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A SYSTEMATIC LITERATURE REVIEW ON DIGITAL CAPABILITIES AS A LINK BETWEEN DIGITAL TRANSFORMATION AND MSME COMPETITIVENESS

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Abstract

Digital transformation has become a strategic agenda for micro, small, and medium enterprises (MSMEs) facing more open market competition, changing consumer behavior, and expanding platform-based business ecosystems. However, technology adoption does not automatically improve competitiveness, because MSMEs still face limited digital literacy, scarce resources, organizational readiness gaps, and uneven ecosystem support. This article synthesizes the literature on MSME digital transformation and business competitiveness. A systematic literature review was conducted on recent scholarly publications addressing MSME digitalization, digital capabilities, digital platforms, digital payments, business model innovation, and firm performance, and thematic coding was used to identify major findings, barriers, competitiveness mechanisms, and future research directions. The findings indicate that digital transformation strengthens MSME competitiveness when technology is not treated merely as a marketing tool but is integrated into organizational capabilities, knowledge management, product innovation, operational efficiency, and business networks. The study proposes a conceptual framework that positions digital capabilities as the key mechanism linking technology adoption and competitiveness. The practical implications highlight the need for continuous mentoring, digital literacy development, access to finance, and stronger digital ecosystems for MSMEs.

Keywords: *business competitiveness; digital capabilities; digital transformation; MSMEs; systematic literature review*

INTRODUCTION

Micro, small, and medium enterprises (MSMEs) play an important role in the economic structure of developing countries because they create employment, drive local economies, and provide space for community entrepreneurship to grow. In recent years, changes in the business environment, accelerated by the COVID-19 pandemic, have pushed MSMEs to adapt to the digital economy (Guo et al., 2020; Soto-Acosta, 2020). These changes are marked by the growing use of social media, online marketplaces, digital payments, app-based logistics services, and simple technology-based record keeping. Digital transformation is therefore no longer an optional add-on but a strategic necessity if MSMEs are to survive and grow amid increasingly complex competition.

Digital transformation in the MSME context cannot be reduced to the use of technological devices. The strategic management literature emphasizes that digital transformation is an organizational change process that involves redesigning business processes, developing new capabilities, creating value for customers, and adjusting business models (Verhoef et al., 2021; Vial, 2019). From this perspective, digital technology becomes a source of advantage only when MSMEs integrate it with knowledge, human resources, operational processes, and market networks. In other words, competitiveness does not arise from owning technology but from the ability to turn technology into business capabilities that are valuable, rare, difficult to imitate, and well organized (Barney, 1991; Teece, 2007).

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Previous studies show that MSME digitalization can widen market access, speed up communication with customers, strengthen cost efficiency, and expand sources of income (Bouwman et al., 2019; Eller et al., 2020; Matarazzo et al., 2021). However, the literature also shows that the effects of digitalization on performance and competitiveness are not uniform. Many MSMEs still face barriers such as limited digital skills, low organizational readiness, scarce mentoring, weak data security, and limited access to technology financing (Garzoni et al., 2020; Li et al., 2018; Rêgo et al., 2023). It is therefore important to understand the mechanisms that explain when and how digital transformation can strengthen MSME competitiveness.

Earlier reviews have addressed digital transformation in business research broadly (Kraus et al., 2022) and in SMEs in particular (Rêgo et al., 2023), while other studies examine its performance effects and its links with sustainability (Bai et al., 2021; Denicolai et al., 2021). Nevertheless, a synthesis that specifically connects the dimensions of digital transformation with the strengthening of MSME competitiveness is still needed. This gap matters because MSME competitiveness is measured not only by sales growth but also by the ability to access markets, retain customers, build product differentiation, innovate, and survive under uncertainty. This article aims to synthesize the literature on MSME digital transformation and to explain how digitalization can strengthen business competitiveness through digital capabilities, business model innovation, and ecosystem support. Two questions guide the review: (1) how does the literature link digital transformation to MSME competitiveness, and (2) what roles do digital capabilities and ecosystem support play in that relationship? The article contributes a thematic synthesis of six themes, a conceptual framework that positions digital capabilities as the linking mechanism, and an agenda for future research.

LITERATURE REVIEW

This section outlines the conceptual foundations on which the synthesis is built: the notion of digital transformation in MSMEs, the capability-based theories that explain how technology becomes a source of advantage, and the role of digital capabilities as a linking mechanism.

