

Digital Transformation in MSMEs: A PRISMA 2020 Based Systematic Literature Review of Adoption Drivers, Barriers, and Business Performance Implications in Emerging Economies

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Article Info

Article history:

Received Maret, 2026

Revised Maret, 2026

Accepted Maret, 2026

Keywords:

Digital Transformation
MSMEs

Developing Countries
Technology Adoption
Business Performance

ABSTRACT

Digital transformation has become a crucial strategy for improving the competitiveness and sustainability of Micro, Small, and Medium Enterprises (MSMEs), particularly in developing countries where small businesses play a dominant role in economic growth and employment generation. This study aims to systematically review the existing literature on digital transformation in MSMEs, with a focus on identifying the key drivers, barriers, and business performance implications associated with digital adoption. The study employs a Systematic Literature Review (SLR) approach based on the PRISMA 2020 framework to ensure a transparent and rigorous process in selecting and analyzing relevant studies. A total of 18 academic articles obtained from the Google Scholar database were analyzed to synthesize current research trends and findings related to digital transformation in MSMEs in developing countries. The results reveal that the primary drivers of digital transformation include technological advancement, increasing market competition, government support programs, and organizational readiness. At the same time, several barriers hinder the digitalization process among MSMEs, including limited financial resources, lack of digital skills, inadequate technological infrastructure, and resistance to organizational change. Despite these challenges, the reviewed studies consistently indicate that digital transformation contributes positively to MSME performance by improving operational efficiency, expanding market access, enhancing customer engagement, and strengthening business resilience in uncertain economic environments. The findings of this study highlight the importance of supportive policies, digital literacy development, and improved technological infrastructure to accelerate digital adoption among MSMEs in developing countries. This study contributes to the existing literature by providing a comprehensive synthesis of research findings and offering insights for policymakers, researchers, and practitioners seeking to promote sustainable digital transformation in small business sectors.

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1. INTRODUCTION

The rapid advancement of digital technologies has fundamentally transformed the way businesses operate, compete, and deliver value to customers. Digital transformation refers to the integration of digital technologies into organizational processes, business models, and market interactions in order to improve efficiency, innovation, and competitiveness. In the contemporary global economy, digital transformation has become a strategic imperative for firms seeking to survive and grow in increasingly dynamic and technology-driven markets [1], [2]. This transformation is particularly significant for Micro, Small, and Medium Enterprises (MSMEs), which constitute the backbone of many national economies, especially in developing countries [3], [4]. MSMEs play a critical role in employment generation, income distribution, and economic development; however, they often face structural limitations that hinder their ability to compete with larger firms, particularly in terms of technological capability, access to capital, and market reach.

Recent technological developments such as e-commerce platforms, cloud computing, mobile applications, digital payment systems, and social media marketing have created new opportunities for MSMEs to expand their business operations. Through the adoption of digital technologies, MSMEs can improve operational efficiency, reduce transaction costs, and access wider markets beyond geographical boundaries [5], [6]. Digital platforms allow small businesses to reach customers more effectively, improve marketing strategies, and enhance customer engagement. Moreover, the increasing availability of internet infrastructure and the rapid diffusion of mobile technologies in developing countries have further accelerated the adoption of digital tools among small enterprises, enabling them to participate more actively in the digital economy.

Despite these opportunities, the process of digital transformation among MSMEs is not without challenges. Many small businesses in developing countries face significant barriers that limit their ability to

adopt and implement digital technologies effectively. These challenges include limited financial resources, lack of digital literacy among entrepreneurs and employees, inadequate technological infrastructure, cybersecurity concerns, and resistance to organizational change. Furthermore, institutional and regulatory environments in some developing economies may not fully support digital innovation, creating additional obstacles for MSMEs attempting to digitalize their operations. As a result, although digital transformation holds significant potential for improving MSME performance, its adoption remains uneven across industries and regions.

