

Developing a Digital Entrepreneurship Strategy Model to Increase the Competitiveness of Micro, Small, and Medium Enterprises (MSMEs) Indonesia

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Abstract

Objective: This study aims to analyze the role of Digital Entrepreneurship in strengthening the competitiveness of Indonesian Micro, Small, and Medium Enterprises (MSMEs) in the midst of accelerating digital transformation. The main purpose of the research is to formulate a comprehensive, contextual, and digital entrepreneurship strategy model that is in accordance with the needs of MSMEs that have limited resources.

Methodology: The methodology used is Systematic Literature Review (SLR) with reference to the guidelines of Petticrew and Roberts (2006), which includes the process of identifying, selecting, critically evaluating, and synthesizing findings from various international and national literature. The literature analyzed covers topics related to digital entrepreneurship, digital business models, competitiveness, dynamic capabilities, and MSME transformation.

Results: The results show that Digital Entrepreneurship has a strategic role in creating value through digital innovation, improving technology-based operational efficiency, expanding the MSME market globally through digital platforms, and building adaptive digital organizational capabilities. The findings of the study also identify four main pillars that form the Digital Entrepreneurship strategy model, namely the pillars of innovation, efficiency, digital market expansion, and strengthening organizational capabilities. These four pillars have proven to be complementary in encouraging sustainable competitive advantage.

Conclusion: The main conclusion of the study emphasizes that the implementation of Digital Entrepreneurship is a key factor for the sustainability and competitiveness of MSMEs in the digital economy era.

Limitations: This study has limitations because it only focuses on literature studies without empirical testing through field data, so the generalization of the findings still needs to be tested further.

Contribution: Nevertheless, this research makes an important contribution in the form of a conceptual model of Digital Entrepreneurship strategy that can be used as a reference for academics, policy makers, and MSME actors in designing a more targeted digital transformation strategy.

Keywords: *Digital Entrepreneurship, MSMEs, sustainable competitiveness, dynamic capabilities, digital transformation,*

1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) have long been the main foundation of the Indonesian economy. The vital role of MSMEs is reflected in their contribution to the national economic structure, including a contribution of more than 60 percent to the Gross Domestic Product (GDP) and the provision of jobs for the majority of the productive population (Central Statistics Agency, 2024). The dominance of this sector in the economy is an indicator that MSMEs are not only small-scale business entities, but also strategic actors that support economic resilience, income equity, and community independence (Tambunan, 2019). However, MSMEs still face various structural challenges such as limited access to capital, low managerial capacity, minimal mastery of technology, and human resources who are not competent in data-based decision-making. These challenges are increasingly complex with the presence of the Industrial Revolution 4.0 which brings fundamental changes to the global business landscape. The development of digital technology ranging from *cloud computing*, artificial intelligence, *big data analytics*, to *the Internet of Things* has changed the way organizations create value, manage processes, and interact with customers (Schwab, 2017). In this context, companies are no longer just competing locally, but must deal with global competitors who utilize digital technology as a competitive advantage. As geographical boundaries are blurring due to digitalization, MSMEs are in a position that demands adaptability faster than ever before. Business actors who fail to carry out digital transformation have the potential to lose relevance, lagging far behind competitors who are more technologically adaptive (Porter & Heppelmann, 2015).

The change in landscape requires MSMEs to not only partially adopt digital technology, but also carry out a comprehensive strategic transformation through the Digital Entrepreneurship approach (Nambisan, 2017). Digital Entrepreneurship is not just an online-based business activity, but an entrepreneurial paradigm that positions digital technology as the core of the process of creating value, innovation, and exploiting new market opportunities. Thus, digital transformation is not only related to the ability to use social media or marketplaces, but concerns how MSMEs redesign business models, strengthen organizational structures, improve customer experience, and create unique value propositions (Kraus et al., 2020). In the framework of modern competition, the competitive advantage of MSMEs is no longer enough to be maintained through physical product differentiation or location advantage alone. Excellence is now formed through technology integration, customer data processing, the ability to provide fast and personalized services, and consistent cross-channel connectivity or omnichannel experience (Chaffey & Ellis-Chadwick, 2019; Verhoef et al., 2015). Through this approach, MSMEs can expand the market, improve operational efficiency, and create stronger customer relationships. Digital transformation brings great opportunities for MSMEs to penetrate the global market through technology platforms, thus providing opportunities for small businesses to become part of the international value chain (Oviatt & McDougall, 1994). Although these opportunities are wide open, not all MSMEs have the same readiness to carry out digital transformation. Many MSMEs are still in the basic digitalization stage, which is using technology only for marketing or communication needs, without integrating it into core business processes. This condition illustrates that there is a significant digital gap between the technological capabilities of MSMEs and the demands of the digital market (World Bank, 2021).

