Digital Transformation in MSMEs:
A Review of the Literature

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Abstract - Digital transformation has become a critical requirement for the sustainability and competitiveness of Micro, Small, and Medium Enterprises (MSMEs), particularly in the aftermath of the COVID-19 pandemic, which significantly accelerated technological adoption across various sectors. This article presents a systematic review of recent literature on digital transformation in MSMEs, aiming to explore research trends, types of technology adoption, challenges encountered, ecosystem support, and emerging strategic opportunities. The study employs a systematic literature review approach combined with content analysis of primary studies; quantitative, qualitative, and mixed-method, published within the last five years. The findings indicate a growing academic interest in MSME digitalization, particularly in both developing and developed countries. Many MSMEs have adopted digital tools such as e-commerce platforms, social media, digital payment systems, and cloud-based management technologies. Nevertheless, several significant challenges persist, including limited digital literacy, inadequate technological infrastructure, high initial costs, and a lack of sustained mentoring. Furthermore, ecosystem support, comprising government policies, incubation services, and financial sector involvement, remains fragmented and suboptimal. The review also identifies a notable gap in the literature, where research tends to emphasize technical aspects, while managerial and socio-cultural dimensions, such as leadership adaptability, organizational culture, and behavioral change, receive less scholarly attention. In response to these findings, this study recommends the need for more multidisciplinary research efforts and inclusive, long-term public policies that support the sustainable digital transformation of MSMEs. Ultimately, this article seeks to serve as a conceptual foundation for MSME practitioners, researchers, and policymakers in designing effective and holistic strategies for digital transformation.

Keywords: *digital transformation, MSMEs, literature review*

I. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play an important role in the national economy. According to data from the Ministry of Cooperatives and Small and Medium Enterprises (KUKM) in Indonesia, MSMEs contribute significantly to the gross domestic product (GDP), which reaches more than 60%, and absorbs more than 97% of the total national workforce. In addition, MSMEs are also the driving force of the economy in the region and play a role in equitable development. This strategic role makes MSMEs a sector that needs special attention, especially in facing the challenges of the increasingly competitive and digitized global economy.

However, according to Gulo et al. (2025), MSMEs in Indonesia still face various challenges, such as limited access to financing, low managerial capacity, limited market access, and low technology adoption. These challenges are increasingly complex in the digital era, where changes in consumer behavior, global competition, and dependence on technology require MSME actors to transform. Digital transformation is one of the important keys for MSMEs to be able to survive and thrive in an increasingly dynamic business environment.

The development of digital technology has changed the way businesses are run, from production, distribution, marketing, to consumer service (Maghfiroh, 2023). According to Nasar & Salsabila (2024), the use of digital platforms such as e-commerce, social media, digital payment systems, and business management applications has opened up new opportunities for MSMEs to reach a wider market, improve operational efficiency, and strengthen competitiveness. However, according to Nikmah et al. (2023), the use of this technology requires not only infrastructure, but also the readiness of human resources, the willingness to adapt, and adequate policy support. Therefore, it is important to review how digital transformation has been discussed in various literature, as well as what findings, challenges, and development directions can be taken to accelerate the digitalization of MSMEs in a sustainable manner.

Seeing these conditions, digital transformation is no longer an option, but an urgent need for the sustainability of MSMEs, especially after the COVID-19 pandemic. According to Mutho'a (2024), the pandemic has accelerated the shift in consumer behavior towards digital and forced business actors to immediately adapt to the online system. MSMEs that are able to utilize digital technology such as marketplaces, non-cash payments, and social media have proven to be more resilient in maintaining their existence during crises (Putri et al., 2025). On the other hand, MSMEs that have not been connected to the digital ecosystem tend to experience a decrease in income, even forced to stop their operations. Thus, digitalization is a crucial aspect that not only supports post-pandemic recovery, but also as a long-term strategy to increase the competitiveness of MSMEs in the digital economy era.

Various studies and reports have highlighted the importance of digital transformation in the MSME sector, both from an economic, technological, and public policy perspective. However, these findings are still scattered in various journals, institutional reports, and academic articles that have not been collected in one systematic study. This makes it difficult for researchers, policymakers, and business actors to understand a complete map of trends, obstacles, and opportunities for MSME digital transformation. Therefore, a thorough literature review is needed to identify, analyze, and synthesize various results of previous research in order to provide a comprehensive picture that is useful as a basis for policy making and the direction of further research.

