online:https://doi.org/10.1177/0972262920984545.

Akram, M. S., Goraya, M. A. S., Malik, A. & Aljarallah, A. M. (2018). Organizational Performance and Sustainability: Exploring the Roles of IT Capabilities and Knowledge Management Capabilities, *Sustainability*, vol. 10, no. 10, p.3816 Available online:https://doi.org/10.3390/su10103816

Amui, L. B. L., Jabbour, C. J. C., de Sousa Jabbour, A. B. L. & Kannan, D. (2017). Sustainability as a Dynamic Organizational Capability: A Systematic Review and a Future Agenda toward a Sustainable Transition, *Journal of cleaner production*, vol. 142, pp.308–322 Available online:https://doi.org/10.1016/j.jclepro.2016.07.103

Annarelli, A. & Nonino, F. (2016). Strategic and Operational Management of Organizational Resilience: Current State of Research and Future Directions, *Omega*, vol. 62, pp.1–18 Available online:https://doi.org/10.1016/j.omega.2015.08.004

Annunziata, E., Pucci, T., Frey, M. & Zanni, L. (2018). The Role of Organizational Capabilities in Attaining Corporate Sustainability Practices and Economic Performance: Evidence from Italian Wine Industry, *Journal of cleaner production*, vol. 171, pp.1300–1311 Available online:https://doi.org/10.1016/j.jclepro.2017.10.035

Aremu, M. A. & Adeyemi, S. L. (2011). Small and Medium Scale Enterprises as a Survival Strategy for Employment Generation in Nigeria, *Journal of sustainable development*, vol. 4, no. 1, p.200 Available online:https://doi.org/10.5539/jsd.v4n1p200

Atanda, J. O. (2019). Developing a Social Sustainability Assessment Framework, *Sustainable cities and society*, vol. 44, pp.237–252 Available online: https://doi.org/10.1016/j.scs.2018.09.023

Banker, R. D., Kauffman, R. J. & Morey, R. C. (1990). Measuring Gains in Operational Efficiency from Information Technology: A Study of the Positran Deployment at Hardee's Inc., *Journal of Management Information Systems*, vol. 7, no. 2, pp.29–54 Available online:https://doi.org/10.1080/07421222.1990.11517888

Baporikar, N. (2018). Social and Organizational Development through Action Research, *International Journal of Civic Engagement and Social Change (IJCESC)*, vol. 5, no. 1, pp.23–39 Available online: https://doi.org/10.4018/IJCESC.2018010102

Barasa, E., Mbau, R. & Gilson, L. (2018). What Is Resilience and How Can It Be Nurtured? A Systematic Review of Empirical Literature on Organizational Resilience, *International journal of health policy and management*, vol. 7, no. 6, p.491 Available online:https://doi.org/10.15171/ijhpm.2018.06

Barclay, D., Higgins, C. & Thompson, R. (1995). The Partial Least Squares (PLS) Approach to Casual Modeling: Personal Computer Adoption Ans Use as an Illustration

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage, *Journal of management*, vol. 17, no. 1, pp.99–120 Available online:https://doi.org/10.1177/014920639101700108

Barney, J. B. (1986). Strategic Factor Markets: Expectations, Luck, and Business Strategy, *Management science*, vol. 32, no. 10, pp.1231–1241 Available online:https://doi.org/10.1287/mnsc.32.10.1231

Barney, J. B. (2001). Resource-Based Theories of Competitive Advantage: A Ten-Year Retrospective on the Resource-Based View, *Journal of management*, vol. 27, no. 6, pp.643–650 Available online: https://doi.org/10.1177/014920630102700602

Baum, C. M. & Gross, C. (2017). Sustainability Policy as If People Mattered: Developing a Framework for Environmentally Significant Behavioral Change, *Journal of Bioeconomics*, vol. 19, pp.53–95Available online: https://doi.org/10.1007/s10818-016-9221-0

Baxter, P. & Jack, S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers, *The qualitative report*, vol. 13, no. 4, pp.544–559 Available online: https://doi.org/10.46743/2160-3715/2008.1573

Beamish, P. W. & Chakravarty, D. (2021). Using the Resource-Based View in Multinational Enterprise Research, *Journal of Management*, vol. 47, no. 7, pp.1861–1877 Available online:https://doi.org/10.1177/0149206320987283

Becker, J.-M., Cheah, J.-H., Gholamzade, R., Ringle, C. M. & Sarstedt, M. (2023). PLS-SEM's Most Wanted Guidance, *International Journal of Contemporary Hospitality Management*, vol. 35, no. 1, pp.321–346Available online: https://doi.org/10.1108/IJCHM-10-2021-1264

Bell, E., Bryman, A. & Harley, B. (2022). Business Research Methods, Oxford university press

Ben Hassen, T. & El Bilali, H. (2022). Impacts of the Russia-Ukraine War on Global Food Security: Towards More Sustainable and Resilient Food Systems?, *Foods*, vol. 11, no. 15, p.2301 Available online:https://doi.org/10.3390/foods11152301

Bernard, H. R. (2017). Research Methods in Anthropology: Qualitative and Quantitative Approaches, Rowman & Littlefield

Beske, P. (2012). Dynamic Capabilities and Sustainable Supply Chain Management, *International journal of physical distribution & logistics management*, vol. 42, no. 4, pp.372–387 Available online:https://doi.org/10.1108/09600031211231344

Beuren, I. M., dos Santos, V. & Theiss, V. (2022). Organizational Resilience, Job Satisfaction and Business Performance, *International Journal of Productivity and Performance Management*, vol. 71, no. 6, pp.2262–2279 Available online:https://doi.org/10.1108/IJPPM-10-2020-0551

Bhamra, R., Dani, S. & Burnard, K. (2011). Resilience: The Concept, a Literature Review and Future Directions, *International journal of production research*, vol. 49, no. 18, pp.5375–5393 Available online:https://doi.org/10.1080/00207543.2011.563826

Bharadwaj, A., Keil, M. & Mähring, M. (2009). Effects of Information Technology Failures on the Market Value of Firms, *The Journal of Strategic Information Systems*, vol. 18, no. 2, pp.66–79 Available online:https://doi.org/10.1016/j.jsis.2009.04.001

Bharadwaj, A. S. (2000). A Resource-Based Perspective on Information Technology Capability and Firm Performance: An Empirical Investigation, *MIS quarterly*, pp.169–196 Available online:https://doi.org/10.2307/3250983

Bingham, C. B. & Davis, J. P. (2007). How Do Capabilities Emerge and Why Do Some Firms Develop Them While Others Do Not?, in *Academy of Management Proceedings*, Vol. 2007, 2007, Academy of Management Briarcliff Manor, NY 10510, pp.1–6 Available online:https://doi.org/10.5465/ambpp.2007.26518296

Brod, M., Tesler, L. E. & Christensen, T. L. (2009). Qualitative Research and Content Validity: Developing Best Practices Based on Science and Experience, *Quality of life research*, vol. 18, pp.1263–1278 Available online:https://doi.org/10.1007/s11136-009-9540-9

Bromiley, P. & Rau, D. (2016). Operations Management and the Resource Based View: Another View, *Journal of Operations Management*, vol. 41, pp.95–106 Available online:https://doi.org/10.1016/j.jom.2015.11.003

Brosig, C., Westner, M. & Strahringer, S. (2020). Revisiting the Concept of IT Capabilities in the Era of Digitalization, in *2020 IEEE 22nd Conference on Business Informatics (CBI)*, Vol. 1, 2020, IEEE, pp.84–93Available online: https://doi.org/10.1109/CBI49978.2020.00017

Bustinza, O. F., Vendrell-Herrero, F., Perez-Arostegui, M. & Parry, G. (2019). Technological Capabilities, Resilience Capabilities and Organizational Effectiveness, *The International Journal of Human Resource Management*, vol. 30, no. 8, pp.1370–1392 Available online:https://doi.org/10.1080/09585192.2016.1216878

Campbell, D. T. & Stanley, J. C. (2015). Experimental and Quasi-Experimental Designs for Research, Ravenio books

Carlson, K. D. & Herdman, A. O. (2012). Understanding the Impact of Convergent Validity on Research Results, *Organizational Research Methods*, vol. 15, no. 1, pp.17–32 Available online:https://journals.sagepub.com/doi/10.1177/1094428110392383

Carroll, A. B. (2016). Carroll's Pyramid of CSR: Taking Another Look, *International journal of corporate social responsibility*, vol. 1, pp.1–8 Available online:https://doi.org/10.1186/s40991-016-0004-6

Carroll, A. B. & Shabana, K. M. (2010). The Business Case for Corporate Social Responsibility: A Review of Concepts, Research and Practice, *International journal of management reviews*, vol. 12, no. 1, pp.85–105 Available online: https://doi.org/10.1111/j.1468-2370.2009.00275.x

Cavusgil, E., Seggie, S. H. & Talay, M. B. (2007). Dynamic Capabilities View: Foundations and Research Agenda, *Journal of marketing theory and practice*, vol. 15, no. 2, pp.159–166 Available online:https://doi.org/10.2753/MTP1069-6679150205

Cepeda, J. & Arias-Pérez, J. (2019). Information Technology Capabilities and Organizational Agility, *Multinational Business Review*, [e-journal] vol. 27, no. 2, pp.198–216 Available online:https://doi.org/10.1108/MBR-11-2017-0088

Chae, H.-C., Koh, C. E. & Prybutok, V. R. (2014). Information Technology Capability and Firm Performance: Contradictory Findings and Their Possible Causes, *MIS quarterly*, vol. 38, no. 1, pp.305–326 Available online:https://doi.org/10.25300/MISQ/2014/38.1.14

