

Digital transformation of MSMEs in Indonesia: A systematic literature review

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Abstract

The digital transformation of Micro, Small, and Medium Enterprises (MSMEs) is a crucial driver of economic growth and innovation in Indonesia. This research explores the state of digital transformation among Indonesian MSMEs, focusing on development, digital adoption, and implementation challenges. The method used in this research is a Systematic Literature Review (SLR) with stages: planning, implementation, and reporting. The SLR done in this study utilized a collection of publications published between January 2020 and May 2024. The results of this study show that digital transformation in MSMEs in Indonesia provides significant benefits, such as increased market reach, operational efficiency, and profitability. However, this process faces limited resources, inadequate technical skills, and data security issues. Government support and cooperation with technology providers are essential to overcome these barriers so that MSMEs can optimally utilize digital technology to achieve sustainable growth and higher competitiveness.

Keywords: Digital transformation, MSME, SLR

Abstrak

Transformasi digital Usaha Mikro, Kecil, dan Menengah (UMKM) merupakan pendorong penting bagi pertumbuhan ekonomi dan inovasi di Indonesia. Penelitian ini mengeksplorasi kondisi transformasi digital di kalangan UMKM Indonesia, dengan fokus pada pertumbuhan, adopsi digital, dan tantangan implementasi. Metode yang digunakan dalam penelitian ini adalah Systematic Literature Review (SLR) dengan tahapan perencanaan, implementasi, dan pelaporan. SLR yang dilakukan dalam penelitian ini menggunakan kumpulan publikasi yang diterbitkan antara Januari 2020 dan Mei 2024. Hasil penelitian menunjukkan bahwa transformasi digital pada UMKM di Indonesia memberikan manfaat signifikan, seperti peningkatan jangkauan pasar, efisiensi operasional, dan profitabilitas. Namun, proses ini menghadapi keterbatasan sumber daya, keterampilan teknis yang tidak memadai, dan masalah keamanan data. Dukungan pemerintah dan kerja sama dengan penyedia teknologi sangat penting ditingkatkan untuk mengatasi hambatan-hambatan tersebut, sehingga UMKM dapat memanfaatkan teknologi digital secara optimal untuk mencapai pertumbuhan yang berkelanjutan dan daya saing yang lebih tinggi.

Kata kunci: Tranformasi Digital, MSME, SLR

How to cite: Purnomo, S., Nurmalitasari, N., & Nurchim, N. (2024). Digital transformation of MSMEs in Indonesia: A systematic literature review . *Journal of Management and Digital Business*, 4(2), 301–312. <https://doi.org/10.53088/jmdb.v4i2.1121>

1. Introduction

The digital transformation of MSMEs has become a key catalyst for economic growth and innovation in Indonesia (Ghobakhloo & Iranmanesh, 2021). The business landscape is undergoing significant changes in an era of rapid technological advancements. Adopting digital tools and practices by MSMEs is crucial for



maintaining their competitiveness. Additionally, digital transformation promotes sustainable development (Anatan & Nur, 2023). Therefore, a deep understanding of MSMEs' digitalization is essential to leverage their full potential in the digital economy.

MSMEs are the backbone of the Indonesian economy, contributing 61% of the total national GDP and employing 97% of the total workforce. With a total of 65.4 million business units, MSMEs account for around 99% of all business units in Indonesia and play an important role in supporting the national economy (INDEF, 2024). These enterprises contribute substantially to job creation, economic diversification, and poverty alleviation (Tambunan, 2022). Despite their importance, MSMEs often encounter considerable challenges in leveraging digital technologies, including limited access to capital, inadequate infrastructure, and insufficient digital literacy (Purwanto, Nashar, Jumaryadi, Wibowo, & Mekaniwati, 2022). These barriers hinder the ability of MSMEs to fully integrate digital technologies into their operations, limiting their growth potential.

Digital transformation for MSMEs encompasses a broad spectrum of changes, such as integrating digital technologies into business processes, adopting digital marketing strategies, and utilizing e-commerce platforms. These transformations allow MSMEs to expand market reach, improve operational efficiency, and enhance customer engagement (Kurniawati, Idris, Handayati, & Osman, 2021). However, the path towards digital maturity is fraught with obstacles that require strategic planning and supportive policies. Addressing these challenges is essential for MSMEs to thrive in the digital era.

