

Enhancing SME Resilience During COVID-19: A Systematic Review of Digital Capabilities, Relational Strengths, and Organizational Agility

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ABSTRACT

The COVID-19 pandemic has severely impacted small and medium-sized enterprises (SMEs), exposing limitations in their resources and adaptability. This study investigates how digital technology capability, relational capability, the quality of external expertise, and organizational agility influence the performance of Malaysian manufacturing SMEs during the pandemic. Anchored in the Resource-Based View (RBV) and Contingency Theory (CT), the study adopts a systematic literature review (SLR) method using SCOPUS-indexed journals. Through a rigorous filtering process, ten core empirical articles were selected to explore how internal and external capabilities interact with pandemic-induced disruptions. The findings reveal that digital and relational capabilities enhance organizational agility, which in turn positively influences SME performance. The study also introduces COVID-19 impact as a moderating factor and highlights the mediating role of agility in performance outcomes. These insights offer strategic guidance for SME leaders and policymakers to prioritize digital investments and collaborative networks. The research contributes to theory-building by integrating RBV and CT in crisis contexts and sets the stage for future empirical validation across diverse sectors and regions.

Keywords: Agility; COVID-19; Digital Technologies; Firm Performance; Malaysian MSMEs; Relational Capability; Resource-Based View

INTRODUCTION

The COVID-19 pandemic has caused unprecedented disruption to economies worldwide, severely affecting organizational operations across virtually all sectors and regions (Cheah et al., 2024; Rajah et al., 2023; Troise et al., 2022). Governments around the globe implemented lockdowns, movement restrictions, and health-related regulations to curb the virus's spread, with major economies such as China, Europe, and the United States being among the most affected. These measures, while necessary from a public health perspective, resulted in significant economic side effects—disrupting global supply chains, halting routine business activities, and leading to a marked decline in consumer demand and spending (Abed, 2022; Gössling et al., 2021; Kee, Lee, et al., 2023; Rozak et al., 2021). For many firms, the crisis not only represented a temporary shock but exposed structural weaknesses and operational vulnerabilities, particularly for those with limited adaptability.

Micro, small, and medium enterprises (MSMEs) were disproportionately impacted by the crisis due to their typically constrained financial resources, smaller operational scale, and reduced strategic flexibility (Lu et al., 2020; Markovic et al., 2021; Ratnasingam et al., 2020; Waiho et al., 2020). In Malaysia, MSMEs form the backbone of the national economy, accounting for a substantial portion of gross domestic product and serving as key sources of employment. However, the pandemic laid bare the fragility of this segment, with many businesses experiencing sharp declines in revenue, increased layoffs, operational shutdowns, and weakened contributions to national tax income and public finances (Amran et al., 2023; Rajah et al., 2023). This scenario underscores the urgent need to identify which organizational resources and dynamic capabilities can enable MSMEs to remain resilient, competitive, and responsive to prolonged crises.

While existing scholarship has investigated the role of digital transformation, technological readiness, and relational capabilities in shaping SME performance under normal business conditions, relatively few studies have explored how these internal and external factors interact under acute environmental uncertainty, especially during a prolonged public health crisis like COVID-19. Furthermore, there remains a gap in understanding how organizational agility serves as a bridging mechanism that connects firm capabilities to outcomes in times of disruption. Similarly, the specific role of the COVID-19 pandemic as a moderating factor that could alter the strength or direction of these relationships has been underexplored in empirical frameworks. Many existing models often examine these variables in isolation or neglect the integrative perspective needed to account for dynamic interactions under contingency conditions.

To address these theoretical and practical gaps, this study conducts a systematic literature review (SLR) aimed at examining the influence of digital technology capability, relational capability, and the quality of external expertise on the performance of Malaysian MSME manufacturers during the COVID-19 crisis. The review is anchored in the Resource-Based View (RBV), which emphasizes the strategic value of internal firm resources, and Contingency Theory (CT), which considers the role of environmental factors in shaping organizational effectiveness. By combining these two frameworks, the study proposes a more comprehensive conceptual model in which organizational agility is positioned as a mediating variable that links internal and external capabilities to firm performance, while the pandemic is treated as a moderating contingency that alters the nature of these relationships.

This research makes a meaningful contribution by extending the application of RBV and CT to an unprecedented global crisis, offering a richer understanding of how agility, resilience, and digital competencies can jointly drive adaptive performance in MSMEs. It

also generates practical insights for SME leaders, support agencies, and policymakers who are seeking actionable strategies to help small firms withstand volatility, digitize effectively, and strengthen relational networks in the post-pandemic landscape.

LITERATURE REVIEW

Theoretical Foundations for Assessing MSME Performance in Crisis Contexts

Understanding the performance of firms, particularly MSMEs, has long been anchored in established strategic management theories. One of the most widely applied frameworks is the RBV, which asserts that a firm's sustained competitive advantage stems from the possession and effective utilization of internal resources that are valuable, rare, inimitable, and non-substitutable (VRIN) (Barney, 1991; Cheah, 2018; Kee, Sin, et al., 2023; Yang et al., 2015). RBV highlights the importance of leveraging unique organizational capabilities—such as proprietary technologies, skilled human capital, and established relational networks—as critical enablers of superior firm performance. However, while RBV is instrumental in identifying resource strength, it tends to view firm resources as relatively static, underestimating the complexities of fast-changing environments like those brought on by global crises.

