Advanced International Journal of Business, Entrepreneurship and SME's
EISSN: 2682-8545
Volume 7 Issue 24 (June 2025) PP. 387-403
DOI 10.35631/AIJBES.724025

ADVANCED INTERNATIONAL JOURNAL OF BUSINESS, ENTREPRENEURSHIP AND SMES (AIJBES)
www.aijbes.com

DIGITAL READINESS AMONG MALAYSIAN RETAIL SMES- A CONCEPTUAL EXAMINATION IN THE POST-PANDEMIC CONTEXT

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Article Info:

Article history:
Received date: 28.04.2025
Revised date: 27.05.2025
Accepted date: 11.06.2025
Published date: 23.06.2025

To cite this document:

Haider, A. R., & Maulan, S. (2025). Digital Readiness Among Malaysian Retail Smes- A Conceptual Examination In The Post-Pandemic Context. *Advanced International Journal of Business Entrepreneurship and SMEs, 7* (24), 387-403.

DOI: 10.35631/AIJBES.724025

Abstract:

The COVID-19 pandemic has accelerated digital transformation across industries, compelling small and medium-sized enterprises (SMEs) to adapt rapidly to technological change. Among retail SMEs in Malaysia, digital readiness has emerged as a critical capability influencing business continuity, innovation, and competitiveness in the evolving digital economy. However, the construct of digital readiness remains conceptually fragmented, often conflated with digital adoption or maturity. This paper undertakes a conceptual examination of digital readiness among Malaysian retail SMEs in the post-pandemic context, aiming to clarify its dimensions, antecedents, and implications. Drawing on recent literature from digital transformation, SME capability building, and technology management, this review highlights the multidimensional nature of digital readiness, encompassing technological infrastructure, human capital, organizational agility, and external support mechanisms. The paper critically reviews how contextual factors—such as Malaysia's policy frameworks, socio-economic conditions, and consumer digital behaviour—mediate digital preparedness in the retail SME sector. It further identifies conceptual ambiguities in existing scholarship and advocates for a more coherent theoretical foundation to guide future research and policy development. By offering a comprehensive lens through which digital readiness can be understood, this paper contributes to the conceptual advancement of digital transformation research in emerging economies. It also provides practical insights for SME stakeholders, policymakers, and researchers seeking to foster sustainable digital enablement in the post-pandemic era.

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Keywords:

Digital Readiness, Retail SMEs, Post-Pandemic Transformation, Conceptual Review, Technology Adoption

Introduction

The COVID-19 pandemic has precipitated a dramatic acceleration in digital transformation across the global economy, compelling organizations—particularly small and medium-sized enterprises (SMEs)—to adopt digital solutions to ensure operational continuity and resilience. In Malaysia's retail sector, this digital shift has been both a necessity and a catalyst for rethinking business models, consumer engagement, and supply chain strategies (Azmi et al., 2022; Rahman et al., 2021). As the pandemic disrupted conventional sales channels and altered consumer behaviours, retail SMEs were forced to pivot toward digital platforms for marketing, transactions, logistics, and customer service. These developments brought the concept of digital readiness to the forefront, positioning it as a crucial determinant of SMEs' capacity to adapt, compete, and thrive in the evolving digital economy (OECD, 2021).

Digital readiness, while increasingly recognized in both academic and policy discourses, remains conceptually fragmented. It is often conflated with digital adoption—the implementation of technology tools—or digital maturity, which refers to the degree to which digital technologies are embedded within organizational processes. However, digital readiness is more foundational: it refers to an organization's preparedness and capability to effectively engage with, evaluate, and integrate digital technologies, including the structural, cultural, and strategic preconditions that enable successful transformation (Nambisan et al., 2019; Vial, 2021). For SMEs, particularly in emerging economies, digital readiness must be understood through a multidimensional lens that incorporates internal organizational capacities, external support systems, human capital competencies, and infrastructural enablers (Kraus et al., 2022). In the Malaysian context, this multidimensionality is especially salient. SMEs represent over 97% of all business establishments and play a pivotal role in national economic development (Department of Statistics Malaysia, 2022). Despite policy support through initiatives like the National Digital Economy Blueprint (MyDIGITAL), many retail SMEs face structural challenges, including limited access to digital infrastructure, talent shortages, and digital literacy gaps (MDEC, 2021). Furthermore, the socio-cultural heterogeneity of Malaysia's consumer base, coupled with varying levels of urban-rural connectivity, creates a complex environment for uniform digital enablement. These contextual dynamics underscore the need for a localized understanding of digital readiness that moves beyond generic models and captures the lived realities of SMEs navigating post-pandemic recovery.