Recent studies have extensively examined various aspects of digital transformation in MSMEs. A study by Abdi, Suharti, Usmanij, & Ratten, (2022) focused on the digital readiness of Indonesian MSMEs, highlighting significant gaps in infrastructure and digital skills. Similarly, research by Rahayu & Day (2017) discussed the influence of digital technology adoption on the competitive advantage of MSMEs, emphasizing the critical role of external support and training programs. Another study by Wirdiyanti et al., (2023) explored the impact of e-commerce adoption on business performance in Indonesian MSMEs, finding substantial improvements in sales and customer reach. Additionally, Wiliandri, (2020) analyzed the barriers to digital transformation, identifying financial constraints and lack of technological know-how as major impediments. These studies collectively highlight the multifaceted nature of digital transformation and the various factors influencing its success in the MSME sector.

This systematic literature review aims to provide a comprehensive understanding of the current state of digital transformation among MSMEs in Indonesia by focusing on three key areas: growth, digital adoption, and implementation challenges. Digital transformation can drive significant growth for MSMEs by opening new markets, increasing operational efficiency, and improving customer experiences (Hariyanti & Kristanti, 2024). The extent to which MSMEs in Indonesia adopt digital technologies varies widely and is influenced by factors such as technological infrastructure, access to capital, and the digital literacy of business owners and employees (Kurniawati,

Handayati, & Osman, 2021). Understanding these factors is crucial for developing strategies to encourage broader and more effective digital adoption among MSMEs.

2. Research Method

The study focuses on three fundamental components of doing SLR: (1) Planning: This stage is focused on determining the necessity for research and outlining the review procedure. (2) Implementation: During this stage, the plan is executed, and the established protocol is strictly adhered to, including the inclusion and exclusion criteria. (3) reporting: which entails statistical analysis of the chosen papers and presenting the findings. Fig. 2 illustrates the specific information for each level.

Planning

In order to maintain the review's focus, three research questions (RQ) were devised to collect data on the digital transformation of micro, small, and medium enterprises (MSMEs) in Indonesia, as seen in Figure 1.

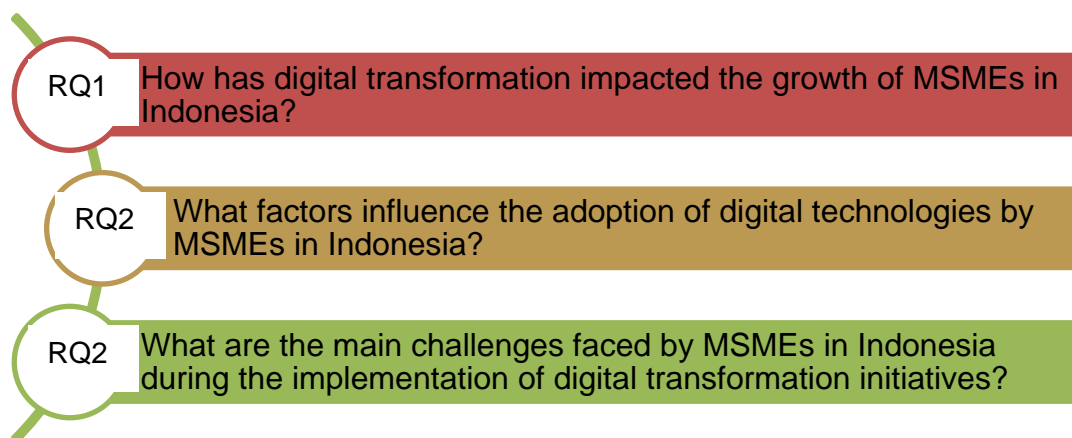


Figure 1: The RQ of this LR

The search method consisted of many stages: choosing a digital library, formulating a search query, doing a preliminary search, improving the search query, and obtaining an initial compilation of primary studies that met the search requirements from the digital library. The search was conducted in many databases, such as Springer, Taylor and Francis, MDPI, Emerald, and Google Scholar, to find articles from journals and conferences included in SCImago Journal Country Rank (SJR) with impact factors.