Although the urgency of digital transformation is increasingly recognized, the reality is that there is still a significant gap between the level of technology adoption by MSMEs and the availability of an adequate supporting ecosystem. Many MSMEs face obstacles in terms of digital literacy, limited access to technology training and assistance, and lack of integrated policy support. In addition, the uneven digital infrastructure, especially in rural areas and disadvantaged areas, has further widened the digitalization gap between business actors. This gap indicates that MSME digital transformation efforts are not enough just by providing technology, but also require a holistic approach that includes aspects of education, financing, regulation, and cross-sector collaboration.

Furthermore, when reviewed in terms of academic literature, most research that discusses the digital transformation of MSMEs tends to focus on technical aspects, such as software adoption, the use of digital platforms, or information system integration. In fact, the success of digitalization is not only determined by technological sophistication, but also by managerial readiness, organizational culture, and social factors such as consumer trust and adaptation of business actors. These non-technical aspects have often been overlooked in previous studies, even though they have a big role in determining the success of digital transformation as a whole. Therefore, a literature review is needed that not only maps the technologies used, but also considers the social, economic, and institutional dimensions that accompany them.

Based on this background, this study aims to compile a comprehensive literature review on digital transformation in the MSME sector. In particular, this article will examine various results of previous research that discuss the process, strategy, and impact of digitalization on MSMEs, both from technical, managerial, social, and policy aspects. In addition, this article also aims to identify the growing trends, challenges faced, and strategic opportunities that arise along with the

adoption of digital technology by MSME actors. Thus, this article is expected to provide a useful conceptual map as a basis for further research and reference in formulating public policies that support the digitalization of MSMEs in an inclusive and sustainable manner.

II. METHODS

This study uses a systematic literature review approach. According to Andriani (2021), this study is to examine and synthesize various previous studies that discuss digital transformation in the Micro, Small, and Medium Enterprises (MSMEs) sector. This study aims to identify research trends, main themes, challenges, and opportunities that arise from the MSME digitalization process, both from the technical, managerial, social, and policy aspects.

The data collection process is carried out by browsing through scientific articles, research reports, and other academic publications published in the last five to ten years. Data sources are obtained through scientific databases such as Google Scholar, Scopus, ScienceDirect, and ProQuest. The keywords used in the search included a combination of terms such as "digital transformation", "MSMEs", "MSMEs", "small and medium enterprises", "technology adoption", and "digitalization".

Inclusion criteria in the literature selection include: (1) articles that explicitly discuss digital transformation in the context of MSMEs, (2) articles that are available in Indonesian and English, and (3) articles that are academic in nature and have gone through a peer-review process. Meanwhile, articles that are opinion, news, or irrelevant to the topic's focus are excluded from the analysis.

The data obtained was analyzed using thematic analysis techniques, namely by grouping findings from various literature into main themes such as the form of technology adoption, obstacles faced by MSMEs, the impact of digitalization, the role of policies, and best practices. In addition, this study also identifies research gaps and provides conceptual maps as recommendations for further research development and more targeted policy formulation.

III. RESULTS AND DISCUSSION

The results of the literature review show that attention to the issue of digital transformation in MSMEs has increased significantly, especially after the COVID-19 pandemic. The pandemic has become the main catalyst in encouraging MSME actors to adopt technology as an adaptive strategy to physical restrictions, changes in people's consumption patterns, and digital market demands. Studies published since 2020 tend to focus attention on how MSMEs utilize digital technology to maintain their existence and improve their business efficiency in the midst of a crisis.

Geographically, this research trend reflects global attention to the digitalization of MSMEs, with a fairly dominant number of publications coming from developing countries such as Indonesia, India, and the Philippines. This shows that digital transformation is an important concern in regions where MSMEs play a large role in the national economic structure. On the other hand, developed countries such as the United States, the United Kingdom, and Germany also showed significant contributions in this study, especially in the aspects of technology models, digital managerial strategies, and platform-based innovations.