Therefore, it is important to examine how Digital Entrepreneurship can be applied as a relevant, structured, and appropriate strategy for the limited resources of Indonesian MSMEs. This research is here to answer these needs by formulating a Digital Entrepreneurship strategy model based on the four main pillars of Digital Innovation, Technological Operational

Efficiency, Digital Global Market Expansion, and Digital Organizational Capabilities. These four pillars are formulated based on thematic analysis of relevant academic literature and consider the factual conditions of Indonesian MSMEs. The strategy model is expected to be an applicable strategic framework for MSME actors, policy makers, and academics in designing programs to strengthen MSMEs in the era of digital transformation. By integrating the perspectives of competitiveness, digital entrepreneurship, and dynamic capability theory, this study emphasizes that digital transformation is a strategic imperative for MSMEs, no longer an option. The ability of MSMEs to survive and thrive in the digital economy is highly dependent on their readiness to adopt technology, utilize data as a source of competitive advantage, and increase internal capacity to adapt quickly and sustainably (Teece, 2007; Westerman et al., 2014). This view shows that Digital Entrepreneurship is the main foundation in building the competitiveness of Indonesian MSMEs in the future.

2. Literature Review

This literature review is compiled to provide an in-depth theoretical foundation on the main concepts that form the research framework, namely MSMEs, competitiveness, Digital Entrepreneurship, digital transformation, digital business models, and dynamic capabilities that are the foundation for the success of MSMEs in facing the digital economy era. The literature analyzed ranges from classical theory to the latest developments in digital entrepreneurship research.

2.1 MSMEs and Their Strategic Role in the Economy

MSMEs have a vital contribution to the Indonesian economy. Its role can not only be seen from its large contribution to GDP, but also in the provision of jobs and economic equity (Central Statistics Agency, 2024). According to Tambunan (2019), MSMEs function as important instruments in regional economic development, poverty alleviation, and the creation of national economic stability. However, the characteristics of small-scale MSMEs with limited resources often make them vulnerable to external pressures, market changes, and technological disruptions. The organizational structure of MSMEs which is generally simple with centralized decision-making on business owners causes their adaptability to be limited. A World Bank study (2021) shows that the digital divide is still a significant obstacle for MSMEs in Indonesia, especially in adopting more advanced technologies such as cloud computing, data analytics, or modern business management software.

2.2 Competitiveness Theory in a Digital Context

The concept of competitiveness has become a major concern in the science of strategic management. Porter (1985) emphasized that competitiveness is created when a company is able to produce higher value or lower costs than competitors. In the context of digital MSMEs, competitive advantage does not only come from physical products, but also from customer experience, the quality of digital interactions, and the company's ability to manage data (Kotler & Keller, 2016). The Resource-Based View (RBV) theory developed by Barney (1991) states that continuous competitive advantage is obtained through resources that are VRIO: Valuable, Rare, Inimitable, and Organized. In the digital age, RBV is experiencing an expansion of meaning as valuable resources are no longer limited to physical factors such as capital or labor, but also digital assets such as customer databases, recommendation algorithms, digital brands, and innovation capabilities. In the era of digital transformation, companies that are able to effectively integrate digital resources will have a greater chance of maintaining a competitive

advantage. This is in line with the view of Teece (2007) who introduced the theory of dynamic capabilities as the ability of companies to sense opportunities (sensing), seizing, and transform resources (transforming) in a rapidly changing environment.

