
Strengths and Weaknesses of MSMEs in the Digital Era: Challenges and Opportunities for Transformation Towards Sustainable Competitiveness

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Abstract—This study aims to analyze the dynamics of Micro, Small, and Medium Enterprises (MSMEs) in responding to the rapid advancement of digital technology. The primary focus is to identify the internal strengths and weaknesses of MSMEs, as well as to evaluate external challenges and opportunities in the digitalization process to achieve long-term competitive advantage. Employing a qualitative approach through literature review and secondary data analysis, the study highlights operational flexibility and product innovation as key strengths of MSMEs. However, limitations in financial access, low levels of digital literacy, and infrastructure gaps remain significant barriers. Globalization and shifting consumer behavior further underscore the urgency for digital adaptation among MSMEs. On the other hand, digitalization presents significant opportunities such as market expansion, increased operational efficiency, and the enhancement of data-driven strategies. This article offers strategic recommendations, including improving digital literacy, gradual technological integration, and fostering collaboration within the digital ecosystem, to sustainably strengthen MSME competitiveness.

Keywords: MSMEs, digitalization, competitiveness, innovation, digital economy

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1. Introduction

Digital transformation has brought significant changes to the business landscape, affecting not only large corporations but also Micro, Small, and Medium Enterprises (MSMEs). In Indonesia, MSMEs play a crucial role as the backbone of the national economy, contributing more than 60% to the Gross Domestic Product (GDP) and absorbing nearly 97% of the national workforce. Although digital technology offers numerous opportunities, MSME actors must also face complex challenges [1]. Currently, digital transformation has become an urgent need for MSMEs to maintain business continuity and strengthen competitiveness. The COVID-19 pandemic accelerated the digitalization process, forcing many small enterprises to quickly adapt to digital technologies. This situation presents a dual reality: on one hand, digitalization offers opportunities to expand market access, increase operational efficiency, and foster innovation in business models. On the other hand, digital gaps, limited resources, and the complexity of technology remain major barriers [2].

To survive in an increasingly competitive global market, Indonesian MSMEs must not only sustain their operations but also strive for sustainable development. Their success largely depends on their ability to adapt to the digital ecosystem, including the use of e-commerce, social media, and financial technologies (fintech) [3]. However, in practice, not all MSME actors possess equal capacity to adopt digital

technologies, leading to disparities that must be addressed through appropriate strategies and continuous support.

This paper aims to provide a comprehensive review of the strengths and weaknesses of MSMEs in responding to the digital era, identify the main challenges they face, and explore potential transformations that can be leveraged to enhance sustainable competitiveness. A deep understanding of these dynamics is expected to support the formulation of effective strategies to help MSMEs not only survive but also thrive in a rapidly evolving digital environment.

2. Method

This study employs a qualitative approach using literature review and secondary data analysis to explore the strengths, weaknesses, challenges, and opportunities faced by MSMEs in the era of digital transformation. The literature review includes an examination of scholarly articles, policy reports, case studies, and industry data related to MSMEs published between 2018 and 2023. Data collection was conducted through systematic searches on academic databases such as Scopus, Web of Science, Google Scholar, and national repositories. Keywords used included MSMEs, digitalization, sustainable competitiveness, and digital economy.

Sources were selected based on relevance, credibility, and contribution to the research analysis. Data analysis employed thematic content analysis to identify key patterns and themes related to MSME digitalization strategies. The SWOT (Strengths, Weaknesses, Opportunities, Threats) framework was combined with the concept of dynamic capabilities to understand how MSMEs can adjust their strategies within the digital ecosystem.

MSMEs can be understood through the lens of organizational structure theory, which posits that the size and complexity of an organization influence its operational characteristics. This theory explains that small-scale organizations generally exhibit simple structures and low levels of formalization [1]. In Indonesia, MSMEs are officially classified under Law No. 20 of 2008 based on asset ownership and annual revenue.

Based on organizational structure theory, MSMEs tend to adopt more organic structures compared to mechanistic ones. Organic structures are characterized by high operational flexibility, minimal hierarchy, and rapid adaptability to environmental changes. As noted by Tambunan [4], the simplicity of MSME structures allows for quicker decision-making, as business owners are directly involved in daily operations. Moreover, single leadership and full control by the owner influence the overall organizational culture.

MSMEs typically implement simple structures and high operational flexibility, enabling swift decision-making due to the direct involvement of the owner in business activities. This reflects strong entrepreneurial spirit, marked by single leadership and full control over business operations. However, limited access to formal financing leads many MSMEs to rely on personal capital or informal funding sources.