To address this limitation, CT provides a complementary perspective by arguing that no single organizational strategy or structure is universally effective. Instead, firm performance depends on how well a company's internal decisions align with its external environmental context (Ch'ng et al., 2021; Kee et al., 2024; Quyen et al., 2024; Venkatraman, 1989). In periods of turbulence, such as during the COVID-19 pandemic, the effectiveness of strategic responses hinges on their fit with shifting market demands, regulatory constraints, and supply chain disruptions. CT thus introduces the idea of situational relevance, suggesting that the same set of capabilities may yield different outcomes depending on contextual variables, such as industry type, geographic region, and crisis severity.

Recognizing the dynamic nature of modern business environments, especially in the face of disruptive global events, scholars have increasingly integrated the Dynamic Capabilities Theory (DCT) into analyses of firm performance. This theory expands on RBV by focusing on a firm's capacity to adapt, integrate, and reconfigure internal and external resources in real time to respond to environmental volatility (Teece et al., 2016). It emphasizes the importance of agility, innovation, and learning as ongoing processes that enable firms to navigate uncertainty and capitalize on emerging opportunities. Dynamic capabilities are particularly relevant for MSMEs, which often lack the scale advantages of larger firms but can compensate through nimbleness and responsiveness.

Taken together, RBV, CT, and the DCT offer a robust, multi-dimensional lens through which to evaluate how MSMEs perform during crisis conditions. RBV provides the foundation for identifying and leveraging core resources; CT ensures that strategic actions are appropriately contextualized; and DCT underscores the need for continuous adaptation. In the context of the COVID-19 pandemic, the integration of these frameworks allows for a nuanced analysis of how MSMEs in Malaysia can build resilience, maintain performance, and even achieve competitive advantage amid unprecedented disruptions.

The Strategic Role of Digital Capability in Enhancing SME Performance

The ability to adopt, integrate, and strategically leverage digital technologies—often referred to as IT capability (Ravichandran, 2018), digital capability (Proksch et al., 2021), or digital skills (Rozak et al., 2021)—has emerged as a critical internal resource that can significantly enhance the competitiveness and resilience of small and medium-sized

enterprises (SMEs). In today's rapidly evolving business environment, digital capability is no longer a luxury but a necessity, particularly as firms seek to navigate complex market dynamics and sudden disruptions such as the COVID-19 pandemic.

Several scholars have emphasized the pivotal role digital technologies play in fostering organizational agility and improving firm outcomes. For instance, [Rozak et al. \(2021\)](#) and [Troise et al. \(2022\)](#) provide empirical evidence that digital capability directly contributes to organizational agility—a firm's capacity to sense, respond to, and adapt quickly to environmental changes. Agility, in turn, is widely recognized as a key driver of performance, particularly under volatile and uncertain conditions. By enabling real-time decision-making, flexible operations, and rapid innovation cycles, digital tools empower SMEs to remain competitive even amid severe external shocks.

Nevertheless, the effectiveness of digital technology adoption is highly dependent on how well these tools are integrated into the core business strategy and operations. [Garzoni et al. \(2020\)](#) caution against the assumption that access to digital tools alone guarantees improved performance. They argue that without a strategic approach—one that aligns digital initiatives with organizational goals and processes—the full benefits of digital transformation may not be realized. This view underscores the importance of not only having digital resources but also developing the managerial capabilities and organizational culture needed to utilize them effectively.

Additional research supports the argument that digital transformation enhances SME competitiveness, particularly in terms of innovation, customer responsiveness, and market reach ([Goswami & Kumar, 2018](#); [Li et al., 2021](#)). However, much of the existing literature remains fragmented and often confined to specific regional or industry contexts. Moreover, there is a notable lack of studies that systematically explore the role of digital capability during crisis situations. The COVID-19 pandemic, which has forced businesses to rapidly digitize and rethink traditional modes of operation, presents a unique context in which to examine the strategic value of digital technologies more comprehensively.

Relational Capability as a Strategic Enabler of Agility and Performance

Relational capability—the firm's internal capacity to build, manage, and sustain meaningful relationships with a broad range of stakeholders—has emerged as a vital resource influencing the adaptability, resilience, and overall performance of SMEs. This capability goes beyond transactional interactions and focuses on cultivating trust-based, long-term partnerships that enable knowledge exchange, collaboration, and mutual support, especially under conditions of uncertainty and change. Within the broader RBV, relational capability is increasingly recognized as a strategic asset that enhances a firm's ability to respond dynamically to shifting market demands and external disruptions.

[Troise et al. \(2022\)](#) argue that relational capability significantly enhances organizational agility, particularly in volatile and turbulent environments where rapid adaptation is crucial. This argument is further reinforced by empirical studies such as [Carmeli & Dothan \(2017\)](#), [Naughton et al. \(2020\)](#), and [Nyamrunda & Freeman \(2021\)](#), all of which highlight how trust-based relationships, rich in information flow and mutual understanding, improve SMEs' capacity for timely decision-making and strategic responsiveness. These studies underline that relational capability enables firms to anticipate and respond to stakeholder expectations, adjust their operations with speed and precision, and access critical resources through networks, thus becoming more agile and competitive.