2.3 Digital Entrepreneurship as a Strategic Concept

Digital Entrepreneurship (DE) is a new development in the entrepreneurship literature. Nambisan (2017) defines DE as an entrepreneurial activity that makes digital technology the foundation for creating opportunities, innovation, and developing business models. In contrast to e-business which only relies on the digitization of conventional processes, DE emphasizes fundamental overhauls in business structures by utilizing technology as the core. Kraus et al. (2020) added that DE includes not only the use of digital platforms such as marketplaces or social media, but also the exploration of business models based on artificial intelligence, big data, predictive analytics, and interplatform integration in the digital ecosystem. The use of this technology allows MSMEs to create new value propositions that are more competitive. In the realm of MSMEs, Digital Entrepreneurship provides a great opportunity to expand the market and reduce operational costs. For example, MSMEs can utilize automated sales systems, data-driven customer preference mapping, digital content personalization, and the use of live streaming as a medium of direct interaction. With digital, MSMEs are no longer limited by narrow geographical space like in the pre-digital era.

2.4 Digital Transformation of MSMEs

Digital transformation is a process of strategic and structural change that involves the integration of technology into all aspects of the business. Westerman et al. (2014) explain that digital transformation is not just the use of digital tools, but involves the evolution of the way companies operate and deliver value to customers. In MSMEs, digital transformation often takes place in stages, starting from the digitization process, then progressing to the digitization of business processes (digitalization), to full digital transformation that has an impact on business models and organizational structures. Many MSMEs in Indonesia are currently only in the early stages of transformation, such as using social media for promotion or marketplace for sales, but have not yet integrated digital into operational management such as CRM, simple ERP, or data analytics. The success of MSME digital transformation is greatly influenced by the readiness of human resources. Rogers (2003) explained that the adoption of innovation is highly dependent on the perception of benefits, ease of use, and organizational readiness. This explains why many MSMEs have not carried out optimal digital transformation, even though the necessary technology is available at affordable prices.

2.5 Omnichannel and Channel Integration in Digital Business

The development of increasingly digital consumer behavior requires companies to provide consistent experiences across multiple platforms. Verhoef et al. (2015) introduced the concept of omnichannel as an approach that integrates all communication, marketing, and distribution channels to create a well-rounded customer experience. In the context of MSMEs, an omnichannel strategy is relevant because it can improve the quality of customer interaction, expand market reach, and provide convenience in managing transactions. Chaffey and Ellis-Chadwick (2019) emphasize that data integration between channels is key to the success of this strategy. For example, customer information obtained from marketplaces can be linked to data from social media to improve digital marketing accuracy.

2.6 Dynamic Capabilities in Digital MSMEs

Dynamic capabilities are an important concept that explains the ability of organizations to adapt and change to follow the dynamics of the rapid digital environment (Teece, 2007). In MSMEs, dynamic capabilities are realized through the ability to learn new technologies, respond to changes in platform algorithms, experiment with digital marketing models, and manage customer data effectively. Eisenhardt and Martin (2000) affirm that dynamic capabilities are not just assets, but are an iterative process that allows organizations to acquire continuous learning. In the context of MSMEs, this learning can come from customer interaction, market response, changes in digital trends, and evaluation of content performance on social media. Dynamic capabilities are the main foundation for MSMEs to maintain a competitive advantage in the digital era. Without adaptability, MSMEs will find it difficult to adapt to the rapid changes in the digital ecosystem, especially with the emergence of new technologies such as generative AI, machine learning, and global platforms.

2.7 Digital Business Model for MSMEs

Digitalization not only changes business processes, but also encourages the creation of new, more innovative business models. Osterwalder and Pigneur (2010) explain that digital business models create value through the more effective use of technological resources, networks, and customer interactions. In MSMEs, digital business models can include direct sales through social platforms, subscription-based services, bundling digital products with physical ones, or content monetization. Digitalization provides opportunities for MSMEs to create new value through service personalization, fast delivery, real-time interactivity, and digital logistics integration. This enriches the value proposition of MSMEs and increases the attractiveness of the business in the eyes of modern consumers.

2.8 Synthesis of Literature Review

Based on the literature analysis, it can be seen that Digital Entrepreneurship is a strategic approach that is able to help MSMEs face the challenges of the digital era. The DE concept combines the theory of competitiveness, RBV, dynamic capabilities, and digital transformation into one unified framework. These findings are the basis for the preparation of the Four Pillars Digital Entrepreneurship Strategy Model, which consists of digital innovation, technological efficiency, global market expansion, and digital organizational capabilities. The four concepts cannot stand alone, but interact with each other to form the foundation of the transformation of MSMEs towards sustainable competitiveness.