The importance of digital transformation became even more evident during the COVID-19 pandemic, which forced many businesses to rapidly adapt to digital environments in order to sustain operations. Mobility restrictions and declining face-to-face interactions with customers accelerated the shift toward online sales channels, digital marketing strategies, and remote business management systems [6], [7]. MSMEs that had already adopted digital technologies were generally more resilient and better able to maintain business continuity during this period of economic disruption. Conversely, enterprises that lacked digital capabilities experienced greater vulnerability, highlighting the strategic importance of digital transformation in strengthening business resilience.

Given the growing relevance of digital transformation in MSME development, a substantial body of academic research has emerged examining the factors that influence digital adoption among small businesses. Previous studies have explored various determinants of digital transformation, including technological readiness, organizational capabilities, environmental pressures, and the role of government support. Other studies have focused on the outcomes of digital transformation, particularly its impact on business performance, productivity, innovation capability, and market expansion. However, the existing literature remains fragmented, as studies often focus on specific sectors, countries, or methodological

approaches, making it difficult to obtain a comprehensive understanding of digital transformation in MSMEs within developing country contexts.

Therefore, this study aims to systematically review the existing literature on digital transformation in MSMEs in developing countries by applying the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. This systematic literature review analyzes 18 selected academic articles obtained from the Google Scholar database in order to identify key drivers of digital adoption, major barriers to digital transformation, and the implications of digitalization for MSME business performance. By synthesizing current research findings, this study seeks to provide a clearer understanding of digital transformation dynamics in MSMEs and to offer insights that can support policymakers, researchers, and practitioners in promoting sustainable digitalization among small businesses in developing economies.

2. LITERATURE REVIEW

2.1 Digital Transformation in MSMEs

Digital transformation has become one of the most important trends shaping modern business environments, referring to the integration of digital technologies into organizational activities such as operations, business models, communication processes, and customer engagement strategies to enhance efficiency and competitiveness. Beyond the adoption of new technologies, digital transformation also requires organizational change, cultural adaptation, and strategic alignment to fully utilize technological capabilities [3], [4], [8]. For Micro, Small, and Medium Enterprises (MSMEs), digital transformation is essential for improving business agility, innovation capacity, and long-term competitiveness in increasingly digitalized markets. Although MSMEs often face limitations in financial resources, technological infrastructure, and managerial expertise compared to larger firms, digital technologies provide opportunities to overcome traditional barriers related to scale, geography, and market access. Tools such as e-

commerce platforms, cloud computing, social media marketing, and digital payment systems enable MSMEs to streamline operations, reduce costs, and expand their market reach [6]. In developing countries, where MSMEs dominate economic structures and contribute significantly to employment and economic growth, the rapid expansion of internet access, digital financial services, and online marketplaces has accelerated MSME participation in the digital economy, prompting governments and international organizations to promote digital adoption in order to strengthen economic resilience and inclusive growth.

2.2 Digital Transformation and MSME Business Performance

Digital transformation has been widely associated with improved business performance, particularly for MSMEs operating in increasingly competitive markets. The adoption of digital technologies enhances operational efficiency by automating processes, improving supply chain coordination, and reducing transaction costs, while digital platforms enable businesses to manage inventory, financial records, and customer relationships more effectively [9], [10]. In addition, digital transformation expands market access through online marketplaces and social media, allowing MSMEs to reach broader customer segments and increase sales opportunities. Digital technologies also improve customer engagement and service quality by enabling faster communication and more responsive customer interactions. Furthermore, digital capabilities strengthen the resilience and adaptability of MSMEs in uncertain economic conditions, as demonstrated during the COVID-19 pandemic when many businesses continued operating through digital channels [11], [12]. Overall, the literature indicates that digital transformation plays an important role in enhancing MSME competitiveness and sustainability, although its impact depends on the level of technological integration, managerial capabilities, and the broader institutional environment.