Digital Transformation in MSMEs

Research on digital business strategy has long treated digital technologies as a driver of organizational strategy rather than a mere support function (Bharadwaj et al., 2013; Fitzgerald et al., 2014; Matt et al., 2015; Yoo et al., 2012). Hess et al. (2016) point out that a digital transformation strategy has to address technology use, changes in value creation, structural change, and financial aspects together. Vial (2019) synthesizes this stream by describing digital transformation as a process in which digital technologies create disruptions and organizations respond by altering their value creation paths and structures. The concept nonetheless remains contested, and scholars continue to debate what is genuinely new about it (Kraus et al., 2022; Lanzolla et al., 2020).

Much of this work draws on large, established firms (Sebastian et al., 2017), whereas MSMEs operate with scarce resources, depend heavily on the capabilities of the entrepreneur, and rely more on external support (Eller et al., 2020; Garzoni et al., 2020; Li et al., 2018). Adoption-oriented theories, such as the diffusion of innovations (Rogers, 2003) and the technology–organization–environment framework (Tornatzky & Fleischer, 1990), explain why firms adopt technology, yet they say less about how adopted technology is converted into competitive outcomes.

Resource-Based View and Dynamic Capabilities

The resource-based view holds that sustained competitive advantage derives from resources that are valuable, rare, and difficult to imitate (Barney, 1991). Digital tools that any competitor can purchase

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rarely meet these conditions on their own; advantage depends on how firms combine technology with knowledge, people, and processes. Dynamic capabilities theory extends this logic to changing environments by stressing the ability to sense opportunities, seize them, and reconfigure resources (Teece, 2007, 2018). In the digital context, Warner and Wäger (2019) show that digital transformation is an ongoing process of strategic renewal (see also Agarwal & Helfat, 2009) that requires digital sensing, seizing, and transforming capabilities. Absorptive capacity, the ability to acquire, assimilate, transform, and exploit external knowledge (Zahra & George, 2002), further helps explain why firms with similar technologies achieve different outcomes.

Digital Capabilities as a Linking Mechanism

Digital capabilities can be understood as a firm's ability to select appropriate technologies, integrate them into business processes, use data, and make informed decisions. Li et al. (2018) explain SME digital transformation from a capability perspective centered on entrepreneurs, and Khin and Ho (2019) examine how digital technology and digital capability relate to organizational performance, with digital innovation as a mediating factor. Cenamor et al. (2019) show that entrepreneurial SMEs compete through digital platforms by drawing on digital platform capability, network capability, and ambidexterity. Data-related capabilities, such as big data analytics and AI-supported customer relationship management, have also been linked to organizational benefits and competitive advantage (Chatterjee et al., 2021; Wang et al., 2018). Together, these studies suggest that capabilities, rather than technology adoption alone, are the channel through which digital transformation can influence competitiveness. Capabilities also operate within a wider setting: the digital entrepreneurship and innovation literature emphasizes that outcomes depend on interactions between firms and their ecosystems (Acs et al., 2014; Elia et al., 2020; Nambisan, 2017; Nambisan et al., 2019), and digital innovation hubs can act as knowledge brokers for SMEs (Crupi et al., 2020).

Research Gap

Taken together, prior work documents the benefits of MSME digitalization (Bouwman et al., 2019; Matarazzo et al., 2021) and its barriers (Garzoni et al., 2020), and several reviews cover SME digital transformation broadly (Kraus et al., 2022; Rêgo et al., 2023). However, findings remain scattered across technologies, outcomes, and contexts, and few syntheses organize them around digital capabilities as the mechanism that links digital transformation to competitiveness, or treat ecosystem support as a reinforcing condition. This review addresses that gap.

METHOD

This study applies a systematic literature review approach. The approach was chosen because it allows the author to trace, group, and synthesize scholarly findings in a structured manner and thereby reach a more comprehensive understanding of the relationship between MSME digital transformation and business competitiveness (Snyder, 2019; Tranfield et al., 2003; Xiao & Watson, 2019). The review is not designed as a bibliometric analysis but as a thematic synthesis of the literature on digitalization, digital capabilities, business model innovation, and MSME performance, organized around concepts rather than chronology (Webster & Watson, 2002).

The literature search used a combination of English and Indonesian keywords, such as digital transformation, digitalization, SMEs, MSMEs, small business, digital capability, business competitiveness, firm performance, platform economy, digital payment, and business model innovation (Table 2). Priority

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was given to reputable international journal articles, systematic reviews, quantitative and qualitative empirical studies, and relevant official sources on MSME digital transformation. Publication dates were limited mainly to 2016–2026, with several classic articles retained as theoretical foundations, such as the resource-based view and dynamic capabilities. The review proceeded in four stages (Figure 1), adapting the logic of the PRISMA reporting guideline (Page et al., 2021): identification, screening, eligibility, and synthesis.

