

The Role of Digital Innovation in Increasing the Competitiveness of Micro, Small, and Medium Enterprises (MSMEs)

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ABSTRACT

Keywords:

Digital innovation;
MSMEs; competitiveness;
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The development of information technology encourages business actors to undertake digital transformation to enhance competitiveness, including for Micro, Small, and Medium Enterprises (MSMEs). However, the reality is that most MSMEs in Indonesia still face obstacles in adopting digital innovations, primarily due to a lack of technical knowledge, limited access to infrastructure, and inadequate training. This research aims to explore the role of digital innovation in increasing the competitiveness of MSMEs and identify challenges and opportunities arising from the digitalization process. This study employs a qualitative approach, utilizing a case study method, with 15 MSMEs in the Greater Jakarta area. Data collection techniques are carried out through in-depth interviews, direct observation, and documentation. The study's results show that the use of social media, e-commerce platforms, and digital management systems can enhance market reach, operational efficiency, and customer relationships. However, the implementation process still faces significant obstacles, including a lack of technical training and digital gaps among business actors. This study concludes that the digitalization of MSMEs must be balanced with policy support, training, and infrastructure improvements to ensure the sustainable and comprehensive adoption of digital technology across all sectors of Indonesian MSMEs.

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1. INTRODUCTION

Globalization and the development of information technology have changed the world economic landscape. Digital innovation is an essential pillar in various sectors, including micro, small, and medium enterprises (MSMEs) (Godwin et al., 2024);(Gustomo et al., 2022). Digital transformation not only drives economic growth but also increases the competitiveness of business actors in the global market. According to a report from the World Economic Forum, more than

70% of companies worldwide state that the adoption of digital technology is a key factor in improving operational efficiency and competitiveness (Shee et al., 2023). However, despite the great potential of digital innovation, many MSMEs in developing countries, including Indonesia, still face challenges in optimizing the use of digital technology. (Suharto, 2025)(Yulianti et al., 2022).

In Indonesia, MSMEs play a crucial role in the economy, accounting for 61% of the Gross Domestic Product (GDP) and employing more than 97% of the workforce. However, most MSMEs still employ traditional business methods and do not leverage digital technology. (Utami et al., 2024). Data from the Ministry of Cooperatives and SMEs shows that only about 10% of MSMEs have been integrated into digital platforms. (Awa et al., 2024). Factors such as limited access to technology, a lack of understanding of digitalization, and a shortage of competent human resources in the technology field are the primary obstacles for MSMEs to transform digitally. (Astuti & Nasution, 2014).

The development of culinary SMEs has become very important, especially in today's digital era, where technology has become a major driver in business growth and sustainability. (Astuti & Nasution, 2014). In Sampang City, the role of innovation and business networks is a key factor that affects the progress of culinary SMEs amid increasingly fierce competition. The Role of Innovation in the Development of Culinary MSMEs: Innovation has a vital role in increasing the competitiveness of culinary SMEs (Lestari & Muttaqin, 2023). Through the use of digital technology, culinary SMEs can enhance operational efficiency, develop unique products that appeal to consumers, and expand their market share through online platforms. (Endayani & Mukhlis, 2024).

Several studies have identified the importance of digitalization in the development of MSMEs. (Setyaningsih et al., 2024) "Digital Innovation and Small and Medium-Sized Enterprises: Drivers and Challenges". This study identifies the primary factors driving the adoption of digital innovation among MSMEs in Europe. The study's results show that digital innovations, including the use of cloud-based software, e-commerce systems, and digital marketing, can enhance the productivity and operational efficiency of MSMEs. However, the study also notes that many MSMEs face constraints in terms of costs and technical skills that hinder their ability to implement digital technology effectively. Therefore, this study emphasizes the importance of training and support from the government and private institutions.

(Haholongan et al., 2024) "The Utilization of E-commerce in the Marketing of MSME Products in Indonesia." This research focuses on the use of e-commerce platforms by MSMEs in Indonesia. The main findings of the study are that the use of e-commerce enables MSMEs to expand their market reach, increase product visibility, and expedite transactions. Despite this, significant challenges remain, including a lack of understanding of digital platform management and the limitations of technology infrastructure in remote areas. This study suggests that MSMEs should be given greater access to and training on the use of technology to enhance their efficiency and competitiveness.