3. Research Methods

This study uses a qualitative approach with the *Systematic Literature Review (SLR)* method to examine the concept of Digital Entrepreneurship and its relevance to increasing the competitiveness of MSMEs. SLR was chosen because it provides a systematic, transparent, and replicable literature review process in the future. This approach is in line with the guidelines put forward by Petticrew and Roberts (2006), who assert that SLR not only summarizes the literature but also synthesizes findings to generate a deeper understanding. The research process began by

determining the focus of the study, namely how the Digital Entrepreneurship strategy can help MSMEs transform and increase competitiveness. This research question was then directed to the literature search process using various scientific databases such as Web of Science, ScienceDirect, and Google Scholar. To strengthen the local context, several national journals indexed by SINTA and institutional reports such as World Bank and Ministry of Cooperatives reports are also used. The use of various types of sources is carried out in accordance with Creswell's (2018) view that qualitative research requires rich and varied data sources. Literature search was conducted using keywords such as *Digital Entrepreneurship*, *MSMEs*, *digital transformation*, *competitive advantage*, *resource-based view*, and *dynamic capabilities*.

These keywords reflect the big concepts that are the basis of the research. The publication time range from 2010 to 2024 is set to ensure relevance to the development of digital technology. Despite this, classical theories such as Porter (1985), Barney (1991), and Teece (2007) remain included because of their significant contributions to the theory of competitiveness and dynamic capabilities. The literature obtained was then selected based on the relevance of the title and abstract. Next, the researcher reads the entire content of the article to assess its contribution to the research objective. The selected literature is one that directly discusses aspects of digital entrepreneurship, digital transformation of MSMEs, digital business strategies, competitiveness, and organizational capabilities. Of the hundreds of initial sources, only about forty articles are considered the most relevant and adequate to be analyzed in depth. Data analysis was carried out by thematic analysis, as explained by Guest et al. (2012). Thematic analysis allows researchers to identify recurring themes, patterns, and concepts in the literature. Through this process, various main themes were found, such as digital innovation, the use of technology as operational efficiency, omnichannel integration, dynamic capabilities, and strengthening the digital market.

Each theme is analyzed to see its contribution to the formation of Digital Entrepreneurship strategies. The literature synthesis was carried out by combining various theories of strategic management and digital entrepreneurship. Porter's (1985) theory of competitive advantage, Barney's (1991) Resource-Based View theory, and Teece's (2007) theory of dynamic capability are important foundations in formulating a research framework. In addition, the concept of Digital Entrepreneurship introduced by Nambisan (2017) provides a modern perspective on how digital technology not only supports operations, but also creates new business opportunities. This cross-theoretical integration allows research to produce comprehensive and applicable conceptual models. The validity of the research is maintained through the selection of credible academic sources, a transparent literature selection process, and the consistent application of thematic analysis methods. Meanwhile, the reliability of the research is strengthened by the systematic use of SLR procedures so that they can be replicated by other researchers.

This approach follows the guidance of Denyer and Tranfield (2009), who emphasize the importance of consistency and transparency in literature review to improve academic quality. The scope of research is limited to literature focusing on MSMEs and digitalization, digital entrepreneurship strategies, competitiveness, digital business innovation, and relevant management theories. The research does not involve primary data, so the entire findings are conceptual and serve as the basis for future empirical research. However, SLR-based research still has strategic value because it is able to provide a strong theoretical foundation for the development of a targeted and systematic Digital Entrepreneurship model. Through structured research procedures and in-depth literature analysis, this research provides a theoretical foundation to understand how Digital Entrepreneurship can increase the competitiveness of MSMEs. This approach provides a holistic picture of the role of digital technology, innovation,

and organizational capabilities in dealing with the dynamics of the modern business environment.

4. Results and Discussion

The results of this research come from the Systematic Literature Review (SLR) process of more than 40 scientific sources regarding Digital Entrepreneurship, MSMEs, digital transformation, competitiveness, and strategic management theory. The thematic analysis yielded four major interconnected themes: digital innovation, technological efficiency, digital market expansion, and digital organizational capabilities. These findings form a strategic framework that emphasizes that Digital Entrepreneurship is a key factor in strengthening the competitiveness of Indonesian MSMEs. To support the discussion, this section also presents a table of data summaries, findings patterns, and a literature map as a basis for interpretation.