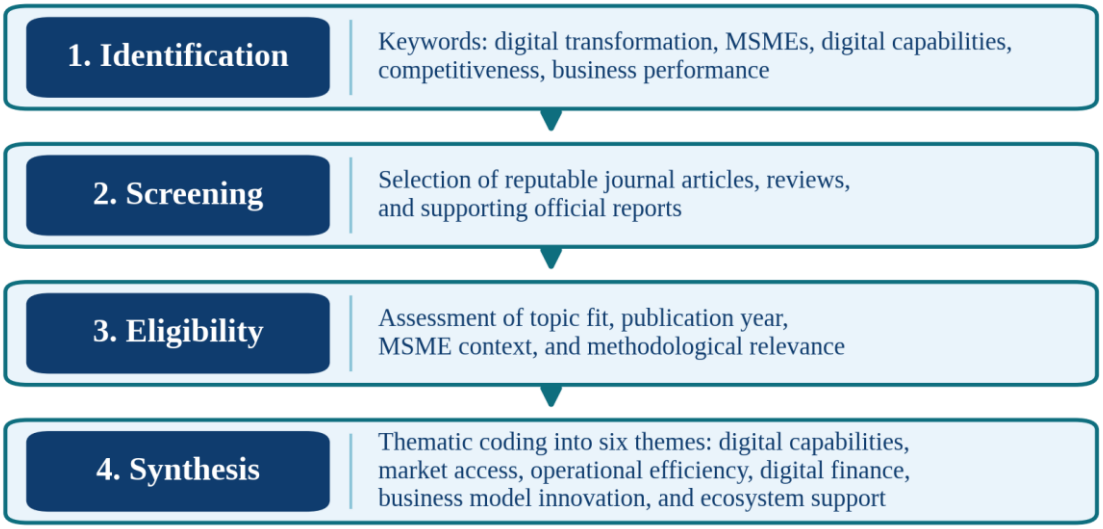


Figure 1. Systematic literature review workflow. *Source: Author's analysis (2026)*

The inclusion criteria were: (1) the article addresses MSMEs or small and medium-sized enterprises; (2) it examines digital transformation, digitalization, digital technology, or digital capabilities; (3) it is relevant to performance, competitiveness, innovation, or business sustainability; and (4) it provides adequate bibliographic information. The exclusion criteria covered articles that discuss only large firms, articles that do not explain business implications, non-academic publications without a clear data basis, and articles unrelated to MSME competitiveness (Table 1).

Table 1. Inclusion and Exclusion Criteria for the Literature

Aspect	Inclusion criteria	Exclusion criteria
Object of study	MSMEs, SMEs, micro and small enterprises, local business actors	Large firms with no relevance to MSMEs
Topic focus	Digital transformation, digitalization, digital capabilities, platforms, marketing technology, digital payments	Technology unrelated to business processes or competitiveness
Outcomes	Competitiveness, business performance, innovation, sustainability, market access, efficiency	Purely technical articles with no business implications
Publication type	Reputable journal articles, reviews, empirical studies, supporting official reports	Popular opinion pieces without data or methodology
Period	Mostly 2016–2026, with classic theoretical articles as foundations	Older publications that do not serve as theoretical foundations

Source: Author's analysis (2026)

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Table 2. Literature Search Keyword Strategy

Main keyword	Example search combination
Digital transformation	"digital transformation" AND SMEs AND competitiveness
Digitalization	digitalization AND MSMEs AND firm performance
Digital capability	"digital capability" AND small business AND performance
Digital platforms and markets	digital platform AND SMEs AND market access
Digital payments	digital payment AND MSMEs AND competitiveness
Business model innovation	business model innovation AND SMEs AND digitalization

Source: Author's analysis (2026)

Data were analyzed through thematic coding. Each article was read to identify its research focus, research method, country or sector context, the technologies discussed, the mechanisms of digitalization, and the indicators of competitiveness. The coding results were then grouped into six main themes: digital capabilities, digital market access, operational efficiency, digital finance, business model innovation, and ecosystem support. These six themes served as the basis for developing the conceptual model and the future research agenda.