Digital transformation is a comprehensive process involving the adoption of digital technologies across various aspects of business with the goal of enhancing customer value and improving operational efficiency. It encompasses not only the use of technology but also changes in organizational structure, corporate culture, and business models. In MSMEs, digitalization can be observed in the use of social media for promotion, e-commerce platforms for sales, and data analytics and artificial intelligence for

decision-making. Eller et al. [5] classify digital maturity among MSMEs into four stages: digital beginner, vertical integrator, horizontal collaborator, and digital champion.

According to the OECD [6], digital transformation significantly contributes to enhancing MSME productivity, competitiveness, and growth opportunities. Priyono et al. [7] also found that MSMEs adopting digitalization during the pandemic demonstrated stronger resilience and better income stability compared to those not utilizing digital technology. However, Rakshit et al. [8] emphasized that each MSME has unique characteristics and conditions, requiring tailored digitalization approaches.

Sustainable competitiveness of MSMEs in the digital era can be comprehensively understood through the Resource-Based View (RBV) theory introduced by Barney [9], which states that long-term competitive advantage stems from valuable, rare, inimitable, and well-organized resources and capabilities (VRIO framework). In the MSME context, this framework provides key insights into how small businesses can maintain their competitive position despite digital disruption.

In the current digital era, the integration of technology into business strategies is essential for sustaining MSME competitiveness. Cenamor et al. [10] explain that digital platforms enable MSMEs to access external resources while enhancing internal capabilities. Saebi et al. [11] reveal that digital business model innovation significantly contributes to improving competitiveness, especially in dynamic and highly competitive markets. Furthermore, Li et al. [12] highlight the importance of mastering data analytics.

3. Results and Discussion

An adaptive organizational structure and rapid decision-making enable MSMEs to respond to market changes more swiftly than large corporations. This flexibility is a significant advantage, particularly during the COVID-19 pandemic, when many MSMEs transitioned to digital business models such as app-based delivery services and experienced measurable performance improvements. The direct involvement of owners in daily operations and intense interactions with customers stimulate high levels of innovation, allowing MSMEs to create unique value despite limited resources. Furthermore, their close ties to local communities serve as valuable social capital, fostering customer loyalty, enhancing MSMEs' digital presence, and building long-term consumer relationships [13], [12].

Despite these advantages, MSMEs face considerable internal weaknesses in executing digital transformation. One major challenge is limited access to financing and capital, hindering investment in costly technologies with long return periods. In addition, low levels of digital literacy among MSME actors slow the optimal utilization of technology, resulting in the fragmented use of digital tools without full system integration. Uneven technological infrastructure and internet connectivity—especially in rural and eastern regions of Indonesia—widen the digital gap, exacerbating regional disparities among MSMEs. Moreover, open global competition via digital platforms poses a major challenge, as MSMEs must compete with international firms offering more competitive prices and disruptive business models. Therefore, MSMEs must continuously innovate and adapt their strategies to remain competitive in the evolving digital economy [14], [15].

Digitalization presents complex and multi-layered strategic challenges for MSMEs in Indonesia. Advances in information technology have eliminated geographic boundaries in business, allowing global competition to penetrate local markets via cross-border digital platforms. According to OECD, over half of MSMEs worldwide face increased competitive pressure from international digital firms entering domestic markets [6]. In Indonesia, this is evident from the rapid growth of global e-commerce, which has significantly displaced small businesses and traditional retail shops. Moreover, the rise of innovative

business models, such as the sharing economy and platform-based services, has disrupted conventional business patterns, requiring MSMEs to revise their value propositions [7].

Shifts in consumer behavior pose additional challenges, with customers now prioritizing service speed, convenience, and personalized experiences in choosing products and services. A McKinsey report shows that most Indonesian consumers expect responsive and flexible digital interactions from businesses. The growing need for an integrated online and offline shopping experience (omnichannel) presents further difficulties for MSMEs lacking sufficient technological capacity. Therefore, MSMEs need to improve consumer data analysis capabilities and implement personalization technologies to meet these evolving expectations.

The digital infrastructure gap across regions in Indonesia remains a major obstacle to equitable access to digital economic opportunities. Disparities in internet penetration between the western and eastern regions create a significant divide in technology adoption by MSMEs. On the other hand, regulatory challenges persist, as digital economy policies are still under development and often lag behind the pace of technological innovation. Issues such as data protection, cybersecurity, digital taxation, and consumer rights in online transactions remain inadequately addressed, creating uncertainty that hinders full MSME participation in the digital ecosystem. Therefore, the digitalization challenges of MSMEs are not merely technological, but also structural and regulatory, requiring an integrated cross-sectoral approach.