3. METHODS

3.1 Research Design

This study employs a Systematic Literature Review (SLR) approach to synthesize and analyze existing academic studies related to digital transformation in Micro, Small, and Medium Enterprises (MSMEs) in developing countries. A systematic literature review provides a structured and transparent method for identifying, evaluating, and interpreting relevant research findings within a specific topic area, thereby reducing potential bias compared to traditional narrative reviews [13]. To ensure methodological rigor, this study adopts the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework as the primary guideline for identifying, screening, and selecting relevant academic publications. The PRISMA framework offers a standardized procedure that documents each stage of the literature selection process, including identification, screening, eligibility assessment, and final inclusion of studies. By applying this framework, the study aims to provide a comprehensive and reliable synthesis of existing research on the drivers, barriers, and business performance implications of digital transformation among MSMEs in developing countries.

3.2 Data Source and Search Strategy

The literature included in this review was obtained from the Google Scholar

database, which provides broad coverage of academic publications such as peer-reviewed journal articles, conference papers, and scholarly reports across multiple disciplines. Google Scholar was selected due to its accessibility and its ability to index multidisciplinary research relevant to digital transformation, entrepreneurship, and small business management. The search process was conducted using several keyword combinations related to the research topic, including digital transformation, MSMEs or SMEs, digital adoption, small business digitalization, business performance, developing countries, and digital technology adoption. These keywords were combined using Boolean operators such as AND and OR to expand the search scope while maintaining relevance, for example “digital transformation AND MSMEs AND developing countries,” “digital technology adoption AND small businesses AND performance,” and “digitalization AND SMEs AND barriers OR drivers.” The search focused on articles published in recent years to capture contemporary developments in digital transformation, particularly studies examining the adoption of digital technologies among small businesses in developing economies.

3.3 Inclusion and Exclusion Criteria

To ensure the relevance and quality of the literature included in this review, several inclusion and exclusion criteria were established.

Table 1. Criteria Research

| Category | Criteria |
|--------------------|--|
| Inclusion Criteria | Articles that discuss digital transformation or digital technology adoption in MSMEs or SMEs |
| | Studies that analyze drivers, barriers, or outcomes of digital transformation |
| | Research conducted in the context of developing countries |
| | Articles published in peer-reviewed journals or reputable academic sources |
| | Publications written in English |
| Exclusion Criteria | Studies that focus exclusively on large corporations or multinational enterprises |
| | Articles that discuss digital technologies without linking them to MSME performance or adoption behavior |
| | Publications that are editorials, opinion pieces, or non-academic documents |
| | Duplicate records identified during the screening process |

Through the application of these criteria, the study ensured that only relevant and high-quality publications were included in the final analysis.

3.4 Literature Screening and Selection Process

The literature screening process followed the four stages of the PRISMA 2020 framework, namely identification, screening, eligibility, and inclusion. In the identification stage, the initial search in the Google Scholar database generated a large number of publications related to digital transformation and MSMEs, and the titles and abstracts of these studies were collected for preliminary

evaluation. During the screening stage, duplicate records and studies that were not relevant to the research topic were removed by reviewing the titles and abstracts to determine whether they addressed digital transformation within MSME contexts. In the eligibility stage, the full texts of the remaining articles were examined to assess their suitability for inclusion in the review, and studies that did not directly analyze digital adoption drivers, barriers, or performance implications for MSMEs were excluded. Finally, in the inclusion stage, a total of 18 articles met all the selection criteria and were included in the final analysis of this study.