RESULTS AND DISCUSSION

Publication Trends

The search shows that research on MSME digital transformation has increased markedly since the COVID-19 pandemic. The final corpus comprised 57 articles published between 2016 and 2026, and 38 of them (two-thirds) appeared between 2021 and 2025 (Figure 2). The pandemic accelerated the use of digital channels because restrictions on physical activity forced business actors to rely on marketplaces, social media, digital payments, and online communication (Guo et al., 2020; Soto-Acosta, 2020). The post-pandemic literature, however, shows a shift in focus from technology adoption toward a more strategic question: how digital technology is converted into organizational capabilities that generate competitive advantage.

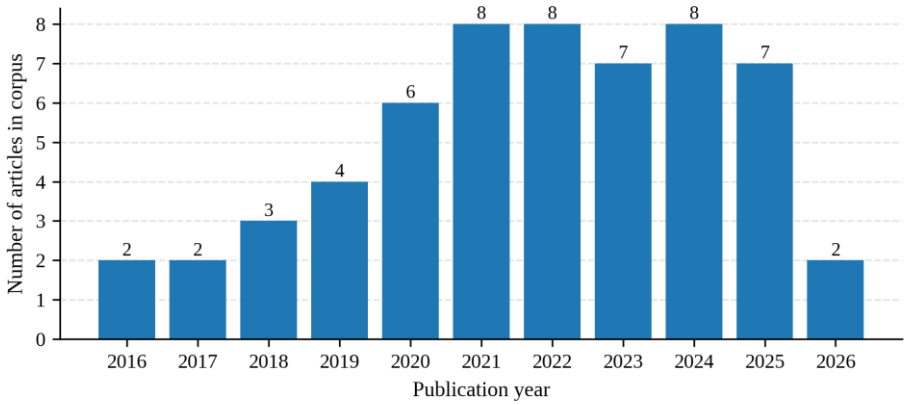


Figure 2. Distribution of publication years of the selected literature (2026 is a partial year). *Source: Author's analysis (2026)*

Thematic Synthesis

Thematic coding produced six themes. Figure 3 shows how often each theme was coded in the corpus, and Table 3 summarizes what each theme means in the literature and how it contributes to competitiveness. Digital capabilities were coded most often (22 times), followed by digital market access

(20), ecosystem support (18), operational efficiency (17), business model innovation (16), and digital finance (13).

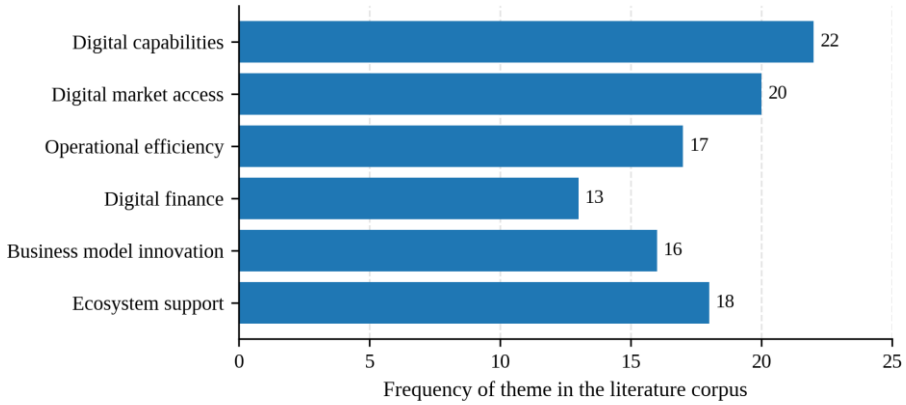


Figure 3. Dominant themes in MSME digital transformation. *Source: Author's analysis (2026)*

Table 3. Thematic Synthesis Matrix of MSME Digital Transformation

Theme	Meaning in the literature	Contribution to competitiveness
Digital capabilities	Ability to integrate technology, data, human resources, and business processes	Improves adaptation, decision making, and innovation
Digital market access	Use of marketplaces, social media, and online communication channels	Expands markets and strengthens customer relationships
Operational efficiency	Digitalization of record keeping, inventory, payments, and service processes	Lowers transaction costs and speeds up business response
Digital finance	Use of QR payments, e-wallets, and transaction documentation	Strengthens financial inclusion and cash-flow transparency
Business model innovation	Changes in how value is created, delivered, and captured	Creates differentiation and new revenue opportunities
Ecosystem support	Roles of government, platforms, financial institutions, universities, and communities	Strengthens the sustainability of digital transformation

Source: Author's analysis (2026)

Digital capabilities. The first and most prominent theme is digital capabilities. The literature shows that the success of digital transformation depends heavily on the ability of MSMEs to manage technology, data, business processes, and organizational knowledge (Li et al., 2018; Warner & Wäger, 2019). Digital capabilities include the ability to choose suitable technologies, integrate them into business processes, use customer data, and develop information-based decisions. MSMEs with stronger digital capabilities can more easily turn digital channels into a means of innovation rather than merely a means of promotion.