In terms of methodology, the research approaches used are quite varied. Many quantitative studies highlight the level of technology adoption, the factors that influence digitalization, and its impact on the performance of MSMEs. Qualitative approaches, such as case studies, are used to explore the individual experiences of MSMEs in the digitalization process, the obstacles they face, and the adaptation strategies they undertake. In addition, mixed-method approaches are also becoming widely used to capture the complexity of this issue more comprehensively, combining statistical data with in-depth interviews or observations.

The topics that are most often discussed in the current literature include the use of e-commerce as a means of distributing products online, the application of social media as a digital marketing strategy, and the use of digital payment systems such as e-wallets and QR codes to support cashless transactions. In addition, some studies also highlight the use of cloud-based software, such as ERP (Enterprise Resource Planning) or SaaS (Software as a Service), as a management tool that is beginning to be adopted by more developing MSMEs. These findings reflect that the digitalization of MSMEs not only touches the marketing and transaction aspects, but also begins to penetrate into operational management and internal efficiency.

Continuing from the previous research trend, the literature review also shows various forms of digital technology adoption carried out by MSMEs in response to changes in the post-pandemic business environment. This form of adoption varies, depending on the level of digital readiness, business scale, and the type of MSME industry in question. In general, the adoption of digital technology by MSMEs can be classified into several main categories, namely marketing, transactions, and operational management.

First, the use of digital platforms such as e-commerce and marketplaces is the most common first step taken by many MSMEs. Platforms such as Tokopedia, Shopee, Bukalapak, as well as international platforms such as Amazon and eBay are used to expand market reach geographically, so that MSME products can be accessed by consumers across regions and even across countries. This is especially important given the limited physical space due to social restrictions during the pandemic as well as changing consumer preferences towards online shopping.

Second, social media such as Instagram, TikTok, and Facebook have become very strategic tools in promotional and customer communication activities. Many MSMEs use social media not only to introduce products, but also to build brand narratives, increase consumer engagement, and make direct sales through features such as "live shopping" and "shop now." Creative content is an important element in attracting the attention of the market, especially in the millennial and Gen Z segments.

Third, the digital transformation of MSMEs can also be seen from the adoption of digital payment systems, such as QRIS (Quick Response Code Indonesian Standard), e-wallets (OVO, GoPay, Dana), and mobile banking. This digital payment system speeds up the transaction process, reduces cash risk, and makes it easier to record finances. In addition, with the entry of MSMEs into the digital payment ecosystem, they have also become more administratively feasible to access financing and subsidy programs from the government or financial institutions.

Although the adoption of digital technology by MSMEs shows positive developments, the digital transformation process is inseparable from various significant structural and cultural challenges. One of the most crucial obstacles is the limitation of digital literacy, where many MSME actors, especially the older generation and micro business actors, still do not have an adequate understanding of the productive use of technology. This has an impact on the low maximum utilization of the available digital platforms, both for marketing, financial management, and customer service.

In addition, another challenge lies in the lack of human resources (HR) who have digital competence, such as the ability to strategically manage social media, use digital point-of-sale (POS) systems, or utilize cloud-based accounting software. This limited human resource capacity often makes the technology that has been implemented ineffective and has a direct impact on improving business performance.

Geographical aspects also have an influence, especially in the context of limited technological infrastructure in rural areas or 3T areas (disadvantaged, frontier, outermost). The lack of access to high-speed internet, stable electricity, and adequate hardware hinders the overall digitalization process, thereby widening the digital gap between MSMEs in urban and rural areas. On the other hand, the initial cost of technology investments such as device purchases, application subscriptions, or staff training is often a heavy burden, especially for micro business actors who operate with very limited capital. This obstacle makes digital transformation considered a high-risk step, especially without incentives or subsidies from the government or supporting institutions.

Trust in the security of digital systems is also a psychological challenge that cannot be ignored. Concerns about the risk of data leaks, online fraud, and cyberattacks have made some MSMEs reluctant to migrate their business processes to the digital realm. This is reinforced by the lack of understanding of data protection and digital security. Finally, the lack of continuous assistance and training is also a big barrier. Many of the training programs held are one-way and do not provide the long-term support needed to help MSME actors implement learning consistently. In fact, digital transformation is a continuous process that requires coaching and mentoring so that its implementation is effective and adaptive to technological developments.