This research is particularly relevant, considering the significant role of MSMEs in the Indonesian economy and the major challenges they face in adapting to technological advances. The digitalization of MSMEs in Indonesia requires serious attention, especially with the great potential that has not been fully utilized. Digital innovation can be the key to enhancing operational efficiency, expanding market reach, and bolstering the competitiveness of MSMEs. Therefore, understanding the role of digital innovation in the context of Indonesian MSMEs is an urgency that needs to be explored further.

This research makes a new contribution by focusing on the influence of digital innovation on increasing the competitiveness of Indonesian MSMEs, particularly in the context of post-COVID-19 pandemic social and economic changes. While much of the previous research has focused on digital technology in general, this study provides a more in-depth exploration of the specific impact of digital technologies, such as e-commerce, social media, and digital management systems, on the performance of MSMEs in Indonesia. The purpose of this study is to investigate how digital innovation can enhance the competitiveness of MSMEs in Indonesia.

The benefits of this research provide policymakers and MSME actors with insight into formulating more effective digitalization strategies. Additionally, this research can give

recommendations to educational and training institutions on developing digital skills for MSMEs. For academics, this research will contribute to the existing literature on the digitalization of MSMEs in developing countries.

2. METHOD

This study uses a qualitative approach with a case study design. The qualitative research design was chosen because it enables researchers to gain an in-depth understanding of the role of digital innovation in enhancing the competitiveness of MSMEs, with a specific focus on the Indonesian context. This research aims to explore the views, experiences, and challenges faced by MSME actors in adopting digital technology and its impact on their competitiveness. With a case study approach, researchers can analyze the phenomenon holistically through in-depth interviews and direct observation of MSMEs that have been digitized.

This research was conducted in several MSMEs located in the Greater Jakarta area (Jakarta, Bogor, Depok, Tangerang, and Bekasi), Indonesia. This location was chosen because it has a large and representative concentration of MSMEs that is suitable for this research. The researcher selected MSMEs from various sectors, including culinary, handicrafts, and services, that have begun to adopt digital innovations in their operations, such as e-commerce, social media, and digital management systems. The research subjects comprise MSME managers and employees who are directly involved in decision-making related to the use of digital technology. The total number of subjects involved was approximately 10-15 MSMEs, with the number of interview participants ranging from 30 to 45 people, including business owners, managers, and key employees within the organizations.

The instrument used in this study is a semi-structured interview guideline compiled to explore an in-depth understanding of how MSMEs apply digital innovation to improve their competitiveness. This interview guide contains several open-ended questions designed to examine various aspects, including the reasons why MSMEs adopt digital technology, the processes involved in implementing technology, the challenges faced during the digitalization process, and the impact on the competitiveness and growth of MSMEs. In addition to interviews, this study also employs direct observation as an additional data collection instrument. Observations were made to record how digital technology is applied in the daily operational activities of MSMEs, including operational management, marketing, and customer relations through digital platforms. Using interviews and observations as primary instruments, this study aims to gather richer and more valid data on the application of digital innovation in MSMEs.

The data collection technique in this study is carried out through several primary methods that complement each other. The first technique is an in-depth interview, conducted with MSME managers and several employees who are directly involved in decision-making related to the use of digital technology in their businesses. This interview aims to gain an in-depth understanding of the factors that encourage MSMEs to adopt digital innovations, the challenges they face during the implementation process, and the benefits they experience after implementing digital technology. In addition to interviews, this study also uses participatory observation techniques. In this observation, the researcher was directly involved with MSMEs to observe the application of digital technology in an actual operational context, including the use of e-commerce platforms, social media for marketing, and digital tools for operational management and customer interaction. This observation provides a more precise and more concrete picture of the implementation of digitalization in the daily activities of MSMEs. To complement the data obtained from interviews and observations, this study also collects secondary data in the form of documentation related to digitalization policies implemented by MSMEs. These documents include annual reports, digital marketing materials, and MSME performance data before and after the implementation of digital technology. The collection of data through interviews, observations, and documentation is expected to provide a comprehensive picture of the role of digital innovation in increasing the competitiveness of MSMEs.