This paper undertakes a conceptual investigation of digital readiness among Malaysian retail SMEs in the aftermath of COVID-19. Rather than proposing a new model, the objective is to critically explore and consolidate existing theoretical perspectives, thereby offering a coherent conceptual foundation for future research. Drawing on interdisciplinary literature from digital transformation, capability theory, and SME development, the paper examines the core dimensions of digital readiness, including technological infrastructure, organizational agility, human resource capability, and institutional support. It further explores the antecedents and consequences of digital readiness, highlighting how preparedness mediates business continuity, innovation capacity, and long-term sustainability in turbulent environments (Zhang et al., 2023).

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Additionally, the paper addresses the conceptual ambiguities prevalent in existing scholarship, advocating for greater clarity and consistency in how digital readiness is defined, operationalized, and contextualized. It posits that future research must account for the interplay between digital capabilities and environmental contingencies, particularly within the Malaysian policy and cultural milieu. By anchoring the discussion in the specific experiences and constraints of retail SMEs, the paper contributes to a more nuanced understanding of digital transformation in emerging markets.

Ultimately, this paper seeks to inform both academic inquiry and practical policy-making. For researchers, it offers a consolidated conceptual basis to guide empirical investigation. For policymakers and SME stakeholders, it provides insights into the conditions necessary for building robust digital readiness in the post-pandemic landscape. In doing so, it aims to support the broader agenda of inclusive and sustainable digital development in Malaysia's retail sector.

Literature Review

Definitions and Evolution of Digital Readiness

Digital readiness, while increasingly central in digital transformation discourse, remains conceptually underdeveloped and is frequently conflated with related constructs such as digital adoption and digital maturity. These constructs, although interrelated, represent distinct dimensions of an organization's digital trajectory. Digital adoption refers specifically to the act of implementing and utilizing digital technologies, typically viewed as a discrete, tool-focused, and often linear process that emphasizes uptake and initial usage (Vial, 2019; Dwivedi et al., 2021). In contrast, digital maturity embodies a more comprehensive and longitudinal perspective, encompassing the degree to which digital technologies are integrated across business strategy, operations, culture, and leadership practices (Westerman et al., 2014; Kane et al., 2019). Digital readiness, distinctively, precedes these phases. It signifies the preparatory capacity of an organization to effectively engage in digital transformation. This includes not only technical infrastructure and digital tools but also intangible assets such as organizational agility, digital mindset, human competencies, and strategic vision (Schumacher et al., 2019; Klötzer & Pflaum, 2017).

The conceptual roots of digital readiness can be traced back to the early 2000s, particularly within the discourse on ICT readiness and the digital divide. Initial frameworks were shaped by development agencies such as the United Nations Conference on Trade and Development (UNCTAD, 2004), which emphasized infrastructure access, internet penetration, and basic ICT skills. These models largely addressed disparities between developed and developing economies, focusing on the foundational elements necessary for digital engagement. However, as global economies began transitioning toward more complex digital ecosystems, the definition of readiness expanded. The advent of Industry 4.0, the proliferation of platform-based business models, and the rising strategic importance of data analytics and artificial intelligence demanded a shift from infrastructure-centric to capability-centric understandings of readiness (Proksch et al., 2021).

Contemporary scholarship increasingly conceptualizes digital readiness through the lens of dynamic digital capabilities (Warner & Wäger, 2019). These capabilities reflect an organization's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing digital environments (Teece et al., 2016). This perspective

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foregrounds adaptive learning, cross-functional collaboration, innovation orientation, and strategic alignment as core to being digitally ready—not just being digitally equipped.

For small and medium-sized enterprises (SMEs), digital readiness is especially multidimensional. It extends beyond the availability of digital infrastructure to include leadership commitment, staff training, resource availability, and external support systems such as government incentives or digital hubs (Agostini & Nosella, 2020; Queiroz et al., 2022). In the Malaysian context, digital readiness for retail SMEs is shaped by both internal capabilities and external enablers. National initiatives such as the Malaysia Digital Economy Blueprint (MyDIGITAL) and the SME Digitalisation Grant provide infrastructural and financial scaffolding, but SMEs must concurrently develop the internal agility to respond to changing consumer behaviors, heightened competition, and evolving technological landscapes (MITI, 2021; MDEC, 2022). Post-pandemic realities have further intensified this need, as shifts in consumer expectations and operational models have rendered digital preparedness a critical determinant of business resilience and growth.