Chakravarty, A., Grewal, R. & Sambamurthy, V. (2013). Information Technology Competencies, Organizational Agility, and Firm Performance: Enabling and Facilitating Roles, *Information Systems Research*, [e-journal] vol. 24, no. 4, pp.976–997 Available online: https://doi.org/10.1287/isre.2013.0500

Channa, N. A., Shah, S. M. M. & Ghumro, N. H. (2019). Uncovering the Link between Strategic Human Resource Management and Crisis Management: Mediating Role of Organizational Resilience, *Annals of Contemporary Developments in Management & HR (ACDMHR), Print ISSN*, pp.2632–7686 https://doi.org/10.33166/ACDMHR.2019.02.003

Chen, H. Y., Das, A. & Ivanov, D. (2019). Building Resilience and Managing Post-Disruption Supply Chain Recovery: Lessons from the Information and Communication Technology Industry, *International Journal of Information Management*, vol. 49, pp.330–342

Chen, R.-S., Sun, C.-M., Helms, M. M. & Jih, W.-J. K. (2008). Aligning Information Technology and Business Strategy with a Dynamic Capabilities Perspective: A Longitudinal Study of a Taiwanese Semiconductor Company, *International Journal of Information Management*, vol. 28, no. 5, pp.366–378Available online: https://doi.org/10.1016/j.ijinfomgt.2008.01.016

Cheng, J., Sun, J., Yao, K., Xu, M. & Cao, Y. (2022). A Variable Selection Method Based on Mutual Information and Variance Inflation Factor, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, vol. 268, p.120652 Available online:https://doi.org/10.1016/j.saa.2021.120652

Chiesa, P. J. & Przychodzen, W. (2020). Social Sustainability in Supply Chains: A Review, *Social Responsibility Journal*, vol. 16, no. 8, pp.1125–1148 https://doi.org/10.1108/SRJ-11-2018-0301

Chowdhury, M. M. H. & Quaddus, M. (2017). Supply Chain Resilience: Conceptualization and Scale Development Using Dynamic Capability Theory, *International Journal of Production Economics*, vol. 188, pp.185–204 Available online:https://doi.org/10.1016/j.ijpe.2017.03.020

Chowdhury, M. M. H., Quaddus, M. & Agarwal, R. (2019). Supply Chain Resilience for Performance: Role of Relational Practices and Network Complexities, *Supply Chain Management: An International Journal*, vol. 24, no. 5, pp.659–676 Available online:https://doi.org/10.1108/SCM-09-2018-0332

Chowdhury, P. & Shumon, R. (2020). Minimizing the Gap between Expectation and Ability: Strategies for Smes to Implement Social Sustainability Practices, *Sustainability*, vol. 12, no. 16, p.6408Available online: https://doi.org/10.3390/su12166408

Christopher, M. (2000). The Agile Supply Chain: Competing in Volatile Markets, *Industrial marketing management*, vol. 29, no. 1, pp.37–44 Available online: https://doi.org/10.1016/S0019-8501(99)00110-8

Chuang, T.-T., Rutherford, M. W. & Lin, B. (2007). Owner/Manager Characteristics, Organisational Characteristics and IT Adoption in Small and Medium Enterprises, *International Journal of Management and Enterprise Development*, vol. 4, no. 6, pp.619–634

Collis, D. J. (1994). Research Note: How Valuable Are Organizational Capabilities?, *Strategic Management Journal*, [e-journal] vol. 15, no. S1, pp.143–152Available online: https://onlinelibrary.wiley.com/doi/abs/10.1002/smj.4250150910

Conz, E. & Magnani, G. (2020). A Dynamic Perspective on the Resilience of Firms: A Systematic Literature Review and a Framework for Future Research, *European Management Journal*, vol. 38, no. 3, pp.400–412 Available online: https://doi.org/10.1016/j.emj.2019.12.004

Cook, T. D., Campbell, D. T. & Shadish, W. (2002). Experimental and Quasi-Experimental Designs for Generalized Causal Inference, Vol. 1195, Houghton Mifflin Boston, MA

Cotta, D. & Salvador, F. (2020). Exploring the Antecedents of Organizational Resilience Practices–A Transactive Memory Systems Approach, *International Journal of Operations & Production Management*, vol. 40, no. 9, pp.1531–1559

Creswell, J. W. & Clark, V. L. P. (2017). Designing and Conducting Mixed Methods Research, Sage publications

Creswell, J. W., Clark, V. L. P., Gutmann, M. L. & Hanson, W. E. (2003). Advanced Mixed, *Handbook of mixed methods in social & behavioral research*, vol. 209

Creswell, J. W. & Creswell, J. D. (2017). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, Sage publications

Creswell, J. W. & Miller, D. L. (2000). Determining Validity in Qualitative Inquiry, *Theory into practice*, vol. 39, no. 3, pp.124–130 Available online: https://doi.org/10.1207/s15430421tip3903_2

Creswell, J. W. & Poth, C. N. (2016). Qualitative Inquiry and Research Design: Choosing among Five Approaches, Sage publications

da Cunha Bezerra, M. C., Gohr, C. F. & Morioka, S. N. (2020). Organizational Capabilities towards Corporate Sustainability Benefits: A Systematic Literature Review and an Integrative Framework Proposal, *Journal of Cleaner Production*, vol. 247, p.119114 Available online: https://doi.org/10.1016/j.jclepro.2019.119114

Darcy, C., Hill, J., McCabe, T. J. & McGovern, P. (2014). A Consideration of Organisational Sustainability in the SME Context: A Resource-Based View and Composite Model, *European Journal of Training and Development*, vol. 38, no. 5, pp.398–414 Available online:https://doi.org/10.1108/EJTD-10-2013-0108

Das, M., Rangarajan, K. & Dutta, G. (2020). Corporate Sustainability in Small and Medium-Sized Enterprises: A Literature Analysis and Road Ahead, *Journal of Indian Business Research*, vol. 12, no. 2, pp.271–300 Available online:https://doi.org/10.1108/JIBR-09-2017-0166

de Aro, E. R. & Perez, G. (2021). Identification of Dynamic Capabilities in Open Innovation, *Innovation & Management Review*, vol. 18, no. 2, pp.118–128 Available online:https://doi.org/10.1108/INMR-10-2019-0120

Delmas, M. & Toffel, M. W. (2004). Stakeholders and Environmental Management Practices: An Institutional Framework, *Business strategy and the Environment*, vol. 13, no. 4, pp.209–222 Available online:https://doi.org/10.1002/bse.409

Dempsey, N., Bramley, G., Power, S. & Brown, C. (2011). The Social Dimension of Sustainable Development: Defining Urban Social Sustainability, *Sustainable development*, vol. 19, no. 5, pp.289–300Available online: https://doi.org/10.1002/sd.417

DeSarbo, W. S., Di Benedetto, C. A. & Song, M. (2007). A Heterogeneous Resource Based View for Exploring Relationships between Firm Performance and Capabilities, *Journal of modelling in management*, vol. 2, no. 2, pp.103–130 Available online:https://doi.org/10.1108/17465660710763407

Dijkstra, T. K. & Henseler, J. (2015). Consistent Partial Least Squares Path Modeling, *MIS quarterly*, vol. 39, no. 2, pp.297–316 Available online: https://doi.org/10.25300/MISQ/2015/39.2.02

Do, H., Budhwar, P., Shipton, H., Nguyen, H.-D. & Nguyen, B. (2022). Building Organizational Resilience, Innovation through Resource-Based Management Initiatives, Organizational Learning and Environmental Dynamism, *Journal of Business Research*, vol. 141, pp.808–821. Available online:https://doi.org/10.1016/j.jbusres.2021.11.090

Do, H., Patel, C., Budhwar, P., Katou, A. A., Arora, B. & Dao, M. (2020). Institutionalism and Its Effect on HRM in the ASEAN Context: Challenges and Opportunities for Future Research, *Human Resource Management Review*, vol. 30, no. 4, p.100729. Available online:https://doi.org/10.1016/j.hrmr.2019.100729

Duan, N., Bhaumik, D. K., Palinkas, L. A. & Hoagwood, K. (2015). Optimal Design and Purposeful Sampling: Complementary Methodologies for Implementation Research, *Administration and Policy in Mental Health and Mental Health Services Research*, vol. 42, pp.524–532. Available online: https://doi.org/10.1007/s10488-014-0596-7

Duchek, S. (2020). Organizational Resilience: A Capability-Based Conceptualization, *Business research*, vol. 13, no. 1, pp.215–246.Available online: https://doi.org/10.1007/s40685-019-0085-7

Dutta, S., Narasimhan, O. M. & Rajiv, S. (2005). Conceptualizing and Measuring Capabilities: Methodology and Empirical Application, *Strategic management journal*, vol. 26, no. 3, pp.277–285. Available online:https://doi.org/10.1002/smj.442

Eisenhardt, K. M. & Martin, J. A. (2000). Dynamic Capabilities: What Are They?, *Strategic management journal*, vol. 21, no. 10-11, pp.1105–1121. Available online:http://dx.doi.org/10.1002/1097-0266(200010/11)21:10/11<1105::AID-SMJ133>3.0.CO;2-E

Eizenberg, E. & Jabareen, Y. (2017). Social Sustainability: A New Conceptual Framework, *Sustainability*, vol. 9, no. 1, p.68. Available online:https://doi.org/10.3390/su9010068

El Nemar, S., El-Chaarani, H., Dandachi, I. & Castellano, S. (2022). Resource-Based View and Sustainable Advantage: A Framework for SMEs, *Journal of Strategic Marketing*, pp.1–24. Available online:https://doi.org/10.1080/0965254X.2022.2160486

F. Hair Jr, J., Sarstedt, M., Hopkins, L. & G. Kuppelwieser, V. (2014). Partial Least Squares Structural Equation Modeling (PLS-SEM) An Emerging Tool in Business Research, *European business review*, vol. 26, no. 2, pp.106–121.Available online:https://doi.org/10.1108/EBR-10-2013-0128

