Empowering MSMEs in The Digital Era: A Systematic Literature Review on The Role of Digital Literacy

Hermansyah[1], Usep Suhud[2], Mohammad Rizan[3]
[1]Universitas Negeri Jakarta, Jakarta, Indonesia, hermansyah.ut2016@gmail.com
[2]Universitas Negeri Jakarta, Jakarta, Indonesia, usuhud@unj.ac.id
[3]Universitas Negeri Jakarta, Jakarta, Indonesia, mohamadrizan72@unj.ac.id

Corresponding Author: hermansyah.ut2016@gmail.com[1]

Abstract: Introduction/Main Objectives: This study regularly examines the role of digital literacy in empowering MSMEs by exploring its impact on business performance, innovation, and sustainability. Background Problems: State the problem or economic/business phenomena studied in this paper and specify the research question(s) in one sentence. Novelty: Using a systematic literature review approach, this research identifies key challenges and opportunities MSMEs face in adopting digital technologies. Research Methods: Micro, Small, and Medium Enterprises (MSMEs) play a vital role in fostering economic growth at both global and local levels. In many countries, MSMEs significantly contribute to job creation, Gross Domestic Product (GDP) growth, and poverty reduction. However, despite their significant contributions, MSMEs often need help with structural and operational challenges that hinder their growth and competitiveness, particularly in the increasingly competitive digital era. Finding/Results: Digital transformation offers substantial opportunities for MSMEs to enhance their operational efficiency, access broader markets, and increase productivity. Nevertheless, one of the primary obstacles to adopting digital technologies is the low level of digital literacy among MSME actors. Digital literacy, encompassing the ability to understand, use, and effectively leverage digital technologies, is a critical factor in the success of MSMEs in this era. Conclusion: Furthermore, the study highlights the importance of digital literacy training and supportive policies to bridge the digital gap and enhance MSME competitiveness in the digital economy. The findings provide insights and recommendations for policymakers and practitioners to develop strategies that support digital literacy development and empower MSMEs to thrive in the dynamic digital era.

Keyword: Digital literacy, MSMEs Performance

INTRODUCTION

Micro, Small and Medium Enterprises (MSMEs) drive global and local economic growth. In many countries, MSMEs contribute significantly to job creation, increasing gross domestic product (GDP), and reducing poverty. (Melillanca et al., 2023). The Organisation for Economic Co-operation and Development (OECD) notes that MSMEs contribute around

60–70% of total employment and up to 50% of GDP in developed and developing countries. In Indonesia, MSMEs dominate the economic structure with a proportion of more than 99% of total business units and absorb around 97% of the workforce. However, despite their significant contribution, MSMEs often face structural and operational challenges that hinder their growth and competitiveness, especially in the increasingly competitive digital era.(Queiroz et al., 2022).

Digital transformation presents significant opportunities to increase the competitiveness of MSMEs through operational efficiency, access to broader markets, and increased productivity. (Ta & Lin, 2023). However, one of the main obstacles to adopting digital technology is the low level of digital literacy among MSMEs. Digital literacy, which includes the ability to understand, use, and utilize digital technology effectively, is one of the key factors determining the success of MSMEs in this era.(Wardana et al., 2023). Unfortunately, previous research shows that digital literacy has not yet fully integrated into MSME development strategies, resulting in a digital divide and missed opportunities. (Sari, 2022).

In this context, it is crucial to systematically examine how digital literacy affects the development of MSMEs in business performance, innovation, and sustainability. This study aims to compile a systematic literature review to explore the role of digital literacy in empowering MSMEs in the digital era while identifying research gaps and providing recommendations for the future.

Although the digital era offers excellent opportunities for Micro, Small, and Medium Enterprises (MSMEs) to expand their markets, increase efficiency, and drive innovation, complex challenges accompany this transformation process. One of the main challenges is the gap in access to technological infrastructure, especially in developing countries, where internet connectivity and the availability of digital devices are often uneven. In addition, the ability of MSMEs to utilize digital technology is usually limited by the need for more digital literacy, competent human resources, and adequate training and mentoring support.(Aminullah et al., 2024).

Regulatory and policy aspects are also obstacles, especially when MSMEs face complex bureaucracy in accessing incentives or subsidies that support digitalization. (Judijanto, 2024).On the other hand, increasingly intense competition with more prominent and established business players in utilizing digital technology often narrows the room for MSMEs to compete effectively. Furthermore, the issue of trust in digital plat-forms, including data and transaction security, is also a significant concern for MSME players, who tend to be more vulnerable to cyber threats.

