

The Role of Technology Based Business Models in Enhancing the Competitiveness of MSMEs

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Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in national economic development through their contribution to employment generation and Gross Domestic Product growth; however, increasing market competition driven by rapid digital transformation requires MSMEs to adopt more adaptive, technology-based business models. This study analyzes the role of technology-based business models in enhancing MSME competitiveness, particularly in terms of operational efficiency, market expansion, and customer service quality, by conceptualizing digitalization not merely as the use of digital tools but as a comprehensive transformation integrating production processes, marketing, customer engagement, and internal management systems. The findings indicate that the adoption of digital technologies such as digital financial recording systems, cloud-based inventory management, Customer Relationship Management (CRM) applications, and e-commerce platforms significantly improves operational efficiency, accelerates workflows, and supports data-driven decision-making. Additionally, digital marketing strategies through social media and online marketplaces have proven effective in expanding market reach, increasing product visibility, and strengthening customer interaction, thereby positively affecting sales performance and real-time understanding of consumer preferences. Despite these benefits, MSMEs continue to face structural challenges, including low digital literacy, limited technological infrastructure, and inadequate access to training and support, which hinder the optimal implementation of digital business models. Therefore, the success of MSME digital transformation is highly dependent on a supportive ecosystem involving government policies, academic institutions, industry stakeholders, and business communities that facilitate access to technology and sustainable capacity-building. Overall, this study

concludes that technology-based business models significantly enhance the competitiveness and resilience of MSMEs in the digital economy, positioning digitalization as a strategic necessity rather than merely an operational support mechanism in an increasingly competitive global market.

Keywords: Technology Business Model; MSMEs; Digitalization; Competitiveness; E-commerce.

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A. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are the main pillars of the national economy, contributing significantly to the Gross Domestic Product and employment. In the context of a modern economy increasingly marked by digitalization, MSMEs need to adapt more progressively in order to remain competitive amid ever-changing market dynamics. The development of digital technology has created new opportunities for MSMEs to expand their business networks, improve process efficiency, and strengthen customer relationships through various digital platforms and integrated information systems.¹ The transformation towards a technology-based business model is not only related to the use of digital devices, but also includes changes in operational paradigms and business strategies. Various studies show that the adoption of technologies such as digital cashier systems, cloud-based inventory management, and Customer Relationship Management can significantly improve operational efficiency and expand the market share of MSMEs.² This confirms that technology is not merely a supporting tool, but has

¹ M Muhyiddin Nashir, et al, Peran Teknologi Informasi Dalam Transformasi Bisnis UMKM Daerah Depok, Guandg Jurnal Multidisiplin Ilmu 3, No.1, (2025). 770 <https://doi.org/10.59435/gjmi.v3i1.1306>.

² Cynthia Ananda Br Tarigan, et al, Peran Inovasi Operasional Berbasis Digital dalam Meningkatkan Daya Saing UMKM, Jurnal Bisnis, Ekonomi Syariah, dan Pajak 2, No.2, (2025), 7, <https://doi.org/10.61132/jbep.v2i2.1115>.

evolved into a key factor for MSMEs in building sustainable competitive advantages.

The challenges of digitization for MSMEs remain quite complex, particularly in terms of limited digital literacy, lack of supporting infrastructure, and minimal access to training and mentoring. Several studies reveal that most MSMEs are not yet able to utilize technology optimally, despite the enormous potential for increased productivity and efficiency. This situation highlights the gap between the potential use of technology and its actual implementation in the field, especially for MSMEs in areas that do not yet have adequate technological facilities. Changes in the global business landscape also require MSMEs to develop more adaptive and innovative business models. Technology-based business models enable MSMEs to digitize their production, marketing, and customer service processes, allowing them to operate faster, more accurately, and more efficiently. Several studies confirm that digitization has been proven to increase the resilience of MSMEs in facing economic pressures and strengthen their position in competitive markets.

