



Leveraging Digital Technology in Micro SMEs to Enhance Indonesia's Economic Prosperity

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Article Info:

Abstract

Keywords:

digital literacy, e-commerce, financial management, MSMEs, technological infrastructure

Purpose: This study aims to analyse the use of digital technology to enhance the performance of micro, small, and medium enterprises (MSMEs) in Indonesia, identifying challenges, obstacles, and strategies to improve their competitiveness, productivity, and economic welfare through digital transformation.

Design/Methodology/Approach: A qualitative approach with a descriptive-narrative method was used. Secondary data were gathered from websites, government reports, and journal articles, with 70% from Indonesia and 30% from international sources, to synthesise existing research on MSMEs' digital technology adoption.

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Findings: Key barriers include limited digital literacy, inadequate infrastructure, and poor financial management practices. Despite these challenges, digital tools have expanded market access, improved transaction speed, and reduced costs. Strategies such as enhancing digital literacy, using e-commerce platforms, and increasing local government support have been crucial in supporting MSME growth.

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Originality/Value: This study provides insights into the strategies needed to strengthen MSME digital transformation in Indonesia, contributing to the development of policies and programs that empower MSMEs and boost their economic impact. These insights are valuable for policymakers, MSME leaders, and academics promoting digital adoption and economic resilience.

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INTRODUCTION

Community welfare, as defined in Law No. 11 of 2009 on Social Welfare, involves the fulfilment of material, spiritual, and social needs. This is often reflected in income levels and the ability to meet basic needs such as food, clothing, and shelter. While Indonesia's economy has shown resilience in recovering from the COVID-19 pandemic (Haque, M. G., 2024), achieving the status of an upper-middle-income country according to the World Bank's 2023 classification, challenges such as global inflation continue to affect the purchasing power of lower-income groups. Consequently, ensuring long-term community welfare requires targeted strategies, with a particular focus on empowering Micro, Small, and Medium Enterprises (MSMEs), which contribute 61% of Indonesia's Gross Domestic Product (GDP) and absorb 97% of the national workforce.

The potential of digital transformation to improve MSME performance has gained widespread attention, as digital tools can enhance efficiency, productivity, and global market access (Aliffiana, D., & Widowati, N., 2018). Despite these benefits, the adoption of digital technologies remains limited, with only 17.5 million of the 64.2 million MSMEs in Indonesia engaged in the digital ecosystem. This limited uptake is primarily attributed to barriers such as low digital literacy, a lack of technological infrastructure, and insufficient skilled human resources (Qodar, I. L., & Handayani, T., 2023). According to the Ministry of Communication and Information (Kominfo), Indonesia's digital literacy index stood at 3.54 out of 5 in 2022, highlighting the urgent need for widespread digital skills development. Moreover, persistent cybersecurity risks, with 311 data breaches reported by the National Cyber and Crypto Agency (BSSN) in 2022, underscore the vulnerability of MSMEs, particularly small businesses, to digital threats (Mustajab, R., 2023).

While previous studies have examined the role of digitalisation in expanding market access and improving operational efficiency for MSMEs, there is a significant gap in research focusing on how digital adoption directly influences community welfare. As highlighted by Doktoralina (2017), integrating digital tools into MSMEs is not only important for business efficiency but also for addressing broader social and economic issues, such as income disparity and unemployment. This research gap emphasises the need to investigate the barriers preventing MSMEs from adopting digital technologies and to identify strategies that can overcome these obstacles. Addressing these issues is crucial for unlocking the potential of digital technologies to enhance MSME performance and contribute to inclusive economic growth.

This study aims to bridge this gap by exploring the following key questions: 1) What are the main barriers preventing MSMEs in Indonesia from adopting digital technologies, particularly regarding digital literacy and cybersecurity?; 2) How can digital technology enhance the income, competitiveness, and sustainability of MSMEs amidst global market competition?; 3) What strategies can effectively accelerate digital adoption in MSMEs to support community welfare and contribute to inclusive national economic development?.

Literature Review

Digital transformation is crucial for enhancing the competitiveness of micro, small, and medium enterprises (UMKM) in an increasingly globalised market. Technological adoption can improve operational efficiency, expand market access, and foster innovation (Subroto et al., 2023; Zighan & Ruel, 2023). However, barriers such as low digital literacy, limited infrastructure, and insufficient resources in rural areas hinder this transformation (Fikriyah et al., 2015). The integration of digital strategies aligns with Sustainable Development Theory, which focuses on long-term economic, social, and environmental balance, emphasising the need for digital tools to ensure sustainable growth for UMKM.