Theoretical Anchors in Digital Readiness Studies

The study of digital readiness is underpinned by multiple theoretical perspectives that explain how firms, particularly small and medium-sized enterprises (SMEs), develop the necessary capabilities to engage with digital transformation. A central framework in this discourse is the Capability-Based View (CBV), which argues that a firm's competitive advantage stems from its ability to leverage valuable, rare, inimitable, and non-substitutable (VRIN) resources (Barney, 1991). Within this paradigm, digital readiness is conceptualized as a composite of technical, managerial, and strategic capabilities that enable firms to identify and capitalize on digital opportunities (Teece, 2007). Recent studies have expanded this view, suggesting that digital readiness also encompasses data analytics proficiency, cybersecurity resilience, and cloud computing integration (Kane et al., 2021; Verhoef et al., 2021).

Building on CBV, the Dynamic Capabilities Theory (DCT) provides a more nuanced understanding by emphasizing how firms continuously reconfigure their competencies in response to rapid technological and market changes (Teece et al., 2016). This perspective is particularly relevant for SMEs in Malaysia's retail sector, which have faced accelerated digital disruptions due to the COVID-19 pandemic (Shin, 2023). Dynamic capabilities involve three key processes: sensing (identifying digital opportunities), seizing (mobilizing resources to exploit them), and transforming (restructuring business models to sustain competitiveness) (Teece, 2018). Empirical research indicates that SMEs with strong dynamic capabilities exhibit higher digital maturity, enabling them to adapt to e-commerce shifts and omnichannel retail demands (Warner & Wäger, 2019; Scuotto et al., 2022).

Another critical lens is Institutional Theory, which highlights how external pressures—such as government policies, industry standards, and societal expectations—shape organizational behavior (Scott, 2008). In emerging economies like Malaysia, national digital initiatives such as MyDIGITAL and the 12th Malaysia Plan (2021-2025) create institutional logics that influence SME digitalization pathways (Economic Planning Unit, 2021). Regulatory mandates, such as mandatory e-invoicing and digital payment adoptions, further compel SMEs to enhance their digital readiness (Bank Negara Malaysia, 2022). Additionally, industry associations and digital ecosystems (e.g., MDEC's SME Digital Grant) play a pivotal role in shaping normative and mimetic isomorphism, where firms emulate digitally advanced peers to gain legitimacy (DiMaggio & Powell, 1983; Zaheer et al., 2023).

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To operationalize digital readiness, several assessment frameworks have been developed, including the European Commission's Digital Competence Framework for SMEs and the OECD's Digital Transformation Scoreboard (OECD, 2020). However, these models often lack contextual adaptation for Southeast Asian SMEs, necessitating region-specific modifications (Wong et al., 2022). Recent studies propose integrative frameworks that combine technological infrastructure, workforce upskilling, and cultural adaptability as key dimensions of digital readiness (Gurbaxani & Dunkle, 2019; Chatterjee et al., 2023).

In summary, digital readiness is a multidimensional construct informed by CBV, DCT, and Institutional Theory, each offering unique insights into how firms build and sustain digital competencies. Future research should explore the interplay between these theories, particularly in emerging markets where institutional and resource constraints uniquely shape digital transformation trajectories (Hanelt et al., 2021).

Gaps in the Current Literature

Despite increasing scholarly attention on digital readiness, significant theoretical, methodological, and contextual gaps persist, limiting a cohesive understanding of how SMEs, particularly in emerging economies like Malaysia, develop and sustain digital capabilities.

Theoretical Fragmentation and Lack of Conceptual Clarity

A major theoretical gap lies in the absence of a unified definition of digital readiness. The construct is often conflated with digital maturity, digital transformation, or technological adoption, leading to conceptual ambiguity (Vial, 2019; Warner & Wäger, 2019). While some scholars frame it as a static capability (e.g., IT infrastructure, digital skills), others emphasize dynamic, adaptive processes (e.g., innovation agility, organizational learning) (Teece, 2018; Verhoef et al., 2021). This fragmentation is exacerbated by disciplinary silos—information systems research focuses on technological enablers, whereas management studies prioritize strategic and cultural factors (Hanelt et al., 2021). A meta-analysis by Schumacher et al. (2019) found that over 70% of digital readiness frameworks lack theoretical grounding, relying instead on ad-hoc metrics. This inconsistency impedes cross-study comparability and hinders the development of a robust theoretical foundation for assessing SME digital readiness.

Overreliance on Advanced Economy Contexts

Most digital readiness frameworks derive from studies in North America and Europe, where digital infrastructure, regulatory support, and financial resources are more advanced (Yunis et al., 2021; Chatterjee et al., 2023). However, these models fail to account for structural challenges prevalent in emerging economies, such as: Uneven digital infrastructure (e.g., rural-urban divides in internet access) (Bank Negara Malaysia, 2022); Regulatory and institutional voids that limit access to financing and digital training (Zaheer et al., 2023); Cultural and behavioural resistance to digital adoption among traditional SMEs (Wong et al., 2022)-for instance, the OECD's Digital Transformation Scoreboard (2020) assumes high baseline digital literacy, which is often absent in Malaysian retail SMEs (Economic Planning Unit, 2021). This contextual misfit underscores the need for region-specific theoretical adaptations that incorporate institutional, economic, and socio-cultural dimensions (Scuotto et al., 2022).

