

Optimization Of Supply Chains In SMEs: Strategies To Increase Efficiency And Competitiveness

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Received: 7 March 2025 ; Accepted: 10 March 2025 ; Published: 11 March 2025

ABSTRACT. Micro, Small, and Medium Enterprises (MSMEs) have a strategic role in the national economy, but there is room for improvement with regard to their supply chain management. This study aims to analyze the strategy for optimizing the MSME supply chain through a SWOT approach. The results of the analysis suggest that MSMEs may be able to enhance their operational efficiency and competitiveness by considering various strategies, including the utilization of digital technology, the expansion of human resource capacity, the strengthening of local supplier networks, and the promotion of product innovation and diversification. It is suggested that by implementing these strategies, MSMEs may have the opportunity to reduce operational costs, improve service quality, and expand markets. This research underscores the potential value of collaboration between MSMEs, the government, and the private sector in fostering a more efficient and sustainable supply chain ecosystem.

Keyword: MSME; Supply Chain; Optimization Strategy; SWOT Analysis; Competitiveness.

JEL Classification: L25; L26; R11.

INTRODUCTION

Micro, small and medium enterprises (MSMEs) play an important role in the Indonesian economy, contributing significantly to gross domestic product (GDP) and employment (Yolanda, 2024). In the face of global competition and ever-changing market dynamics, MSMEs often face various challenges, especially in managing an efficient and effective supply chain (Hakim, et al., 2024). Supply chain optimization is key for MSMEs to increase operational efficiency and competitiveness in the market.

Optimal supply chain management enables MSMEs to reduce production costs, shorten delivery times, and improve product quality. According to research by Ikhwana, Maulana, and Hayat (2023), the implementation of good supply chain management can minimize costs and maximize revenues through efficiencies in various areas, including partnerships between suppliers and producers. Close collaboration between supply chain actors can be an effective strategy for improving the performance of MSMEs.

Digitalization has brought about significant changes in supply chain management. The use of technologies such as the Internet of Things (IoT), artificial intelligence (AI), and blockchain can help MSMEs monitor the flow of goods and information in real time, thereby increasing responsiveness to market demand. Ariyanto and Takaya (2025) emphasize that the application of advanced technology, increased collaboration among supply chain partners, and strategies such as lean management and just-in-time can help businesses achieve greater efficiency.

Technology adoption alone is not enough, it is important for MSMEs to build a solid collaboration system among business stakeholders (Sulistyawati, 2024). Mustafa (2020) in his research developed a supply chain management based collaboration system for MSMEs in Semarang City. The results show that collaboration in the fulfillment of raw materials and the use of shared transportation can increase the operational efficiency and competitiveness of MSMEs. This confirms that synergy among business actors is a key factor in supply chain optimization.

In addition to collaboration, determining the right supply chain strategy is also critical. Sumarsono and Muflihah (2021) found that the aspects of facilities, inventory, transportation, information, sourcing, and pricing have a significant impact on a competitive supply chain strategy for MSMEs. By analyzing and optimizing these aspects, MSMEs can design strategies that suit their needs and capacities, enabling them to compete in a wider market.

Institutional involvement in the supply chain also plays an important role. A case study of the Sanan Tempe Chips MSME cluster in Malang by Wardhani (2018) shows that the active role of institutions in the supply chain can improve the performance and competitiveness of MSMEs. This involvement helps control raw materials and expand market access, which in turn improves operational efficiency. Support from related institutions, both government and private, can have a positive impact on MSME development.

Implementing supply chain optimization strategies is not without challenges. Some MSMEs face limitations in access to technology, skilled human resources and capital (Lionora et al, 2023). A holistic approach that includes training, mentoring, and access to finance is needed to help MSMEs adopt modern supply chain management practices. Collaboration between government, academia, and the private sector is key to providing a supportive ecosystem for MSMEs (Lionora et al, 2023). It is important for MSMEs to continuously evaluate and improve their supply chain management (Dzaki et al, 2025). A dynamic business environment requires high flexibility and adaptability. By

using data and analytics, MSMEs can identify areas that need improvement and implement timely solutions (Cholistiana, 2024). This proactive approach will help MSMEs remain competitive and responsive to market changes.

Overall, supply chain optimization in MSMEs is an essential strategic step to improve efficiency and competitiveness. Through the application of technology, collaboration among business stakeholders, institutional support, and appropriate strategies, MSMEs can overcome various existing challenges. As a result, MSMEs can not only survive, but also develop and contribute more significantly to the national economy.