Falk, R. F. & Miller, N. B. (1992). A Primer for Soft Modeling., University of Akron Press

Farjoun, M. (2010). Beyond Dualism: Stability and Change as a Duality, *Academy of management review*, vol. 35, no. 2, pp.202–225. Available online:https://doi.org/10.5465/amr.35.2.zok202

Faul, F., Erdfelder, E., Buchner, A. & Lang, A.-G. (2009). Statistical Power Analyses Using G* Power 3.1: Tests for Correlation and Regression Analyses, *Behavior research methods*, vol. 41, no. 4, pp.1149–1160. Available online:https://doi.org/10.3758/BRM.41.4.1149

Fernandes, C., Ferreira, J. J., Raposo, M. L., Estevão, C., Peris-Ortiz, M. & Rueda-Armengot, C. (2017). The Dynamic Capabilities Perspective of Strategic Management: A Co-Citation Analysis, *Scientometrics*, vol. 112, pp.529–555.Available online: https://doi.org/10.1007/s11192-017-2390-2

Ferreira, J., Cardim, S. & Coelho, A. (2021). Dynamic Capabilities and Mediating Effects of Innovation on the Competitive Advantage and Firm's Performance: The Moderating Role of Organizational Learning Capability, *Journal of the Knowledge Economy*, vol. 12, pp.620–644. Available online:https://doi.org/10.1007/s13132-020-00655-z

Ferreira, J. & Fernandes, C. (2017). Resources and Capabilities' Effects on Firm Performance: What Are They?, *Journal of Knowledge Management*, vol. 21, no. 5, pp.1202–1217. Available online:https://doi.org/10.1108/JKM-03-2017-0099

Finney, R. Z., Lueg, J. E. & Campbell, N. D. (2008). Market Pioneers, Late Movers, and the Resource-Based View (RBV): A Conceptual Model, *Journal of Business Research*, vol. 61, no. 9, pp.925–932. Available online:https://doi.org/10.1016/j.jbusres.2007.09.023

Forliano, C., Orlandi, L. B., Zardini, A. & Rossignoli, C. (2023). Technological Orientation and Organizational Resilience to Covid-19: The Mediating Role of Strategy's Digital Maturity, *Technological Forecasting and Social Change*, vol. 188, p.122288. Available online:https://doi.org/10.1016/j.techfore.2022.122288

Fornell, C. & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error, *Journal of marketing research*, vol. 18, no. 1, pp.39–50. Available online:https://doi.org/10.1177/002224378101800104

Garengo, P. & Bernardi, G. (2007). Organizational Capability in SMEs: Performance Measurement as a Key System in Supporting Company Development, *International Journal of Productivity and Performance Management*, vol. 56, no. 5/6, pp.518–532.Available online: https://doi.org/10.1108/17410400710757178

Gebauer, H. (2011). Exploring the Contribution of Management Innovation to the Evolution of Dynamic Capabilities, *Industrial Marketing Management*, vol. 40, no. 8, pp.1238–1250. Available online:https://doi.org/10.1016/j.indmarman.2011.10.003

Gelo, O., Braakmann, D. & Benetka, G. (2008). Quantitative and Qualitative Research: Beyond the Debate, *Integrative psychological and behavioral science*, vol. 42, pp.266–290.Available online:https://doi.org/10.1007/s12124-009-9107-x

Giotopoulos, I., Kontolaimou, A., Korra, E. & Tsakanikas, A. (2022). Strategic Pathways to ICT Adoption in SMEs: Evidence from Greece, *International Journal of Entrepreneurship and Small Business*, vol. 46, no. 4, pp.466–482 Available online:https://doi.org/10.1016/j.jbusres.2017.08.007

Gosain, S., Malhotra, A. & El Sawy, O. A. (2004). Coordinating for Flexibility in E-Business Supply Chains, *Journal of management information systems*, vol. 21, no. 3, pp.7–45

Greene, J. C. & Caracelli, V. J. (1997). Advances in Mixed-Method Evaluation: The Challenges and Benefits of Integrating Diverse Paradigms, Jossey-Bass,

Grover, V. & Teng, J. T. C. (1992). An Examination of DBMS Adoption and Success in American Organizations, *Information & Management*, vol. 23, no. 5, pp.239–248.Available online:https://doi.org/10.1016/0378-7206(94)90100-7

Gu, M., Yang, L. & Huo, B. (2021). The Impact of Information Technology Usage on Supply Chain Resilience and Performance: An Ambidexterous View, *International journal of production economics*, vol. 232, p.107956. Available online:https://doi.org/10.1016/j.ijpe.2020.107956

Guest, G., Bunce, A. & Johnson, L. (2006). How Many Interviews Are Enough? An Experiment with Data Saturation and Variability, *Field methods*, vol. 18, no. 1, pp.59–82. Available online:https://doi.org/10.1177/1525822X05279903

Gustafsson, J. (2017). Single Case Studies vs. Multiple Case Studies: A Comparative Study

Haarhaus, T. & Liening, A. (2020). Building Dynamic Capabilities to Cope with Environmental Uncertainty: The Role of Strategic Foresight, *Technological Forecasting and Social Change*, vol. 155, p.120033. Available online:https://doi.org/10.1016/j.techfore.2020.120033

Hair, J. F. (2009). Multivariate Data Analysis

Hair, J. F., Ringle, C. M. & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet, *Journal of Marketing theory and Practice*, vol. 19, no. 2, pp.139–152 Available online:https://doi.org/10.2753/MTP1069-6679190202

Hair, J. F., Risher, J. J., Sarstedt, M. & Ringle, C. M. (2019). When to Use and How to Report the Results of PLS-SEM, *European business review*, vol. 31, no. 1, pp.2–24 Available online:https://doi.org/10.1108/EBR-11-2018-0203

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2021a). An Introduction to Structural Equation Modeling, *Partial least squares structural equation modeling (PLS-SEM) using R: a workbook*, pp.1–29. Available online:https://doi.org/10.1007/978-3-030-80519-7_1

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2021b). Evaluation of Reflective Measurement Models, *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*, pp.75–90. Available online:https://doi.org/10.1007/978-3-030-80519-7_1

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., Hair, J. F., Hult, G. T. M., Ringle, C. M. & Sarstedt, M. (2021c). Evaluation of the Structural Model, *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook*, pp.115–138. Available online:https://doi.org/10.1007/978-3-030-80519-7_1

Hair Jr, J. F., Matthews, L. M., Matthews, R. L. & Sarstedt, M. (2017). PLS-SEM or CB-SEM: Updated Guidelines on Which Method to Use, *International Journal of Multivariate Data Analysis*, vol. 1, no. 2, pp.107–123.Available online: https://doi.org/10.1504/IJMDA.2017.087624

Hart, S. L. (1995). A Natural-Resource-Based View of the Firm, *Academy of management review*, vol. 20, no. 4, pp.986–1014. Available online:https://doi.org/10.5465/amr.1995.9512280033

Harvie, C. & Charoenrat, T. (2015). SMEs and the Rise of Global Value Chains, *Integrating SMEs into global value chains: Challenges and policy actions in Asia*, pp.1–26

Henseler, J., Ringle, C. M. & Sarstedt, M. (2015). A New Criterion for Assessing Discriminant Validity in Variance-Based Structural Equation Modeling, *Journal of the academy of marketing science*, vol. 43, pp.115–135.Available online: https://doi.org/10.1007/s11747-014-0403-8

Heredia, J., Castillo-Vergara, M., Geldes, C., Gamarra, F. M. C., Flores, A. & Heredia, W. (2022). How Do Digital Capabilities Affect Firm Performance? The Mediating Role of Technological Capabilities in the "New Normal", *Journal of Innovation & Knowledge*, vol. 7, no. 2, p.100171.Available online:https://doi.org/10.1016/j.jik.2022.100171

Hillmann, J. (2021). Disciplines of Organizational Resilience: Contributions, Critiques, and Future Research Avenues, *Review of Managerial Science*, vol. 15, no. 4, pp.879–936. Available online:https://doi.org/10.1007/s11846-020-00384-2

Hillmann, J. & Guenther, E. (2021). Organizational Resilience: A Valuable Construct for Management Research?, *International journal of management reviews*, vol. 23, no. 1, pp.7–44. Available online:https://doi.org/10.1111/ijmr.12239

Holátová, D., Březinová, M. & Kantnerová, L. (2015). Strategic Management of Small and Medium-Sized Enterprises, *WSAES Transactions on Business Economics*, vol. 12, pp.65–73

Huang, W., Chen, S. & Nguyen, L. T. (2020). Corporate Social Responsibility and Organizational Resilience to COVID-19 Crisis: An Empirical Study of Chinese Firms, *Sustainability*, vol. 12, no. 21, p.8970.Available online:https://doi.org/10.3390/su12218970

Hutchins, M. J. & Sutherland, J. W. (2008). An Exploration of Measures of Social Sustainability and Their Application to Supply Chain Decisions, *Journal of cleaner production*, vol. 16, no. 15, pp.1688–1698.Available online:https://doi.org/10.1016/j.jclepro.2008.06.001

Iftikhar, A., Purvis, L. & Giannoccaro, I. (2021). A Meta-Analytical Review of Antecedents and Outcomes of Firm Resilience, *Journal of Business Research*, vol. 135, pp.408–425. Available online:https://doi.org/10.1016/j.jbusres.2021.06.048

Ilmudeen, A. (2022). Leveraging IT-Enabled Dynamic Capabilities to Shape Business Process Agility and Firm Innovative Capability: Moderating Role of Turbulent Environment, *Review of Managerial Science*, [e-journal] vol. 16, no. 8, pp.2341–2379. Available online:https://doi.org/10.1007/s11846-021-00501-9