In the midst of the importance of digital transformation as the key to the sustainability of MSMEs, the reality on the ground shows that ecosystem support that is supposed to accelerate the digitalization process is still not optimal. One of the main problems is the lack of policy

integration across sectors, especially between the economic, education, and technology sectors. For example, digital training programs from relevant ministries have not always been aligned with the technical needs of MSMEs in the field, while training curricula from the education and vocational sectors have not been systematically directed to support the digital competencies of MSME actors.

Furthermore, digital incubation and acceleration services that are supposed to be a bridge between small businesses and the digital ecosystem are still very limited. Existing business incubators often target technology startups or medium-to-high MSMEs, so micro business actors, especially in rural areas, have not had much access to intensive and sustainable programs in terms of technology adoption, capacity building, and digital market connections.

On the other hand, the role of strategic actors such as financial institutions, SOEs, and the private sector in encouraging the digitalization of MSMEs still needs to be strengthened. Many MSME actors still face difficulties in accessing financing for digital investments, or have not received concrete incentives such as digitalization-based credit facilities. In fact, the banking sector and large digital companies can play a more proactive role in providing innovative financing solutions, digital onboarding platforms, and partnership-based mentoring programs. Therefore, the success of MSME digital transformation does not only depend on the internal willingness and readiness of business actors, but is also greatly influenced by cross-institutional coordination and the involvement of various stakeholders in creating a supportive and sustainable ecosystem.

Although studies on digital transformation in MSMEs show an increasing trend, especially post-COVID-19 pandemic, there is a striking gap in the focus of research that has been conducted. Many studies are still centered on technical aspects, such as the type of technology used, the digital applications adopted, and the statistics of its use. This kind of research is indeed important to map the level of technology penetration among MSMEs, but it is not enough to comprehensively explain the dynamics of digital transformation that occurs.

On the other hand, the managerial and social aspects, which are actually crucial in the change process are still very limited to discuss. Factors such as changes in organizational culture, internal resistance to new technologies, and digital adaptability and leadership are important determinants that affect the success of digitalization, but are often overlooked. For example, how MSME owners change their mindset from conventional to digital, or how their work structure and internal communication adapt to technology-based systems.

This gap indicates that digital transformation in MSMEs cannot only be seen as a process of adopting digital tools or platforms, but needs to be understood as systemic change that includes structural, cultural, and leadership dimensions. Therefore, a multidisciplinary approach is needed that combines technology, management, sociology, and public policy perspectives so that future studies can capture the complexity of MSME digitalization in a complete and in-depth manner.

In the midst of the various challenges and gaps faced by MSMEs in the digital transformation process, there are significant strategic opportunities if this process is carried out in a directional manner and supported by a conducive ecosystem. One of the main benefits is increased operational efficiency, where the use of digital technology is able to reduce production, logistics, and distribution costs. For example, by automating administrative processes and utilizing digital payment systems, MSMEs can cut transaction time and reduce reliance on manual processes that tend to be slow and error-prone. Furthermore, digitalization also opens up wider market access, even to the global level. Through digital marketing, social media, and cross-border e-commerce, MSMEs now have the opportunity to reach international consumers without having to have physical infrastructure abroad. This provides space for small businesses to participate in digital exports, especially for creative, culinary, or local handicraft products that have high cultural value.

In addition, the use of customer data through analytics technology provides a great opportunity to create more targeted product and service innovations. By understanding customer preferences and consumption patterns, MSMEs can personalize services, design effective marketing strategies, and significantly increase customer loyalty. Finally, digital transformation also encourages the formation of collaboration and integration in the digital supply chain between MSME actors, such as cooperation in joint logistics platforms, marketing consolidation, or the use of cloud-based inventory systems. This kind of collaboration not only strengthens the individual competitiveness of MSME actors, but also strengthens the small business ecosystem as an adaptive and innovative unit in facing global challenges.

Based on the results of the literature review, it can be seen that digital transformation in MSMEs not only requires the adoption of technology, but also a deep understanding of the factors that support its success. Therefore, further research is needed to explore successful models of digital transformation in MSMEs in various industrial sectors and geographical contexts. This kind of study can help identify best practices, adaptation strategies, and internal dynamics that contribute to the success of digitalization in a sustainable manner.