Neglect of Retail SMEs in Digital Readiness Research

While digital transformation in manufacturing and tech-driven SMEs has been extensively studied, retail SMEs remain underrepresented (Matarazzo et al., 2021). This sector faces unique challenges:

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1. High consumer interactivity, requiring real-time digital engagement (e.g., social commerce, chatbots).
2. Omnichannel integration pressures, where physical and digital retail must seamlessly converge (Shin, 2023).
3. Dependence on local markets, making them more vulnerable to digital disruptions (Naidoo, 2022).

The COVID-19 pandemic further exposed these gaps, as many retail SMEs lacked the agility to shift online, unlike larger firms with pre-existing e-commerce capabilities (Kane et al., 2021). Yet, most post-pandemic digital readiness studies focus on large corporations or tech startups, neglecting how micro and small retailers adapt (Gurbaxani & Dunkle, 2019).

Understudied Theoretical Intersections

Few studies explore how institutional pressures (e.g., government policies) interact with internal capabilities (e.g., leadership, workforce skills) to shape digital readiness (DiMaggio & Powell, 1983; Scott, 2008). For example, Malaysia's MyDIGITAL initiative mandates SME digitalization, but without accounting for resource constraints (Economic Planning Unit, 2021). Additionally, the role of digital ecosystems (e.g., partnerships with fintech and e-logistics providers) in enhancing SME readiness remains underexplored (Zaheer et al., 2023).

This study addresses these gaps by proposing a theoretically integrated framework combining dynamic capabilities and institutional theory for SME digital readiness; contextualizing digital readiness metrics for emerging economies; emphasizing infrastructure, policy support, and cultural factors; focusing specifically on retail SMEs; and examining post-pandemic adaptation strategies. By doing so, this research contributes to more nuanced, actionable theoretical insights for policymakers and SME practitioners in Malaysia and similar economies.

Longitudinal Impacts of Digital Readiness on SME Resilience and Survival

An important, yet underexplored, dimension of digital readiness lies in its longitudinal impact—how digitally prepared SMEs fare over time, particularly during and after systemic disruptions. The COVID-19 pandemic offers a unique empirical lens through which to observe the adaptive trajectories of SMEs with varying levels of digital readiness. Emerging evidence suggests that SMEs equipped with foundational digital infrastructure, agile leadership, and human capital capable of leveraging digital tools were significantly more resilient during the crisis and more adaptive during recovery phases (Kraus et al., 2022; Zhang et al., 2023). These firms were not only quicker to transition to e-commerce platforms and remote operations but were also better positioned to engage with government digitalization incentives and reconfigure business models in response to shifting consumer behaviours.

In the Malaysian retail sector, longitudinal observations indicate that SMEs demonstrating higher digital readiness—particularly those with integrated POS systems, digital payment capabilities, and trained staff—exhibited stronger business continuity and post-pandemic recovery rates compared to their less-prepared counterparts (MDEC, 2022). Over time, these SMEs were also more likely to innovate incrementally, such as expanding into omnichannel retail or adopting customer analytics, thereby enhancing long-term competitiveness.

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This temporal perspective underscores that digital readiness is not merely a static organizational attribute but a dynamic capability that shapes, and is shaped by, evolving environmental contexts. It suggests that fostering digital readiness contributes not only to immediate crisis mitigation but also to sustainable growth trajectories.

Research Methodology

Nature of the Paper

This paper adopts a conceptual review methodology, which is inherently non-empirical and exploratory in nature. Unlike empirical studies that rely on primary data collection through surveys or interviews, conceptual research synthesizes existing theoretical and empirical literature to advance understanding of complex constructs—in this case, digital readiness among retail SMEs in Malaysia. Conceptual reviews are particularly valuable in nascent or fragmented fields where theoretical clarity is lacking and diverse terminologies are used interchangeably (Jaakkola, 2020). This paper seeks to clarify and refine the digital readiness construct by drawing from cross-disciplinary literature in information systems, strategic management, and SME digitalization. It also responds to calls for theoretically grounded studies that account for contextual variations in digital transformation across developing economies (Dwivedi et al., 2021). As such, this paper does not aim to test hypotheses or develop generalizable findings, but rather to offer a nuanced understanding of the dimensions, antecedents, and implications of digital readiness in the post-pandemic context. The conceptual orientation enables deeper abstraction and theoretical synthesis, which are essential for building robust foundations for future empirical investigations and policy frameworks (Gilson & Goldberg, 2015).