Regulatory frameworks, including the Job Creation Law (No. 11 of 2020) and Presidential Regulation No. 18 of 2020, support UMKM development through digital empowerment. Theories of social welfare highlight the role of UMKM in improving livelihoods through job creation and poverty alleviation. However, the increasing digital security risks identified by the National Cyber and Crypto Agency (BSSN) remain a challenge. Addressing these security threats is essential for ensuring business sustainability. These theoretical perspectives provide a solid foundation for strategies aimed at optimising digital transformation and enhancing the welfare of Indonesia's middle and lower-income communities.

Transformasi Digital

Digital transformation is a cornerstone for boosting economic competitiveness in the global market, as outlined in Presidential Regulation No. 18 of 2020 on the National Medium-Term Development Plan (RPJMN) 2020–2024. This transformation involves integrating digital technologies across business functions to enhance operational efficiency, market access, and innovation (Wantiknas, 2024). According to Rogers, Singhal, and Quinlan's Technology Adoption Theory (2019), factors such as organisational culture, social networks, and technological expertise play a significant role in the adoption process. However, UMKM in Indonesia face several obstacles, including low digital literacy, infrastructure deficiencies, especially in rural or 3T (underdeveloped) areas, and a lack of skilled human resources.

The PEST (Political, Economic, Social, and Technological) approach highlights key factors influencing digital transformation (Sammut-Bonnici & Galea, 2015). Government Regulation (PP) No. 80 of 2019 on Trading Through Electronic Systems provides a legal framework to support digital empowerment for UMKM. From an economic perspective, digital transformation boosts productivity and reduces operational costs. However, social barriers such as gaps in digital access and growing cybersecurity threats continue to impede progress. Overcoming these challenges requires collaboration across stakeholders to ensure inclusive and secure digital adoption for UMKM (INDEF, 2024)..

Micro, Small, and Medium Enterprises (UMKM)

Micro, Small, and Medium Enterprises (UMKM) play a vital role in Indonesia's national development, as recognised by Law Number 20 of 2008. They contribute around 61% to the national GDP and employ approximately 97% of the workforce (Doni, 2022), positioning them as the backbone of the economy. Despite their importance, digital adoption among UMKM remains limited, with only 17.5 million enterprises digitally integrated by 2023 (Doni, 2022). This highlights the urgent need for accelerated digital transformation to enhance competitiveness and provide access to global markets.

The Sustainable Development Theory stresses the importance of integrating economic growth with social and environmental considerations. By adopting digital technologies, UMKM can diversify their business models, improve resource efficiency, and create innovative solutions that align with long-term development objectives. However, significant support in terms of infrastructure, financing, and capacity building remains essential to accelerate digitalisation and ensure the sustainability of economic resilience.

Social Welfare

Social welfare, as outlined in Law No. 11 of 2009 on Social Welfare, encompasses the fulfilment of material, spiritual, and social needs, enabling individuals to live with dignity and achieve their full potential. The Social Welfare Theory emphasises that access to productive economic activities is essential for improving living standards and reducing poverty. UMKM significantly contribute to this by generating employment, increasing household income, and fostering economic inclusion.

According to the Central Statistics Agency (BPS, 2023), Indonesia's national poverty rate decreased to 9.57% in 2023, reflecting the positive impact of economic empowerment through UMKM. However, the Social Inequality Theory highlights ongoing economic disparities, particularly in rural areas. To address these inequalities, targeted policies are essential to support digital inclusion, ensuring equal access to economic opportunities and promoting long-term welfare improvements across Indonesia.

METHODS

This study adopts a qualitative analysis approach (Creswell & Creswell, 2018), with a specific focus on document analysis to explore the digital transformation of micro, small, and medium enterprises (MSMEs) in Indonesia. This approach was chosen as it offers a cost-effective method for identifying and understanding the challenges faced by MSMEs, such as low digital literacy, inadequate infrastructure, and cybersecurity risks. The study also seeks to highlight strategies that can facilitate the adoption of digital technologies, contributing to improved business performance and broader economic welfare.