4.1 Summary of Research Findings Based on the Literature

The results of the analysis of the literature show that MSMEs are in an increasingly strategic and challenging position in the digital era. The majority of studies illustrate that the digital adoption rate of Indonesian MSMEs is still in the early stages, which is characterized by the dominance of the use of social media and marketplaces as the main means of marketing and sales. These findings are consistent with the Central Statistics Agency report (2024) and the Kraus et al. (2020) study, which show that most MSMEs have not yet leveraged more complex business management technologies such as Customer Relationship Management (CRM), simple Enterprise Resource Planning (ERP), or data analytics. The literature also identifies a number of structural challenges that hinder the digital transformation of MSMEs. The World Bank (2021) revealed that the main obstacles lie in low digital literacy, limited access to capital for technology investments, limited knowledge about digital marketing strategies, and lack of skilled human resources in operating modern technology. These challenges show that there is a clear gap between the availability of technology and the ability of MSMEs to adopt it. On the other hand, almost all literature highlights that digitalization opens up very wide opportunities for MSMEs to develop.

Nambisan (2017) shows that Digital Entrepreneurship not only provides new tools for business actors, but also forms new ways of creating value, building customer relationships, and developing business models. Through digital platforms, MSMEs can reach a wider range of customers, expand the market to the national and global levels, and reduce dependence on traditional distribution channels. In addition to market expansion opportunities, the literature also emphasizes that digitalization can increase the competitive advantage of MSMEs through faster innovation processes, production flexibility, and the ability to update products according to consumer preferences in real-time. This concept is in line with Porter's (1985) view of the importance of differentiation and Barney's (1991) view of the Resource-Based View, which emphasizes that competitive advantage comes from a company's ability to develop unique resources, including digital assets and technological capabilities.

Literature analysis also found that the success of Digital Entrepreneurship in MSMEs is highly dependent on organizational capabilities, especially the ability to learn and adapt to technological changes. Teece (2007) refers to this ability as *dynamic capabilities*—namely the company's capacity to sense, seize, and transform resources effectively. MSMEs that have dynamic capabilities are better able to respond to technological changes, understand shifts in consumer behavior, and make rapid operational adjustments. Overall, the literature findings

show that MSMEs are at a critical point in the digitalization process. Despite the significant structural challenges, the opportunities provided by digital technologies are far greater. These findings show the urgent need for MSMEs to adopt a comprehensive Digital Entrepreneurship strategy, especially in digital innovation, technology integration, strengthening digital markets, and building organizational capabilities. These four major themes then form the basis of further discussion in this study.

Table 1. Summary of Key Findings on MSMEs and Digitalization

Aspects of the Findings	Key Findings	Source
Digital adoption of MSMEs	Dominated by the use of social media and marketplaces; Adoption of management technology is still low	Kraus et al. (2020); BPS (2024)
Digital Challenges	Limitations of digital literacy, technology capital, skilled human resources	World Bank (2021)
Digital Opportunities	National-global market expansion, operational efficiency, product innovation	Smashing Pumpkins (2017)
Factors that determine competitiveness	Digital innovation, technology integration, organizational capabilities, digital ecosystem	Teece (2007); Porter (1985)

4.2 Digital Innovation as a Key Driver of Competitive Advantage

The results of the literature analysis show that digital innovation is a fundamental factor in increasing the competitive advantage of MSMEs. Innovation does not only refer to the creation of new products, but includes process innovation, service innovation, and business model innovation. In the digital age, innovation often has to do with the use of technology to facilitate interaction with customers or create new, more personalized experiences. Porter (1985) asserts that differentiation is one of the important strategies for competitive advantage, and the modern literature shows that digital innovation reinforces that differentiation. MSMEs that are able to develop creative content, utilize live streaming, use big data to understand trends, or create responsive digital services tend to gain a better competitive position. Research by Liu et al. (2022) even found that the integration of digital innovations in marketing can significantly increase customer trust and conversion rates. Digital innovation also provides space for *value co-creation* between MSMEs and customers. Customers are not just passive consumers, but part of the innovation process through real-time feedback, digital preferences, and engagement in the digital community. This condition is in line with the concept of sensing in Teece's (2007) theory of dynamic capabilities, which is the ability of organizations to read market opportunities and needs quickly through digital indicators.