The search queries used were: *'Digital Transformation' AND 'MSMEs' OR 'Micro Small and Medium Enterprises' OR 'UMKM' AND 'Indonesia'*.

The search covered documents published between January 2020 and May 2024. Document selection criteria included: (1) Research papers that answer the research question; (2) Studies exploring how digital transformation impacted the growth of MSMEs in Indonesia (3) studies exploring factors influencing the adoption of digital technologies by MSMEs in Indonesia (4) the main challenges faced by MSMEs in Indonesia during the implementation of digital transformation initiatives; (5) Open access journal.

Conducting Stage

We performed a search utilising the approach specified in Section 2.1. After selection, each document's content was scrutinized to verify its compliance with the specified selection criteria. Figure 2 illustrates the procedure of performing a methodical examination of the existing literature, known as a systematic review.

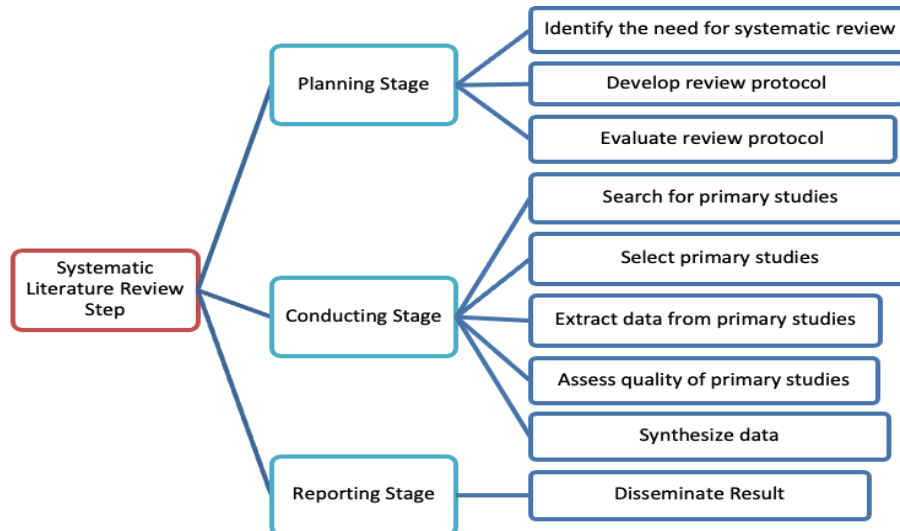


Figure 2: The SLR step

Reporting stage

In the Reporting Stage of this systematic literature review process, the main step is to disseminate the results of the review. This involves compiling a comprehensive and detailed report that includes the methods used, the results obtained, and the analysis and interpretation of the data.

3. Results and Discussion

3.1. Results and Reporting

Selection of Digital Transformation of MSMEs in Indonesia papers based on Springer, Taylor and Francis, MDPI, and Google Scholar databases. There were 31 articles that were analyzed further, with the percentage of database sources shown in Figure 3.

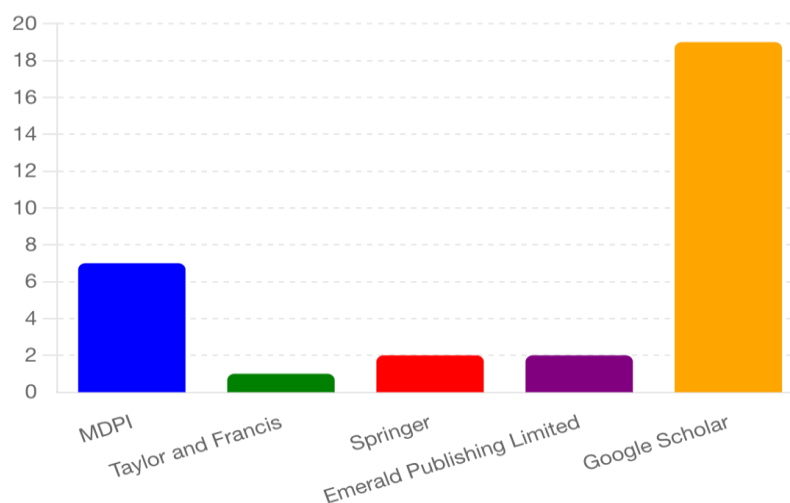


Figure 3. Articles that were analyzed further

How has Digital Transformation Impacted the Growth of MSMEs in Indonesia?