Despite its proven importance in various operational contexts, relational capability has been primarily discussed within supply chain management and B2B relationship frameworks. Its role in the broader ecosystem of organizational performance, especially when combined with digital transformation efforts, remains under-theorized and insufficiently explored, particularly in the context of MSME manufacturing during crises such as the COVID-19 pandemic. The sudden disruption of physical supply chains, customer interactions, and business continuity brought about by the pandemic has highlighted the need for both strong relational foundations and digital channels of engagement. Yet, research on how these dimensions intersect remains limited.

Quality of External Expertise

SMEs often face inherent resource constraints that limit their ability to adopt complex technologies or execute advanced strategic initiatives. Unlike larger firms with dedicated R&D departments or in-house digital transformation teams, SMEs typically operate with lean structures and limited technical expertise. To bridge these capability gaps, many turn to external consultants or service providers for specialized knowledge, technological solutions, or operational support (Cheah et al., 2023; Yang et al., 2015). While this approach aligns with the RBV, which advocates for leveraging VRIN resources to gain a competitive advantage, it introduces an important nuance: the effectiveness of external resources is highly contingent on how well they are integrated into the firm's internal strategy and operations.

Paradoxically, reliance on external expertise can yield diminishing returns if it lacks strategic alignment or fails to embed learning within the organization. Yang et al. (2015) found a negative relationship between external expertise and return on sales in SMEs, indicating that externally sourced knowledge does not automatically translate into superior performance outcomes. Instead, it may lead to cost inefficiencies, superficial problem-solving, or even strategic misdirection, particularly when SMEs become over-reliant on consultants without simultaneously building their own absorptive capacity. This contradiction challenges the assumption embedded in the RBV that access to VRIN resources uniformly leads to positive outcomes. Rather, it suggests that resource utility is context-dependent, and the organizational capability to absorb, adapt, and internalize external input plays a decisive role in determining value creation.

These inconsistencies underscore a critical theoretical tension regarding whether SMEs should prioritize internal capacity-building to cultivate long-term agility and innovation or rely on external outsourcing as a substitute for internal shortcomings. This issue is particularly pressing for resource-constrained MSMEs operating under crisis conditions, such as during the COVID-19 pandemic. In such contexts, the margin for strategic error is narrow, and short-term, transactional consulting engagements may be insufficient to drive meaningful transformation. Furthermore, poorly integrated external solutions have the potential to hinder the development of organizational agility, an essential dynamic capability required to navigate volatile environments.

Organizational Agility as Mediator

Organizational agility—the capacity of a firm to rapidly adapt and respond to market shifts, technological changes, and external disruptions—has increasingly been recognized as a pivotal enabler of performance, particularly for SMEs. Unlike larger corporations that may possess buffer resources or structured contingency plans, MSMEs often operate with limited financial and operational slack, rendering agility not merely advantageous but essential for survival. In this regard, agility serves as more than just an operational trait; it acts as a strategic capability that bridges internal strengths with external responsiveness.

Rozak et al. (2021) and Troise et al. (2022) emphasize that both digital capability and relational capital contribute significantly to organizational agility. Digital tools enhance the speed and quality of decision-making, enable real-time data utilization, and support rapid process innovation. Simultaneously, strong relational networks—anchored in trust, timely information exchange, and collaborative norms—facilitate faster adaptation to partner demands, supply chain disruptions, or policy shifts. In this sense, digital and relational capabilities form the foundational pillars that enable a firm to act swiftly and coherently in turbulent contexts.

From the perspective of DCT, organizational agility is not a static attribute but a dynamic process encompassing three interrelated actions: sensing opportunities and threats, seizing them through decisive resource allocation, and transforming organizational routines to maintain relevance (Teece et al., 2016). In this framework, agility embodies the firm's ongoing ability to adjust its business model, supply chain configuration, and customer engagement strategies in response to rapid environmental changes. For MSMEs facing the compound effects of the COVID-19 pandemic, including demand volatility, supply shortages, and labor constraints, agility becomes a decisive performance factor.

COVID-19 as a Contextual Moderator in SME Performance Models

The COVID-19 pandemic has introduced an unprecedented level of disruption across global economies, particularly affecting the viability and strategic direction of SMEs. Beyond merely serving as a crisis backdrop, the pandemic functions as a critical environmental contingency that fundamentally reshapes the dynamics between internal capabilities and performance outcomes. While extensive literature documents the negative impacts of COVID-19 on SMEs—including severe supply chain disruptions, operational constraints, reduced consumer demand, and heightened market uncertainty (Abed, 2022; Lu et al., 2020; Sun et al., 2021; Tan & Cheah, 2025)—most studies have framed the pandemic either descriptively or as an independent variable influencing firm outcomes. As a result, the nuanced role of COVID-19 as a contextual moderator remains largely underexplored in empirical models.