Faced with these challenges, digital literacy emerges as an essential element that can help MSMEs adapt to the changes brought by the digital era. (Putra et al., 2023). However, low levels of digital literacy and the lack of integration of digital strategies in MSME business management worsen the situation, creating gaps that hinder MSMEs' growth and competitiveness. Therefore, this study examines the various challenges MSMEs face in the digital era, focusing on how digital literacy can be a strategic solution to overcoming these obstacles.

In the context of widespread digital transformation, digital literacy is one of the key elements to ensure the competitiveness of Micro, Small and Medium Enterprises (MSMEs) in global and domestic markets.(Suyanto et al., 2023). Digital literacy includes basic skills in using technology and strategic skills in integrating digital technology into business processes, data-based decision-making, and managing customer interactions through digital platforms. With adequate digital literacy, MSMEs can access new markets, improve operational efficiency, and create innovative products and services.

A critical role of digital literacy is expanding market access for MSMEs through adopting e-commerce and digital marketing.(Umboh & Aryanto, 2023). Digital platforms

enable MSMEs to reach customers more widely, beyond geographical boundaries that were previously a constraint. Research shows that MSMEs with good digital literacy are more likely to expand market share and increase revenue. In addition, digital literacy enables more effective customer data management, allowing MSMEs to personalize services and build customer loyalty.

On the operational side, digital literacy helps MSMEs adopt technology-based management tools, such as accounting software or inventory management applications, which can increase efficiency and reduce costs. Furthermore, the ability to analyze data digitally gives MSMEs a competitive advantage by enabling them to respond to market trends quickly and strategically.

However, this potential can only be realized with a strategy that supports the development of digital literacy among MSMEs. Training, mentoring, and policies that support access to digital technology are prerequisites for maximizing the impact of digital literacy. Thus, digital literacy is not only a tool but also a catalyst for empowering MSMEs to adapt to dynamic economic changes and increase their competitiveness in an increasingly competitive market. (Rosyidiana & Narsa, 2024).

Although digital literacy is recognized as a critical factor in supporting the success of MSME digital transformation, there is still a lack of systematic understanding of the relationship between digital literacy and MSME development. Although several studies have highlighted the importance of digital literacy, most of these studies are limited to general descriptions or specific case studies without presenting a holistic and applicable relationship model in a broader context. This results in ignorance of how various aspects of digital literacy—such as technical skills, strategic understanding, and technology application—contribute directly to improving MSME competitiveness and sustainability.

In addition, many studies fail to explore other variables that may mediate or moderate this relationship, such as economic factors, government policies, or social support. This lack of clarity creates a gap in the literature that hinders the development of more effective theories and practices in optimizing digital literacy to empower MSMEs. Furthermore, most existing studies focus more on individual aspects, such as the technical capabilities of MSME owners or employees, and pay less attention to a more holistic perspective on how the broader digital ecosystem—including policies, infrastructure, and education—influences the adoption and implementation of technology at the MSME business scale.

Therefore, this study aims to fill this gap by systematically understanding the relationship between digital literacy and MSME development. With a systematic approach, this study will explore how various dimensions of digital literacy can influence multiple aspects of MSME development, including operational management, marketing, and customer relations, and identify factors that can strengthen or hinder the adoption of digital technologies among MSMEs.

Although digital literacy is considered a critical element in enhancing the competitiveness of Micro, Small, and Medium Enterprises (MSMEs) in the digital era, several significant gaps in the literature need to be addressed. One of the main gaps is the need for an in-depth understanding of the relationship between digital literacy and MSME development, both in theory and practice. Many existing studies focus on the direct impact of digital literacy on several MSME performance indicators. Still, there has yet to be a study that comprehensively describes the dynamic relationship between digital literacy and other contextual factors, such as government policies, digital infrastructure, and social support.

In addition, most existing studies are limited to descriptive analysis or case studies in specific sectors, without considering the differences in geographical context or business sector that influence how digital literacy is implemented in various types of MSMEs. Existing studies need to pay more attention to the role of digital literacy in improving MSMEs' ability

to innovate, manage risks, or create new, more sustainable business models amidst increasingly complex market uncertainty. This gap highlights the need to develop a more holistic theoretical framework that systematically explains how digital literacy contributes to MSME development in various dimensions.

In this context, This study aims to fill the gap by developing a deeper understanding of the role of digital literacy in enhancing the competitiveness of MSMEs. By focusing on a systematic literature review, this study will highlight the factors that moderate the relationship between digital literacy and MSME development and provide a broader view of strategic ways to overcome barriers to digitalization among MSMEs across sectors and regions.

Identify and analyze the role of digital literacy in MSME development.