Digital market access. The second theme is digital market access. The use of social media, marketplaces, and online communication channels allows MSMEs to reach consumers beyond their local area (Alford & Page, 2015; Hervé et al., 2020). Bouwman et al. (2019) and Matarazzo et al. (2021) show that digitalization can strengthen business models and customer value creation. However, digital market access does not automatically produce competitiveness if business actors lack the ability to manage content, respond to customers, maintain service quality, and build brand identity. Digital marketing therefore needs to be positioned as part of a business strategy that unites branding, product quality, customer service, and market data.

Operational efficiency. The third theme concerns operational efficiency. Digital technology can help MSMEs record transactions, monitor inventory, manage orders and payments, and speed up

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communication with suppliers and consumers. From a competitiveness perspective, this efficiency can reduce transaction costs and accelerate responses to market demand. However, digitalizing operations requires disciplined record keeping and changes in work habits. Many MSMEs use technology only partially, so the efficiency benefits are not fully realized, which is why strategic guidance for implementation matters (Ghobakhloo & Iranmanesh, 2021).

Digital finance. The fourth theme is digital finance. Digital payments, electronic wallets, QR payments, and technology-based financial services can widen the financial inclusion of MSMEs. Digitalized finance helps business actors record cash flow, makes transactions easier, and opens opportunities for access to financing because transaction data are better documented. The literature also stresses security risks, service costs, and gaps in digital financial literacy that need attention. The integration of digital finance should therefore be accompanied by education, consumer protection, and mentoring in the use of technology.

Business model innovation. The fifth theme is business model innovation. Digital transformation encourages MSMEs to adjust how they create, deliver, and capture value. Priyono et al. (2020) show that MSMEs can follow different paths of business model transformation depending on their readiness, resources, and environmental pressures, and digital transformation also affects how SMEs balance exploration and exploitation in innovation (Arif et al., 2026; Scuotto et al., 2020). In terms of competitiveness, business model innovation can take the form of changes in sales channels, product bundles, service systems, partnerships with platforms, and more personalized customer experiences. This reinforces the view that digital technology must be connected with the renewal of business strategy.

Ecosystem support. The sixth theme is ecosystem support. MSMEs seldom manage to carry out digital transformation on their own because of limited resources. The roles of government, universities, business communities, financial institutions, technology providers, and digital platforms are therefore important. A supportive ecosystem can provide training, mentoring, access to financing, digital infrastructure, and market networks (Arif & Windarsari, 2026; Crupi et al., 2020; OECD, 2021). The digital entrepreneurship literature also affirms that the success of digitalization is influenced by the interaction between business actors and ecosystems that facilitate innovation (Elia et al., 2020; Nambisan et al., 2019; Windarsari et al., 2026).

Conceptual Framework

Based on this synthesis, the article proposes a conceptual model that positions digital transformation as a change process encompassing the adoption of platforms, digital payments, data, and marketing channels (Figure 4). This transformation strengthens competitiveness when it is mediated by digital capabilities. Digital capabilities in turn drive market access, efficiency, product innovation, differentiation, and business resilience. Ecosystem support, meanwhile, acts as a reinforcing factor that determines the success of the transformation process. The model underlines that MSME digitalization should be understood as a strategic process that is gradual, contextual, and dependent on continuous learning.