This study addresses that gap by conceptualizing COVID-19 not just as a shock event but as a moderating construct that interacts with organizational capabilities, particularly agility, to influence performance. By doing so, the research adopts a CT perspective, which posits that the effectiveness of organizational strategies is contingent upon the external environment (Ch'ng et al., 2021; Venkatraman, 1989). In highly turbulent contexts such as a pandemic, the alignment—or misalignment—between firm capabilities and environmental demands becomes especially critical. In this vein, examining how COVID-19 moderates the relationship between organizational agility and performance provides deeper insight into the conditions under which agility either enhances resilience or becomes insufficient.

Specifically, the pandemic may amplify the value of agility by increasing the premium on rapid decision-making, digital adaptability, and network responsiveness. Conversely, under extreme disruption, even agile firms may face structural limitations that dampen performance, suggesting a threshold beyond which internal capabilities may lose efficacy without systemic support or external stabilizers. Therefore, treating COVID-19 as a moderating variable allows researchers to capture the conditional effects of internal resource deployment, offering a more realistic and context-sensitive understanding of SME behavior during crises.

Synthesis and Research Gap

While existing studies acknowledge the critical roles of digital and relational capabilities in enhancing SME competitiveness, their treatment has often been fragmented and isolated. Many investigations examine these capabilities in silos, failing to account for their interactive effects or their relationship with broader organizational mechanisms such as agility. This piecemeal approach limits the depth of theoretical insight and hampers a holistic understanding of how internal and external resources contribute to firm performance, particularly in dynamic and uncertain environments. Additionally, although external expertise is often positioned as a means to address resource deficits in SMEs, emerging evidence points to its potential downsides, such as cost inefficiencies, misalignment with strategic goals, or overdependence, which are rarely explored in depth.

Furthermore, most studies overlook the significance of crisis contexts as dynamic environmental contingencies that can reshape the effectiveness of organizational capabilities. The absence of models that incorporate mediation through organizational agility and moderation by external shocks, such as the COVID-19 pandemic, represents a notable theoretical and empirical gap. Few existing frameworks integrate environmental volatility as a boundary condition that influences the success or failure of strategic configurations.

To address these limitations, this study introduces a novel conceptual framework that integrates the RBV, CT, and DCT. It proposes a model in which digital technology capabilities, relational capability, and external expertise serve as core resources influencing firm performance. These relationships are mediated by organizational agility, reflecting a firm's ability to respond and adapt rapidly, and moderated by the impact of COVID-19 as an external shock. By applying this integrated lens within the context of Malaysian MSMEs, the study contributes to a more comprehensive and context-sensitive understanding of how firms can leverage resource configurations to remain resilient and competitive in times of crisis.

RESEARCH METHOD

This study employs a SLR to examine how internal and external organizational resources—namely digital technologies capability, relational capability, and the quality of external expertise—influence the performance of manufacturing MSMEs in Malaysia during the COVID-19 pandemic. In addition, the review explores the mediating role of organizational agility and the moderating effect of the pandemic's impact, offering a more nuanced understanding of how firms respond to environmental turbulence. By drawing on both the RBV and CT, the SLR provides a structured, theory-informed synthesis that supports the development of a conceptual model rooted in empirical evidence and strategic management literature.

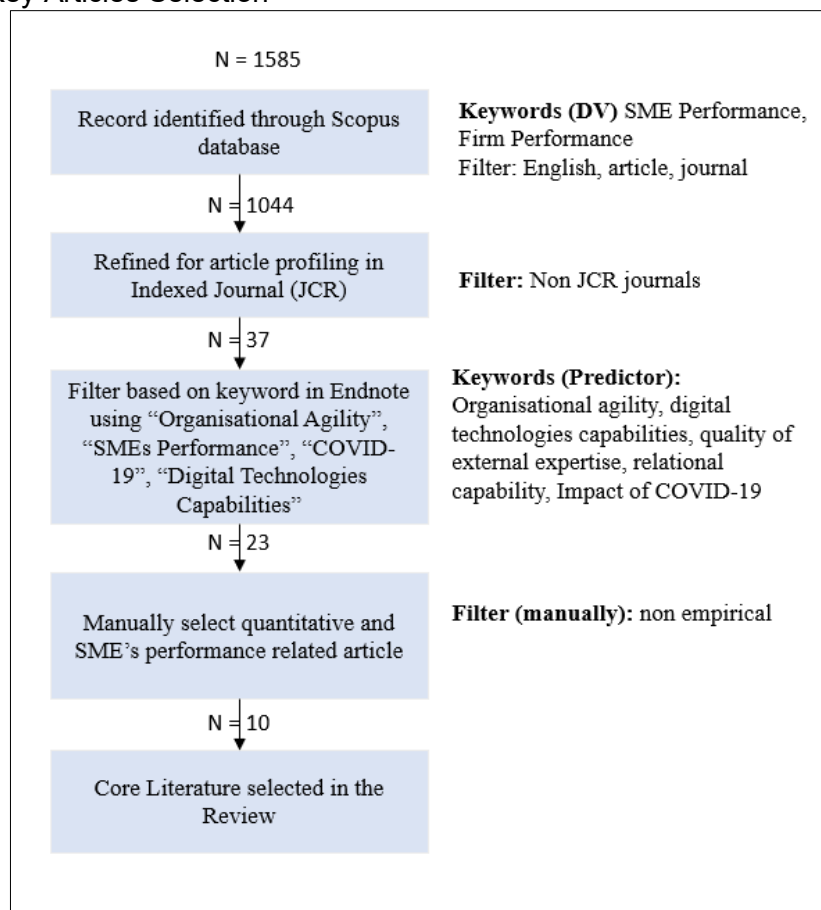
The literature search was conducted using the SCOPUS database, ensuring the inclusion of high-quality, peer-reviewed journal articles with established academic credibility (Quyen et al., 2024). A systematic search protocol was developed, combining keywords such as "SME performance," "digital capability," "relational capability," "organizational agility," and "COVID-19". This initial search yielded a total of 1,044 articles, all indexed in JCR-listed journals. To maintain methodological rigor and relevance, non-empirical studies, conference papers, and publications outside the SCOPUS index were excluded at the outset.