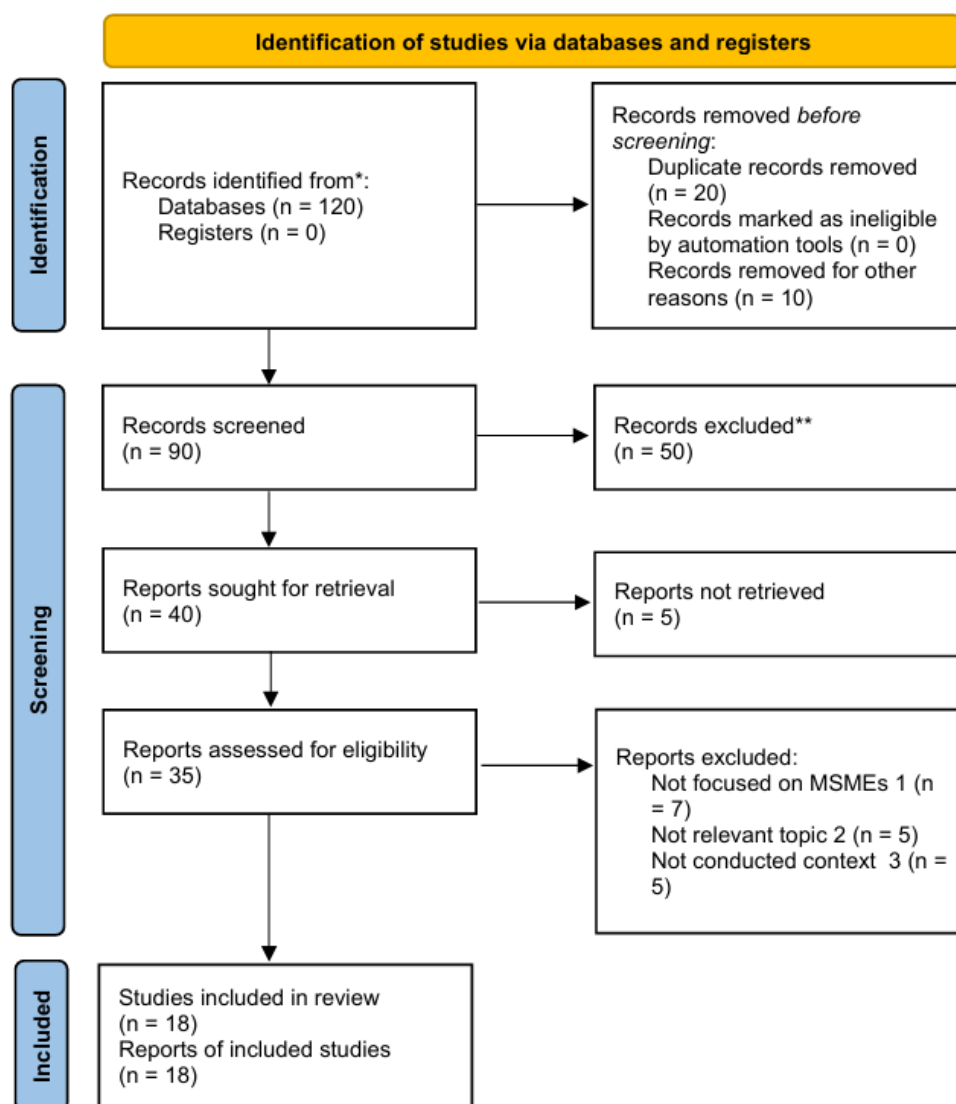


Figure 1. PRISMA Diagram

3.5 Data Extraction and Analysis

After selecting the relevant articles, the next step involved systematic data extraction from each study. The extracted information included key elements such as the author(s) and year of publication, research objectives, country or regional context, research methodology, key findings related to digital transformation adoption, identified drivers and barriers of digital transformation, and the reported impacts on MSME business performance. The extracted data were then analyzed using a thematic analysis approach, which focuses on identifying recurring themes, patterns, and relationships across the selected studies. In this research, the thematic analysis concentrated on three main categories: the drivers of digital transformation adoption in MSMEs, the barriers or challenges faced by MSMEs in adopting digital technologies, and the implications of digital transformation for MSME business performance. By organizing the findings into these thematic categories, this study provides a structured synthesis of current academic knowledge related to digital transformation in MSMEs in developing countries.