Data for this study were collected from secondary sources, including government reports, academic journal articles, and industry publications. These sources were selected due to their direct relevance to MSMEs' digitalisation. Approximately 70% of the data were sourced from Indonesia, while the remaining 30% were drawn from international literature. This ensured that the analysis was both regionally focused and informed by global best practices and trends. The document analysis involved reviewing a range of empirical studies, policy reports, and industry publications to gain a comprehensive understanding of the barriers and opportunities associated with MSME digital adoption.

The data were analysed using thematic analysis, a common qualitative method used to identify recurring patterns and themes. Inductive coding was applied, focusing on key issues such as digital literacy, cybersecurity risks, and technological infrastructure. These codes were then grouped into broader themes, providing insights into the challenges and opportunities in the digitalisation of MSMEs. To ensure the validity and reliability of the findings, the results were cross-referenced across multiple documents. By triangulating data from various sources, the study ensured a diverse range of perspectives, which enhanced the credibility of the findings.

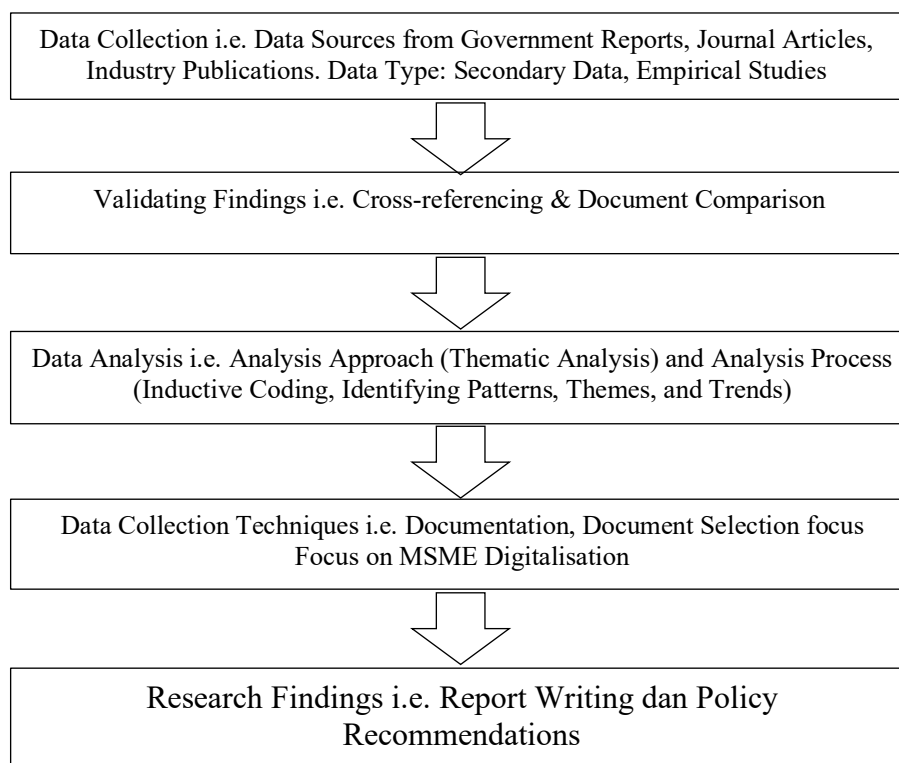


Figure 1: Research Methodology Flowchart

Figure 1 illustrates the methodology process, providing a visual representation of the steps involved in data collection, analysis, and validation.

RESULT AND DISCUSSION

Current Utilisation of Digital Technology by UMKM

The integration of digital technology into UMKM operations is critical for achieving Indonesia's national development objectives. However, numerous barriers prevent the optimal digital transformation of these enterprises. Key challenges include limited digital literacy, outdated distribution infrastructure, underutilisation of digital marketing, poor financial management practices, unequal access to technology, lack of product standardisation, and insufficient government support (BPS, 2021). These barriers significantly hinder UMKM's ability to enhance productivity, competitiveness, and innovation. Despite these challenges, the adoption of digital tools has shown transformative potential by expanding market access, reducing operational costs, and speeding up business transactions.