3. RESULTS AND DISCUSSION

This study involved 15 MSMEs located in the Greater Jakarta area, Indonesia, with 45 respondents comprising business owners, managers, and employees who were directly involved in decision-making related to the adoption of digital technology within each MSME. Respondents came from various business sectors, including culinary, handicrafts, and services, most of which have started implementing some form of digital innovation to support their operations. The majority of respondents were between the ages of 25 and 45, with varied educational backgrounds, ranging from high school graduates to college graduates. Most of these MSMEs have utilized social media, e-commerce platforms, and digital management tools to facilitate the smooth operation of their businesses. (Hartono & Halim, 2020).

From the results of interviews with MSME managers, it was found that the main reason they adopt digital technology is to expand their market reach and introduce their products to a broader range of consumers. Social media, such as Instagram and Facebook, are primary channels for promoting products, while e-commerce platforms are utilized to increase online sales. Additionally, MSME managers reported that the implementation of digital technology can enhance operational efficiency and facilitate customer interaction. (Fachrunnisa et al., 2020). However, while many are aware of the importance of digitalization, the main challenges faced are the limited technical knowledge among staff and the high costs associated with training and developing more advanced technology systems. Some MSMEs also complained about limited infrastructure, especially uneven internet access in several areas.

A questionnaire distributed to 30 licensed employees revealed that the majority (60%) felt they had a sufficient understanding of the use of social media and e-commerce platforms. However, only about 40% of respondents feel comfortable and competent in using the digital management system employed by their MSMEs. Many employees admit that limitations in technical training are a significant obstacle to maximizing the use of digital technology in their workplaces. Most employees (55%) report feeling less supported by inadequate training, which hinders their ability to utilize technology effectively. Thus, even though MSMEs have adopted digital technology, many employees are still unable to use it efficiently due to a lack of understanding and technical skills. (Ardhiyansyah et al., 2023).

During the two-month observation process, the researcher noted that many MSMEs have begun using social media as a tool to promote their products. Instagram and Facebook are the two leading platforms used. In contrast, the use of e-commerce appears to be limited to certain types of products, especially in the culinary and craft sectors. (Hamdani & Herlianti, 2019). MSMEs in this sector are beginning to optimize e-commerce platforms to expand their market reach. However, despite efforts to develop their digital presence, some MSMEs still rely on manual operational management systems, such as transaction recording and inventory management, that have not fully used digital systems. This indicates that, although digital technology is being implemented, the overall operational management with it is still in its early stages.

The data collected indicates that the adoption of digital innovation has a positive impact on the competitiveness of MSMEs. Most respondents acknowledged that digital technology enables them to expand their market reach, streamline transactions, and enhance customer interactions. The use of social media allows them to more easily introduce products, while the use of e-commerce platforms simplifies the sales process. Additionally, the use of digital management systems for business operations can also be reported to increase efficiency in inventory and transaction management. Nonetheless, some MSMEs still face significant challenges in terms of costs and technical understanding to optimize existing technology.

The following is Table 1, which shows the reasons for the adoption of digital technology by MSMEs based on interviews with business managers:

Table 1. Reasons for the Adoption of Digital Technology by MSMEs

Reasons for Adoption	Percentage (%)
Increase market reach	68%

Operational efficiency	55%
Improve customer engagement	62%
Operational cost savings	48%
Speed up buying and selling transactions	43%

Graph 1 illustrates the level of employee understanding of digital technology used in MSMEs. From this graph, it is evident that most employees believe they possess sufficient mastery of social media and e-commerce platforms; however, many still feel unfamiliar with digital management systems.