4. RESULT AND DISCUSSION

4.1 Drivers of Digital Transformation Adoption in MSMEs

The reviewed literature consistently indicates that the adoption of digital transformation among MSMEs is influenced by a combination of technological, organizational, and environmental factors that encourage small businesses to integrate digital technologies into their operations to improve efficiency and competitiveness [14], [15]. One of the most prominent drivers is the advancement and accessibility of digital technologies. The rapid development of platforms such as e-commerce marketplaces, digital payment systems, social media marketing tools, and cloud-based applications has significantly lowered the barriers to technology adoption for MSMEs [9], [16]. Many of these digital tools are designed to be user-friendly and relatively affordable, allowing small businesses with limited technological capabilities to incorporate them into daily operations. In addition, the

widespread availability of mobile-based business applications and the increasing penetration of smartphones in developing countries have further accelerated digital adoption among MSMEs.

Market competition and changing consumer behavior also serve as important drivers of digital transformation. As consumers increasingly rely on digital platforms to search for information, purchase products, and interact with businesses [15], [17], MSMEs are encouraged to adopt digital technologies in order to remain competitive. Digital platforms enable small businesses to expand their market reach beyond local geographic boundaries and access wider customer segments. In many cases, MSMEs adopt digital solutions as a strategic response to competitive pressure from other businesses that have already implemented digital tools. This shift toward digital interaction has made online presence, digital marketing, and electronic payment systems increasingly essential for maintaining business relevance in modern markets.

Government support and organizational readiness further contribute to the successful adoption of digital transformation among MSMEs. Several studies highlight the role of government policies and programs in promoting digital literacy, improving technological infrastructure, and providing financial assistance for technology adoption [18], [19]. Initiatives that support digital entrepreneurship, training programs, and innovation ecosystems can significantly increase the willingness of MSMEs to adopt digital technologies. At the organizational level, managerial commitment to innovation, employee digital competence, and openness to technological experimentation are also critical factors. Strong leadership from business owners and managers often determines whether digital transformation initiatives can be effectively implemented [20]. Overall, the findings suggest that digital transformation in MSMEs is driven by the dynamic interaction of technological opportunities, market pressures, institutional support, and internal organizational capabilities.

4.2 Barriers to Digital Transformation in MSMEs

Despite the growing recognition of the benefits of digital transformation, the reviewed studies highlight several challenges that hinder the adoption of digital technologies among MSMEs in developing countries. One of the most frequently reported barriers is financial constraint, as many MSMEs operate with limited capital and struggle to allocate sufficient resources for digital infrastructure, software systems, and employee training [21], [22]. Although some digital tools are relatively affordable, the overall cost of implementing comprehensive digital solutions can still be substantial for small businesses with restricted budgets.

Another major challenge is the lack of digital skills and technological knowledge among MSME owners and employees. Successful digital transformation requires competencies in areas such as digital marketing, data management, cybersecurity, and online customer engagement [23]. However, in many developing countries, MSME actors often have limited access to digital education and training opportunities, which reduces their confidence and capability in adopting new technologies. In addition, technological infrastructure limitations—such as unstable internet connectivity, high digital service costs, and inadequate technological facilities—can further restrict MSMEs from effectively utilizing digital platforms, particularly in rural or less-developed regions.

Organizational resistance to change also represents an important barrier to digital transformation. Some MSME owners continue to rely on traditional business practices and may hesitate to adopt new technologies due to concerns about operational risks, technological complexity, or potential disruptions to existing business processes [24], [25]. Furthermore, cybersecurity and data privacy concerns are emerging issues that discourage digital adoption, as many MSMEs lack the resources and expertise required to implement effective data protection measures. Overall, these barriers demonstrate that digital transformation in MSMEs involves not only technological challenges but also financial,

human resource, and institutional issues that require coordinated support from governments, educational institutions, and industry stakeholders.

4.3 Implications of Digital Transformation for MSME Business Performance

The reviewed studies generally report a positive relationship between digital transformation and various dimensions of MSME business performance. The adoption of digital technologies enables small businesses to enhance operational efficiency, expand market access, and strengthen customer engagement. Digital tools allow MSMEs to automate administrative processes, manage inventory more efficiently, monitor financial transactions, and improve supply chain coordination [9], [18]. These improvements contribute to reduced operational costs and increased productivity, while digital accounting systems and business management applications also support more accurate financial management and better strategic decision-making.