Ilseven, E. & Puranam, P. (2021). Measuring Organizational Resilience as a Performance Outcome, *Journal of Organization Design*, vol. 10, no. 3, pp.127–137.Available online:https://doi.org/10.1007/s41469-021-00107-1

Inan, G. G. & Bititci, U. S. (2015). Understanding Organizational Capabilities and Dynamic Capabilities in the Context of Micro Enterprises: A Research Agenda, *Procedia-Social and*

Behavioral Sciences, vol. 210, pp.310–319. Available online:https://doi.org/10.1016/j.sbspro.2015.11.371

Ivankova, N. V, Creswell, J. W. & Stick, S. L. (2006). Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice, *Field methods*, vol. 18, no. 1, pp.3–20. Available online:https://doi.org/10.1177/1525822X05282260

Johnson, R. B. (1997). Examining the Validity Structure of Qualitative Research, *Education*, vol. 118, no. 2, pp.282–292

Kamalahmadi, M. & Parast, M. M. (2017). An Assessment of Supply Chain Disruption Mitigation Strategies, *International Journal of Production Economics*, vol. 184, pp.210–230.Available online:https://doi.org/10.1016/j.ijpe.2016.12.011

Kanike, U. K. (2023). Factors Disrupting Supply Chain Management in Manufacturing Industries, *Journal of Supply Chain Management Science*, vol. 4, no. 1–2, pp.1–24.Available online:https://doi.org/10.18757/jscms.2023.6986

Kellermanns, F., Walter, J., Crook, T. R., Kemmerer, B. & Narayanan, V. (2016). The Resource-based View in Entrepreneurship: A Content-analytical Comparison of Researchers' and Entrepreneurs' Views, *Journal of Small Business Management*, vol. 54, no. 1, pp.26–48. Available online:https://doi.org/10.1111/jsbm.12126

Khoja, F., Adams, J., Kauffman, R. & Yegiyan, M. (2022). How SMEs Benefit from Environmental Sustainability Strategies and Practices, in *Supply Chain Forum: An International Journal*, Vol. 23, 2022, Taylor & Francis, pp.97–112. Available online:https://doi.org/10.1080/16258312.2022.2036580

Khurana, I., Dutta, D. K. & Ghura, A. S. (2022). SMEs and Digital Transformation during a Crisis: The Emergence of Resilience as a Second-Order Dynamic Capability in an Entrepreneurial Ecosystem, *Journal of Business Research*, vol. 150, pp.623–641. Available online:https://doi.org/10.1016/j.jbusres.2022.06.048

Kim, M. & Jee, K. (2007). Factors Influencing Strategic Use of Information Technology and Its Impact on Business Performance of SMEs, *ETRI journal*, vol. 29, no. 4, pp.497–506.Available online:https://doi.org/10.1007/978-3-319-22204-2_5

Kock, N. (2015). Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach, *International Journal of e-Collaboration (ijec)*, vol. 11, no. 4, pp.1–10. Available online:https://doi.org/10.4018/ijec.2015100101

Kock, N. & Hadaya, P. (2018). Minimum Sample Size Estimation in PLS-SEM: The Inverse Square Root and Gamma-exponential Methods, *Information systems journal*, vol. 28, no. 1, pp.227–261. Available online:https://doi.org/10.1111/isj.12131

Kock, N. & Lynn, G. (2012). Lateral Collinearity and Misleading Results in Variance-Based SEM: An Illustration and Recommendations, *Journal of the Association for information Systems*, vol. 13, no. 7.Available online: https://doi.org/10.17705/1jais.00302

Koronis, E. & Ponis, S. (2018). Better than before: The Resilient Organization in Crisis Mode, *Journal of Business Strategy*, vol. 39, no. 1, pp.32–42. Available online:https://doi.org/10.1108/JBS-10-2016-0124

Kraaijenbrink, J., Spender, J.-C. & Groen, A. J. (2010). The Resource-Based View: A Review and Assessment of Its Critiques, *Journal of management*, vol. 36, no. 1, pp.349–372. Available online:https://doi.org/10.1177/0149206309350775

Krabbe, P. (2016). The Measurement of Health and Health Status: Concepts, Methods and Applications from a Multidisciplinary Perspective, Academic Press

Kroeger, T., Nguyen, A.T.N., Zhang, Y., Minh, N.H., Thuy, P.D. and Tuan, D.D., 2020. Corporate Vulnerabilities in Vietnam and Implications of COVID-19.

Kurtz, D. J. & Varvakis, G. (2016). Dynamic Capabilities and Organizational Resilience in Turbulent Environments, *Competitive strategies for small and medium enterprises: Increasing crisis resilience, agility and innovation in turbulent times*, pp.19–37.Available online:https://doi.org/10.1007/978-3-319-27303-7_2

Lankoski, J. & Thiem, A. (2020). Linkages between Agricultural Policies, Productivity and Environmental Sustainability, *Ecological Economics*, vol. 178, p.106809. Available online:https://doi.org/10.1016/j.ecolecon.2020.106809

Latan, H. (2018). PLS Path Modeling in Hospitality and Tourism Research: The Golden Age and Days of Future Past, *Applying partial least squares in tourism and hospitality research*, pp.53–83. Available online:https://doi.org/10.1108/978-1-78756-699-620181004

Leavy, P. (2022). Research Design: Quantitative, Qualitative, Mixed Methods, Arts-Based, and Community-Based Participatory Research Approaches, Guilford Publications

Lee, K. S., Lim, G. H. & Tan, S. J. (1999). Dealing with Resource Disadvantage: Generic Strategies for SMEs, *Small Business Economics*, [e-journal] vol. 12, no. 4, pp.299–311.Available online:https://doi.org/10.1023/A:10080853102455

Lengnick-Hall, C. A. & Beck, T. E. (2003). Beyond Bouncing Back: The Concept of Organizational Resilience, in *National Academy of Management Meetings, Seattle, WA*, 2003

Lengnick-Hall, C. A. & Beck, T. E. (2016). Resilience Capacity and Strategic Agility: Prerequisites for Thriving in a Dynamic Environment, in *Resilience Engineering Perspectives, Volume 2*, CRC Press, pp.61–92

Lengnick-Hall, C. A., Beck, T. E. & Lengnick-Hall, M. L. (2011). Developing a Capacity for Organizational Resilience through Strategic Human Resource Management, *Human resource management review*, vol. 21, no. 3, pp.243–255. Available online:https://doi.org/10.1016/j.hrmr.2010.07.001

Li, T. C. & Chan, Y. E. (2019). Dynamic Information Technology Capability: Concept Definition and Framework Development, *The Journal of Strategic Information Systems*, vol. 28, no. 4, p.101575. Available online:https://doi.org/10.1016/j.jsis.2019.101575

Lin, Y. & Wu, L.-Y. (2014). Exploring the Role of Dynamic Capabilities in Firm Performance under the Resource-Based View Framework, *Journal of business research*, vol. 67, no. 3, pp.407–413.Available online:https://doi.org/10.1016/j.jbusres.2012.12.019

Linnenluecke, M. K. (2017). Resilience in Business and Management Research: A Review of Influential Publications and a Research Agenda, *International Journal of Management Reviews*, vol. 19, no. 1, pp.4–30. Available online: https://doi.org/10.1111/ijmr.12076

Lisdiono, P., Said, J., Yusoff, H. & Hermawan, A. A. (2022). Examining Leadership Capabilities, Risk Management Practices, and Organizational Resilience: The Case of State-Owned Enterprises in Indonesia, *Sustainability*, vol. 14, no. 10, p.6268. Available online:https://doi.org/10.3390/su14106268

Lockett, A., Thompson, S. & Morgenstern, U. (2009). The Development of the Resource-based View of the Firm: A Critical Appraisal, *International journal of management reviews*, vol. 11, no. 1, pp.9–28. Available online: https://doi.org/10.1111/j.1468-2370.2008.00252.x

Longstaff, P. H. (2005). Security, Resilience, and Communication in Unpredictable Environments Such as Terrorism, Natural Disasters, and Complex Technology, *Center for Information Policy Research, Harvard University*, vol. 3, pp.1–7

Lopez-Cabrales, A., Valle, R. & Herrero, I. (2006). The Contribution of Core Employees to Organizational Capabilities and Efficiency, *Human Resource Management*, [e-journal] vol. 45, no. 1, pp.81–109. Available online:https://onlinelibrary.wiley.com/doi/abs/10.1002/hrm.20094

Lu, Y. & Ramamurthy, K. (Ram). (2011). Understanding the Link Between Information Technology Capability and Organizational Agility: An Empirical Examination, *MIS Quarterly*, [e-journal] vol. 35, no. 4, pp.931–954. Available online:http://www.jstor.org/stable/41409967

Lucas Jr, H. C. & Olson, M. (1994). The Impact of Information Technology on Organizational Flexibility, *Journal of Organizational Computing and Electronic Commerce*, vol. 4, no. 2, pp.155–176

Lyver, M. J. & Lu, T.-J. (2018). Sustaining Innovation Performance in SMEs: Exploring the Roles of Strategic Entrepreneurship and IT Capabilities, *Sustainability*, [e-journal] vol. 10, no. 2, Available Online: https://www.mdpi.com/2071-1050/10/2/442

Ma, Z., Xiao, L. & Yin, J. (2018). Toward a Dynamic Model of Organizational Resilience, *Nankai Business Review International*, vol. 9, no. 3, pp.246–263. Available online:https://doi.org/10.1108/NBRI-07-2017-0041

Madhani, P. M. (2010). Resource Based View (RBV) of Competitive Advantage: An Overview, *Resource based view: concepts and practices, Pankaj Madhani, ed*, pp.3–22