The main objective of this study is to identify and analyze the role of digital literacy in the development of Micro, Small, and Medium Enterprises (MSMEs) in the digital era. Given the importance of MSMEs in the global and local economy and the great potential of digital literacy to improve competitiveness and innovation, a deeper understanding of the relationship between these two factors is needed. With a systematic literature review approach, this study aims to present a comprehensive picture of how digital literacy affects various aspects of MSME development, including marketing, operations, and customer relationship management.

In addition, this study also seeks to identify factors that can moderate or mediate the relationship between digital literacy and MSME development, such as government policies, digital infrastructure, and levels of social support and training. By reviewing existing literature, this study will provide more precise insights into strategies and policies that can support increasing digital literacy among MSME actors while also offering practical recommendations for policymakers and business actors. This objective is expected to enrich existing literature and contribute significantly to MSME empowerment efforts facing increasingly complex digitalization challenges.

Formulate recommendations based on existing literature.

Based on the results of a systematic literature review, this study aims to formulate practical recommendations to support the development of digital literacy among Micro, Small, and Medium Enterprises (MSMEs). Given the challenges many MSMEs face in adopting and utilizing digital technology effectively, these recommendations will be designed to strengthen MSME actors' digital understanding and skills and overcome barriers that hinder technology adoption. Existing literature shows that in addition to individual factors such as technical skills, external factors—including government policies, education and training support, and adequate infrastructure—also play an essential role in accelerating the MSME digitalization process.

This study will integrate key findings from previous studies and consider the diversity of sectors and contexts of existing MSMEs in formulating recommendations. These recommendations are expected to be relevant to more than just MSME practitioners. Still, they can also guide policymakers in designing more inclusive and data-based strategies for supporting MSME digitalization. Thus, this study's results are expected to contribute to increasing the competitiveness of MSMEs, both in the domestic and global markets, through more optimal use of digital literacy

METHOD
Systematic Literature Review (SLR) Approach

This study uses the Systematic Literature Review (SLR) approach as the primary methodology, allowing for an in-depth analysis of relevant scientific articles on digital literacy and the development of Micro, Small and Medium Enterprises (MSMEs). The SLR method was chosen because of its ability to compile, evaluate and synthesize findings from

various existing studies in a structured and transparent manner. This approach takes explicit and systematic steps from article selection to thematic analysis, ensuring the selected literature is highly relevant. This is especially important given the heterogeneity of findings on this topic, which span different sectors, methods and contexts.

SLR is also relevant in this study because it provides a more comprehensive picture of the relationship between digital literacy and MSME development. By identifying common patterns, gaps, and contributions of each study, the author can develop a more integrative understanding of this complex and multidimensional topic. As an evidence-based method and standardized procedure, SLR ensures that research results are based on intuition and analysis driven by strong empirical data. Therefore, this approach is appropriate for reviewing existing literature on digital literacy and MSME development and provides a solid foundation for formulating practical, theoretical recommendations and contributions.

Literature Selection Criteria

The literature in this study was selected using strict criteria to ensure that the sources used were relevant, quality, and reliable. The databases used to access scientific articles were Google Scholar and Mendeley.com, both of which are platforms that provide access to internationally reputable journals, research articles, and other academic publications. Using these two databases provides the advantage of obtaining articles covering various disciplines and diverse research methodologies, allowing for a more comprehensive and holistic analysis.

The search keywords used to identify related literature included "MSMEs," "digital literacy," "SMEs," and "Business Performance." These keywords were designed to cover various important aspects related to the research topic, such as the role of digital literacy in improving MSME performance and the relationship between digital technology adoption and MSME business development. In selecting articles to be included in the literature review, a time limit was applied, namely only including publications published between 2021 and 2024. This ensures that the literature used is up-to-date and relevant to current trends and challenges faced by MSMEs in the digital era.

In addition, this study limits only to types of journals indexed in highly reputable databases, such as journals indexed in Scopus or other international journals that significantly impact management, technology, and economics. This limitation aims to ensure that the literature analyzed has high quality and validity, and can provide a meaningful contribution to the understanding of the role of digital literacy in the development of MSMEs.

Screening Process

The article screening process in this study was carried out systematically to ensure that only the most relevant and quality literature was used in this review. In the first stage, article identification was done through searches in two primary academic databases: Google Scholar and Mendeley.com. This search used keywords that had been adjusted to the focus of the study, such as "MSMEs," "digital literacy," "SMEs," and "Business Performance," to obtain articles that were relevant to the topic of MSME development in the digital era.

Once the articles were identified, the selection stage was carried out by assessing the relevance of the articles to the research objectives. Articles that met the initial criteria, such as publication dates between 2021 and 2024 and published in reputable indexed journals, were selected for further review. The selection also included an assessment of the methodology used in the article and whether the article discussed the relationship between digital literacy and MSMEs in a substantial way. At this stage, articles with less relevant focus or inadequate methodology were excluded from the analysis.

