

The Role of Digital Leadership in Improving MSME Performance: Perspective of Information and Communication Technology (ICT) Utilization

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This study explores the role of digital leadership in improving the performance of Micro, Small, and Medium Enterprises (MSMEs) through the use of Information and Communication Technology (ICT). Using a qualitative approach, data were collected through literature review, in-depth interviews with MSME leaders and field observations. The results showed that MSME leaders utilize Information and Communication Technology (ICT) to improve efficiency and competitiveness, despite challenges such as limited resources and resistance to change. Successful strategies include gradual technology adoption, employee training, and external collaboration. In addition, participatory and transformational leadership have proven effective in creating a culture of innovation that supports the digitalization process. This study provides theoretical and practical contributions by highlighting the importance of Information and Communication Technology (ICT), which is a strategic resource in accelerating the digital transformation of MSMEs.

1. Introduction

In the era of digitalization and the Industrial Revolution 4.0, information and communication technology (ICT) has become a major pillar in organizational transformation, including Micro, Small, and Medium Enterprises (MSMEs). Rapid changes in technology not only affect the way businesses operate, but also affect the way leaders manage and lead their organizations. In this context, MSME leaders are required to have a deep understanding of how ICT can be utilized to improve their organizational performance.

Research shows that effective use of ICT can increase productivity and operational efficiency, as well as strengthen the competitiveness of MSMEs in the global market [1,2]. It is important for MSMEs to increase the use of technology to meet consumer demands and pressure from competitors. The use of technology must be implemented effectively and efficiently so that it can be utilized as an effective tool to distribute the value owned by a company to improve company performance. [3]. However, although the importance of ICT is recognized, many MSME leaders still face challenges in adopting and utilizing this technology optimally. Some of the challenges faced include lack of knowledge about technology, limited resources, and resistance to change in organizational culture [4,5].

Previous studies have shown that leaders who are able to overcome these challenges and integrate ICT into their business strategies tend to perform better [6,7]. Therefore, it is important

to explore the experiences and strategies of MSME leaders in adopting ICT to achieve better organizational performance. In addition, understanding the role of ICT in leadership practices is also important. Leaders who understand how ICT can be used to improve communication, collaboration, and innovation in organizations will be better able to lead their teams to success [8]. Previous studies have shown that the appropriate use of information technology can improve organizational climate and employee commitment, which in turn has a positive impact on overall organizational performance [9]. Therefore, this study aims to explore more deeply how MSME leaders interpret and apply ICT in their leadership practices. This study will also identify the main challenges faced by MSME leaders in implementing ICT, as well as explore the strategies and best practices applied by them to utilize ICT in improving organizational performance.

2. Literature Review

Research on the role of Information and Communication Technology (ICT) in supporting organizations has been extensive, especially in the context of large companies. However, there is a paucity of literature that discusses the experiences of leaders in adopting this technology in the Micro, Small and Medium Enterprises (MSMEs) sector. For example, [10], found that participative leadership style contributes to the effectiveness of accounting information systems, only highlighting technology as a tool without exploring the experiences of leaders in the process of adopting the technology. Another study by [11] showed that leadership factors play a significant role in ICT adoption, but the study was limited to a quantitative approach that did not explore the subjective dimension of the leadership role.

Furthermore, [12] examined the impact of ICT on MSMEs in Nigeria and concluded that technology adoption can improve business efficiency. Although the results of his study are relevant, his study did not highlight how the role of leaders as the main driver in ICT adoption. Davidavi [13] also found a significant contribution of information systems to improving company performance, but his study was more relevant to large companies and did not consider the unique challenges faced by MSMEs.

Other studies by [14,15] showed how technological innovation can drive organizational transformation, but their main focus was on the impact of technology, not the adoption process. [16] also emphasized that technological innovation is an important strategy for MSMEs to compete, but his research did not explore how leaders manage the changes needed to adapt to technology.