The implementation of digital business models cannot be separated from the support of a conducive ecosystem. Collaboration between the government, academics, industry players, and local communities is essential to accelerate the digital transformation of MSMEs. Training programs, expanded access to technology, and policies that support innovation are important factors in building an inclusive digital business environment. Without structured support, the digitization of MSMEs risks being slow and uneven.

An in-depth study of the role of technology-based business models is important given the increasing urgency of digitalization as a strategy to strengthen the competitiveness of MSMEs. This article examines the contribution of digital business models to improving operational efficiency, market expansion, and service quality for MSMEs, as well as identifying structural challenges that remain obstacles in the process of technology adaptation. A comprehensive understanding of these dynamics is expected to serve as a basis for various parties in

formulating sustainable and effective digitization strategies for MSMEs.

B. Discussion

Technology-based business models play an important role in increasing the innovative capacity and resilience of MSMEs in an era of global competition. Digitalization enables MSMEs to run faster, more efficient, and measurable business processes through the use of recording software, digital marketing platforms, and integrated customer management systems. Various studies show that the use of technology can improve the operational performance of MSMEs, ranging from production efficiency, inventory management, to data-based marketing strategies.³ These findings reinforce the understanding that technology is not only a tool, but has evolved into an integral part of modern business strategy because it can cut operational costs, speed up workflows, and improve the accuracy of data-based decision making. With the support of technology, processes that were previously done manually can now be replaced with automated systems that are more transparent and accountable.

Significant changes are also evident in consumer behavior, which now increasingly relies on digital platforms to meet consumption needs. MSMEs that are able to adopt digital business models through e-commerce, delivery services, social media promotions, and digital payments have greater opportunities to expand their market reach. Previous studies have revealed that MSMEs that implement digital marketing experience higher competitiveness compared to MSMEs that still use conventional business models.⁴ Technological adaptation plays a direct role in strengthening the position of MSMEs in competitive markets because digitization provides much broader market access than traditional marketing, enabling MSMEs to compete with large businesses through promotional

³ Gunawan Santoso, et al, Digitalisasi UMKM: Strategi And Model Bisnis Berbasis Teknologi Untuk Keberlanjutan, Jurnal Bisnis Digital 1, No.1, (2025), 27 <https://doi.org/10.9030/jubisdigi.v1i1>.

⁴ Buci Morisson and Aula Ahmad Hafidh Saiful Fikri, Digitalisasi UMKM sebagai Strategi Meningkatkan Daya Saing di Era Ekonomi Digital, Jurnal Ilmiah Ekonomi dan Bisnis 18, No.1, (2025), 290-291 <https://journal.stekom.ac.id/index.php/Bisnis>.

differentiation, service personalization, and speed of information distribution. In addition, the integration of marketing technology has been proven to enrich customer interactions, increase sales conversions, and improve the ability of MSMEs to project consumer trends in real time.

The implementation of technology-based business models can also improve customer service quality. Technologies such as Customer Relationship Management (CRM) applications, automated response systems, and real-time communication platforms help MSMEs understand customer preferences and respond to market needs more quickly and accurately. Research in related documents also confirms that service accuracy and the ability of MSMEs to respond to market changes are among the main factors that influence business sustainability.⁵ With the support of technology, MSMEs have a greater ability to maintain customer loyalty and competitive advantage because digital systems enable customer database management, market segmentation, and the development of service strategies based on transaction history and customer feedback.

Challenges remain as some MSMEs still face limitations in digital literacy, infrastructure access, and human resource capacity. Previous studies show that the digital gap is a major obstacle preventing the optimal adoption of technology. Some MSME players have limited understanding of the potential of technology, so digital transformation often proceeds slowly. This point differs from the findings of other studies, which show that MSMEs with adequate technological assistance are proven to achieve faster business performance improvements. This difference emphasizes that the success rate of digitalization is largely determined by the readiness of resources and a supportive business environment, including training support, financing, business mentoring, and an understanding of technology governance. Without such readiness, technology will only be a tool that does not provide maximum added value for MSME operations.