Mahoney, J. T. & Pandian, J. R. (1992). The Resource-based View within the Conversation of Strategic Management, *Strategic management journal*, vol. 13, no. 5, pp.363–380. Available online:https://doi.org/10.1002/smj.4250130505

Maia, A. & Frogeri, R. F. (2023). Optimizing Business Value via IT Governance Mechanisms: An Examination of SMEs in Southern Minas Gerais, Brazil, *Journal of Operational and Strategic Analytics*, vol. 1, no. 3, pp.106–114. Available online:https://doi.org/10.56578/josa010301

Makhija, M. (2003). Comparing the Resource-based and Market-based Views of the Firm: Empirical Evidence from Czech Privatization, *Strategic management journal*, vol. 24, no. 5, pp.433–451. Available online:https://doi.org/10.1002/smj.304

Mandal, S. (2021). Impact of Supplier Innovativeness, Top Management Support and Strategic Sourcing on Supply Chain Resilience, *International Journal of Productivity and Performance Management*, vol. 70, no. 7, pp.1561–1581. Available online:https://doi.org/10.1108/IJPPM-07-2019-0349

Manners-Bell, J. (2017). Supply Chain Risk Management: Understanding Emerging Threats to Global Supply Chains, Kogan Page Publishers

Mao, H., Liu, S., Zhang, J. & Deng, Z. (2016). Information Technology Resource, Knowledge Management Capability, and Competitive Advantage: The Moderating Role of Resource Commitment, *International Journal of Information Management*, [e-journal] vol. 36, no. 6, Part A, pp.1062–1074. Available online:https://doi.org/10.1016/j.ijinfomgt.2016.07.001

Mao, H., Zhang, T. & Tang, Q. (2021). Research Framework for Determining How Artificial Intelligence Enables Information Technology Service Management for Business Model Resilience, *Sustainability*, vol. 13, no. 20, p.11496. Available online:https://doi.org/10.3390/su132011496

Marchand, D. A., Kettinger, W. J. & Rollins, J. D. (2001). Information Orientation: The Link to Business Performance, Oxford University Press

Markides, C. C. & Williamson, P. J. (1996). Corporate Diversification and Organizational Structure: A Resource-Based View, *Academy of Management journal*, vol. 39, no. 2, pp.340–367

Martinelli, E., Tagliazucchi, G. & Marchi, G. (2018). The Resilient Retail Entrepreneur: Dynamic Capabilities for Facing Natural Disasters, *International Journal of Entrepreneurial Behavior & Research*, vol. 24, no. 7, pp.1222–1243. Available online:https://doi.org/10.1108/IJEBR-11-2016-0386

Martinez-Conesa, I., Soto-Acosta, P. & Palacios-Manzano, M. (2017). Corporate Social Responsibility and Its Effect on Innovation and Firm Performance: An Empirical Research in SMEs, *Journal of cleaner production*, vol. 142, pp.2374–2383.

McAfee, A. (2002). The Impact of Enterprise Information Technology Adoption on Operational Performance: An Empirical Investigation, *Production and operations management*, vol. 11, no. 1, pp.33–53.Available online:https://doi.org/10.1111/j.1937-5956.2002.tb001

McDermott, R. (2011). Internal and External Validity, *Cambridge handbook of experimental political science*, vol. 27. Available online:https://doi.org/10.1017/CBO9780511921452

McGrath, C., Palmgren, P. J. & Liljedahl, M. (2019). Twelve Tips for Conducting Qualitative Research Interviews, *Medical teacher*, vol. 41, no. 9, pp.1002–1006. Available online:https://doi.org/10.1080/0142159X.2018.1497149

McManus, S., Seville, E., Vargo, J. & Brunsdon, D. (2008). Facilitated Process for Improving Organizational Resilience, *Natural hazards review*, vol. 9, no. 2, pp.81–90. Available online:https://doi.org/10.1061/(ASCE)1527-6988(2008)9:2(

Mikalef, P. & Pateli, A. (2017). Information Technology-Enabled Dynamic Capabilities and Their Indirect Effect on Competitive Performance: Findings from PLS-SEM and FsQCA, *Journal of Business Research*, vol. 70, pp.1–16. Available online:https://doi.org/10.1016/j.jbusres.2016.09.004

Mirchandani, D. A. & Motwani, J. (2001). Understanding Small Business Electronic Commerce Adoption: An Empirical Analysis, *Journal of Computer Information Systems*, vol. 41, no. 3, pp.70–73

Mishra, S., Modi, S. B. & Animesh, A. (2013). The Relationship between Information Technology Capability, Inventory Efficiency, and Shareholder Wealth: A Firm-Level Empirical Analysis,

Journal of Operations Management, vol. 31, no. 6, pp.298–312. Available online:https://doi.org/10.1016/j.jom.2013.07.006

Molina-Azorín, J. F. (2014). Microfoundations of Strategic Management: Toward Micro–Macro Research in the Resource-Based Theory, *BRQ Business Research Quarterly*, vol. 17, no. 2, pp.102–114.Available online: https://doi.org/10.1016/j.brq.2014.01.001

Morse, J. M., Barrett, M., Mayan, M., Olson, K. & Spiers, J. (2002). Verification Strategies for Establishing Reliability and Validity in Qualitative Research, *International journal of qualitative methods*, vol. 1, no. 2, pp.13–22. Available online:https://doi.org/10.1177/160940690200100202

Mousa, M., Abdelgaffar, H. A., Chaouali, W. & Aboramadan, M. (2020). Organizational Learning, Organizational Resilience and the Mediating Role of Multi-Stakeholder Networks: A Study of Egyptian Academics, *Journal of Workplace Learning*, vol. 32, no. 3, pp.161–181. Available online:https://doi.org/10.1108/JWL-05-2019-0057

Naidoo, V. (2010). Firm Survival through a Crisis: The Influence of Market Orientation, Marketing Innovation and Business Strategy, *Industrial marketing management*, vol. 39, no. 8, pp.1311–1320. Available online:https://doi.org/10.1016/j.indmarman.2010.02.005

Nakamba, C. C., Chan, P. W. & Sharmina, M. (2017). How Does Social Sustainability Feature in Studies of Supply Chain Management? A Review and Research Agenda, *Supply Chain Management: An International Journal*, vol. 22, no. 6, pp.522–541. Available online:https://doi.org/10.1108/SCM-12-2016-0436

Nason, R. S. & Wiklund, J. (2018). An Assessment of Resource-Based Theorizing on Firm Growth and Suggestions for the Future, *Journal of management*, vol. 44, no. 1, pp.32–60.Available online:https://doi.org/10.1177/0149206315610635

Nath, P., Nachiappan, S. & Ramanathan, R. (2010). The Impact of Marketing Capability, Operations Capability and Diversification Strategy on Performance: A Resource-Based View, *Industrial Marketing Management*, vol. 39, no. 2, pp.317–329. Available online:https://doi.org/10.1016/j.indmarman.2008.09.001

Neirotti, P. & Raguseo, E. (2017). On the Contingent Value of IT-Based Capabilities for the Competitive Advantage of SMEs: Mechanisms and Empirical Evidence, *Information & Management*, vol. 54, no. 2, pp.139–153. Available online:https://doi.org/10.1016/j.im.2016.05.004

Newbert, S. L. (2007). Empirical Research on the Resource-based View of the Firm: An Assessment and Suggestions for Future Research, *Strategic management journal*, vol. 28, no. 2, pp.121–146. Available online:https://doi.org/10.1002/smj.573

Nguyen, P. V, Huynh, H. T. N., Lam, L. N. H., Le, T. B. & Nguyen, N. H. X. (2021). The Impact of Entrepreneurial Leadership on SMEs' Performance: The Mediating Effects of Organizational Factors, *Heliyon*, vol. 7, no. 6. Available online:https://doi.org/10.1016/j.heliyon.2021.e07326

Nordqvist, M., Sharma, P. & Chirico, F. (2014). Family Firm Heterogeneity and Governance: A Configuration Approach, *Journal of Small Business Management*, vol. 52, no. 2, pp.192–209. Available online:https://doi.org/10.1111/jsbm.12096

Oh, L.-B. & Teo, H.-H. (2006). The Impacts of Information Technology and Managerial Proactiveness in Building Net-Enabled Organizational Resilience, in *The Transfer and Diffusion of Information*

Technology for Organizational Resilience: IFIP TC8 WG 8.6 International Working Conference, June 7–10, 2006, Galway, Ireland, 2006, Springer, pp.33–50.Available online:https://doi.org/10.1007/0-387-34410-1_3

Onwuegbuzie, A. J. & Collins, K. M. T. (2007). A Typology of Mixed Methods Sampling Designs in Social Science Research., *Qualitative report*, vol. 12, no. 2, pp.281–316. Available online:https://doi.org/10.46743/2160-3715/2007.1638

Ozanne, L. K., Chowdhury, M., Prayag, G. & Mollenkopf, D. A. (2022). SMEs Navigating COVID-19: The Influence of Social Capital and Dynamic Capabilities on Organizational Resilience, *Industrial Marketing Management*, vol. 104, pp.116–135. Available online:https://doi.org/10.1016/j.indmarman.2022.04.009

Pal, R., Torstensson, H. & Mattila, H. (2014). Antecedents of Organizational Resilience in Economic Crises—an Empirical Study of Swedish Textile and Clothing SMEs, *International Journal of Production Economics*, vol. 147, pp.410–428. Available online:https://doi.org/10.1016/j.ijpe.2013.02.031

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, J. P., Duan, N. & Hoagwood, K. (2015). Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research, *Administration and policy in mental health and mental health services research*, vol. 42, pp.533–544.Available online:https://doi.org/10.1007/s10488-013-0528-y

Park, J. Y., Im, K. S. & Kim, J. S. (2011). The Role of IT Human Capability in the Knowledge Transfer Process in IT Outsourcing Context, *Information & Management*, [e-journal] vol. 48, no. 1, pp.53–61.Available online:https://doi.org/10.1016/j.im.2011.01.001