Literature Search Strategy

The literature review for this paper was conducted systematically using a multi-database search strategy. Key databases included Scopus, Web of Science, ScienceDirect, and Google Scholar to ensure coverage of high-impact academic and practitioner sources. The search terms employed included "digital readiness," "SMEs," "retail sector," "Malaysia," "digital transformation," "digital maturity," and "post-pandemic." The review focused on peer-reviewed journal articles, book chapters, policy reports, and conference proceedings published primarily between 2020 and 2024 to capture the most recent discourse influenced by the COVID-19 pandemic. Studies prior to 2020 were selectively included if they provided foundational theories or historical context to the digital readiness construct. Inclusion criteria required that studies be relevant to digital capabilities in SMEs, conceptual clarity on readiness versus adoption or maturity, and contextual relevance to emerging economies or Southeast Asia. Exclusion criteria included studies focused solely on large enterprises, overly technical papers lacking organizational focus, or those unrelated to business continuity or strategy. This rigorous filtering process yielded a corpus of approximately 90 relevant publications. The literature was then organized thematically, enabling the extraction of key conceptual dimensions and identification of gaps in current knowledge (Snyder, 2019).

Analytical Approach

The analytical approach employed in this conceptual paper is based on thematic synthesis and critical abstraction. After identifying and reviewing relevant literature, the texts were subjected to iterative coding to extract recurring themes, constructs, and theoretical lenses. Following the guidance of Torraco (2016), the analysis involved clustering literature into thematic domains such as digital infrastructure, organizational agility, human capital readiness, and policy

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alignment. These themes were then critically examined for internal coherence, conceptual overlap, and contextual relevance to Malaysian retail SMEs. A key methodological principle guiding this synthesis was integrative conceptual development, which involves combining disparate findings and frameworks into a more unified understanding (Webster & Watson, 2002). Particular attention was paid to how existing studies frame the antecedents and consequences of digital readiness, and how these vary across different economic contexts. The analysis also aimed to highlight contradictions, underexplored areas, and conceptual ambiguities in the literature, thus justifying the need for a reconceptualized view of digital readiness. Ultimately, this methodological approach ensures that the conceptual model presented is grounded in systematic, critical, and context-sensitive engagement with existing scholarship.

Reframing Digital Readiness for Retail SMEs in Malaysia

This section presents a comprehensive and contextually grounded conceptualization of digital readiness for Malaysian retail SMEs. It unfolds in three parts: first, it identifies the key dimensions of digital readiness; second, it explores contextual influences that shape readiness outcomes; and third, it offers a theoretical and conceptual synthesis that integrates the preceding insights into a more nuanced framework.

Dimensions of Digital Readiness for Retail SMEs

Digital readiness is inherently multidimensional, requiring a holistic assessment of internal and external factors. This subsection outlines four foundational dimensions—technological infrastructure, human capital, organizational agility, and external support mechanisms—that collectively influence how retail SMEs navigate digital transformation.

Technological Infrastructure

This dimension encompasses the availability and adequacy of digital tools, internet connectivity, and system integration capabilities within the SME. For retail SMEs, technological readiness reflects the adoption of point-of-sale (POS) systems, e-commerce platforms, inventory management software, and mobile payment solutions. The maturity and interoperability of these tools enable seamless operations and customer engagement across digital channels. However, disparities in tech infrastructure persist, particularly between urban and rural SMEs, where limited broadband access and outdated hardware hinder digital adoption (OECD, 2021). Additionally, cybersecurity vulnerabilities pose risks, especially for SMEs lacking robust IT support (Hashim et al., 2023). Addressing these gaps requires targeted investments in digital infrastructure and cloud-based solutions to enhance scalability.

Human Capital

Human capital refers to the digital skills, training, and competencies possessed by SME owners and employees. Digital transformation necessitates not only basic ICT literacy but also advanced skills such as data analytics, cybersecurity awareness, and digital marketing capabilities. For SMEs, particularly those in traditional retail, upskilling often requires external training support and targeted educational initiatives (ADB, 2020). A study by Lim and Hassan (2023) found that Malaysian SMEs with structured digital training programs reported higher productivity and innovation rates. However, resource constraints often limit access to formal training, necessitating public-private partnerships to bridge skill gaps.

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Organizational Agility

Organizational agility reflects an SME's capacity to respond to digital opportunities and threats. It includes leadership openness to change, willingness to experiment, and flexible decision-making structures. Agility is often constrained in SMEs due to flat hierarchies or centralized decision-making by founders, yet it is also a source of resilience when coupled with adaptive mindsets (Chong et al., 2021). Research by Ng et al. (2022) highlights that SMEs embracing agile methodologies experience faster digital integration, whereas rigid structures delay transformation. Encouraging a culture of continuous learning and iterative experimentation can enhance adaptability.