The findings indicate that limited digital literacy is a significant barrier, especially among older business owners who are less familiar with digital platforms. Despite improvements in Indonesia's ICT Development Index, many UMKM, particularly those in rural areas, still struggle to effectively adopt digital technologies. This digital divide emphasises the importance of targeted digital literacy programs tailored to different age groups of business owners. This finding supports previous research, which stresses that improving digital skills is essential for MSMEs to succeed in the digital economy.

Another challenge faced by UMKM is their reliance on traditional, self-managed distribution channels, resulting in high logistical costs and inefficiencies, especially in remote regions. Collaborative distribution centres and pre-order systems could significantly reduce transportation costs and improve market access. These findings suggest that UMKM must innovate their supply chain management practices by adopting modern digital logistics solutions to remain competitive in an increasingly digitalised marketplace.

Digital marketing efforts are also a major concern. Despite the vast opportunities digital platforms offer for market expansion, many UMKM hesitate to adopt e-commerce and online marketing due to a lack of knowledge of digital strategies and concerns about online fraud. As of 2023, only 17.5 million UMKM were using digital platforms, according to the Ministry of Cooperatives and SMEs. To foster growth in the digital era, developing a digital mindset through training in online reputation management and digital business operations is crucial. The findings underline the need for the government to expand digital marketing education to help businesses build a strong digital presence.

Financial management practices, such as reliance on manual bookkeeping, also limit the growth potential of many UMKM. The absence of transparent financial records hinders their access to capital and financial support. Digital financial management tools, such as digital bookkeeping software, can significantly improve financial performance and increase creditworthiness. The findings suggest that collaboration between the government and financial institutions to provide digital financial literacy programs and low-interest credit schemes would help strengthen the financial resilience of UMKM, enabling them to thrive in a competitive market environment.

Unequal access to technology and internet infrastructure remains a critical challenge, particularly in rural areas. The findings suggest that local governments must prioritise infrastructure development and implement policies to ensure equitable internet access for businesses. Hybrid training models, combining both online and in-person sessions, could offer practical solutions to improve digital inclusion for UMKM across Indonesia. Localised digital solutions are necessary to address the specific challenges faced by businesses in underserved regions.

In addition, achieving product standardisation remains a significant challenge for many UMKM, limiting their competitiveness. The lack of quality certification and inconsistent product quality create barriers to both domestic and international market access. Government initiatives to promote product standardisation exist but face challenges in reaching a broader audience. Strengthening these programs, such as promoting e-catalogue registration for government procurement, could increase market access for UMKM.

Finally, insufficient government support limits UMKM's ability to leverage digital technology effectively. Issues such as inefficiencies in government program budgets and inadequate targeting have been identified. The absence of a unified UMKM database and weak verification mechanisms further exacerbate these challenges. The findings suggest that improving data governance, inter-agency coordination, and establishing local business development centres are critical to ensuring that government support reaches those MSMEs that are most in need.

Impact of Digital Technology Utilisation on Improving Economic Welfare in Indonesia

The integration of digital technology into UMKM operations has become a significant driver of economic welfare in Indonesia. Digital transformation improves the competitiveness and productivity of UMKM by providing access to broader markets, enabling business model innovation, and reducing operational costs. However, substantial barriers such as low digital literacy, inadequate infrastructure, and poor financial management continue to impede the full adoption of digital tools, limiting UMKM's potential in both national and global markets.

The study identifies the digital divide, particularly in rural areas, and the lack of financial management skills as key challenges for UMKM. These barriers prevent many UMKM from fully leveraging digital technology for growth and innovation. While digital tools can significantly improve operational efficiency and market access, the uneven adoption of these tools means that many UMKM do not reap the full benefits of digitalisation.

These findings highlight the importance of targeted interventions. Policymakers should focus on enhancing digital literacy programs, improving digital infrastructure, and offering accessible financial management tools. Such interventions will empower UMKM to enhance their competitiveness and contribute more effectively to national economic stability.

Additionally, this study expands on previous research by linking digital transformation directly to economic welfare. While earlier studies mainly emphasised operational efficiency, this research demonstrates how digitalisation positively influences job creation, GDP growth, and income distribution. The study also challenges existing frameworks by illustrating the crucial role of government support in fostering an inclusive digital ecosystem for UMKM.