Article exclusion is done if the article does not meet the specified criteria, such as topic incompatibility, low journal quality, or inappropriate methodology. Excluded articles also include those that are not fully accessible or have reliability issues in the data or research

results. This screening process aims to produce a collection of articles that significantly contribute to understanding the role of digital literacy in MSME development.

Analysis Method

This study uses a narrative-based thematic analysis approach to process the screened literature. This approach aims to identify and organize key themes relevant to the relationship between digital literacy and MSME development while providing an in-depth understanding of patterns and gaps emerging from the literature. Rather than using an extensive table matrix, findings from the literature are analyzed and presented in the form of structured narrative descriptions supported by graphical visualizations, such as diagrams and infographics. This presentation allows readers to understand the distribution of themes, geographical context, and research focus while maintaining important details.

The analysis divided the literature into significant themes: MSME performance, innovation, digital literacy barriers, and digitalization strategies. For each theme, findings from relevant articles were systematically summarized, highlighting the main contributions, methods used, and the relevance of research results to MSME empowerment in the digital era. In some cases, key articles were selected as representatives to provide in-depth illustrations of the issues discussed in the theme.

This approach provides flexibility in effectively presenting findings and ensures that key patterns, differences, and similarities in the literature can be clearly identified. By replacing lengthy matrix tables, the use of thematic narratives and visualizations is expected to improve the clarity of presentation, maintain readability, and meet the academic standards expected by internationally reputable journals.

RESULT AND DISCUSSION

Characteristics of Selected Literature

This study analyzed 20 selected scientific articles using the Systematic Literature Review (SLR) approach. These articles were chosen from internationally reputable journals indexed in databases such as Scopus, Google Scholar, and Mendeley, with the main criteria being relevance to digital literacy and the development of MSMEs in the digital era. The SLR approach ensures that the literature analyzed reflects current developments and has high methodological quality.

The literature used covers publications from 2021 to 2024, with a geographical distribution dominated by research from Southeast Asia, including Indonesia (60%), followed by North America (20%), Europe (15%), and other regions (5%). Methodologically, the majority of studies use a quantitative approach (50%), while the rest consist of qualitative (30%) and mixed (20%) research. Quantitative approaches are generally used to measure the relationship between digital literacy and MSME performance, while qualitative research often explores barriers to technology adoption. Mixed methods research provides a more in-depth perspective by integrating quantitative and qualitative analysis.

The main themes that emerge from this literature include:

The relationship between digital literacy and MSME performance (Umboh & Aryant, 23) (Ta & Lin, 2023),(Diptyana et al., 2022),(Mushtaq et al., 2024),(Sinaga, 2024),(Patria et al., 2023),(Sari, 2022),(Amggreni & Muchran, 2023),(Wardana et al., 2023),(Widiastuti et al., 2021),(Diptyana et al., 2022),(Sudadi Pranata et al., 2024),(Nurlina et al., 2023),(Nur Samsul Bahri et al., 2021), Digital literacy as a supporter of MSME innovation(Rosyidiana & Narsa, 2024),(Munthe et al., 2024). Obstacles faced by MSMEs in digital literacy(Judijanto, 2024),(Rvspk et al., 2020). Case study of successful MSMEs with good digital literacy(Putra et al., 2023),(Queiroz et al., 2022)

Below are three main visualizations to provide a clearer picture of the characteristics of the selected literature. The first figure shows the distribution of articles based on dominant research themes, while the second illustrates the number of articles published by year of publication (2021–2024). The third figure presents the distribution of articles by geographical region to highlight the global perspective of the analyzed literature.