The article selection process followed a four-stage screening procedure. In the first stage, keyword filtering and relevance screening were conducted to retain studies

directly addressing the variables of interest. The second stage involved the exclusion of conceptual and qualitative research, focusing the review on studies with quantitative methodologies that could offer generalizable insights. This reduced the pool to 37 empirical studies. In the third stage, the emphasis was placed on methodological robustness, with inclusion limited to articles that employed validated quantitative research designs, such as structural equation modeling, regression analysis, or other statistical inference techniques. In the final stage, 10 core empirical studies were selected based on their theoretical alignment, empirical contribution, and relevance to the Malaysian MSME context during the COVID-19 crisis.

This rigorous selection process is visually summarized in Figure 1 and serves as a transparent foundation for the conceptual synthesis. Each of the ten studies was thoroughly reviewed to extract key variables, theoretical underpinnings, analytical methods, and core findings. These insights directly informed the development of the study's hypotheses and conceptual framework, allowing for a more integrated understanding of how resource capabilities and environmental contingencies shape firm performance during periods of crisis.

Figure 1. Key Articles Selection



RESULTS

Table 1. List of Core Articles Reviewed

No.	Author (Year)	Article Title	Journal	Country	Theory
1	Rozak et al. (2021)	Social Media Engagement, Organizational	IEEE Transactions on	Indonesia	Digital Transformation Theory

		Agility and Digitalization Strategic Plan to Improve SMEs Performance	Engineering Management		
2	Troise et al. (2022)	How can SMEs successfully navigate the VUCA environment: The role of agility in the digital transformation era	Technological Forecasting and Social Change	Italy	—
3	Sun et al. (2021)	Determining the impact of Covid-19 on the business norms and performance of SMEs in China	Economic Research-Ekonomska Istrazivanja	China	Keynesian Theory; Theory of Comparative Advantage
4	Yang et al. (2015)	British SMEs' e-commerce technological investments and firm performance: an RBV perspective	Technology Analysis and Strategic Management	UK	RBV
5	Ratnasingam et al. (2020)	How are small and medium enterprises in Malaysia's furniture industry coping with COVID-19?	BioResources	Malaysia	—
6	Ramanathan et al. (2012)	The impact of e-commerce on Taiwanese SMEs: Marketing and operations effects	International Journal of Production Economics	Taiwan	RBV
7	Cegarra-Navarro et al. (2016)	Structured knowledge processes and firm performance: The role of organisational agility	Journal of Business Research	Spain	—
8	Saridakis et al. (2018)	Industry characteristics, stages of E-commerce	Technological Forecasting and Social Change	UK	Transaction Cost Economics (TCE)

		communications, and SMEs revenue growth			
9	Koellinger (2008)	The relationship between technology, innovation, and firm performance in European SMEs	Research Policy	Europe	Economic Theory
10	Lu et al. (2020)	The perceived impact of the Covid-19 epidemic on SMEs in Sichuan Province, China	Environmental Hazards	China	—

The SLR identified ten core empirical studies (see [Table 1](#)) that formed the foundation for constructing the proposed theoretical model. These studies were carefully selected based on methodological rigor, alignment with the research objectives, and empirical relevance to MSME performance in the context of the COVID-19 pandemic. A primary focus was placed on quantitative studies that offered generalizable insights and were conducted in environments characterized by high uncertainty, reflecting conditions relevant to Malaysian MSMEs.

The collective findings consistently demonstrate that digital technologies capability—including IT infrastructure, digital skills, and systems integration—is positively associated with enhanced organizational agility and firm performance. Studies by [Rozak et al. \(2021\)](#) and [Troise et al. \(2022\)](#) emphasize that digital adoption facilitates real-time responsiveness, innovation readiness, and efficient communication, enabling MSMEs to adapt more swiftly during crises. Similarly, [Lu et al. \(2020\)](#) found that the pandemic accelerated reliance on digital platforms but also exposed gaps in operational resilience when digital capabilities were not fully embedded.