Strategies for Digital Technology Utilisation in UMKM to Improve Economic Welfare in Indonesia

The study highlights the critical role of digital technology in ensuring the competitiveness of UMKM and contributing to the broader economy of Indonesia. However, several barriers, including limited digital literacy, poor financial management, outdated distribution systems, and insufficient government support, hinder the full potential of digital technology in transforming UMKM operations. These challenges correspond directly to the research questions, reflecting the obstacles UMKM face in adopting digital technologies.

Concerning the first research question on the challenges faced by UMKM in adopting digital technologies, the study identifies digital literacy as a primary barrier, especially among older UMKM owners who are less familiar with digital platforms. Despite improvements in Indonesia's ICT Development Index, many UMKM still struggle to fully leverage digital tools. This aligns with prior research (Wimanda, N. V., Pratama, S. N., & Besi, A. P. P., 2024), which emphasises the need for targeted digital literacy programs for various age groups. Policy implications suggest that the government should focus on large-scale digital literacy initiatives, particularly for older business owners and those in rural areas, to promote a more inclusive digital economy.

In relation to the second research question—how digital technology can enhance income, competitiveness, and sustainability—the study finds that digital tools enable UMKM to expand market access, reduce operational costs, and improve business efficiency. Through the adoption of digital marketing strategies and e-commerce platforms, UMKM can access new customer bases, even globally (Prasidya, T. C. I. T., & Dewi, W. C., 2022). This finding concurs with previous studies, confirming that digital adoption significantly boosts UMKM productivity and market reach. However, the study also reveals that digital marketing's effectiveness is limited by a lack of knowledge and skills in using these platforms. To address this, policymakers and business educators should invest in digital marketing training and provide continuous support to UMKM.

Regarding the third research question—what strategies can strengthen digital adoption—the study identifies local government and private sector support as essential factors. Collaborative initiatives such as regional digital hubs and accessible financing options can help create an enabling environment for digital adoption. Moreover, the study highlights the importance of product standardisation in enhancing competitiveness. Government programs that focus on certifying products and promoting standardisation can help UMKM gain access to new markets and increase consumer trust. These findings

align with earlier research (Aggarwal, A., & Joshi, N., 2024), which stresses the absence of standardised products as a major barrier to UMKM's internationalisation.

In this study, findings suggest that overcoming these challenges will require an integrated approach involving digital literacy, improved infrastructure, financial management tools, and product standardisation. These interventions are necessary for UMKM to thrive in the digital economy, enhancing their competitiveness and contributing to Indonesia's economic development.

CONCLUSION

This study identifies critical obstacles hindering the digital transformation of UMKM in Indonesia, including limited digital literacy, inadequate infrastructure, outdated distribution systems, poor financial management, and insufficient government support. These barriers prevent UMKM from fully leveraging digital tools, limiting their potential to improve productivity, competitiveness, and innovation. Despite these challenges, digital tools have demonstrated transformative potential by expanding market access, reducing operational costs, and increasing business efficiency.

To overcome these challenges, this study proposes a comprehensive digital empowerment model aimed at enhancing digital literacy and market access for UMKM. The model focuses on providing targeted training in digital marketing, financial management, and e-commerce integration, alongside initiatives to improve infrastructure and facilitate government support. Establishing digital hubs and online platforms can offer continuous technical support, enabling sustained digital adoption. These measures are intended to strengthen the digital capabilities of UMKM, ensuring their competitiveness and contributing to broader economic welfare.

This study primarily relies on secondary data from government reports and journal articles, which may not fully capture the real-world challenges faced by UMKM. Future research could incorporate primary data collection methods, such as interviews or surveys with UMKM owners, to provide a more nuanced understanding of the specific barriers they encounter. Additionally, the study did not examine sector-specific impacts of digital adoption, nor did it fully explore the role of external factors, such as government policies, in influencing the digitalisation process.

To facilitate the digital transformation of UMKM, it is essential for the government to invest in digital infrastructure, particularly in underserved regions, and to develop policies that support digital adoption. Expanding digital literacy programs, with a focus on older business owners and those in rural areas, is critical for bridging the digital divide. Efforts to improve internet access and make digital tools more affordable should also be prioritised. A coordinated approach involving the government, private sector, and academic institutions is crucial for fostering sustainable digital growth, with private companies providing technological resources and universities offering training.

Ultimately, the implementation of the proposed digital empowerment model will enable UMKM to enhance their digital capabilities, thereby contributing to increased productivity, economic growth, and broader societal welfare.

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