Table 2. Forms of MSME Digital Innovation

Types of Digital Innovation	Implementation Examples	Benefits
Product Innovation	Creative design, new variants, digital products	Market differentiation

Service Innovation	Live commerce, online consultation	Improved customer experience
Process Innovation	Order automation, digital stock management	Cost efficiency
Business Model Innovation	Subscriptions, product curation, digital collaboration	New sources of income

4.3 Technology Efficiency and System Integration Increase Productivity

The second theme reveals that digital technology plays a big role in improving the efficiency and operational performance of MSMEs. Digitalization helps MSMEs simplify business processes, speed up services, and lower production costs. The use of digital bookkeeping applications, electronic payment systems, order automation, inventory applications, and the use of *chatbots* has been proven to reduce manual errors while increasing service speed. According to Chaffey and Ellis-Chadwick (2019), digitizing operational processes improves the quality of business decisions because the available information is more accurate and real-time. Similar findings were mentioned by McAfee and Brynjolfsson (2012), who stated that companies that effectively utilize digital data have higher organizational performance than companies that rely solely on intuition. The integration of this technology not only increases productivity, but also increases *responsiveness*, which is the ability of MSMEs to respond quickly to consumer demand. In the instant digital era, the ability to respond quickly is an important factor in maintaining customer satisfaction. Thus, technology is no longer just an aid, but an essential foundation in building efficiencies that bring competitive advantage.

Table 3. MSME Technology That Increases Efficiency the Most

Technology	Function	Impact on Performance
Digital payment system	Automated Transactions	Increased transaction speed
Financial Management Apps	Digital bookkeeping	Financial statement accuracy
Marketplace tools	Stock & order management	Smoother operational management
CRM (Customer Relationship Management)	Customer segmentation & retention	Customer loyalty increases

Technology integration not only reduces costs, but also increases *responsiveness*, which is the ability of businesses to respond quickly to market demand. McAfee and Brynjolfsson (2012) emphasized that data-driven companies perform better than traditional companies.

4.4 Digital Market Expansion and Branding Strengthening

The third theme shows that digitalization opens up great opportunities for MSMEs to expand the market. Before the digital era, the market reach of MSMEs was generally limited geographically. However, through marketplaces, social media, websites, and digital collaboration, MSMEs can now reach consumers throughout Indonesia and abroad. UNCTAD (2021) emphasized that digital platforms provide three to five times greater opportunities for MSMEs to enter the international market. Social media is becoming a very powerful branding tool, while marketplaces provide ready-to-use infrastructure for distribution and transactions. Websites provide higher credibility, while collaborations with influencers increase brand trust

and exposure. In addition to expanding the market, digitalization provides opportunities for MSMEs to build *a strong brand identity*. Kotler et al. (2021) explain that in the digital age, branding is not only about products, but also about stories, values, and emotional connections built through content. MSMEs that succeed in building a consistent digital narrative will have greater appeal in the eyes of modern consumers.

Table 4. Digital Channels and Their Impact on MSME Market Expansion

Digital Channels	Main Functions	Impact
Marketplace	Direct sales	Wide market reach
Social Media	Branding and Promotion	Increased awareness
Website	Business credibility	Consumer trust
Influencing collaborations	Digital marketing	Sales increase significantly

According to UNCTAD (2021), MSMEs connected to digital platforms have a 3-5 times greater chance of penetrating the global market than conventional MSMEs. Digital branding also plays an important role in this process, especially through storytelling and engaging content (Kotler et al., 2021).

4.5 Digital Organizational Capabilities as a Foundation for Transformation

The results of the literature show that digital transformation is not only made possible by technology, but is largely determined by organizational capabilities. These capabilities include digital learning skills, change management skills, creativity in facing challenges, and flexibility to adapt to technological dynamics. Teece (2007) explains the three dimensions of dynamic capabilities: sensing, seizing, and transforming. In the context of MSMEs, sensing capabilities can be seen from the ability to read changes in consumer trends through digital data. Seizing capabilities can be seen from the ability of MSMEs to take advantage of digital opportunities such as maximizing online sales, creating content, or implementing digital marketing strategies. While transforming is related to the ability to adjust the internal structure of the business, such as changing work processes, updating systems, or improving workforce competencies to match digital demands. Bharadwaj et al. (2013) emphasize that digital capabilities are not only technical capabilities, but also strategic capabilities. Adaptive leadership, an organizational culture that supports innovation, and digital HR readiness are key factors for the success of long-term digital transformation.