Patton, M. Q. (2002). Qualitative Research & Evaluation Methods, sage

Pavlou, P. A. & El Sawy, O. A. (2006). From IT Leveraging Competence to Competitive Advantage in Turbulent Environments: The Case of New Product Development, *Information systems research*, vol. 17, no. 3, pp.198–227. Available online:https://doi.org/10.1287/isre.1060.0094

Peteraf, M. A. & Bergen, M. E. (2003). Scanning Dynamic Competitive Landscapes: A Market-based and Resource-based Framework, *Strategic management journal*, vol. 24, no. 10, pp.1027–1041. Available online:https://doi.org/10.1002/smj.325

Pisano, G. & Teece, D. (1994). The Dynamic Capabilities of Firms: An Introduction, *Industrial and Corporate Change*, vol. 3, no. 3, pp.537–556. Available online:https://doi.org/10.1093/icc/3.3.537-a

Ponis, S. T. & Koronis, E. (2012). Supply Chain Resilience? Definition of Concept and Its Formative Elements., *The journal of applied business research*, vol. 28, no. 5, pp.921–935. Available online:https://doi.org/10.19030/jabr.v28i5.7234

Porter, M. E. & Linde, C. van der. (1995). Toward a New Conception of the Environment-Competitiveness Relationship, *Journal of economic perspectives*, vol. 9, no. 4, pp.97–118. Available online:https://doi.org/10.1257/jep.9.4.97

Prayag, G., Jiang, Y., Chowdhury, M., Hossain, M. I. & Akter, N. (2024). Building Dynamic Capabilities and Organizational Resilience in Tourism Firms during COVID-19: A Staged

Approach, *Journal of Travel Research*, vol. 63, no. 3, pp.713–740.Available online:https://doi.org/10.1177/00472875231164976

Purwanto, A. (2021). Partial Least Squares Structural Squation Modeling (PLS-SEM) Analysis for Social and Management Research: A Literature Review, *Journal of Industrial Engineering & Management Research*

Putritamara, J. A., Hartono, B., Toiba, H., Utami, H. N., Rahman, M. S. & Masyithoh, D. (2023). Do Dynamic Capabilities and Digital Transformation Improve Business Resilience during the COVID-19 Pandemic? Insights from Beekeeping MSMEs in Indonesia, *Sustainability*, vol. 15, no. 3, p.1760. Available online:https://doi.org/10.3390/su15031760

Rai, S. S., Rai, S. & Singh, N. K. (2021). Organizational Resilience and Social-Economic Sustainability: COVID-19 Perspective, *Environment, Development and Sustainability*, vol. 23, pp.12006–12023. Available online:https://doi.org/10.1007/s10668-020-01154-6

Rangone, A. (1999). A Resource-Based Approach to Strategy Analysis in Small-Medium Sized Enterprises, *Small business economics*, vol. 12, pp.233–248. Available online:https://doi.org/10.1023/A:1008046917465

Rasoolimanesh, S. M. (2022). Discriminant Validity Assessment in PLS-SEM: A Comprehensive Composite-Based Approach, *Data Analysis Perspectives Journal*, vol. 3, no. 2, pp.1–8

Richtnér, A. & Löfsten, H. (2014). Managing in Turbulence: How the Capacity for Resilience Influences Creativity, *R&d Management*, vol. 44, no. 2, pp.137–151

Rindfleisch, A., Malter, A. J., Ganesan, S. & Moorman, C. (2008). Cross-Sectional versus Longitudinal Survey Research: Concepts, Findings, and Guidelines, *Journal of marketing research*, vol. 45, no. 3, pp.261–279

Ringle, C. M., Wende, S. & Becker, J.-M. (2024). SmartPLS 4, Available Online: https://www.smartpls.com/ Access:

Riou, J., Guyon, H. & Falissard, B. (2016). An Introduction to the Partial Least Squares Approach to Structural Equation Modelling: A Method for Exploratory Psychiatric Research, *International Journal of Methods in Psychiatric Research*, vol. 25, no. 3, pp.220–231

Rivera-Camino, J. (2007). Re-evaluating Green Marketing Strategy: A Stakeholder Perspective, *European journal of marketing*, vol. 41, no. 11/12, pp.1328–1358 Available Online:https://doi.org/10.1111/radm.12038

Romero, D., Stahre, J., Larsson, L. & Rönnbäck, A. Ö. (2021). Building Manufacturing Resilience through Production Innovation, in *2021 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC)*, 2021, IEEE, pp.1–9Available Online:https://doi.org/10.1111/radm.12038

Saad, M. H., Hagelaar, G., Van Der Velde, G. & Omta, S. W. F. (2021). Conceptualization of SMEs' Business Resilience: A Systematic Literature Review, *Cogent Business & Management*, vol. 8, no. 1, p.1938347. Available Online: https://doi.org/10.1080/23311975.2021.1938347

Salikin, N., Ab Wahab, N. & Muhammad, I. (2014). Strengths and Weaknesses among Malaysian SMEs: Financial Management Perspectives, *Procedia-Social and Behavioral Sciences*, vol. 129, pp.334–340 .Available Online:https://doi.org/10.1016/j.sbspro.2014.03.685

Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L. & Ringle, C. M. (2022). Progress in Partial Least Squares Structural Equation Modeling Use in Marketing Research in the Last Decade, *Psychology & Marketing*, vol. 39, no. 5, pp.1035–1064.Available Online: https://doi.org/10.1002/mar.21591

Sarstedt, M., Ringle, C. M. & Hair, J. F. (2021). Partial Least Squares Structural Equation Modeling, in *Handbook of Market Research*, Springer, pp.587–632 .Available Online:https://doi.org/10.1007/978-3-319-05542-8_15

Saunders, M., Lewis, P. & Thornhill, A. (2009). Research Methods for Business Students, Pearson education

Schrettle, S., Hinz, A., Scherrer-Rathje, M. & Friedli, T. (2014). Turning Sustainability into Action: Explaining Firms' Sustainability Efforts and Their Impact on Firm Performance, *International Journal of Production Economics*, vol. 147, pp.73–84 Available Online:https://doi.org/10.1016/j.ijpe.2013.02.030

Shani, O. (2020). Organizational Resilience: Antecedents, Consequences, and Practical Implications–for Managers and Change Leaders, in *Research in Organizational Change and Development*, Vol. 28, Emerald Publishing Limited, pp.127–158 Available Online:https://doi.org/10.1108/S0897-301620200000028005

Sheffi, Y. & Rice Jr, J. B. (2005). A Supply Chain View of the Resilient Enterprise, *MIT Sloan management review*

Shibin, K. T., Dubey, R., Gunasekaran, A., Hazen, B., Roubaud, D., Gupta, S. & Foropon, C. (2020). Examining Sustainable Supply Chain Management of SMEs Using Resource Based View and Institutional Theory, *Annals of Operations Research*, vol. 290, pp.301–326 Available Online:https://doi.org/10.1007/s10479-017-2706-x

Shields, J. & Shelleman, J. M. (2015). Integrating Sustainability into SME Strategy, *Journal of Small Business Strategy (archive only)*, vol. 25, no. 2, pp.59–78

Shmueli, G., Ray, S., Estrada, J. M. V. & Chatla, S. B. (2016). The Elephant in the Room: Predictive Performance of PLS Models, *Journal of business Research*, vol. 69, no. 10, pp.4552–4564.Available Online:https://doi.org/10.1016/j.jbusres.2016.03.049

Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S. & Ringle, C. M. (2019). Predictive Model Assessment in PLS-SEM: Guidelines for Using PLSpredict, *European journal of marketing*, vol. 53, no. 11, pp.2322–2347Available Online:https://doi.org/10.1108/EJM-02-2019-0189

Short, J. C., Ketchen Jr, D. J. & Palmer, T. B. (2002). The Role of Sampling in Strategic Management Research on Performance: A Two-Study Analysis, *Journal of Management*, vol. 28, no. 3, pp.363–385 Available Online:https://doi.org/10.1177/014920630202800304

Simchi-Levi, D., Schmidt, W., Wei, Y., Zhang, P. Y., Combs, K., Ge, Y., Gusikhin, O., Sanders, M. & Zhang, D. (2015). Identifying Risks and Mitigating Disruptions in the Automotive Supply Chain, *Interfaces*, vol. 45, no. 5, pp.375–390.Available Online:https://doi.org/10.1287/inte.2015.0812

Sipos, N., Bányai, E. & Venczel-Szakó, T. (2023). An International Empirical Study on the Relationship between Decision-making Information Complexity and Resource-based View in Small and

Medium-sized Enterprises, *Systems Research and Behavioral Science.* Available Online:https://doi.org/10.1002/sres.2891

Somers, S. (2009). Measuring Resilience Potential: An Adaptive Strategy for Organizational Crisis Planning, *Journal of contingencies and crisis management*, vol. 17, no. 1, pp.12–23

Song, M., Di Benedetto, C. A. & Nason, R. W. (2007). Capabilities and Financial Performance: The Moderating Effect of Strategic Type, *Journal of the Academy of Marketing Science*, vol. 35, pp.18–34

Spanos, Y. E. & Prastacos, G. (2004). Understanding Organizational Capabilities: Towards a Conceptual Framework, *Journal of Knowledge Management*, vol. 8, no. 3, pp.31–43

Srivastava, R. K., Fahey, L. & Christensen, H. K. (2001). The Resource-Based View and Marketing: The Role of Market-Based Assets in Gaining Competitive Advantage, *Journal of management*, vol. 27, no. 6, pp.777–802

Stoel, M. D. & Muhanna, W. A. (2009). IT Capabilities and Firm Performance: A Contingency Analysis of the Role of Industry and IT Capability Type, *Information & Management*, vol. 46, no. 3, pp.181–189