External Support and Policy Mechanisms

Support from government agencies, industry associations, and digital platforms plays a catalytic role in SME digitalization. Incentives such as grants, training programs, and digital onboarding assistance can accelerate readiness. However, the accessibility, awareness, and appropriateness of these supports vary widely, affecting uptake across different SME segments (MDEC, 2022). For instance, rural SMEs often face bureaucratic hurdles in accessing grants, while micro-enterprises may lack awareness of available programs (Rahim et al., 2023). Strengthening outreach and simplifying application processes could improve policy effectiveness.

These dimensions, while foundational, do not operate in isolation. Their manifestation is shaped significantly by the broader national and socio-institutional context, which is the focus of the next subsection.

Contextual Influences on Malaysian Retail SMEs

The digital readiness of retail SMEs in Malaysia is shaped not only by internal capabilities but also by external contextual factors. This subsection examines the country's policy landscape, socioeconomic and demographic conditions, and prevailing cultural and institutional norms that collectively influence SME readiness trajectories.

Malaysia's Digital Economy Policies

Malaysia's National Digital Economy Blueprint (MyDIGITAL) and the 12th Malaysia Plan outline ambitious digitalization goals, with specific support schemes for micro, small, and medium enterprises (MSMEs). These include the SME Digitalisation Grant and initiatives by MDEC to promote e-commerce adoption. While these policies create an enabling environment, their uneven implementation and limited outreach—particularly in non-urban areas—pose challenges to universal readiness (Ministry of Finance Malaysia, 2023). Additionally, SMEs often struggle with compliance requirements, such as data protection laws, which may deter digital adoption (Abdullah & Ismail, 2023). Policymakers must balance regulatory rigor with SME-friendly frameworks to ensure inclusive growth.

Socioeconomic and Demographic Realities

Retail SMEs operate across a wide spectrum of contexts, from affluent urban centers to underdeveloped rural regions. Factors such as income disparity, urban-rural digital divide, and age of business owners influence digital uptake. Older SMEs or those led by less tech-savvy entrepreneurs often display resistance to digital change, further widening readiness gaps (World Bank, 2022). A study by Teh and Ooi (2023) found that younger SME owners are 40% more likely to adopt digital tools than their older counterparts. Bridging this generational gap requires tailored interventions, such as mentorship programs and simplified digital interfaces.

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Cultural, Institutional, and Consumer Behavior Factors

Cultural perceptions around technology use, institutional trust, and consumer readiness shape SME digital behavior. For instance, concerns over online fraud, lack of trust in digital platforms, and preference for cash transactions affect SME decisions regarding e-payment and e-commerce (Ali et al., 2020). Additionally, institutional norms around business registration, digital compliance, and taxation also serve as indirect enablers or barriers to readiness. Research by Yusoff et al. (2023) suggests that SMEs in culturally conservative regions exhibit slower digital adoption due to risk aversion. Addressing these challenges requires localized awareness campaigns and trust-building measures.

Understanding these contextual factors deepens the conceptualization of digital readiness and highlights the limitations of universal models. The next subsection builds on this insight to offer a synthesized, context-sensitive framework.

Theoretical and Conceptual Synthesis

Drawing from the multidimensional view of readiness and the contextual dynamics at play in Malaysia, this subsection offers a synthesized conceptual lens. It revisits unresolved ambiguities in the literature and advocates for a more integrative and situationally responsive framework for assessing digital readiness.

Addressing Conceptual Ambiguities

While digital readiness is widely cited in both academic and policy discourse, its operationalization remains inconsistent. Some studies equate readiness with technology adoption, while others focus on strategic orientation or innovation capacity (Tan & Lee, 2023). This conceptual fragmentation limits the development of cohesive frameworks and comparative metrics. By consolidating technological, human, organizational, and external support dimensions, this review clarifies the scope and structure of digital readiness in the SME context. A meta-analysis by Goh et al. (2023) further emphasizes the need for standardized measurement tools to assess readiness across diverse SME sectors.

Integrating Contextual Insights

The Malaysian case underscores the importance of context in shaping readiness trajectories. Policies, demographics, and culture interact with internal capabilities in complex ways, suggesting that digital readiness must be viewed as a dynamic interplay between endogenous and exogenous variables (Wong et al., 2023). For example, an SME in Kuala Lumpur may leverage high-speed internet and government grants, while a rural SME faces infrastructural and cultural barriers. This requires moving beyond static or checklist-style assessments toward more adaptive and context-sensitive diagnostic tools.