The strengthening of technology-based business models is also

⁵ Cynthia Ananda Br Tarigan, et al, *Op.Cit*, p.9

greatly influenced by the availability of a conducive digital ecosystem. Support from the government, the education sector, and financial institutions plays an important role in providing access to relevant training, technology, and financing. Some of the literature in the file provided shows that pro- innovation policies and regulations contribute greatly to accelerating the digital transformation of MSMEs.⁶ The role of the ecosystem is increasingly important because the shift to a digital-based business orientation requires multi-stakeholder collaboration, ranging from technology service providers and business communities to business incubators. Unlike previous studies, which tended to emphasize only internal MSME factors as determinants of digitalization success, this article highlights the importance of building a digital ecosystem as the main driver of the success of technology-based business models. This approach is in line with Teece's view of dynamic capabilities, which emphasizes that the ability to adapt and respond to changes in the business environment is key to organizational competitiveness. This concept is relevant because MSMEs not only need digital tools, but also the ability to develop, combine, and reconfigure resources in order to remain competitive.⁷

The findings in this study clarify that technology-based business models serve as catalysts in improving the competitiveness of MSMEs, rather than merely operational complements. Unlike some previous literature that only emphasizes digital marketing aspects, the results of the analysis in this discussion show that effective digitization encompasses the entire business process, from production, distribution, customer service, to internal management.⁸ The digital business model is not just a technical transformation, but a comprehensive strategy that directly contributes to business resilience and strengthening the market share of MSMEs. Ultimately, digital business models create systemic integration that enables MSMEs to operate in a more adaptive, responsive, and data-

⁶ Gunawan Santoso, et al, *Op.Cit*, p.23

⁷ David J. Teece, *Dynamic Capabilities and Strategic Management*, Oxford University Press, 2009, p. 4–8.

⁸ Philip Kotler & Kevin Keller, *Marketing Management*, Pearson, 2016, p. 196–205.

oriented manner, making them more competitive in the long term.

Digital transformation has become a key foundation in strengthening the competitiveness of MSMEs in the modern economy. The use of technology in business models enables MSMEs to improve operational efficiency, expand market reach, and optimize customer service. Arjang et al. explain that the application of digital technology, ranging from marketplace platforms and digital payment systems to social media, acts as a catalyst in accelerating the adoption of innovation and expanding the MSME market, especially when supported by adequate digital literacy among business actors and consumers.⁹ This shows that technology-based business models not only facilitate transactions but also improve the ability of MSMEs to compete in a dynamic digital environment.

Previous research by Riyoko and Lofian found that information technology has become a strategic solution to overcome marketing obstacles experienced by MSMEs, such as limited market information and low promotional effectiveness.¹⁰ Meanwhile, Muslihah emphasized that digital innovations such as the use of Si KE applications, technology-based production techniques, and marketing through social media have been proven to increase production efficiency while expanding marketing reach.¹¹ Similar findings are reinforced by Farida and colleagues, who report that 68% of MSMEs experienced an increase in sales after utilizing e-commerce and digital payment systems.¹² Overall, these studies confirm that technology-based business models contribute

⁹ Arjang, et al, Mengakselerasi Daya Saing UMKM melalui Inovasi Teknologi: Peran Strategis Literasi Digital Masyarakat dalam Mewujudkan Ekosistem Ekonomi Berbasis Platform, Jurnal Minfo Polgan 14, No.2, (2025), 1609, <https://doi.org/10.33395/jmp.v14i2>

¹⁰ Sisno Riyoko and Budi Lofian, Model Pengembangan Strategi Pemasaran Berbasis Teknologi Informasi dalam Meningkatkan Daya Saing UMKM Jepara, Jurnal Ekonomi Manajemen dan Bisnis 21, No.2, (2020), 151, <https://journal.unimal.ac.id/emabis/article/view/482/349>