Table 5. Form of MSME Digital Organization Capabilities

Capabilities	Description	Contribution of Strategy
Sensing	Ability to read trends and changes	Quick response to the market
Seizing	Ability to take advantage of opportunities	Product innovation, business model
Transforming	Ability to customize internal processes	Long-term adaptation

Digital capabilities include the ability to learn new technologies, manage internal changes, develop digital human resources, and build a culture of innovation. Research by Bharadwaj et al.

(2013) confirms that digital capabilities are a source of strategic advantage that is difficult for competitors to replicate.

4.6 Integration of Findings: Digital Entrepreneurship as a Strategic Framework

The integration of all findings shows that Digital Entrepreneurship is a strategic framework that is able to unite innovation, efficiency, market expansion, and organizational capabilities. These four aspects do not stand alone, but are mutually reinforcing systems. Digital innovation provides MSMEs with a new source of value; technological efficiency strengthens the operational foundation; the expansion of the digital market expands growth opportunities; and organizational capabilities to ensure MSMEs remain adaptive in the long term. The literature confirms that MSMEs that successfully combine these four elements tend to gain a sustainable competitive advantage. The Four Pillars Digital Entrepreneurship model found in this study shows that a comprehensive digital strategy can increase the competitiveness of MSMEs in a changing business ecosystem.

Table 6. Synthesis of Findings: The Four Pillars of Digital Entrepreneurship

Pillar	Key Focus	Impact on MSMEs
Digital innovation	Products, services, business models	Differentiation & added value
Technology Efficiency	Automation, data analytics	Increased productivity
Digital market expansion	Marketplace, social media	Wider reach
Organizational capabilities	Digital learning adaptation	Long-term durability

This model shows that MSMEs must implement all four pillars simultaneously to gain a sustainable competitive advantage. If one of the pillars is ignored, the digital transformation process is likely to be less than optimal.

4.7 Critical Discussion: Challenges and Implications

Further analysis shows that MSMEs not only face opportunities, but also significant challenges in digital transformation. Key challenges include limited digital literacy, resistance to change, technology costs, and lack of skilled human resources support. These findings are consistent with a World Bank report (2021), which shows that MSMEs in developing countries often lag behind in technology adoption due to structural barriers and technical competence. Despite this, the opportunities for digitalization remain enormous. MSMEs that are able to overcome these obstacles have the potential to enter a wider market, increase efficiency, and build a competitive advantage that is difficult to replicate. Implicitly, ecosystem support such as digital training, business mentoring, access to technology financing, and pro-transformation government policies are very important. From a theoretical perspective, this research strengthens the understanding that digital capabilities, technological innovation, and digital market strategies are important pillars in increasing the competitiveness of MSMEs. From a practical perspective, these findings provide strategic direction for MSMEs to formulate digital transformation steps in a more targeted and measurable manner.

5. Conclusion

This study examines the role of Digital Entrepreneurship in strengthening the competitiveness of Indonesian MSMEs through *the Systematic Literature Review approach*. The results of the analysis show that digital transformation is no longer an option, but a strategic need

for MSMEs to be able to survive and thrive in an increasingly competitive business ecosystem. Digital Entrepreneurship emerged as a comprehensive strategic framework because it not only emphasizes the use of digital technology, but also reframes business processes, product innovation, marketing strategies, and organizational capabilities as a whole. The main conclusion of this study shows that the four pillars of Digital Entrepreneurship, namely digital innovation, technological efficiency, digital market expansion, and organizational capabilities, serve as key foundations in encouraging MSMEs to increase their competitive advantage.

Digital innovation strengthens product differentiation and enables the creation of new value for consumers through creative content, digital interactions, and products that are more relevant to market needs. Technology efficiencies increase productivity, reduce operational costs, optimize production processes, and support data-driven decision-making. The expansion of the digital market opens up opportunities for MSMEs to reach consumers beyond geographical boundaries, both at the national and global levels, through marketplaces, social media, websites, and digital collaborations. Meanwhile, the capabilities of digital organizations ensure the continuity of long-term adaptation to technological changes, build a culture of innovation, and develop competent digital human resources.