Relational capability, defined as a firm's ability to cultivate trust-based, information-rich relationships with key stakeholders, also emerged as a critical enabler of strategic flexibility and collaborative problem-solving. Evidence from [Carmeli & Dothan \(2017\)](#), [Naughton et al. \(2020\)](#), and [Nyamrunda & Freeman \(2021\)](#) supports the view that strong relational capital improves adaptability, particularly in turbulent times. These relationships facilitate better stakeholder coordination, improved supply chain resilience, and the ability to co-create solutions with partners under uncertainty.

Conversely, the influence of external expertise on firm performance is more nuanced. While studies such as [Cheah et al. \(2023\)](#) and [Yang et al. \(2015\)](#) suggest that external consultants can fill technical or strategic gaps, the latter also cautions against overreliance on external input, which may lead to strategic misalignment or cost inefficiencies. These mixed findings suggest that external expertise may act as a transactional rather than transformational resource unless effectively integrated with internal capabilities. This concern is echoed in [Abed \(2022\)](#), who notes that externally driven digital initiatives often falter without organizational buy-in or contextual fit.

Importantly, organizational agility is consistently validated across the reviewed studies as a mediating mechanism linking internal (digital and relational) and external (consultative) capabilities to performance outcomes. For instance, [Rozak et al. \(2021\)](#)

and Troise et al. (2022) demonstrate that agility enhances a firm's ability to reconfigure operations, respond to external shocks, and seize emergent opportunities, making it a central dynamic capability in navigating crisis environments. Tan and Cheah (2025) further highlight that agility is particularly critical in enabling SMEs to adjust strategic direction amid prolonged environmental instability.

A notable limitation in the existing literature is the underutilization of COVID-19 as a moderating construct. While the pandemic's disruptive influence is widely acknowledged across studies—such as Abed (2022), Lu et al. (2020), Sun et al. (2021), and Tan & Cheah (2025)—few operationalize it within empirical models to assess how it shapes the strength or direction of capability-performance relationships. Most studies treat COVID-19 as a static contextual backdrop rather than as a dynamic contingency that alters the effectiveness of digital, relational, or consultative strategies. This highlights a key gap addressed in the present research by explicitly modeling the pandemic as a contextual moderator.

Table 2. Summary of Prior Quantitative Studies

No.	Author (Year)	Sample Size	Research Outcomes
1	Rozak et al. (2021)	239 SMEs	ICT use, social media, and agility significantly improved SME performance post-pandemic.
2	Troise et al. (2022)	204 SMEs	Digital technologies and relational networks enhanced agility, which positively influenced performance.
3	Sun et al. (2021)	330 SMEs	COVID-19 negatively impacted innovation, financial health, stakeholder safety, and remote work practices.
4	Yang et al. (2015)	430 SMEs	Internal and external resources affected performance; IT investment and external consultants had mixed results.
5	Ramanathan et al. (2012)	110 SMEs	E-commerce adoption improved marketing and operational outcomes, with moderation by employee size.
6	Koellinger (2008)	7,302 Enterprises	Internet innovations drove growth and employment, but profitability impacts were inconclusive.

Table 2 provides a summary of key findings from prior quantitative studies on the performance of SMEs in relation to digitalization, agility, and crisis impacts, particularly during and after the COVID-19 pandemic. The sample sizes in the reviewed studies vary significantly, ranging from 110 SMEs to over 7,000 enterprises, indicating a wide scope of empirical data.

Several studies highlight the importance of digital technologies and organizational agility. For instance, Rozak et al. (2021) demonstrate that ICT use, social media, and agility played a vital role in enhancing SME performance in the post-pandemic era. Similarly, Troise et al. (2022) emphasize that digital technologies and relational networks significantly improved SMEs' agility and thus their overall performance.

The disruptive impact of COVID-19 is evident in Sun et al. (2021), who found that the pandemic adversely affected innovation, financial health, stakeholder safety, and remote working practices among Chinese SMEs. This finding underscores the vulnerability of SMEs to external shocks and the need for resilience strategies.

Yang et al. (2015) explore both internal and external resources, revealing that IT investments and external consultancy had mixed outcomes, suggesting that not all technology-related interventions yield uniform benefits.

The role of e-commerce is investigated by Ramanathan et al. (2012), who found that its adoption led to improved marketing and operational outcomes, with performance effects moderated by firm size, indicating that smaller and larger SMEs may benefit differently from digital adoption.

Koellinger (2008) offers insights on a much broader scale, analyzing 7,302 enterprises across Europe. This study finds that while internet innovations contributed positively to growth and employment, their effects on profitability were inconclusive. This suggests a complex relationship between digital transformation and financial performance, possibly mediated by other organizational or market factors.

In summary, the studies reinforce the critical role of digital technologies, organizational agility, and strategic investments in influencing SME performance. However, the mixed and sometimes inconclusive outcomes also highlight the importance of contextual and firm-specific factors in determining the success of these initiatives.