In terms of policy, the results of this study show the need for a more inclusive and long-term oriented public policy formulation. The government and other stakeholders need to provide continuous digital training, especially for MSME actors in areas with limited access to technology. In addition, fiscal incentive policies such as tax cuts or subsidies for digital software purchases can encourage accelerated technology adoption. The government is also advised to facilitate access to cheap and equitable digital infrastructure, so that the digital transformation process is not only enjoyed by business actors in urban areas.

As a theoretical contribution, this article offers a conceptual map that represents the interconnectedness between four essential elements: technology, human resources (HR), ecosystem support, and business outcomes. The interconnection between the four components illustrates that digital transformation should be seen as a systemic process, not just a technical process. Thus, a multidisciplinary and collaborative approach is important, both in academic research and in the formulation of MSME development policies that are adaptive to the digital era.

IV. CONCLUSION

Digital transformation has become an urgent need for the sustainability and competitiveness of Micro, Small, and Medium Enterprises (MSMEs), especially after the COVID-19 pandemic. Based on the results of the literature review, it can be seen that attention to the digitalization of MSMEs has increased significantly in recent years, with the main focus on the use of e-commerce, social media, digital payment systems, and cloud-based management software.

Although various forms of technology adoption have been carried out by MSMEs, this transformation still faces a number of serious challenges, including limited digital literacy, lack of technological infrastructure, initial cost constraints, and lack of sustainable mentoring. In addition, this study reveals that the ecosystem supporting the digitalization of MSMEs, including the role of the government, financial institutions, and the private sector, has not been fully optimal and integrated.

Academically, many studies still tend to focus on the technical aspects of digitalization, while managerial and social dimensions such as organizational culture change, internal resistance, and adaptive leadership are still under-researched. In fact, the digital transformation approach should be seen systemically and multidisciplinary.

Therefore, this study recommends the importance of in-depth follow-up research and more inclusive and long-term oriented public policies. Digital transformation in MSMEs must be supported by structured training, equitable access to technology, and synergy between technology, human resources, ecosystems, and business outcomes. The results of this study are expected to be a conceptual foundation for policy makers and researchers in encouraging the process of digitizing MSMEs in a sustainable and comprehensive manner.

REFERENCES
Gulo, R. P. S., Faundri, R. A., Nurhaliza, S., Prayoga, M. L. S. D., IDAYATI, I., Fadly, M., & Ferdinand, A. (2025). The Influence of Digital Economy Transformation to Increase the Productivity and Competitiveness of MSMEs in Indonesia. Journal of Economics and Business, 8(1).
Maghfiroh, F. M., Natalin, S. A., & Efendi, R. (2023). Digital Economy Transformation: Connection Integration of E-Commerce and S-Commerce in an effort to develop a sustainable economy. Proceedings of Islamic Economics, Business, and Philanthropy, 2(1).
Nasar, M., & Salsabila, T. (2024). Utilization of E-Commerce Potential in Increasing Local Business Diversity in South Sulawesi; Digital Transformation Perspective. GIAT: Technology for Society, 3(1).
Nikmah, W., Mukarromah, A., Widyansyah, D., & Anshori, M. I. (2023). The Use of Technology in Human Resources Development. Mutiara: Journal of Research and Scientific Works, 1(5).

Saputri, A. D., Siregar, L. E., Zebua, E. B. D., Nst, H. T., Damanik, D. A. B., Ridwan, P. K., & Robain, W. (2025). The Influence of Marketing Digitalization and the Role of Digital Payment Systems on the Revitalization of MSMEs. Journal of Business Management in the Digital Era, 2(1).

Andriani, W. (2021). THE USE OF SYSTEMATIC METHODS OF LITERATURE REVIEW IN SOCIOLOGICAL RESEARCH. Journal of PTK and Education, 7(2).

Mutho'a, A. Y., Ramadhan, M. F. Z., & Rif'an, M. (2024). Optimization of Digital Application Services Post-Pandemic through Gojek-Tokopedia Organizational Collaboration. Journal of Latest Digital Business Management (JUMBIDTER), 1(3).