Distribution of Articles Based on Research Themes

Number of Articles Published by Year

Distribution of Articles by Geographic Region
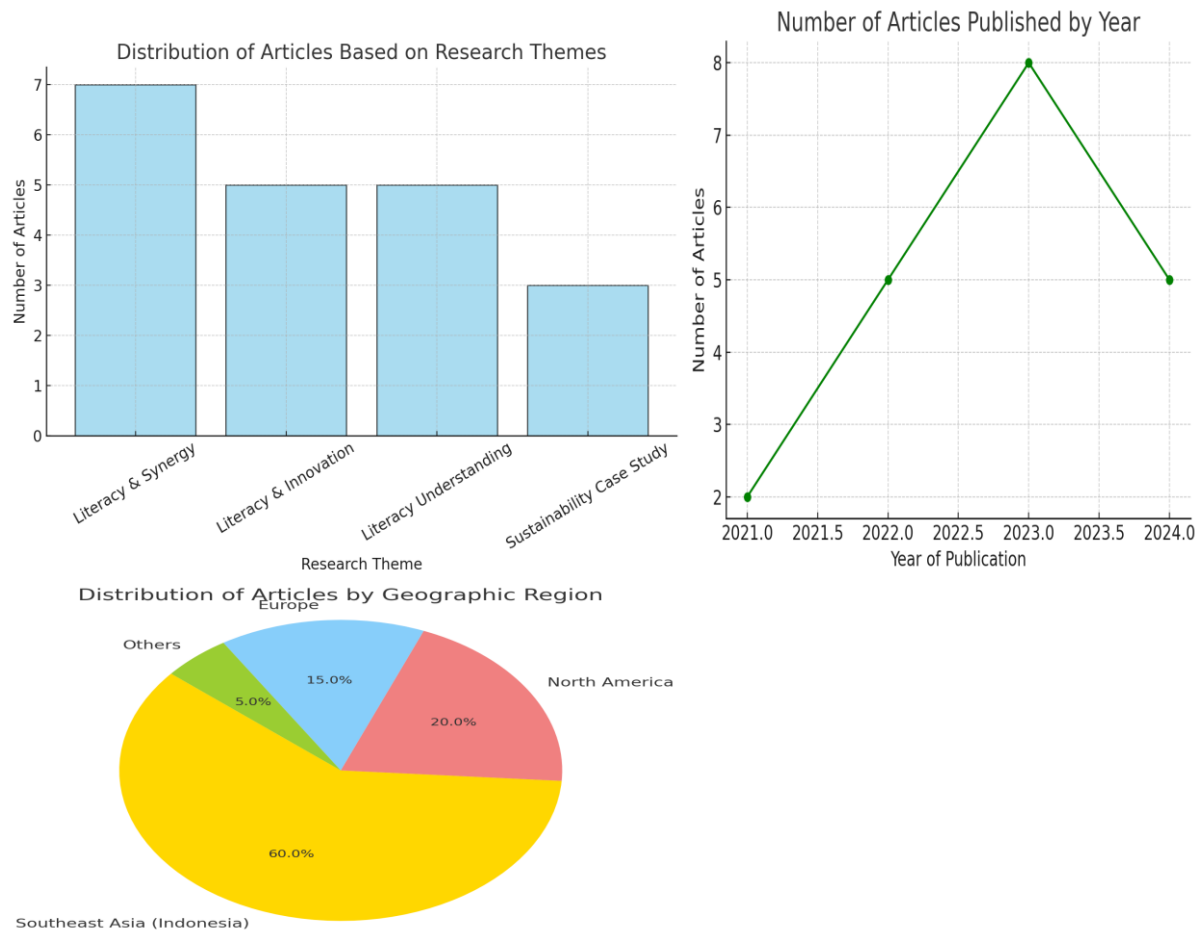
An example of an article entitled "Digital Marketing Development Model through Digital Literacy Mediation to Improve SME's Performance"(Umboh & Aryanto, 2023) significantly contributes to the digital marketing literature by highlighting the importance of digital literacy in supporting MSME performance. This study uses a census approach to 186 members of the Natural Dye Batik cluster in Bayat, Klaten, to analyze the role of digital literacy as a mediator between digital marketing capabilities and business performance. The results show that digital literacy improves digital marketing capabilities and significantly improves business performance, such as profitability, sales growth, and business sustainability.

The study also revealed that digital literacy helps MSMEs overcome risks associated with online hoaxes and fraud, strengthening their ability to operate safely in the digital ecosystem. Using the PLS-SEM approach, this study provides empirical evidence that integrating digital literacy into digital marketing strategies can maximize the potential for digital transformation in the MSME sector. The practical implication of this finding is the importance of ongoing digital literacy training programs to improve MSMEs' technological adaptation and competitiveness in the digital era, especially in developing countries like Indonesia.

Main Themes of the Literature The literature findings are grouped based on the main themes that emerged:

Relationship between Digital Literacy and MSME Performance

Digital literacy drives MSME performance, especially in improving operational efficiency, market access, and productivity. Based on the literature analyzed, the study(Umboh & Aryanto, 2023)shows that digital literacy is a significant mediator in improving digital marketing capabilities and its impact on MSME business performance. Digital literacy helps MSMEs optimize digital marketing technologies like social media and e-commerce to expand market reach, increase cost efficiency, and strengthen consumer relationships.

This study is consistent with the findings(Putra et al., 2023), which prove that digital literacy contributes to increasing community investment in Pakistan and mitigating risks arising from business uncertainty. Meanwhile, the study(Umboh & Aryanto, 2023) found that digital literacy through social media improves batik sales performance at the national level and helps MSMEs penetrate international markets such as Japan, the United States, and Italy.