Digital transformation has become an essential aspect of modern business strategy, especially for Indonesia's MSMEs (Anatan & Nur, 2024; Hariyanti & Kristanti, 2024). The application of digital technology promises to increase operational efficiency, expand market reach, and improve business competitiveness (Yusuf et al., 2023). This digitalization has improved MSME business performance, including higher revenue growth and profitability. Studies conducted by Yusuf et al. show that MSMEs that utilize digital technology report better business performance, including higher revenue growth and profitability (Yusuf et al., 2023).

Digital transformation enables MSMEs to significantly expand their market reach (Hariyanti & Kristanti, 2024; Hendrawan, Chatra, Iman, Hidayatullah, & Suprayitno, 2024; Rachmawati, 2024; Yusuf et al., 2023). By using e-commerce platforms and digital marketing strategies, MSMEs can attract customers from various regions, even to international markets. An increased online presence through websites and social media is becoming a strong predictor of business performance, increasing brand visibility and customer engagement. This is critical to the growth of MSMEs, allowing them to attract customers beyond their local region and access international markets (Anatan & Nur, 2024; Hariyanti & Kristanti, 2024; Hadinata, 2023; Sudarsono & Yusuf, 2023; Sutrisno, Susanti, & Murthada, 2024).

However, the adoption of digital technologies also faces various challenges. One of the main challenges is limited resources, including limited funds and technical skills. Many MSMEs struggle to finance the necessary technology infrastructure or train their employees effectively (Anatan & Nur, 2024; Evanita & Fahmi, 2023; Hariyanti & Kristanti, 2024; Kristyanto & Jamil, 2023). In addition, the lack of digital literacy among MSME owners and employees is also a major obstacle to digital transformation (Anatan & Nur, 2024). Lack of awareness and skills can hinder the adoption and optimal utilisation of digital tools and platforms (Anatan & Nur, 2024; Hariyanti & Kristanti, 2024).

In addition, concerns about data security and privacy are significant challenges for MSMEs. Fear of cyber threats and data leaks can deter businesses from fully embracing digital solutions (Anatan & Nur, 2022; Farayola, Olorunfemi, & Shoetan, 2024). Inadequate digital infrastructure, especially in remote and rural areas, limits the ability of MSMEs to adopt and utilize digital technologies. Issues such as unstable internet connectivity and lack of access to modern technology tools are standard (Yusuf et al., 2023).

However, digital transformation also opens up great opportunities for MSMEs to interact directly with customers, gather feedback, and personalize their marketing strategies (Hariyanti & Kristanti, 2024; Joel, Oyewole, Odunaiya, & Soyombo, 2024). This increased engagement can lead to higher customer satisfaction and loyalty (Army et al., 2024). In addition, digital transformation enables business model innovation, such as switching to e-commerce or offering digital services (Joel et al., 2024).

Government initiatives and support from stakeholders also play an important role in facilitating digital transformation (Li & Xu, 2024).

To overcome the challenges and capitalize on the opportunities of digital transformation, MSMEs can implement various strategies (Hariyanti & Kristanti, 2024; Hendrawan et al., 2024). The development of a comprehensive digital transformation plan, including clear objectives, resource allocation, and a step-by-step implementation strategy, is essential (Awonuga et al., 2024). Investment in training and digital skills development for employees is also essential. Collaboration with reliable technology providers can help MSMEs access affordable and customized digital solutions (Hariyanti & Kristanti, 2024; Hendrawan et al., 2024; Rachmawati, 2024; Yusuf et al., 2023). As such, MSMEs can utilize the full potential of digital transformation to achieve sustainable growth and competitiveness.

What Factors Influence the Adoption of Digital Technologies by MSMEs in Indonesia?