METHODS

This study has opted for a qualitative approach with a descriptive method to analyse supply chain optimisation in MSMEs in Kebumen, because it is believed that this approach allows researchers to gain a deeper understanding of the real conditions, challenges, and strategies applied by MSMEs in managing their supply chains (Creswell, 2018). In addition, this study aims to explore the factors that influence the efficiency and competitiveness of MSMEs in supply chains.

The study has sought to gather primary data through in-depth interviews with MSME actors, supply chain managers, and other relevant stakeholders such as suppliers and distributors, with the aim of gaining insights into their experiences and perspectives. To ensure the diversity of views, a purposive sampling technique was employed to select respondents who had direct experience in managing supply chains (Patton, 2019). Secondary data was obtained from literature, industry reports, scientific journals, and statistical data related to MSMEs and supply chains from trusted sources such as BPS, the Ministry of Cooperatives and UKM, and previous academic studies.

The data analysis technique uses SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis to identify the strengths, weaknesses, opportunities, and threats in optimising the MSME supply chain. This analysis technique is carried out through three stages, which include Internal and External Factor Identification, SWOT Mapping, and Strategy Analysis.

RESULT AND DISCUSSION

It is suggested that a strategy which takes advantage of internal strengths and external opportunities, as well as overcoming existing weaknesses and threats, may be beneficial for MSMEs. SWOT analysis has identified several strengths of MSMEs, including a flexible cost structure and a high ability to adapt to market changes. It is thought that cost flexibility allows MSMEs to adjust the prices of products or services according to market conditions, thus increasing their competitiveness (Fadlurrahman et al., 2023). The ability to adapt quickly also enables MSMEs to respond to changes in consumer demand more efficiently than large companies (Sumarsono & Muflihah, 2020).

However, MSMEs also face several challenges, including limited access to modern technology and human resources skilled in supply chain management. These limitations can potentially hinder the operational efficiency and competitive ability of MSMEs in a larger market (Fadlurrahman et al., 2023). Additionally, the potential for competition with large companies that have more efficient supply chains and regulatory changes that could affect MSME operations should be carefully considered. It is therefore recommended that any supply chain optimisation strategy for MSMEs takes these factors into account, such as increasing human resource capacity through training and adopting technology appropriate to the scale of the business (Sumarsono & Muflihah, 2020). The

results of the SWOT analysis suggest that supply chain optimisation in MSMEs can be achieved with strategies that utilise strengths and opportunities and overcome existing weaknesses and threats. Strategies that could be applied based on the results of the analysis are shown in Table 1.

Table 1. SWOT Analysis of MSMEs

Strengths		Weaknesses
1. Flexible fee structure 2. Rapid adaptation to market changes 3. Strong business network 4. Good relationship with suppliers		1. Limited access to modern technology 2. Skilled human resources in supply chain management are lacking 3. Limited capital for investment in supply chain innovation.
Opportunities	S-O	W-O
1. Digitalization allows MSMEs to increase efficiency and transparency in the supply chain 2. Government policies that support the development of MSMEs 3. Consumption trends that increasingly lead to local and sustainable products.	1. Adopting digital technology in supply chain management (S1, S2, S4, O1). 2. Digitalization to increase transparency and operational efficiency (S1, S2, S3, O1, O2).	1. Training and capacity building of human resources (W1, W2, O2). 2. Implement simple applications for operational efficiency (W3, O2, O3)
Threats	S-T	W-T
1. Competition with companies that have more efficient supply chains 2. Instability of raw material prices and disruptions in supply 3. Changes in regulations that can affect the operations of MSMEs.	1. Strengthening local supplier networks (S1, S4, T2, T3).	1. Developing competitive advantages based on innovation and product diversification (O1, O2, T1, T2).

Source: processed research data (2025)

The analysis suggests four potential strategies for enhancing the efficiency and competitiveness of MSMEs. The first strategy, Strengths-Opportunities (SO), highlights the potential for MSMEs to leverage cost flexibility and strong business networks to adopt digital technology in the management of their supply chains. Cost flexibility could allow MSMEs to adjust their budgets in the implementation of information technology, so that they can increase operational efficiency without burdening the company's finances (Rifani et al., 2024). In addition, extensive business networks could provide MSMEs with access to various resources and partnerships that support

the digitisation process, such as collaboration with technology providers or human resource training (Arianto & Rani, 2024).

Digitalisation in supply chain management has the potential to enhance transparency and operational efficiency in MSMEs. The application of a digital accounting system, for instance, has been demonstrated to have a favourable impact on operational efficiency and cost reduction in MSMEs, as it facilitates more accurate and real-time financial management (Sriningsih et al., 2025). In addition, the use of information technology in supply chains can help MSMEs to monitor the flow of goods and information more effectively, which may result in reduced delays and increased customer satisfaction (Arianto & Rani, 2024).