[17] highlighted that many small businesses are reluctant to take risks associated with adopting new technologies, thus hampering innovation and business decisions. Research by [18] showed that although the use of ICT tools can support the internationalization of MSMEs, factors such as limited knowledge and infrastructure remain significant barriers. [19] emphasized the importance of the manager's perspective in the implementation of ICT in the hospitality industry, but did not provide sufficient insight into the challenges faced by MSME leaders in other sectors.

This study is based on several relevant theories, namely Contingency Theory [20] explains that leadership effectiveness is influenced by the match between leadership style and a particular situation. In this context, digital leadership becomes relevant because it adapts to the challenges of technology in the digital era. In addition, the Theory of Reasoned Action [21] explains that individual behavior is influenced by attitudes and subjective norms, so it can be applied to understand leaders' attitudes towards ICT adoption. The Resource-Based View (RBV)

theory also highlights the importance of internal resources, such as leadership capabilities and technological innovation, in achieving competitive advantage. Furthermore, digital transformation theory [22] emphasizes that organizational change led by digital leadership is key in integrating innovation and technology into the business structure. Based on the research gap, it shows that although there are many studies examining the impact of ICT on organizations, there is a lack of understanding of how MSME leaders actively adopt and apply this technology in their practices. Further research is needed such as in a qualitative perspective to explore the experiences, challenges, and strategies implemented by MSME leaders in utilizing ICT to improve organizational performance. This is important to fill the gap in the literature and provide deeper insights into the dynamics of leadership in the context of digitalization in the MSME sector.

3. Methodology

The research methodology used is qualitative based on literature studies, data collection processes, analysis, and validation of results. Data collection is carried out through extensive literature reviews, including scientific journals, research reports, and publications from trusted institutions. As well as in-depth interviews with MSME owners and managers in the culinary, craft, fashion, and service sectors in Makassar City, and Participatory Observation through direct observation of how leaders utilize ICT in their business operations. The sample consists of MSME leaders who have adopted ICT in their business processes.

The analysis technique uses the thematic analysis method, which groups literature data into important themes [23]. Each study analyzed is classified based on topics such as ease of transaction and personalization, to find patterns and concepts that often appear. Thematic analysis is effective in qualitative studies because it allows researchers to identify recurring patterns and key themes from various sources, thus providing a structured understanding of complex topics. [24]. With this technique, research can gather in-depth insights into how MSME leaders interpret and apply ICT in their leadership practices. And explore the strategies implemented by leaders to utilize ICT in improving organizational performance.

Validation is done through theory triangulation, by comparing findings from various sources to ensure consistency of results. Theory triangulation ensures that research considers multiple perspectives and reduces potential bias that may arise [25]. This study also uses current literature to maintain the relevance and accuracy of the findings.

4. Results and Discussion

a. Understanding and Meaning of Information and Communication Technology (ICT) by MSME Leaders

MSME leaders understand ICT as a tool that can improve operational efficiency, expand market reach, and accelerate business processes. Most leaders see ICT as a strategic opportunity. According to [26]. Leaders who adopt ICT proactively can improve productivity and operational efficiency. So that a competitive advantage is created, not just a complementary tool. Leaders' understanding of ICT also shows an awareness that digital transformation is a necessity and cannot be avoided, in the midst of increasingly tight market competition, MSMEs that have carried out digital transformation tend to be more ready to adapt to change and take advantage of opportunities. According to the report [27].

MSMEs that carry out a comprehensive digital transformation can increase their competitiveness by up to 50%. Leaders must be proactive in adopting new technologies and investing in employee training so that they will be better able to face challenges. Some leaders even associate ICT with the ability to present innovation in products and services, thereby increasing the attractiveness of their business. Through the use of analytical data and customer feedback, MSMEs can develop products that are more in line with market needs. For example, the use of Internet of Things (IoT) technology in products can provide added value and improve customer experience. Research by [28] shows that companies that integrate advanced technologies into their products can create significant differentiation in the market.

b. Some of the main challenges faced by MSME leaders in implementing Information and Communication Technology (ICT) include:

- One of the main challenges faced by MSME leaders in implementing ICT is limited financial resources. Many MSMEs operate on limited budgets, making it difficult to allocate funds to invest in new technology or upgrade existing equipment. According to a report from [29,30], around 70% of MSMEs in developing countries reported that limited access to finance was a major barrier to technology adoption. This often results in MSMEs being left behind in the competition, as they are unable to take advantage of technologies that can improve efficiency and productivity.
- Low digital literacy among MSME employees is also a significant challenge in implementing ICT. Many employees are not yet familiar with technology, so training is an urgent need. [31]. Meanwhile, the results of a study by the European Commission (2020), around 40% of the workforce in the MSME sector do not have adequate digital skills to use new technology effectively. These limitations not only hinder technology adoption, but can also lead to resistance to change, as employees feel insecure in using new tools. Therefore, MSME leaders need to invest time and resources to provide adequate training for their employees.
- Resistance to change is another challenge that MSME leaders often face. Some employees and even organizational leaders show reluctance to adapt to new technologies. This is often due to fear of failure or uncertainty of the results of implementing technology. According to [32], organizational change is often hampered because individuals feel comfortable with the existing way of working. MSME leaders need to overcome this resistance by creating a culture that supports innovation and change, and providing the necessary support to help employees adapt to new technologies.
- Integrating new technologies with existing business processes is also a significant challenge for MSMEs. Many MSMEs have difficulty integrating new systems with the way of working that has been in place for years. According to research by [33], a lack of alignment between new technology and existing business processes can lead to inefficiencies and confusion among employees. Therefore, it is important for MSME leaders to plan technology integration carefully, ensure that new systems can function harmoniously with existing processes, and involve employees in the transition process to minimize disruption.

c. Digital Leadership Strategy and Practices

MSME leaders use various strategies to overcome obstacles to implementing Information and Communication Technology (ICT), namely:

- Successful leaders pay great attention to training and developing digital skills for their employees. According to [34], their research shows that effective training can improve employees' ability to use new technologies, which in turn improves organizational performance.
- Leaders collaborate with technology consultants, ICT service providers, or the business community to get guidance and solutions. This is in line with research [35]. Collaboration with external parties allows MSMEs to access knowledge and resources that may not be available internally, thus accelerating the technology adoption process.
- Leaders adopt technology slowly, starting with the part of the business that needs the most efficiency improvements before expanding to the entire organization. This approach can help reduce risk and allow leaders to evaluate the effectiveness of technology use [36]. Leaders with a transformational leadership style appear to be more successful in building employee trust in the benefits of ICT and creating an adaptive organizational culture. This leadership style encourages active participation from employees in the change process, which is important for successful technology adoption [37].

d. The Influence of MSMEs on MSME Performance

The adoption of Information and Communication Technology (ICT) has shown a significant impact on the performance of Micro, Small, and Medium Enterprises (MSMEs), both operationally and strategically. Some of the identified positive impacts include:

- 1 Business processes become faster and more organized, which reduces waste of time and resources. Research shows that the use of the right information systems can speed up workflows and increase employee productivity.
- 2 Technology enables MSMEs to provide better services, such as easier ordering systems and faster customer responses. This contributes to improving customer experience and business reputation.
- 3 MSME leaders report increased revenue after expanding market reach through digital platforms. Research shows that the adoption of e-commerce and digital marketing can increase access to new customers and expand market share.
- 4 Technology helps MSMEs better meet customer needs, which in turn increases their loyalty. Research shows that the use of technology in customer interactions can improve customer satisfaction and retention. These impacts indicate that the adoption of ICT not only improves internal efficiency but also strengthens the competitive position of MSMEs in an increasingly digital market.

5. Discussion

This study reveals a deep understanding of the role of ICT in improving the competitiveness and operational efficiency of MSMEs. MSME leaders show a high awareness that digital transformation is not just an option, but a necessity to survive and thrive in the digital

era. This understanding reflects a shift in mindset from viewing technology as an additional tool to a strategic component in business operations. This is consistent with the findings of [26,27] which emphasize the importance of proactivity in adopting technology to create competitive advantage.