However, there are differences in the intensity of the impact of digital literacy on MSME performance based on geographic and demographic contexts. For example, research (Queiroz et al., 2022)in the South Asia and North Africa region emphasizes that digital literacy provides the most significant benefits to low-income groups in increasing financial resilience, while in Indonesia, digital literacy remains a considerable challenge for MSMEs in rural areas. (Mushtaq et al., 2024).

The existing literature shows that digital literacy is essential for MSME growth. Still, its implementation requires ongoing support through training, adequate digital infrastructure, and policies that support digital transformation at the MSME level.

Digital Literacy as a Support for MSME Innovation

Digital literacy has a strategic role in driving innovation in various aspects of MSME business models, products, and services. Based on the findings, digital literacy allows MSME actors to adopt digital technologies such as e-commerce, social media, and fintech to increase competitiveness in an increasingly dynamic market. Digital literacy helps MSMEs access relevant information quickly and encourages the development of digital-based business models that are more adaptive to market changes.

Digital literacy-based innovation is also seen in the increasing diversification of MSME products and services. Research on the Natural Dye Batik cluster in Bayat, Klaten, shows that using social media such as Facebook has opened up new opportunities for MSMEs to market batik products to international markets, including Japan, the United States, and Italy. This expands the market reach and increases the added value of products by presenting interesting stories or storytelling related to the uniqueness of natural dyes.

In addition, several studies also highlight that digital literacy allows MSMEs to integrate digital solutions into their services, such as digital payment systems and app-based customer service platforms. These solutions improve operational efficiency and create a better customer experience, ultimately driving customer loyalty.

However, challenges in developing digital literacy-based innovations still exist, especially for MSMEs in rural areas that often need more access to adequate digital infrastructure. Therefore, comprehensive digital literacy training programs and government policy support are crucial to accelerating the digital transformation of MSMEs in Indonesia.

Barriers to Digital Literacy for MSMEs

Digital literacy barriers are a significant challenge for MSMEs in utilizing the potential of technology to increase their competitiveness. Based on the findings in the research of

Umboh and Aryanto (2023), limited digital infrastructure and lack of access to digital literacy training are significant obstacles MSMEs face, especially in rural areas. This condition results in low adoption of digital technology in business operations so MSMEs lose the opportunity to compete effectively in domestic and international markets.

The technological gap between young and older MSMEs also exacerbates the need for digital literacy training. Research(Mushtaq et al., 2024)revealed that MSMEs managed by young entrepreneurs are quicker to adopt digital technology than the older generation, who tend to need help understanding the benefits of technology. This creates a significant disparity in operational effectiveness and productivity among these MSME groups.

In addition, infrastructure limitations, such as unstable internet connections and lack of adequate hardware, also limit MSMEs' ability to utilize digital platforms. For example, several studies have shown that in rural Indonesia, women MSMEs often only use social media for social purposes, not business, due to limited access to digital resources.

These barriers affect productivity and reduce the competitiveness of MSMEs in more competitive sectors, such as manufacturing and trade. In the long term, digital literacy challenges can widen the economic gap between MSMEs in urban and rural areas, thus hampering MSMEs' contribution to national economic growth. Therefore, a holistic approach is needed, including needs-based training, inclusive digital infrastructure development, and government incentives to encourage technology adoption among MSMEs.

Case Study of MSME Success with Digital Literacy.

Studies analyzed in the literature show the success of various MSMEs in improving performance through good digital literacy. One prominent case is the Natural Dye Ba-tik cluster in Bayat, Klaten. Digital literacy allows members of this cluster to utilize social media such as Facebook and e-commerce platforms to market their products to international markets, increasing profitability and business sustainability. Their main strategies for success include ongoing digital literacy training, critical thinking skills, and effective digital risk management.

This success is also supported by the findings (Patria et al., 2023), which show that investment in digital literacy significantly improves the operational efficiency and productivity of MSMEs in Pakistan. Similar findings are seen in other studies, which underline the importance of leveraging social media in building customer relationships and penetrating global markets. In addition, research(Ta & Lin, 2023)in South Asia and North Africa emphasized that digital literacy strengthens the financial resilience of MSMEs, directly impacting their business performance.

In these cases, key success factors for MSMEs include using appropriate digital tools, navigating technology efficiently, and strengthening marketing networks. Research (Rosyidiana & Narsa, 2024)highlights how digital literacy drives innovation through online marketing capabilities, improving cost efficiency and enabling MSMEs to reach customers more widely.