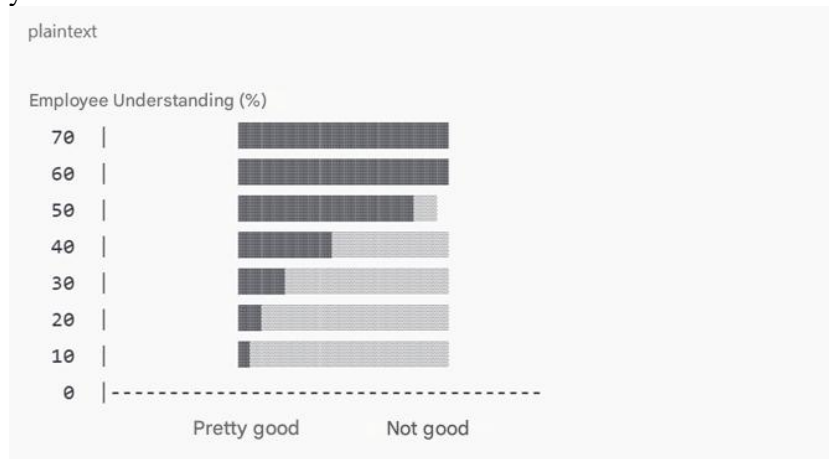


Figure 1. Social Media Use by MSMEs

This graph shows the significant positive impact of digital technology adoption on the competitiveness of MSMEs, with visible improvements in operational efficiency, market reach, and customer interaction.

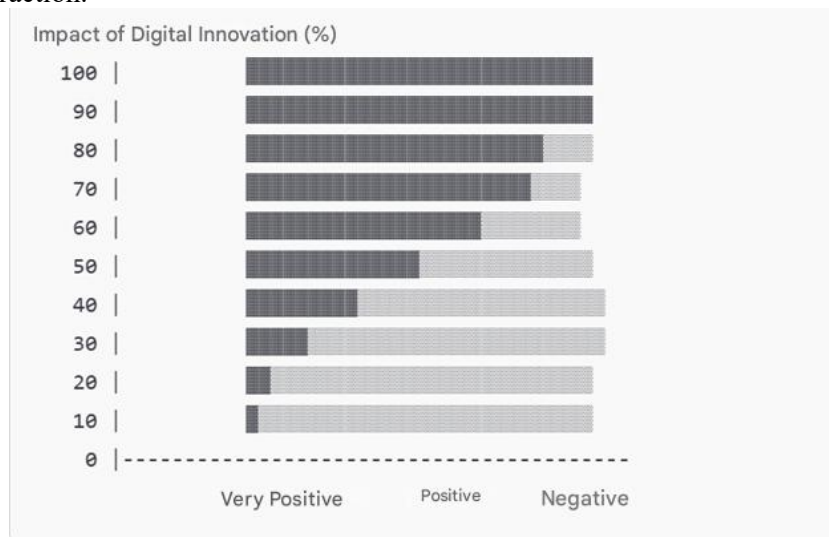


Figure 2. The Impact of Digital Innovation on the Competitiveness of MSMEs

Interview Data and Interpretation of Interview Results

From the results of interviews conducted with MSME managers, it was revealed that many MSME actors are beginning to realize the importance of adopting digital technology. Most of the MSME managers interviewed admitted that they started using social media platforms, such as Instagram and Facebook, to introduce their products. E-commerce is also one of the channels used

to market their products online. This indicates that MSMEs are becoming increasingly aware that to compete in a rapidly evolving global market, the use of digital technology is essential.

However, despite the adoption of digital technology, many MSME managers continue to struggle with its optimal implementation. One of the biggest challenges they face is the limited technical knowledge among both owners and employees. They often lack the necessary skills to effectively manage the technology they use, which prevents them from maximizing its benefits. Additionally, high training costs and a limited supply of skilled human resources in the technology field are significant obstacles.

In this case, the interpretation of the interview results shows that although digitalization has excellent potential to increase the competitiveness of MSMEs, effective adoption requires ongoing training and support from external parties, such as the government and training institutions, to minimize the skills gap among MSME managers and employees.

Discussion of Questionnaire Results

The questionnaire distributed to 30 licensed employees provided more detailed insights into the acceptance and understanding of digital technology among staff. The results of the questionnaire showed that although most employees admitted to understanding the use of social media and e-commerce platforms, only a small percentage felt competent in using the digital management system implemented by their MSMEs. As many as 60% of employees believe their understanding of technology is sufficient, but only 40% feel confident in using digital management systems effectively.