The integration of digital technologies by MSMEs in Indonesia is essential for boosting their competitiveness, efficiency, and innovation. As the backbone of the Indonesian economy, MSMEs play a critical role in national development and GDP contribution (Aliyah & Wahyuni, 2023; Veit & Thatcher, 2023). The digital era opens up new opportunities for MSMEs to utilize e-commerce and digital marketing to access broader markets and enhance operational efficiency (Zhang, Xu, & Ma, 2022). However, many MSMEs encounter obstacles such as limited digital skills, a lack of understanding of digital marketing benefits, and inadequate technological infrastructure (Ramadhan, Wahyuningtiyas, & Arsyianto, 2024).

Research by Aliyah & Wahyuni indicates that entrepreneurial orientation, organizational readiness, and effective knowledge management significantly enhance MSME performance when paired with e-commerce adoption (Aliyah & Wahyuni, 2023). Digital marketing, in particular, is a crucial factor in boosting sales, brand awareness, and consumer trust, which ultimately leads to improved business performance (Hien & Nhu, 2022). Government support is also crucial in this transition, as it can provide the necessary infrastructure and training to help MSMEs adopt digital platforms (Samsinar, Sinaga, Afriany, & Frangky, 2024).

In regions like West Java, digital economic variables and capabilities have been shown to positively impact value creation and business performance, underscoring the importance of digital skills and management (Hermina, 2024). Additionally, the use of digital accounting and financial management tools can further enhance MSME efficiency by improving financial reporting and control (Enterprises, 2024; Hermina, 2024). Innovative technologies, such as Augmented Reality (AR), are being explored to promote tourism and culinary MSMEs, highlighting the potential for digital innovations to drive growth in various sectors (Situmorang & Kustandi, 2024).

Despite these advantages, significant barriers such as limited internet access and digital literacy need to be addressed to fully leverage the potential of digital technologies for MSMEs (Efendi, Maulina, Kostini, & Bandung, 2024). In conclusion,

adopting digital technologies is vital for MSMEs in Indonesia to stay competitive, efficient, and innovative in the fast-paced digital economy

What are the Main Challenges Faced by MSMEs in Indonesia During the Implementation of Digital Transformation Initiatives?

The implementation of digital transformation initiatives among MSMEs in Indonesia faces significant challenges, primarily due to a lack of digital literacy and understanding of digital technologies among owners and employees. This gap in digital knowledge hampers their ability to effectively utilize digital tools and platforms, which is crucial for the success of digital transformation (Cahyadi, Suryantari, & Murti, 2023; Hariyanti & Kristanti, 2024b). Inadequate access to technological infrastructure, particularly in rural areas, further exacerbates the situation. Poor internet connectivity limits the effectiveness of digital payment systems like QRIS, creating substantial barriers for MSMEs in these regions (Pratiwi, 2022).

Financial constraints also play a crucial role, as many MSMEs struggle with limited financial resources necessary to invest in required digital technologies and training programs (Cahyadi et al., 2023; Hendrawan et al., 2024). Moreover, many organizations face considerable opposition to change, as they have firmly rooted old business procedures that make the adoption of digital approaches difficult (Kristyanto & Jamil, 2023). Organizational weaknesses, such as suboptimal management strategies and low human resource capacity, further compound the difficulties in adopting digital transformation (Zahro, Fiati, & Kusumodestoni, 2024).

Furthermore, the lack of comprehensive guidance and support from relevant authorities and stakeholders contributes to the slow pace of digital adoption among MSMEs (Zahro et al., 2024; Wahyono, 2024). Concerns about data security and privacy also deter some MSMEs from fully embracing digital technologies due to fears of potential risks associated with cyber. Despite these challenges, digital transformation presents significant opportunities for MSMEs, including improved operational efficiency, wider market access, and enhanced decision-making capabilities through data analysis (Hariyanti & Kristanti, 2024).