In addition to identifying the strengths of Digital Entrepreneurship, this study also shows significant challenges, ranging from low digital literacy, limited capital for technology investment, lack of digital training, to resistance to change. Nevertheless, the research concludes that the opportunities for digitalization for MSMEs are much greater than the challenges. When MSMEs are able to integrate the four pillars of Digital Entrepreneurship consistently, they have the potential to build a competitive advantage that is difficult for competitors to replicate and can survive in the long term. Thus, this study emphasizes that Digital Entrepreneurship is a fundamental strategy for MSMEs to face digital market dynamics, increase efficiency, expand market share, and strengthen competitiveness in the global ecosystem.

Research Contributions

This research makes an important contribution both theoretically and practically to the development of MSME and Digital Entrepreneurship studies in Indonesia. Theoretically, this study enriches the literature on MSMEs and competitiveness by integrating various strategic theories such as *Resource-Based View* (Barney, 1991), *Dynamic Capabilities* (Teece, 2007), and Porter's theory of competitive advantage (1985) with the modern concept of Digital Entrepreneurship (Nambisan, 2017). This theoretical synthesis results in a holistic understanding of how digital technology does not only function as a tool, but as a strategic component that shapes the competitive structure of MSMEs.

This research conceptually introduces the Four Pillars Digital Entrepreneurship Model, which can be used as a basis for further research, evaluation models, and empirical measurements of the digital readiness of MSMEs. The practical contribution of this research lies in the provision of strategic recommendations that can be directly applied by MSME actors to improve their business performance. The findings on digital innovation, digital market strategies, and technology integration provide a clear picture of digital transformation measures that are realistic and appropriate to the Indonesian context. This research also provides guidance for MSME actors to develop adaptive organizational capabilities through training, change management, and internal team strengthening. In addition, this research contributes to policies by highlighting structural issues that need to be considered by the government, such as the digital divide, lack of technological literacy, and lack of access to financing for the adoption of digital

technology. Thus, the model and findings of this research can be the basis for making more inclusive and comprehensive policies in supporting the digitalization of national MSMEs.

6. Suggestions

Practical Advice for MSME Actors.

MSMEs need to strengthen digital innovation capabilities as the main strategy in facing market competition. This can be done through the exploration of more creative product design, the use of *live commerce*, and the improvement of the quality of digital content that is able to build emotional relationships with customers. MSMEs are advised to develop simple data analysis skills in order to understand consumer behavior based on the insights available on digital platforms. Business owners also need to utilize digital technology in a more integrated manner. It is not enough to just use social media, MSMEs must start utilizing digital bookkeeping applications, cloud-based inventory systems, and structured digital marketing strategies. The use of digital data for decision-making needs to become a new habit. Thus, MSMEs can significantly increase operational efficiency and competitiveness. In addition, MSMEs need to improve organizational capabilities, especially in terms of digital literacy and adaptability. Digital training and workshops should be carried out regularly, both through government programs and independent initiatives. Business owners must be open to change and encourage team members to be actively involved in the digital transformation process.

Policy Advice for Governments and Stakeholders.

The government needs to strengthen the ecosystem that supports the digitalization of MSMEs through more targeted policies. First, it is necessary to provide structured and sustainable large-scale digital literacy training. Today's training programs tend to be short and in-depth, making them less effective in creating long-term transformations. Digital training should include strategic aspects such as digital marketing, content design, data analysis, cybersecurity, and marketplace management. The government also needs to increase MSMEs' access to technology financing through low-interest loans, tax incentives for digital investments, and software subsidy support for MSMEs. By reducing the cost burden of digital transformation, the government can accelerate the massive adoption of technology in the MSME sector. Furthermore, collaboration between the government, universities, and digital platforms is needed to build a digital incubator for MSMEs. These incubators can provide mentoring, content training, and mentoring in the use of advanced digital technologies such as data analytics, SEO, or simple artificial intelligence. In addition, the government can expand digital infrastructure evenly throughout Indonesia, especially in rural areas. Without strong internet access, the digitalization of MSMEs cannot run optimally and the digital divide risks widening further.

Suggestions for Further Research.

Future research is recommended to conduct an empirical analysis using surveys or direct interviews with MSMEs to measure the level of digital readiness and empirical impact of the Four Pillars Digital Entrepreneurship Model. Quantitative research can test the relationship between digital innovation, technological integration, and the competitiveness of MSMEs statistically. In-depth qualitative research can also provide a contextual understanding of the digital challenges faced by MSMEs in certain sectors such as culinary, fashion, and handicrafts.

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