The primary cause of this inconvenience is the lack of training and support in using new technologies. Many employees feel that, despite the implementation of technology, they do not receive the opportunity to be optimally trained in utilizing it. Additionally, the questionnaire results indicate a disparity in understanding technology between younger and more senior employees. Younger employees tend to adapt to digital technology more quickly, while older employees often face difficulties in using new, digital-based systems.

Analysis of Observation Results

During observations conducted in various MSME locations, the researcher noted that although digital technology has begun to be implemented, its implementation is still very varied. Several MSMEs in the culinary and handicraft sectors have optimized the use of social media for product marketing and e-commerce platforms to sell their products online. However, some other MSMEs still use manual systems to manage their transactions and inventory.

Additionally, observations indicate that the implementation of digital management systems for business operations is still in its early stages in many MSMEs. Most MSMEs still rely on manual systems for inventory management and transaction recording. This suggests that, despite the adoption of digital technology in marketing, the use of technology in business operations management remains limited. Limitations in technology infrastructure and training are the primary obstacles to the widespread adoption of digital technology in all aspects of business.

Comparison with Previous Research

This research shares similarities with previous studies that have identified digital technology as having great potential to increase the efficiency and competitiveness of MSMEs. For example, research by Gherardi (2017) and Pratama (2020) demonstrates that digital innovations, such as e-commerce and social media, can expand the market for MSMEs and enhance their operational efficiency. The results of this study also support their findings that the adoption of digital technology increases product visibility and speeds up the transaction process.

However, this study adds a new dimension by exploring the challenges faced by MSMEs in implementing digital technology, especially in terms of limited technical knowledge and existing infrastructure. In contrast to previous research that discussed the benefits of digitalization, this study also highlights aspects that hinder the effective implementation of digital technology in Indonesian MSMEs.

The results of this study have several practical implications that policymakers and MSME actors can consider. First, to maximize the benefits of digital technology, MSMEs need to provide adequate training in its use, both for managers and employees. The government and educational institutions can provide support through digital training programs and courses designed to enhance the digital skills of MSMEs. Second, although many MSMEs have adopted social media and e-commerce platforms, they still need help in integrating these technologies into all aspects of their business operations. Therefore, the development of a more affordable and user-friendly management system for MSMEs should be the primary focus to enhance their competitiveness. Third, the government needs to prioritize addressing digital infrastructure issues, particularly in areas where access to technology remains a challenge. Enhancing internet accessibility and implementing policies that foster the digitalization of MSMEs will have a positive impact on the growth and competitiveness of MSMEs in Indonesia.

This study has several limitations that need to be noted. First, the number of samples is limited to only 15 MSMEs located in the Greater Jakarta area, so the results of this study cannot be generalized to all MSMEs in Indonesia. Second, although this study encompasses a wide range of business sectors, most respondents are from the culinary and craft industries, so these findings may not accurately reflect the reality of other sectors, which may be larger or smaller in size.

Additionally, limitations in the duration of observations and interviews also impact the depth of data collected. The study was conducted over just two months, which may not be sufficient to fully capture the long-term dynamics of the adoption and implementation of digital technologies.

4. CONCLUSION

This study concludes that digital innovation plays a crucial role in enhancing the competitiveness of MSMEs in Indonesia, particularly in terms of market expansion, operational efficiency, and improved customer interaction. Findings from a case study of 15 MSMEs in the Greater Jakarta area indicate that social media and e-commerce platforms are the primary tools in their digitalization strategy. However, the adoption of operational management technology is still in its early stages of development. Most MSMEs have recognized the benefits of utilizing digital technology, but they still face significant challenges, including limited technical knowledge, a lack of training, and infrastructure constraints.

To optimize the potential of digital innovation, strategic interventions from the government and educational institutions are necessary, including digital skills training, enhancing technological infrastructure, and developing a management system that is friendly to MSMEs. This research enriches the literature by adding dimensions of digital implementation challenges that have not been widely studied before. It provides practical recommendations to accelerate the process of inclusive digital transformation in the MSME sector.

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