Overall, this case study confirms that digital literacy integrated with business strategy can be a key driver of innovation and sustainability for MSMEs. Collaboration between business actors, educational institutions, and the government must provide digital literacy training, strengthen technology infrastructure, and support sustainable digital adoption to achieve similar success.

CONCLUSION

This study confirms the critical role of digital literacy in empowering MSMEs. Key findings show that digital literacy serves as a catalyst that drives improved MSME performance through increased operational efficiency, broader market access, and product

and service innovation. Digital technology, combined with training and strengthening of digital literacy skills, has expanded market reach and increased MSME competitiveness. The studies analyzed, including research by Umboh and Aryanto (2023), show that MSMEs that integrate digital literacy into their strategies can overcome existing obstacles, such as limited infrastructure and low technology adoption, and increase their financial resilience.

This study adds significant value to the existing literature by combining multiple perspectives on how digital literacy impacts MSMEs in developing countries. By synthesizing multiple studies, including research in South Asia and Indonesia, this study develops an understanding of how digital literacy is not just a technical aspect but also an element that supports innovation and business sustainability. The main contribution of this study is recognizing the importance of ongoing training and supportive policies, as well as understanding under-explored dimensions of digital literacy, such as creative and social digital literacy.

The hope for continued research in this area is to expand the scope of studies to various contexts, including different industry sectors and wider geographical areas, to identify local factors that influence the adoption of digital literacy. Future research should in-clude a long-term analysis to understand the impact of digital literacy on MSMEs in the face of changing global market dynamics. Hopefully, This research will likely en-courage the development of more effective policies and training programs that can strengthen MSME digital literacy, support innovation, and contribute to inclusive and sustainable economic growth.

REFERENCES

Amggreni, R., & Muchran, M. (2023). The Role Of Financial Literacy, Digital Literacy, And The Influence Of Efficacy In Improving The Performance Of MSME Actors In Makassar City. International Journal of Economic Research and Financial Accounting (IJERFA), 1(4), 176–184.

Aminullah, E., Fizzanty, T., Nawawi, N., Suryanto, J., Pranata, N., Maulana, I., Ariyani, L., Wicaksono, A., Suardi, I., Azis, NLL, & Budiatri, AP (2024). Interactive Components of Digital MSMEs Ecosystem for Inclusive Digital Economy in Indonesia. In Journal of the Knowledge Economy (Vol. 15, Issue 1). https://doi.org/10.1007/s13132-022-01086-8

Athia, I., Soetjipto, BE, & Efendi, E. (2023). THE IMPROVEMENT OF MSMEs' BUSINESS PERFORMANCE DURING THE COVID-19 PANDEMIC THROUGH FINANCIAL AND DIGITAL LITERACY. Journal of Economics, Business and Entrepreneurship, 12(1), 92–109. https://doi.org/10.26418/jebik.v12i1.58984

Diptyana, P., Rokhmania, N., & Herlina, E. (2022). Financial Literacy, Digital Literacy and Financing Preferences Role to Micro and Small Enterprises' Performance. IJEBD (International Journal of Entrepreneurship and Business Development), 5(2), 346–358. https://doi.org/10.29138/ijebd.v5i2.1785

Judijanto, L. (2024). Taxation Policy and Compliance Burden on MSMEs: An In-depth Legal Study in Indonesia. International Journal of Business, Law, and Education, 5(2), 1597–1504. https://doi.org/10.56442/ijble.v5i2.618

Melillanca, E., Ramírez, M., & Forcael, E. (2023). Model of Key Factors in the Sustainable Growth of Small and Medium-Sized Enterprises Belonging to the First Nations. Sustainability (Switzerland), 15(11). https://doi.org/10.3390/su15118822

Munthe, RA, Pratikto, H., Sudarmiatin, & Restuningdiah, N. (2024). The Impact of Entrepreneurial Leadership, Business Environment, Digital Literacy, and Religiosity on MSME Performance: The Mediating Role of Innovative Behavior in Pekanbaru. Journal of Ecohumanism, 3(8), 139–149. https://doi.org/10.62754/joe.v3i8.4717

Mushtaq, N., Hussain, F., Dad, A., Rehman, S.U., & Waseem, M. (2024). Digital Transformation and Its Impact on Business Performance in SMEs of Pakistan: An Empirical Study. The Asian Bulletin of Big Data Management, 3(2), 103–114. https://doi.org/10.62019/abbdm.v3i2.92

Nur Samsul Bahri, NSB, Muhammad Rakib, Muhammad Ihsan Said Ahmad, Rahmatullah, & Muhammad Hasan. (2021). The Influence of Digital Literacy and Entrepreneurial Behavior on Small Business Performance (Study on Culinary Business in Jeneponto Regency). Daengku: Journal of Humanities and Social Sciences Innovation, 1(2). https://doi.org/10.35877/454ri.daengku582