Figure 2. Conceptual Framework

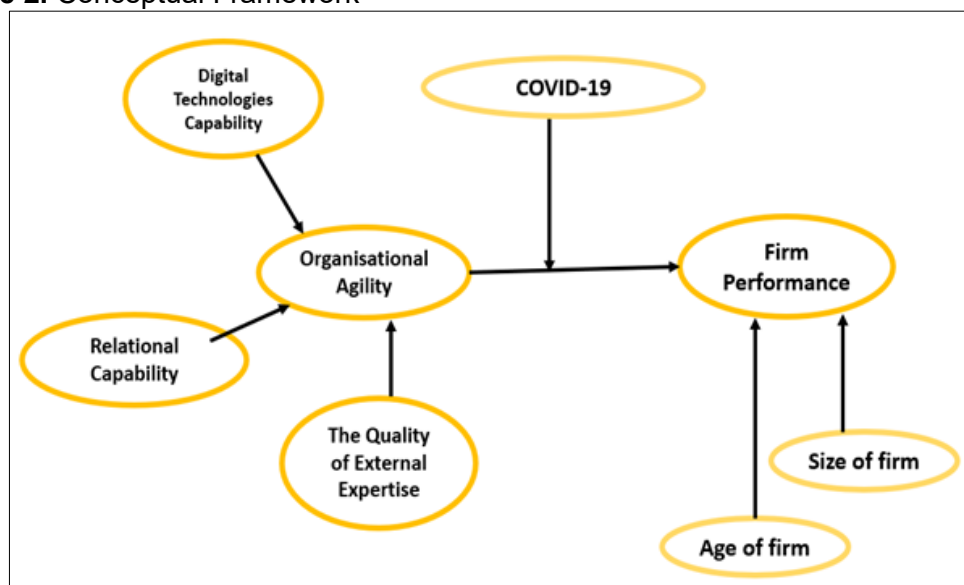


Figure 2 illustrates the conceptual framework constructed by integrating the RBV, CT, and DCT. The framework posits that digital technologies' capability, relational capability, and the quality of external expertise exert direct influences on organizational agility, which in turn impacts firm performance. Crucially, the model introduces the impact of COVID-19 as a moderating variable, altering the strength of the relationship between organizational agility and performance outcomes. This integrative framework not only visualizes the direct and mediated relationships among the constructs but also highlights the underexplored yet significant role of environmental turbulence in shaping strategic outcomes. By capturing the dynamic interactions between internal resources, external support, agility, and contextual disruption, the model offers a comprehensive basis for advancing theory and informing practical strategy development for MSMEs operating in crisis-prone environments.

DISCUSSION

This study systematically examined how internal and external organizational resources—namely digital technologies capability, relational capability, and the quality of external expertise—affect the performance of MSME manufacturers in Malaysia during the COVID-19 pandemic. The findings reinforce the importance of organizational agility as a dynamic capability that mediates these relationships and highlight the role of the pandemic's impact as a contextual moderator.

Interpretation of Key Findings

The results confirm that digital technologies capability enhances organizational agility, supporting earlier studies by [Rozak et al. \(2021\)](#) and [Troise et al. \(2022\)](#), who found that ICT tools and digital platforms significantly improved decision-making speed, adaptability, and post-pandemic performance. This also aligns with [Koellinger \(2008\)](#), who reported that internet innovations drove employment and growth, though his findings on profitability were inconclusive. In our case, profitability and firm performance were positively impacted, suggesting that Malaysia's MSME context, particularly during a crisis, amplifies the value of agility-based digital transformation. However, as [Garzoni et al. \(2020\)](#) argued, our results emphasize that possessing digital infrastructure alone is insufficient without alignment to strategic goals.

Relational capability also emerged as a critical enabler of agility, echoing the conclusions of [Chen \(2019\)](#), [Nyamrunda & Freeman \(2021\)](#), and [Troise et al. \(2022\)](#). Developing long-term, trust-based relationships with key stakeholders (e.g., suppliers, customers, and partners) allowed firms to sense changes in demand and co-adapt quickly during disruptions, especially valuable under conditions of market volatility caused by the COVID-19 crisis. These findings are further supported by [Saridakis et al. \(2018\)](#), who noted that SME revenue growth is associated with relationship-driven communication strategies.

The influence of external expertise, meanwhile, produced mixed effects. Similar to [Yang et al. \(2015\)](#), our findings suggest that consultant engagement can have inconsistent impacts. While external advisors can provide critical technological or strategic insights, they may also introduce friction, cost, or overload when the firm lacks internal absorptive capacity. This underscores the importance of not just outsourcing expertise but also building internal mechanisms to effectively absorb, evaluate, and implement external recommendations.

Organizational agility emerged as a significant mediator, enabling firms to translate resource-based strengths into performance gains. This aligns closely with DCT ([Teece et al., 2016](#)), which defines agility as the firm's ability to sense, seize, and reconfigure resources in response to change. The moderating role of COVID-19 reinforces the idea from Contingency Theory ([Venkatraman, 1989](#)) that the effectiveness of a strategy or capability depends on the external context. Specifically, our findings align with [Sun et al. \(2021\)](#), who reported that COVID-19 negatively impacted innovation and operational routines, highlighting the urgency of agility-based responses. Interestingly, the size of the enterprise (as emphasized in [Ramanathan et al., 2012](#)) may also play a role in moderating these effects, though it was not a focal point in our sample and warrants further investigation.