¹¹ Siti Muslihah and Andi Lopa Ginting, Peran Inovasi Teknologi dalam Meningkatkan Daya Saing UMKM, Jurnal Ilmiah Ekonomi Manajemen Bisnis dan Akuntansi 1, No.2, (2024), 250, <https://doi.org/10.61722/jemba.v1i2.145>

¹² Elis Anita Farida, et al, Strategi Inklusif untuk Penguatan UMKM and Optimalisasi Peran Teknologi dalam Meningkatkan Daya Saing di Era Digital, Journal Of Business, Economics, And Finance 3, No.2, (2025), 8 <https://doi.org/10.70437/benefit.v3i1.1159>

significantly to the competitiveness of MSMEs through increased efficiency, market expansion, and strengthened customer interactions.

Table 1. Synthesis of Research Findings related to Technology Based Business Models and MSME Competitiveness

Aspects Analyzed	Findings from the Journal	Impact on the Competitive ness of MSMEs	Source
Literasi Digital & Adopsi Teknologi	Digital literacy accelerates the adoption of digital platforms and improves the ability of MSMEs to utilize technological features.	Accelerating digital transformation and expanding market access	Arjang et al. (2025)
Digital Marketing Strategy	IT helps MSMEs promote their products, build their brands, and access global markets.	Increased visibility, promotional effectiveness, and competitiveness	Riyoko & Lofian (2020)
Operational and Production Innovation	The use of digital applications, modern production techniques, and social media improves process efficiency.	Operational efficiency increases and errors decrease	Muslih & Ginting (2024)

Utilization of E-commerce & Digital Payments	68% of MSMEs recorded an increase in sales thanks to the adoption of e-commerce and digital payments.	Market expansion and increased transactions	Farida et al. (2025)
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Based on the analysis table, it can be seen that technology-based business models have a comprehensive impact on improving the competitiveness of MSMEs. Digital literacy accelerates the ability of MSMEs to adopt technology, digital marketing strategies increase the attractiveness of products in modern markets, operational innovations strengthen internal efficiency, and the use of e-commerce opens up wider sales opportunities. All of these aspects synergistically prove that digitalization is not merely a complement to business, but an important foundation in building SMEs that are resilient, adaptive, and competitive in the era of a technology-based economy.

C. Conclusion

Technology-based business models play a strategic role in enhancing the competitiveness of MSMEs through comprehensive transformation in operational, marketing, customer service, and business management aspects. Various research findings show that the adoption of technology, ranging from digital recording systems, inventory management applications, CRM, e-commerce, to social media, can improve business process efficiency, accelerate workflows, and increase the accuracy of data-driven decision making. Technology no longer functions as a complementary operational tool, but has become the core foundation that enables MSMEs to operate in a more adaptive, responsive, and innovative manner in the face of competitive market dynamics.

Digitalization has been proven to expand the market reach of MSMEs, increase product visibility, strengthen customer interactions, and open up growth opportunities through more

effective digital marketing strategies. The use of e-commerce and digital payment systems also allows MSMEs to reach a wider range of consumers and significantly increase transaction volumes. However, the success of implementing technology-based business models is greatly influenced by the readiness of human resources, digital literacy, access to infrastructure, and a conducive ecosystem. The digital divide still experienced by some MSMEs highlights the need for training, mentoring, and structured policies so that digitization can be adopted evenly and optimally.

Technology-based business models act as catalysts that strengthen business resilience and increase the long-term competitiveness of MSMEs. The integration of technology into all business processes enables MSMEs to improve efficiency, expand their markets, and provide higher quality services. With the support of a well-developed digital ecosystem, MSMEs have the potential to become an increasingly strong, innovative, and highly competitive sector in facing the challenges of today's digital economy.

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