Su, W. & Junge, S. (2023). Unlocking the Recipe for Organizational Resilience: A Review and Future Research Directions, *European Management Journal*, vol. 41, no. 6, pp.1086–1105

Suryaningtyas, D., Sudiro, A., Eka, T. A. & Dodi, I. W. (2019). Organizational Resilience and Organizational Performance: Examining the Mediating Roles of Resilient Leadership and Organizational Culture, *Academy of Strategic Management Journal*, vol. 18, no. 2, pp.1–7

Svetličič, M., Jaklič, A. & Burger, A. (2007). Internationalization of Small and Medium-Size Enterprises from Selected Central European Economies, *Eastern European Economics*, vol. 45, no. 4, pp.36–65

Taber, K. S. (2018). The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education, *Research in science education*, vol. 48, pp.1273–1296

Tahir, H. M., Razak, N. A. & Rentah, F. (2018). The Contributions of Small and Medium Enterprises (SME's) On Malaysian Economic Growth: A Sectoral Analysis, in *Proceedings of the 7th International Conference on Kansei Engineering and Emotion Research 2018: KEER 2018, 19-22 March 2018, Kuching, Sarawak, Malaysia*, 2018, Springer, pp.704–711

Tallon, P. P. (2008). Inside the Adaptive Enterprise: An Information Technology Capabilities Perspective on Business Process Agility, *Information Technology and Management*, [e-journal] vol. 9, no. 1, pp.21–36, Available Online: https://doi.org/10.1007/s10799-007-0024-8

Teece, D. J. (2007). Explicating Dynamic Capabilities: The Nature and Microfoundations of (Sustainable) Enterprise Performance, *Strategic management journal*, vol. 28, no. 13, pp.1319–1350Available Online: https://doi.org/10.1002/smj.640

Teece, D. J. (2016). Dynamic Capabilities and Entrepreneurial Management in Large Organizations: Toward a Theory of the (Entrepreneurial) Firm, *European Economic Review*, vol. 86, pp.202–216 Available Online: https://doi.org/10.1016/j.euroecorev.2015.11.006

Teece, D. J., Pisano, G. & Shuen, A. (1997). Dynamic Capabilities and Strategic Management, *Strategic management journal*, vol. 18, no. 7, pp.509–533 Available Online: https://doi.org/10.1002/(SICI)1097-0266(199708)

Temouri, Y., Shen, K., Pereira, V. & Xie, X. (2022). How Do Emerging Market SMEs Utilize Resources in the Face of Environmental Uncertainty?, *BRQ Business Research Quarterly*, vol. 25, no. 3, pp.212–223 Available Online: https://doi.org/10.1177/23409444221086574

Temtime, Z. T., Chinyoka, S. V & Shunda, J. P. W. (2003). Toward Strategic Use of IT in SMEs: A Developing Country Perspective, *Information Management & Computer Security*, vol. 11, no. 5, pp.230–237Available Online: https://doi.org/10.1108/09685220310500181

Terziovski, M. (2010). Innovation Practice and Its Performance Implications in Small and Medium Enterprises (SMEs) in the Manufacturing Sector: A Resource-based View, *Strategic management journal*, vol. 31, no. 8, pp.892–902 Available Online: https://doi.org/10.1002/smj.841

Thompson, C. G., Kim, R. S., Aloe, A. M. & Becker, B. J. (2017). Extracting the Variance Inflation Factor and Other Multicollinearity Diagnostics from Typical Regression Results, *Basic and Applied Social Psychology*, vol. 39, no. 2, pp.81–90 Available Online: https://doi.org/10.1080/01973533.2016.1277529

Thong, J. Y. L. (1999). An Integrated Model of Information Systems Adoption in Small Businesses, *Journal of management information systems*, vol. 15, no. 4, pp.187–214 Available Online: https://doi.org/10.1080/07421222.1999.11518227

Thong, J. Y. L. & Yap, C.-S. (1995). CEO Characteristics, Organizational Characteristics and Information Technology Adoption in Small Businesses, *Omega*, vol. 23, no. 4, pp.429–442 Available Online: https://doi.org/10.1016/0305-0483(95)00017-I

Tracy, S. J. (2019). Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact, John Wiley & Sons

Trieu, H. D. X., Van Nguyen, P., Nguyen, T. T. M., Vu, H. M. & Tran, K. (2023). Information Technology Capabilities and Organizational Ambidexterity Facilitating Organizational Resilience and Firm Performance of SMEs, *Asia Pacific Management Review* Available Online: https://doi.org/10.1016/j.apmrv.2023.04.002

Tsai, M.-S., Tsai, M.-C. & Chang, C.-C. (2013). The Direct and Indirect Factors on Affecting Organizational Sustainability, *J. Mgmt. & Sustainability*, vol. 3, p.67 Available Online: https://doi.org/10.5539/jms.v3n4p67

Vallance, S., Perkins, H. C. & Dixon, J. E. (2011). What Is Social Sustainability? A Clarification of Concepts, *Geoforum*, vol. 42, no. 3, pp.342–348 Available Online: https://doi.org/10.1016/j.geoforum.2011.01.002

Van Der Vegt, G. S., Essens, P., Wahlström, M. & George, G. (2015). Managing Risk and Resilience, *Academy of Management Journal*

Venkatraman, N., Henderson, J. C. & Oldach, S. (1993). Continuous Strategic Alignment: Exploiting Information Technology Capabilities for Competitive Success, *European Management Journal*, [e-journal] vol. 11, no. 2, pp.139–149, Available Online: Available Online: https://www.sciencedirect.com/science/article/pii/026323739390037I

Vercio, C., Loo, L. K., Green, M., Kim, D. I. & Beck Dallaghan, G. L. (2021). Shifting Focus from Burnout and Wellness toward Individual and Organizational Resilience, *Teaching and learning in medicine*, vol. 33, no. 5, pp.568–576

Vogel, R. & Güttel, W. H. (2013). The Dynamic Capability View in Strategic Management: A Bibliometric Review, *International Journal of Management Reviews*, vol. 15, no. 4, pp.426–446

Wang, H., Tong, L., Takeuchi, R. & George, G. (2016). Thematic Issue on Corporate Social Responsibility Corporate Social Responsibility: An Overview and New Research Directions, *Academy of Management journal*, vol. 59, no. 2, p.534 Available Online: https://doi.org/10.5465/amj.2016.5001

Wang, N., Liang, H., Zhong, W., Xue, Y. & Xiao, J. (2012). Resource Structuring or Capability Building? An Empirical Study of the Business Value of Information Technology, *Journal of Management Information Systems*, vol. 29, no. 2, pp.325–367 Available Online: https://doi.org/10.2753/MIS0742-1222290211

Webb, B. & Schlemmer, F. (2006). Resilience as a Source of Competitive Advantage for Small Information Technology Companies, in *The Transfer and Diffusion of Information Technology for Organizational Resilience: IFIP TC8 WG 8.6 International Working Conference, June 7–10, 2006, Galway, Ireland*, 2006, Springer, pp.181–197Available Online: https://doi.org/10.1007/0-387-34410-1_12

Wernerfelt, B. (1984). A Resource-based View of the Firm, *Strategic management journal*, vol. 5, no. 2, pp.171–180 Available Online: https://doi.org/10.1002/smj.4250050207

White, G. P. (1996). A Meta-analysis Model of Manufacturing Capabilities, *Journal of Operations Management*, vol. 14, no. 4, pp.315–331Available Online: https://doi.org/10.1016/S0272-6963(96)00092-4

Wided, R. (2023). IT Capabilities, Strategic Flexibility and Organizational Resilience in SMEs Post-COVID-19: A Mediating and Moderating Role of Big Data Analytics Capabilities, *Global Journal of Flexible Systems Management*, vol. 24, no. 1, pp.123–142 Available Online: https://doi.org/10.1007/s40171-022-00311-5

Wildavsky, A. B. (1988). Searching for Safety, Vol. 10, Transaction publishers

Wilden, R. & Gudergan, S. P. (2015). The Impact of Dynamic Capabilities on Operational Marketing and Technological Capabilities: Investigating the Role of Environmental Turbulence, *Journal of the Academy of Marketing Science*, [e-journal] vol. 43, no. 2, pp.181–199, Available Online: https://doi.org/10.1007/s11747-014-0380-y

Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A. & Zhao, E. Y. (2017). Organizational Response to Adversity: Fusing Crisis Management and Resilience Research Streams, *Academy of management annals*, vol. 11, no. 2, pp.733–769

Woschke, T., Haase, H. & Kratzer, J. (2017). Resource Scarcity in SMEs: Effects on Incremental and Radical Innovations, *Management Research Review*, vol. 40, no. 2, pp.195–217 Available Online: https://doi.org/10.1108/MRR-10-2015-0239

Wu, L.-Y. (2010). Applicability of the Resource-Based and Dynamic-Capability Views under Environmental Volatility, *Journal of business research*, vol. 63, no. 1, pp.27–31Available Online: https://doi.org/10.1016/j.jbusres.2009.01.007

Xie, X., Wu, Y., Palacios-Marqués, D. & Ribeiro-Navarrete, S. (2022). Business Networks and Organizational Resilience Capacity in the Digital Age during COVID-19: A Perspective Utilizing Organizational Information Processing Theory, *Technological Forecasting and Social Change*, vol. 177, p.121548.Available Online: https://doi.org/10.1016/j.techfore.2022.121548

Yacob, P., Wong, L. S. & Khor, S. C. (2019). An Empirical Investigation of Green Initiatives and Environmental Sustainability for Manufacturing SMEs, *Journal of Manufacturing Technology Management*, vol. 30, no. 1, pp.2–25 Available Online: https://doi.org/10.1108/JMTM-03-2018-0093