To leverage these opportunities, MSMEs need to develop strategic technology management plans aligned with their business objectives, select appropriate systems, and invest in employee training and development (Hariyanti & Kristanti, 2024). The role of digital platforms in maintaining market presence during crises, such as the COVID-19 pandemic, underscores the importance of digitalization for business resilience and growth. Training and mentoring programs aimed at enhancing digital marketing skills have shown positive results, indicating that with adequate support, MSMEs can adapt to modern marketing methods and increase their sales value (Bahlawan et al., 2023). Overall, addressing these multifaceted challenges requires a concerted effort from all stakeholders, including policymakers, financial institutions, and the MSMEs themselves, to create an ecosystem that supports digital transformation (Hariyanti & Kristanti, 2024; Wahyono, 2024). By overcoming these obstacles, MSMEs in Indonesia

can fully harness the potential of digital technologies to drive sustainable growth and competitiveness in the global market.

4.2. Discussion

This research aims to provide a comprehensive understanding of the current state of digital transformation among MSMEs in Indonesia by focusing on three key areas: growth, digital adoption, and implementation challenges. Digital transformation has enabled MSMEs to expand market reach, improve operational efficiency, and increase profitability. By utilizing e-commerce platforms and digital marketing strategies, these businesses can attract a broader customer base, including international markets, thereby increasing their revenue potential. The study shows that an increased online presence through websites and social media is strongly correlated with improved business performance, brand visibility, and customer engagement. Such digital engagement attracts new customers and increases customer satisfaction and loyalty through personalized marketing strategies and direct interaction.

However, the journey towards digital transformation is fraught with challenges. Limited resources, such as funding and inadequate technical skills, are significant barriers to MSMEs' adoption of digital technology. Many MSME owners and employees lack the digital literacy required to effectively utilize digital tools and platforms, which hinders optimal adoption. In addition, concerns about data security and privacy, coupled with inadequate digital infrastructure in remote areas, further complicate the digitization process. Despite these barriers, the potential benefits of digital transformation are immense. To overcome these challenges, the study suggests developing a comprehensive digital transformation plan, investing in employee training and digital skills development, and collaborating with reliable technology providers. Government support is also crucial in providing the necessary infrastructure and training to facilitate the digital transition. By addressing these challenges, MSMEs in Indonesia can utilize the full potential of digital technology to achieve sustainable growth and competitiveness in the digital economy.

This study's findings align with several previous studies on the impact of digital transformation on MSMEs. For example, Yusuf et al. (2023) stated that adopting digital technology significantly contributes to increased revenue growth and profitability of MSMEs. This finding supports the argument that an increased online presence and digital marketing strategies can improve overall business performance. In addition, research by Hariyanti & Kristanti, (2024) and Rachmawati, (2024) confirmed that market expansion through e-commerce platforms allows MSMEs to attract customers from different regions, even international markets, which is consistent with the findings in this study.

However, this study also reveals challenges similar to those found in previous studies. For example, Anatan & Nur, (2023) identified resource limitations, such as funding and technical skills, as key barriers to MSMEs' adoption of digital technology. In addition, studies by Evanita & Fahmi, (2023) and Kristyanto & Jamil, (2023) noted that the lack of digital literacy among MSME owners and employees is a significant

barrier to digital transformation. Data security and privacy concerns were also mentioned in a previous study by Farayola, et al. (2024).

Overall, this study's findings are consistent with previous research, emphasizing the importance of government support and collaboration with technology providers to overcome challenges and harness the potential of digital transformation. With a comprehensive digital transformation plan and investment in digital skills training, MSMEs in Indonesia can achieve sustainable growth and higher competitiveness in the rapidly evolving digital economy.

5. Conclusion

This research provides a comprehensive understanding of digital transformation among MSMEs in Indonesia, highlighting three key areas: growth, digital adoption, and implementation challenges. Digital transformation delivers significant benefits, such as increased market reach, operational efficiency, and profitability. However, the process also faces limited resources, insufficient technical skills, and data security issues. This study's results align with previous findings, emphasizing the importance of government support and collaboration with technology providers to overcome these barriers. By developing a comprehensive digital transformation plan and investing in digital skills training, MSMEs in Indonesia can harness the full potential of digital technology to achieve sustainable growth and higher competitiveness in the rapidly evolving digital economy.

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