Toward a Context-Sensitive Framework

The synthesis supports the proposition that digital readiness is both multidimensional and context-contingent. For Malaysian retail SMEs, readiness is not solely about digital tools or skills but about how these assets are mobilized in response to structural constraints and opportunities (Raman & Yap, 2023). A refined conceptual framework must therefore accommodate variability across geographies, sectors, and firm sizes. Future research should explore hybrid assessment models that integrate quantitative metrics with qualitative insights from SME owners.

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This synthesized perspective, as shown in Figure 1, sets the stage for discussing implications for theory, policy, and SME practice in the next section.

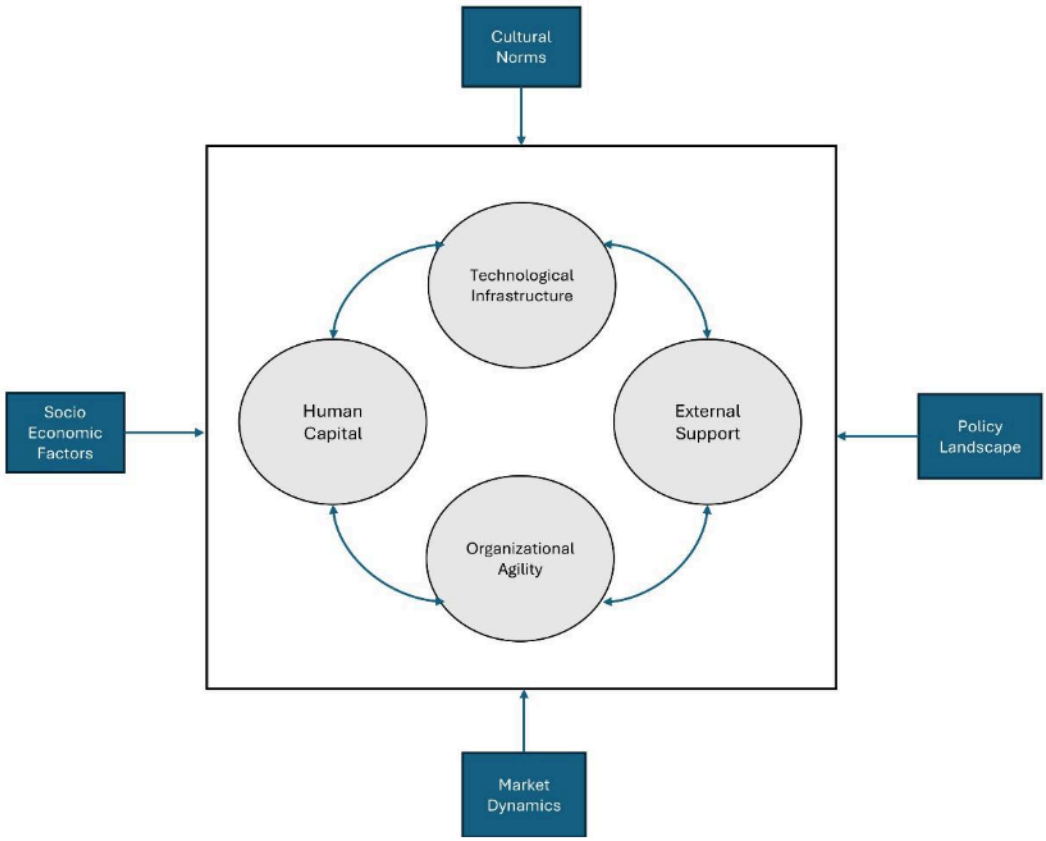

Figure 1: A Multidimensional Contextual Framework for Digital Readiness in Malaysian Retail SMEs

Implications

The preceding analysis of digital readiness dimensions, contextual influences, and theoretical synthesis yields actionable insights for theory, policy, and SME practice. This section delineates these implications to guide future research, policymaking, and business strategies.

Theoretical Implications: Toward a More Integrated and Contextual Digital Readiness Lens

The study advances digital readiness theory by integrating multidimensional and context-contingent perspectives. Three key contributions emerge:

Beyond Technocentric Models

Prevailing frameworks often overemphasize technological adoption while neglecting human and organizational dimensions (Hassan et al., 2023). This study demonstrates that digital readiness in retail SMEs requires synchronous advancements in infrastructure, skills, agility, and external support—a holistic view aligning with the Resource-Based View (RBV) and Dynamic Capabilities Theory (Teece, 2020).

Context as a Moderator

The Malaysian case underscores how national policies (e.g., MyDIGITAL), socioeconomic disparities (urban-rural divides), and cultural norms (cash reliance) mediate readiness

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outcomes. This challenges universalist models and calls for context-sensitive frameworks (Wong & Ooi, 2023), particularly in emerging economies where institutional voids exist.