The second strategy is the Weaknesses-Opportunities (WO) Strategy, which recognises the importance of addressing limited access to technology for Micro, Small and Medium Enterprises (MSMEs) through training and human resource capacity building. Managerial training, such as in financial and operational management, has the potential to equip MSME actors with the skills needed to optimise the use of technology in their daily operations. Digital marketing training, including social media management and marketplace utilisation, could also help MSMEs expand their market reach and increase competitiveness in the digital era. These programmes are designed to improve the technical and managerial competencies of MSME actors, making them more adaptive to technological change and market dynamics.

The government and related organisations could perhaps provide more comprehensive assistance programmes for MSMEs. Collaboration between the government, financial institutions, technology companies, and the MSME community could provide the resources and training needed for digital transformation. Business assistance through mentors could provide direct guidance, helping MSMEs identify and utilise technologies that suit their specific needs. With this support, MSMEs could perhaps overcome limited access to technology and increase operational efficiency and competitiveness in the global marketplace.

The third strategy is the Strengths-Threats (ST) Strategy, which recognises the importance of Micro, Small and Medium Enterprises (MSMEs) in strengthening local supplier networks to reduce dependence on large suppliers that are vulnerable to fluctuations in raw material prices. High dependence on imported raw materials can increase the operational risk of MSMEs due to price volatility and supply availability (Gaol, 2019). One way in which MSMEs can enhance their resilience in this regard is by cultivating robust partnerships with local suppliers. Such collaborative endeavours can contribute to the creation of more stable and adaptable supply chains that are better equipped to withstand the vicissitudes of the market (Fauji et al., 2022).

Collaboration with local suppliers can also allow MSMEs to share information and resources, thereby increasing operational efficiency and competitiveness. This approach may also be able to reduce the risks associated with fluctuations in raw material prices, as MSMEs may have more diversified alternative sources of supply (Fauji et al., 2022). Strengthening local supplier networks could therefore help MSMEs maintain operational stability, and contribute to the overall development of the local economy.

The fourth strategy is WT (Weaknesses-Threats). In order to face the challenges posed by large companies, Micro, Small and Medium Enterprises (MSMEs) need to develop a competitive advantage through product innovation and diversification. Product innovation allows MSMEs to offer unique added value to consumers, thus increasing competitiveness in markets dominated by large companies (Waruwu et al., 2024). Furthermore, a diversified product range can assist MSMEs

in distinguishing themselves from competitors by offering a variety of products that align with the needs and preferences of local consumers (Fajri et al., 2024).

Diversification of products is also said to play an important role in expanding the market share of MSMEs and reducing the risk of dependence on one type of product (Fajri et al., 2024). By developing various product lines, MSMEs may be able to reach a wider market segment and increase revenue potential (Fajri et al., 2024). It has also been suggested that creativity in product development enables MSMEs to adapt to changing market trends, thus remaining relevant and competitive in the midst of fierce competition (Waruwu et al., 2024).

It is hoped that the strategies outlined above will help Micro, Small and Medium Enterprises (MSMEs) to increase efficiency and competitiveness in their supply chains. One approach might be to strengthen partnerships with local suppliers, which could help to reduce dependence on large suppliers and minimise the risk of fluctuations in raw material prices. In addition, effective supply chain management could enable MSMEs to optimise the flow of goods and information, thus increasing responsiveness to market demand and overall operational efficiency.

Furthermore, developing a competitive advantage through product innovation and diversification is key for MSMEs to survive and thrive amid increasingly complex market dynamics. Innovation in products and services enables MSMEs to offer unique added value to consumers, while product diversification helps to reach a wider market segment and reduce business risks. Thus, the combination of supply chain strengthening and innovative strategies is expected to increase the competitiveness of MSMEs in the global market.

CONCLUSION

Optimising supply chains in MSMEs is the key to boosting efficiency and competitiveness. A SWOT analysis shows MSMEs are strong on flexibility and network, but face tech and talent challenges. The strategy to beat this is digital tech in the supply chain, more training, stronger local suppliers, and product innovation and diversification. Implementing this strategy will reduce MSMEs' dependence on large suppliers, increase operational transparency, and expand their market share. Government, academic, and private sector support is vital for creating a more efficient and sustainable supply chain ecosystem, allowing MSMEs to be more adaptive to market changes and more competitive in facing global challenges.

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