Theoretical Implications

This study contributes to the literature by integrating RBV, CT, and DCT into a unified conceptual model. While prior studies, such as [Koellinger \(2008\)](#), [Rozak et al. \(2021\)](#), and [Yang et al. \(2015\)](#), tended to focus on individual theories, our approach emphasizes the complementary nature of these perspectives in explaining SME resilience during

crisis contexts. Specifically, it positions organizational agility as a dynamic capability that operationalizes internal and relational resources into contextually relevant outcomes.

Furthermore, the study addresses a critical gap by explicitly incorporating COVID-19 as a moderating variable, a dimension that has often been overlooked in SME resilience models. Although [Ramanathan et al. \(2012\)](#) and [Sun et al. \(2021\)](#) touched on environmental challenges, few studies have empirically tested how a systemic shock like a pandemic alters the strength of resource-performance relationships.

Practical Implications

For SME managers and policymakers, the findings highlight the need to go beyond mere digital adoption and instead pursue strategic digital integration into core operations. Tools such as e-commerce, cloud platforms, and CRM systems must be embedded in workflows to support real-time decision-making, process efficiency, and market responsiveness. This aligns with the conclusions of [Ramanathan et al. \(2012\)](#), who emphasized the role of digitalization in improving marketing and operational outcomes.

Equally critical is the cultivation of relational capital—both upstream and downstream—through active communication and collaboration with stakeholders. These ties act as buffers during disruption, offering access to information, trust-based negotiation, and supply chain flexibility.

In leveraging external expertise, managers should prioritize selective engagement, targeting areas where internal knowledge is weak, and concurrently invest in developing absorptive capacity so the firm can fully internalize new knowledge. This dual approach addresses the risks highlighted in [Yang et al. \(2015\)](#) regarding the limited impact of external consultants when firms lack internal readiness.

Finally, fostering organizational agility—via flatter structures, decentralized decision-making, and responsiveness systems—can empower SMEs to act quickly and effectively amid uncertainty. Policymakers and industry associations should design support programs that reflect the disruptions caused by events like COVID-19, recognizing that these disruptions are not temporary anomalies but significant environmental contingencies that shape the strategic needs of SMEs.

CONCLUSION

This study provides a conceptual contribution to understanding how internal and external organizational capabilities influence the performance of Malaysian MSME manufacturers during periods of extreme disruption, such as the COVID-19 pandemic. Drawing on a SLR of ten high-quality empirical studies, the research identifies digital technologies capability, relational capability, and the quality of external expertise as critical antecedents to organizational agility, which, in turn, enhances firm performance. In addition, the study introduces the impact of COVID-19 as a contextual moderator, advancing the application of Contingency Theory (CT) by recognizing that environmental turbulence interacts with firm capabilities to shape performance outcomes.

By integrating insights from the Resource-Based View (RBV), Dynamic Capabilities Theory (DCT), and Contingency Theory (CT), the proposed conceptual framework addresses a key gap in existing literature—namely, the tendency to examine internal resources and external crises in isolation. This integrated perspective offers a more holistic and dynamic understanding of how MSMEs can sense, adapt, and respond strategically under volatile conditions.

The findings offer valuable implications for both practice and policy. For MSME leaders, the results suggest that resilience and performance during crises require more than the adoption of digital tools; rather, firms must develop strategic agility through the integration of digital capabilities into core processes, cultivation of relational capital with key stakeholders, and selective use of external expertise that aligns with internal absorptive capacity. For policymakers, the study underscores the need to move beyond one-size-fits-all recovery programs. The impact of shocks such as the COVID-19 pandemic is heterogeneous, depending on each firm's internal preparedness, resource configuration, and capacity to adapt. Thus, support mechanisms should be tailored to build dynamic capabilities, particularly agility, across different firm profiles.

This study also opens avenues for future research. Empirical validation of the proposed model using quantitative data from Malaysian manufacturing MSMEs would be a logical next step. In addition, longitudinal research could explore how the role of agility and capability configurations evolves over different phases of a crisis, from onset to recovery. Expanding the analysis to other sectors or geographic regions could further test the generalizability and contextual relevance of the model.

In conclusion, this research offers a timely, theoretically grounded, and practically relevant framework for understanding and enhancing MSME performance in times of uncertainty. By positioning organizational agility as the central mediating mechanism and accounting for environmental contingencies, it provides a robust roadmap for building resilience and sustaining competitiveness in the face of future disruptions.

LIMITATION

This study is primarily based on secondary data drawn from existing literature, which means it may have overlooked relevant insights from unpublished or context-specific studies that could offer a deeper understanding of the issues at hand. To build on these findings, future research should consider empirically testing the proposed model using primary data gathered directly from Malaysian MSMEs to validate its practical relevance. It would also be valuable to explore how different sectors, such as food manufacturing compared to electronics, experience and respond to digital transformation, as these dynamics can vary significantly. Additionally, further investigation into post-pandemic recovery strategies and their long-term sustainability would provide important guidance for SMEs navigating an uncertain economic landscape.

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DECLARATION OF CONFLICTING INTERESTS

The authors declare that there is no conflict of interest.

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