Nurlina, N., Del Rosa, Y., & Yanti, B. (2023). The Effect Of Digital Literacy And Business Strategy On The Performance Of Micro, Small, And Medium Enterprises (MSMEs) In Culinary Industry In Padang City. International Journal of Progressive Sciences and Technologies, 38(2), 252. https://doi.org/10.52155/ijpsat.v38.2.5291

Patria, H., Fatchul Alam, MA, Mulyadi, A., & Setyarko, A. (2023). The Influences of Digital Technology, Digital Literacy, and Digital Marketing on the Performance of SMEs in Bekasi. IMWI Repository Horizon, 6(1), 401–419. https://doi.org/10.52851/cakrawala.v6i1.235

Putra, AT, Inanna, Tahir, T., Mustari, & Hasan, M. (2023). Analysis of Financial Literacy and Digital Literacy on the Sustainability of Micro, Small and Medium Enterprises (MSMEs). International Journal of Asian Business and Management, 2(6), 977–992. https://doi.org/10.55927/ijabm.v2i6.6978

Queiroz, G. A., Alves Junior, P. N., & Costa Melo, I. (2022). Digitalization as an Enabler to SMEs Implementing Lean-Green? A Systematic Review through the Topic Modeling Approach. Sustainability (Switzerland), 14(21), 1–21. https://doi.org/10.3390/su142114089

Rosyidiana, RN, & Narsa, IM (2024). During the post-pandemic economic recovery period, micro, small, and medium-sized enterprises (MSMEs): digitalization, literacy, innovation, and its impact on financial performance. Cogent Business and Management, 11(1). https://doi.org/10.1080/23311975.2024.2342488

Rvspk, R., Hms, P., & Rgn, M. (2020). Digital Literacy, Business Uncertainty & Economic Performance: An Empirical Study of Small Businesses in Sri Lanka. International Journal of Academic Research in Business and Social Sciences, 10(5). https://doi.org/10.6007/ijarbss/v10-i5/7171

Sari, Dewi Maya Rifani Ahmad. (2022). RJOAS, 11(131), November 2022. 11(November), 51–59. https://doi.org/10.18551/rjoas.2022-11.06

Sinaga, KN (2024). Analyzing the Influence of Entrepreneurship. 4(5), 936–949.

Sitaniapessy, RH, Latupapua, CV, Lewaherilla, N., Leuherry, F., Ferdinandus, SJ, Asnawi, A., & Pentury, G. (2024). The Advantages of Digital Literacy Strategies to Improve MSME's Business Performance. European Journal of Theoretical and Applied Sciences, 2(1), 504–512. https://doi.org/10.59324/ejtas.2024.2(1).43

Sudadi Pranata, Umi Narimawati, & M. Yani Syafei. (2024). Content Marketing, Social Media Marketing and Search Engine Optimization (SEO) on Successful Business Performance in Msmes in Cirebon City with Digital Literacy as an Intervening Variable. Journal of Economic Management Research (REKOMEN), 7(1), 272–283. https://doi.org/10.31002/rekomen.v7i1.1426

Suyanto, B., Sugihartati, R., Egalita, N., Mas'udah, S., Singgih, DS, & Sudarso. (2023). Digital literacy and survival mechanism of micro-small enterprises in the practising sharing economy. Cogent Social Sciences, 9(2). https://doi.org/10.1080/23311886.2023.2245691

Ta, V. A., & Lin, CY (2023). Exploring the Determinants of Digital Transformation Adoption for SMEs in an Emerging Economy. Sustainability (Switzerland), 15(9), 1–13. https://doi.org/10.3390/su15097093

Umboh, IA, & Aryanto, VDW (2023). Digital Marketing Development Model through Digital Literacy Mediation to Improve SME's Performance. Media Ekonomi Dan Manajemen, 38(1), 94. https://doi.org/10.56444/mem.v38i1.3315

Wardana, LW, Ahmad, Indrawati, A., Maula, FI, Mahendra, AM, Fatihin, MK, Rahma, A., Nafisa, AF, Putri, AA, & Narmaditya, BS (2023). Do digital literacy and business sustainability matter for a creative economy? The role of entrepreneurial attitude. Heliyon, 9(1), e12763. https://doi.org/10.1016/j.heliyon.2022.e12763

Widiastuti, E., Kurniasih, R., & Martini, S. (2021). Can Digital Literacy Increase SME's Performance? An Evidence from SME in Banyumas. International Sustainable Competitive Advantage, 11(1), 130–139. http://jp.feb.unsoed.ac.id/index.php/sca-1/article/view/2769