Yao, J. E., Xu, X., Liu, C. & Lu, J. (2003). Organizational Size: A Significant Predictor of IT Innovation Adoption, *Journal of Computer Information Systems*, vol. 43, no. 2, pp.76–82

Yin, R. K. (2003). Designing Case Studies, *Qualitative research methods*, vol. 5, no. 14, pp.359–386

Yin, R. K. (2009). Case Study Research: Design and Methods, Vol. 5, sage

Zabłocka-Kluczka, A. & Sałamacha, A. K. (2023). Organizational Resilience as the Mediator of Relation between Brand Performance and Organizational Performance–Reflections from the Perspective of Crisis Times, *Journal of Organizational Change Management*, vol. 36, no. 6, pp.932–949.Available Online: https://doi.org/10.1108/JOCM-01-2023-0034

Zahoor, N., Khan, H., Khan, Z. & Akhtar, P. (2022). Responsible Innovation in Emerging Markets' SMEs: The Role of Alliance Learning and Absorptive Capacity, *Asia Pacific Journal of Management*, pp.1–35

Zahra, S. A. & George, G. (2002). Absorptive Capacity: A Review, Reconceptualization, and Extension, *Academy of management review*, vol. 27, no. 2, pp.185–203

Zahra, S. A., Sapienza, H. J. & Davidsson, P. (2006). Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda*, *Journal of Management Studies*, [e-journal] vol. 43, no. 4, pp.917–955, Available Online: https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-6486.2006.00616.x

Zhou, J., Hu, L., Yu, Y., Zhang, J. Z. & Zheng, L. J. (2022). Impacts of IT Capability and Supply Chain Collaboration on Supply Chain Resilience: Empirical Evidence from China in COVID-19 Pandemic, *Journal of Enterprise Information Management* Available Online:https://doi.org/10.1108/JEIM-03-2022-0091

Appendix A

Table 10: Measurement scale for quantitiave phase and four open-ended questions

Constructs	Code	Items	Sources	Type of scale

Social sustainability	SS1	We invest in our workers' health and safety.	(Rai et al., 2021)	Five-point Likert scale
	SS2	We provide equal remuneration for women and men.		
	SS3	We focus on protecting our workers' rights.		
	SS4	We manage to create a non-discrimination workplace.		
	SS5	We focus on job creation for local communities.		
How does your organization work to support the well-being of employees and the wider community?				Open-ended question
Organizational Resilience	OR1	When disruption occurs, our company could improvise solutions to adjust the workflow.	(Rai et al., 2021; Trieu et al., 2023)	Five-point Likert scale
	OR2	When disruption occurs, our company could collect key information and review the consequences of a variety of remedies.		
	OR3	Our company does cross-training and job rotation to prepare for the changes.		
	OR4	We are flexible to cope with the changing market requirements		
- How is your organization building resilience against unforeseen disruptions?				Open-ended question
Dynamic capabilities	DC1	Our firm has the ability to mobilize resources effectively	(Nguyen et al., 2021)	Five-point Likert scale
	DC2	Our firm is able to configure organizational resources to cope with different situations.		
	DC3	Our firm's members have the capability to learn new knowledge and skills to meet job requirements quickly.		
	DC4	Our firm is very proactive in updating and applying the best practices in the industry to improve performance.		
	DC5	Our firm highly adapts to the rapid changes in the business environment.		

- How is your organization creating resilience to stay competitive within your industry?				Open-ended question
IT capabilities	IT1	We have invested extensively in building our IT infrastructure.	(Trieu et al., 2023)	Five-point Likert scale
	IT2	We have up-to-date IT infrastructure.		
	IT3	We regularly upgrade our IT equipment and applications.		
	IT4	We have strong IT skills.		
	IT5	Our IT skills are comparable to those of the best firms in our industry.		
- How do IT capabilities foster your organizational resilience to disruptions?				Open-ended question

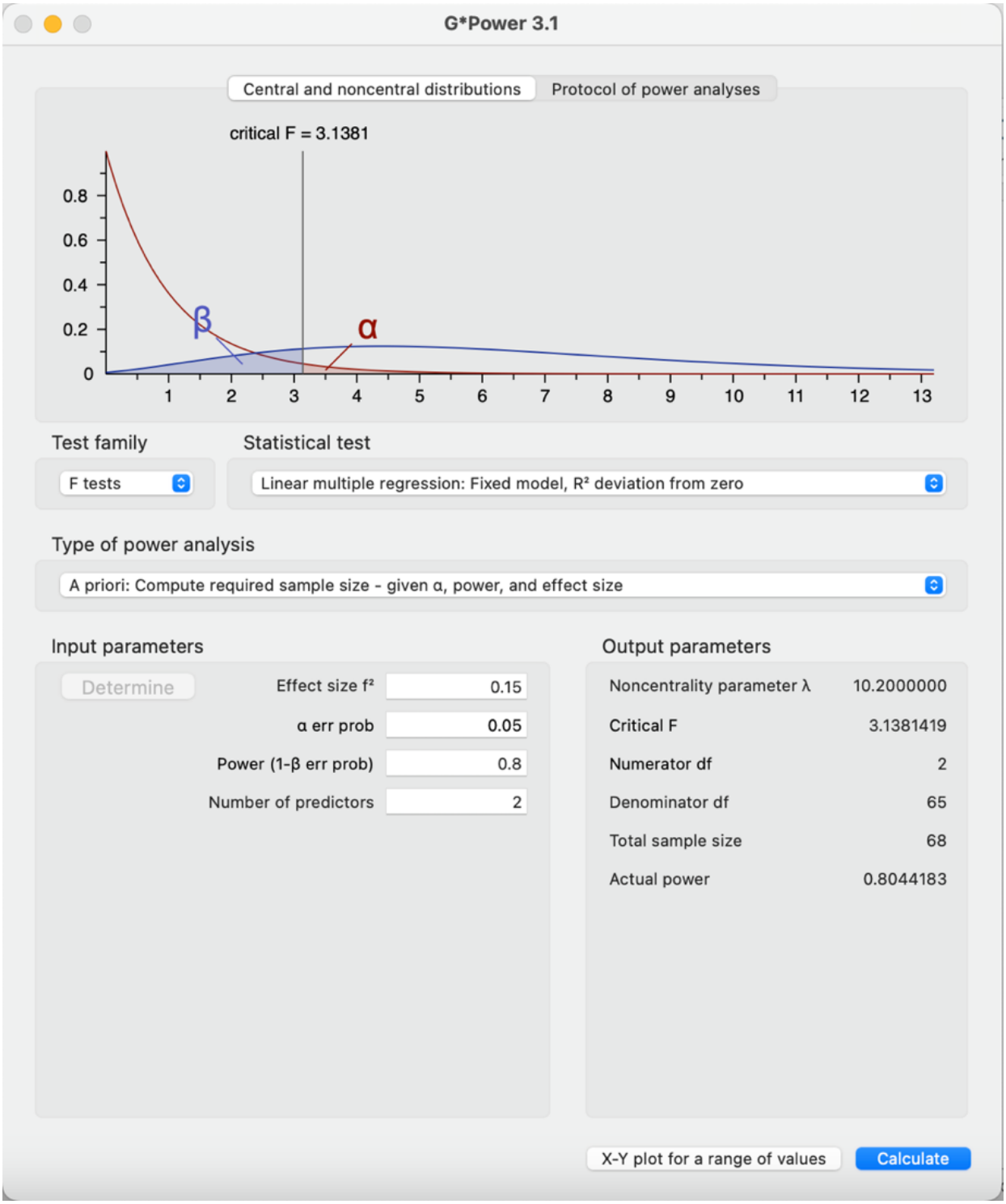
Table 11: Sample profile

Total number of samples	
Demographics	Percentage
Ownership	
State-owned enterprises	1.2%
Private enterprises	59.3%
Joint stock enterprises	4.9%
Foreign-invested enterprises	34.6%
Years of operations	
Less than 5 years	32.1%
From 5 to 10 years	19.8%
From 11 to 20 years	29.2%
More than 20 years	18.9%
Number of employees	
Less than 20 employees	37%
From 20 to 50 employees	21%
From 51 to 100 employees	9.9%
From 101 to 200 employees	32.1%
Annual revenue	

Less than 20 billion VND	42%
From 20 to less than 50 billion VND	18.5%
From 50 to less than 100 billion VND	12.3%
From 100 to 200 billion VND	27.2%
Respondents' job positions	
Top level of management	28.4%
Middle level of management	33.3%
Lower level of management	38.3%
Business sectors	
Manufacturing	14.8%
Services	51.9%
Construction	3.7%
Logistics	4.9%
Information Technology	19.8%
Others	4.9%

(Source: Authors summarized)

Image 4: The power analysis for sample size determination



(Source: Authors calculated)

Appendix B

List of interview questions

1. What is the role of Information technology in your company and how important it is to the company's daily operations? In what areas of operations/business and where is it role?

2. What are the reasons (for the answers that the respondent just disclosed in the first question)?

- If the respondent says that IT capabilities are important to his/her company, they how so?

- If the respondent says that IT capabilities are NOT important to his/her company, then why?

3. Why the decision to apply/not apply information technology in your company depend on industry trends, internal policies, or other considerations?

4. How does your company deal with threats or pressure from the market and competitors when not applying IT in daily operations?

5. What do you think about the role of IT capabilities in your company if a sudden disruption happens?

6. How do you overcome these challenges without IT resources and capabilities?

7. Do you think IT could help increase a firm's resilience to turbulence? And how so?

8. If IT capabilities are important (or not important), are there any other alternative capabilities or resources that can help your company remain resilient?

9. Could you share if IT capabilities play any role in supporting your company to achieve social sustainability?

10. Do you think you company might have to adopt IT or a new areas of IT in the future? And How?