However, the challenges faced, such as limited financial resources, low digital literacy, resistance to change, and difficulties in technology integration, indicate that the path to digital transformation is not smooth. These challenges are in line with reports [30] and research [31] which highlight the importance of financial support, employee training, and change management to ensure successful technology adoption.

MSME leaders play a key role in overcoming these obstacles. Strategies such as employee training, collaboration with external parties, and a gradual approach to technology adoption have proven effective in reducing resistance and increasing employee trust in the benefits of ICT. Transformational leadership styles, as described by [37,38], appear to be very relevant in creating an adaptive organizational culture that supports innovation.

Slow and strategic adoption of ICT allows leaders to minimize risks and ensure that new technologies are well integrated into existing business processes. This supports the findings [36] that a phased approach can help organizations measure the effectiveness of technology and make necessary adjustments.

In addition, ICT adoption has a significant impact on MSME performance, both operationally and strategically. Increased workflow efficiency, customer experience, and customer loyalty are the most prominent results of digital transformation. In addition, the ability to expand market reach through e-commerce and digital marketing shows how ICT can open up new opportunities for MSMEs.

However, this positive impact cannot be separated from the efforts of leaders in designing a mature implementation strategy and providing full support to employees. The results of the study show that ICT not only increases internal efficiency but also strengthens the competitive position of MSMEs in an increasingly digital market. This is in line with the findings [28] which state that the integration of advanced technology can create significant differentiation.

The results of this study provide several important implications. First, the government and financial institutions need to provide greater support to facilitate MSME access to technology financing. Second, digital training for MSME employees must be a priority in ensuring smooth technology adoption. Third, MSME leaders need to adopt a leadership style that supports innovation and active participation of employees in the change process. This study also shows the need for a holistic approach in ICT implementation, covering strategic, operational, and organizational culture aspects. Use a longitudinal research design to observe changes in MSME performance before and after ICT adoption. This approach allows researchers to evaluate long-term impacts. Thus, future research can provide deeper and more relevant insights for MSME leaders, policy makers, and academics.

6. Conclusion

The results of this study confirm that Information and Communication Technology (ICT) has a very important role in increasing the competitiveness and operational efficiency of Micro, Small, and Medium Enterprises (MSMEs). MSME leaders who understand ICT as a strategic tool tend to be able to utilize this technology to accelerate business processes, expand market reach, and present innovations in products and services. Digital transformation is no longer an option, but a necessity to face increasingly fierce competition in the digital era. By integrating advanced technologies such as the Internet of Things (IoT) and data analytics, MSMEs can improve customer experience and create significant differentiation in the market.

However, the adoption of ICT in MSMEs faces various challenges, such as limited financial resources, low digital literacy, resistance to change, and difficulties in integrating technology with existing business processes. These challenges show that successful ICT implementation requires a holistic strategy and strong support from leaders. Leaders with a transformational leadership style are able to build an organizational culture that supports change, involve employees in the technology adoption process, and ensure that the transition process runs gradually to minimize risk.

This study also shows the positive impact of ICT adoption on MSME performance, ranging from increasing internal efficiency to expanding the market and increasing customer loyalty. Therefore, collaboration between MSME leaders, government, and financial institutions is needed to overcome barriers to technology adoption. With effective employee training and adequate financial support, MSMEs can make maximum use of ICT to create competitive advantages and survive in an increasingly digital market. These findings provide an important basis for developing policies and strategies that support the comprehensive digital transformation of MSMEs.

7. Recommendation

To encourage more effective ICT implementation, MSMEs need to improve employee digital literacy through training, collaborating with technology providers, and utilizing financing support such as subsidies or soft loans. A phased approach to ICT adoption is also recommended to minimize resistance to change and ensure smooth integration. In addition, developing a participatory and transformational digital leadership style is essential to creating an adaptive and innovative organizational culture. Support from the government, business associations, and digital communities can accelerate MSME digital transformation sustainably.

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