Digital transformation provides substantial opportunities for MSMEs to expand market reach beyond traditional geographic limitations. Through digital channels such as e-commerce, social media, and marketplaces, MSMEs can now access national and international markets without significant investment in physical infrastructure. The International Trade Center reports that digital technology adoption can increase MSMEs' market reach by up to four times compared to traditional methods. In Indonesia, data from the Ministry of Cooperatives and SMEs shows that digitalization can increase MSME revenues by up to 35% and help them reach consumers outside their usual market areas. Digital export platforms also offer direct access to global markets, reducing reliance on intermediaries who often erode profit margins [16].

Digitalization also enhances operational efficiency by leveraging technologies such as cloud services for managing finances, inventory, and other business functions. A Deloitte study found that digital system integration can boost productivity by up to 25% and reduce operating costs by 20%. These findings are supported by Bank Indonesia, which emphasizes that digitalization positively impacts overall MSME efficiency and competitiveness.

In the digital era, MSMEs' capacity for innovation improves through customer data utilization to design products and services aligned with market needs. McKinsey research shows that data-driven approaches can increase new product launch success rates by 30%. In Indonesia, government-run digital incubation programs have demonstrated that analytics-based service personalization can improve customer retention by nearly 50%. Digitalization also opens new opportunities for value-added services, such as mobile apps, digital content subscriptions, and tech-based after-sales support. This revenue diversification strengthens MSMEs' financial positions and enhances competitiveness in a dynamic business environment.

To overcome challenges in the digital era, MSMEs must adopt structured transformation strategies to build sustainable competitive advantage. This process should be phased, using digital maturity frameworks that help assess current positions and design realistic development plans. In the early digitalization stage, MSMEs should focus on building a basic online presence and utilizing simple technologies to boost operational efficiency. As digital capabilities grow, vertical and horizontal business process integration can be implemented gradually. Choosing appropriate technologies and improving

digital skills among owners and employees are crucial. Training and mentoring programs—such as the Digital MSME Academy—have proven instrumental in helping MSMEs prepare for digital transformation.

In addition to internal capacity building, collaborative approaches are needed to develop a digital ecosystem that supports synergy among business actors. Forming digital clusters based on geographic proximity or industry sector has proven effective in accelerating knowledge exchange and shared resource utilization. Strategic partnerships with tech companies or major digital platforms play a key role in accelerating MSME digitalization, as demonstrated by the success of the "MSMEs Go Digital" program. Digital communities, as forums for sharing experiences and knowledge, significantly reduce barriers to technology adoption [10].

Digitalization requires MSMEs to innovate their business models to capture emerging economic opportunities. Entrepreneurs must revisit key elements such as value propositions, target segments, distribution channels, and revenue streams. The omnichannel approach, which integrates online and offline shopping experiences, is increasingly vital to meet modern consumer needs while leveraging MSMEs' geographic advantage in reaching local markets. Additionally, exploring alternative revenue models, such as subscriptions, freemium services, and marketplaces, can enhance financial stability. The success of digital transformation is strongly influenced by policy support and adequate infrastructure development. The government plays a crucial role in building digital infrastructure, improving technological literacy, offering fiscal incentives, and crafting innovation-friendly regulations. Programs like Palapa Ring and digital training initiatives should be expanded to reduce digital disparities across regions. Incentives such as tax credits and flexible regulatory instruments like regulatory sandboxes—which allow controlled testing of digital business models—are vital to fostering innovation while protecting both business actors and consumers. By combining adaptive internal strategies, close collaboration, business model innovation, and enabling policy support, Indonesian MSMEs can enhance their competitiveness in the evolving digital economy [13].

4. Conclusion

The ongoing digital transformation of MSMEs in Indonesia has entered a critical phase that requires comprehensive and interconnected actions. Despite facing various challenges such as limited resources, technological access disparities, and intensifying global competition, MSMEs still possess fundamental strengths—flexibility, innovation, and close customer relationships—that can serve as foundations to accelerate digital transformation.

Success in digital transformation requires a synergistic combination of enhanced internal digital competencies, strategic collaboration within business ecosystems, innovative business model adaptation, and comprehensive policy support. By integrating these elements, Indonesian MSMEs can not only survive but also thrive amidst the dynamic digital economy, while maintaining their role as key drivers of the national economy.

This study affirms that the sustainability of MSMEs' competitiveness in the digital era depends not only on technology adoption but also on the ability to align it with appropriate business strategies—strengthened by a supportive ecosystem and adaptive regulatory frameworks.

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