Another important outcome of digital transformation is the expansion of market reach. Digital platforms such as e-commerce marketplaces and social media enable MSMEs to access customers beyond their local geographic areas, thereby increasing market exposure and creating new revenue opportunities. Through online marketing strategies, businesses can promote their products more effectively and interact directly with customers in real time. In addition, digital technologies facilitate stronger customer engagement by enabling faster communication, better feedback collection, and more personalized services, which can ultimately strengthen customer relationships and improve brand loyalty [24], [25].

Furthermore, digital transformation enhances the resilience and adaptability of MSMEs in uncertain economic environments. Businesses that integrate digital technologies into their operations are generally better prepared to respond to market disruptions and shifts in consumer behavior. This was particularly evident during the COVID-19 pandemic, when many MSMEs with digital

capabilities were able to maintain operations through online sales channels and digital transactions. However, the literature also emphasizes that the benefits of digital transformation depend on the level of digital maturity and the effectiveness of technology integration. Simply adopting digital tools is not sufficient; MSMEs must also develop complementary capabilities such as digital strategies, employee training, and organizational learning in order to fully realize improvements in business performance.

4.4 Discussion

The findings of this systematic literature review confirm that digital transformation plays a crucial role in improving the competitiveness and sustainability of MSMEs in developing countries. The adoption of digital technologies enables small businesses to overcome traditional constraints related to limited resources and geographic boundaries. By utilizing digital platforms, MSMEs can access wider markets, improve operational efficiency, and strengthen customer engagement, which ultimately contributes to enhanced business performance and long-term competitiveness.

However, the results also indicate that digital transformation is a complex process that requires more than the simple adoption of technology. Factors such as financial capacity, digital literacy, organizational culture, and supportive institutional environments significantly influence the success of digital transformation initiatives. Without adequate support systems, many MSMEs may struggle to fully implement digital technologies despite recognizing their potential advantages. Therefore, policymakers and development agencies play an important role in creating an enabling environment by improving digital infrastructure, providing financial incentives for technology adoption, offering digital training programs, and fostering collaboration between businesses, academic institutions, and technology providers.

Furthermore, future research should explore how digital transformation strategies can be tailored to the specific characteristics of MSMEs across different sectors and regional

contexts. A deeper understanding of contextual factors influencing digital adoption will help policymakers and practitioners design more effective support programs that promote sustainable digital transformation. Overall, this study highlights that digital transformation represents both an opportunity and a challenge for MSMEs in developing economies, and when supported by appropriate policies, infrastructure, and organizational capabilities, it can significantly enhance business resilience and contribute to broader economic development.

5. CONCLUSION

This study provides a systematic synthesis of academic research on digital transformation in MSMEs in developing countries by analyzing 18 selected studies using the PRISMA 2020 framework. The findings indicate that digital transformation has become an essential strategy for MSMEs to enhance competitiveness, improve operational efficiency, and expand market reach in the digital economy. Several key drivers encourage MSMEs to adopt digital technologies, including the rapid development of digital platforms, increasing market competition, supportive government policies, and growing consumer demand for digital services. These factors create opportunities for MSMEs to integrate digital tools such as e-commerce platforms, digital payment systems, and social media marketing into their business operations.

However, the study also highlights several barriers that continue to hinder digital transformation among MSMEs in developing countries, including financial constraints, limited digital literacy, inadequate technological infrastructure, and organizational resistance to change. These challenges suggest that digital transformation is not solely a technological issue but also involves managerial and institutional factors that require coordinated support systems. Despite these obstacles, the literature consistently shows that successful digital transformation can significantly improve MSME performance by increasing productivity, expanding market access, strengthening customer engagement, and

enhancing organizational resilience. Therefore, creating a supportive digital ecosystem through improved infrastructure, digital training programs, and financial incentives is

essential to promote sustainable digital adoption and strengthen the competitiveness of MSMEs in developing economies.

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