Dynamic Readiness Assessment

Static "checklist" approaches (e.g., binary metrics of technology ownership) fail to capture agility or adaptive potential. Future research should develop longitudinal readiness metrics, incorporating qualitative benchmarks like leadership mindset and policy responsiveness (Ng et al., 2024).

These theoretical shifts urge scholars to:

- Adopt interdisciplinary lenses (e.g., combining institutional theory with innovation studies).
- Prioritize comparative studies across emerging economies to identify contextual patterns.

Policy Implications: Practical Insights for Government and Support Agencies

The findings reveal critical gaps in Malaysia's digital support ecosystem, necessitating targeted policy interventions, some of which are discussed below.

Geographically Inclusive Programs

Rural SMEs face infrastructural deficits (e.g., broadband latency) and lower awareness of grants (MDEC, 2023). Policies must decentralize support, leveraging local intermediaries (e.g., cooperatives) to improve outreach (World Bank, 2023).

Capability-Building Incentives

Current grants (e.g., SME Digitalisation Grant) focus on hardware subsidies but underfund training. Policymakers should:

- Tie financial aid to participation in accredited upskilling programs (ADB, 2022).
- Partner with platforms (e.g., Shopee, Grab) to subsidize SME digital marketing training (Ali et al., 2023).

Trust-Enhancing Regulations

Cultural resistance to e-payments stems from fraud concerns (Bank Negara Malaysia, 2023). Strengthening cybersecurity frameworks (e.g., mandatory POS system certifications) and public awareness campaigns can mitigate distrust.

Agility-Focused Support

Subsidies for cloud-based tools (e.g., inventory SaaS) can enhance scalability, while reducing upfront costs for SMEs (OECD, 2023).

SME and Practitioner Implications

For retail SMEs, translating readiness into action requires structured self-assessment and tailored roadmaps:

Readiness Diagnostics

- Toolkit Adoption: Use WHO's Digital Readiness Scorecard or MDEC's SME Digital Assessment to benchmark capabilities (MDEC, 2023).
- Gap Analysis: Prioritize gaps with highest ROI (e.g., adopting e-commerce over AI if consumer demand is online-driven) (Tan, 2023).

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EISSN: 2682-8545
Volume 7 Issue 24 (June 2025) PP. 387-403
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Tailored Capability-Building Roadmaps

- Micro-SMEs (<5 employees): Start with low-cost tools (e.g., WhatsApp Business, QR payments) and basic digital literacy workshops (Teh et al., 2023).
- Growing SMEs: Invest in integrated POS-eCommerce systems (e.g., StoreHub) and data analytics training (Lim, 2024).
- Leadership Buy-In: Founders must model digital behaviors (e.g., attending fintech webinars) to foster organizational buy-in (Chong et al., 2023).

Conclusion

This study reframes digital readiness for Malaysian retail SMEs through a dual lens of multidimensionality and contextual embeddedness. Key contributions include:

1. Theoretical: Proposing an integrated framework that bridges technological, human, organizational, and external dimensions while highlighting context as a critical moderator.
2. Empirical: Uncovering Malaysia-specific barriers (e.g., policy fragmentation, cultural resistance) and enablers (e.g., MyDIGITAL grants).
3. Practical: Delivering actionable diagnostics for SMEs and evidence-based policy recommendations (e.g., rural-centric digital hubs).

Extended Synthesis

The study reveals that digital readiness is not a linear progression but a cyclical process of adaptation. SMEs that align internal capabilities (e.g., agile leadership) with external opportunities (e.g., government grants) demonstrate faster recovery from disruptions like pandemics or supply chain shocks (Raman & Yap, 2023). Future research should explore how readiness thresholds vary by sub-sector—for instance, fashion retailers may prioritize e-commerce, while grocery stores require logistics automation. Additionally, the role of generational succession in family-owned SMEs presents an understudied dimension; younger leaders often drive digital pivots but face resistance from traditional governance models (Abdullah et al., 2024).

The limitations of this study—such as its focus on retail and reliance on secondary data—invite future research into sector-specific readiness (e.g., manufacturing SMEs) and primary data-driven validation of the framework. Nonetheless, this work provides a foundational step toward equitable and sustainable digital transformation for Malaysia's SME sector, emphasizing that readiness is less about "catching up" and more about strategic positioning in a dynamic digital economy.

Acknowledgements

The authors would like to express their sincere gratitude to International Islamic University Malaysia, Gombak for providing a supportive academic environment throughout the development of this theoretical paper. Although this research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors, the constructive feedback and academic guidance from colleagues and internal reviewers are greatly appreciated

Advanced International Journal of Business, Entrepreneurship and SME's
AIJBES
EISSN: 2682-8545
Volume 7 Issue 24 (June 2025) PP. 387-403
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