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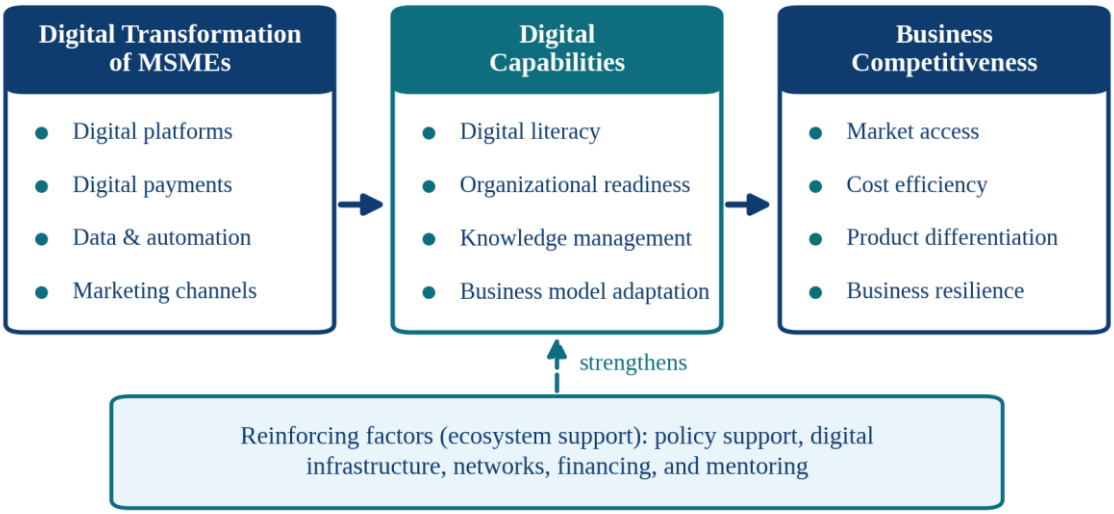


Figure 4. Conceptual framework of digital transformation and MSME competitiveness. *Source: Author's analysis (2026)*

Theoretical and Practical Implications

The theoretical implication of this review is the need to integrate the resource-based view and dynamic capabilities in explaining MSME digital transformation. The resource-based view explains that new technology is valuable when it is combined with internal resources that are difficult to imitate, whereas dynamic capabilities explain the ability of MSMEs to sense opportunities, seize them, and reconfigure resources in a digital environment. The practical implication is the need for MSME mentoring programs that go beyond training in the use of applications and also cover branding strategy, transaction recording, customer management, digital security, and business performance evaluation. Table 4 links common MSME problems with relevant digital interventions and indicators of competitiveness.

Table 4. Practical Implications of Digital Transformation for MSME Competitiveness

MSME problem	Relevant digital intervention	Competitiveness indicator
Limited market	Marketplaces, social media, digital catalogs	Wider customer reach and more orders
Weak branding	Business identity design, product photography, copywriting	Product differentiation and consumer trust
Untidy record keeping	Simple cash-management apps and digital payments	Better-documented cash flow
Low digital skills	Practice-based training and mentoring	Improved digital operational ability
Dependence on local markets	Platform partnerships, logistics networks, online promotion	Market expansion and business resilience

Source: Author's analysis (2026)

Future Research Agenda

The synthesis also reveals several directions for further research, summarized in Table 5. Beyond testing the mediating role of digital capabilities, future studies could examine how digitalization contributes to sustainable competitiveness, an issue that links MSME digitalization with sustainability concerns (Denicolai et al., 2021; Ghobakhloo, 2020).

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Table 5. Future Research Agenda

Research agenda	Future research question	Suggested method
Digital capabilities	How do digital capabilities mediate the relationship between digitalization and MSME performance?	SEM-PLS, longitudinal survey
Digital ecosystem	How do governments and platforms accelerate the digitalization of regional MSMEs?	Multiple case studies, mixed methods
Digital financial inclusion	Does digital payment improve MSMEs' access to financing?	Panel data, quasi-experiment
Sustainable competitiveness	How does digitalization drive the social and environmental sustainability of MSMEs?	SLR, bibliometric analysis, case study
Digital risk	How does digital security literacy affect the sustained use of technology?	Survey, educational experiment

Source: Author's analysis (2026)

CONCLUSION

This systematic literature review shows that digital transformation has great potential to strengthen MSME competitiveness, but its impact depends strongly on digital capabilities, organizational readiness, and ecosystem support. Digitalization cannot be understood merely as the use of marketplaces, social media, or digital payments; it must be integrated into business processes, business model innovation, data management, and customer value creation strategies. The review produces a conceptual framework that positions digital capabilities as the main mechanism linking digital transformation with business competitiveness. In practical terms, the results emphasize continuous mentoring, stronger digital literacy, stronger branding, the integration of digital payments, and collaboration among government, universities, financial institutions, and digital platforms.

The limitation of this article lies in its focus on thematic synthesis, and the proposed mediating role of digital capabilities has not yet been tested empirically. Future research is therefore encouraged to use bibliometric analysis, meta-analysis, or quantitative empirical studies to test the relationships among digital capabilities, digital transformation, and MSME competitiveness across sectors.

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