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Transformation of MSME Management in Barru Regency in the Digital Era: A Qualitative Analysis Using NVivo

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ABSTRACT

This study aims to analyze the transformation of Micro, Small, and Medium Enterprises (MSME) management in Barru Regency in the digital era. The research focuses on business planning, financial management, marketing strategies, and the utilization of digital technology by MSME actors. This study employs a qualitative approach, with data collected through in-depth interviews, observation, and documentation. Informants were selected using purposive sampling techniques. Data analysis was conducted using NVivo software to systematically identify themes, patterns, and relationships among categories. The results indicate that the transformation of MSME management in Barru Regency still faces several challenges, particularly in digital literacy, access to technology, and human resource limitations. However, some MSME actors have begun to adopt digital platforms such as social media and marketplaces to expand market reach and improve operational efficiency. Government support through training and mentoring programs has also contributed to enhancing managerial capacity. This study recommends strengthening digital-based policies, improving technological literacy, and fostering cross sector collaboration to ensure the sustainability of MSMEs in the digital era.

MSMEs, Business Management, Digital Transformation, NVivo

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a vital role in economic development, particularly in developing countries. MSMEs contribute significantly to employment generation, income distribution, and economic resilience (MSME research; Yesuf and Fields, 2026). Their flexibility allows them to adapt quickly to economic changes compared to large enterprises. However, despite their importance, MSMEs often face various challenges in management and sustainability. SMEs are highly sensitive to environmental changes despite their strong contribution to economic growth. Therefore, strengthening MSME management practices is essential to ensure

long-term sustainability and competitiveness in a dynamic business environment.

In the digital era, technological advancements have transformed how businesses operate. MSMEs are increasingly required to adopt digital technologies to remain competitive in the market. Digital transformation enables firms to improve efficiency, enhance customer relationships, and optimize internal processes Hendrawan et al (2024). Digital technologies and organizational capabilities are key drivers of successful digital transformation in SMEs (Sagala and Óri, 2024). This indicates that digital adoption is not only about technology but also about organizational readiness and managerial capacity.

Digital transformation also contributes significantly to improving firm performance and innovation. By integrating digital technologies into their operations, MSMEs can create new business models and increase productivity. This transformation allows firms to respond more effectively to market changes and customer demands. Digital transformation enhances firm performance through innovation and strategic adaptation (Akbar and Amir, 2024). Therefore, innovation plays a central role in ensuring the success of MSMEs in the digital economy.

Despite its advantages, many MSMEs still face difficulties in implementing digital transformation. Limited financial resources, lack of digital skills, and inadequate technological infrastructure are common barriers. In addition, organizational resistance to change can slow down the adoption process. Resource constraints and organizational challenges significantly hinder digital transformation in SMEs (Krismajayanti et al., 2024). Therefore, addressing these barriers is critical to supporting MSME digitalization.

Digital transformation requires not only technological changes but also strategic and managerial adjustments. MSMEs must develop new capabilities, including digital skills, strategic planning, and innovation management. Knowledge management is also essential in supporting this transformation. Knowledge exploration and organizational learning are crucial processes in enabling digital transformation in SMEs (Restrepo Morales et al., 2024). This highlights the importance of integrating knowledge management into business strategies.

Innovation is another important factor that determines MSME competitiveness. Firms that actively engage in innovation are more likely to survive and grow in competitive markets. Digital technologies provide new opportunities for innovation by enabling faster communication and data-driven decision-making. Innovation capability significantly influences MSME

performance and sustainability Yesuf (2026). Therefore, fostering innovation is essential for improving MSME performance and sustainability

In addition, digital transformation contributes to achieving sustainable competitive advantage. Digital tools allow MSMEs to streamline operations, reduce costs, and improve decision-making processes. Continuous improvement and digital awareness are necessary for maintaining competitiveness. Digital transformation involves interconnected elements such as strategy, awareness, and continuous development Omowole et al (2024). This suggests that digital transformation is an ongoing process rather than a one-time implementation.

From a managerial perspective, leadership plays a crucial role in driving digital transformation. Effective leadership can influence strategic decisions, innovation, and organizational change. MSME leaders must be proactive in adopting digital technologies and managing transformation processes. Managerial capabilities and strategic orientation significantly influence the success of digital transformation in SMEs (Hidayat et al., 2025). Therefore, strengthening leadership capacity is essential for MSME development.

Based on the above discussion, this study aims to analyze the transformation of MSME management in the digital era using a qualitative approach. The research focuses on understanding managerial practices, digital adoption, and challenges faced by MSME actors. This study is expected to contribute both theoretically and practically by providing insights into MSME transformation. Furthermore, qualitative analysis tools such as NVivo enable systematic identification of themes and patterns in digital transformation studies.

RESEARCH METHOD

This study employs a qualitative research approach to explore and understand the transformation of MSME management in the digital era. The qualitative method is considered appropriate because it allows for an in-depth analysis of experiences, perceptions, and strategies used by MSME actors in managing their businesses. This approach enables researchers to capture complex social phenomena and contextual realities that cannot be measured quantitatively. According to Creswell (2014), qualitative research is used to explore and understand the meaning individuals or groups ascribe to a social or human problem. Therefore, this method is suitable for examining managerial transformation and digital adoption among MSMEs.

The data collection techniques in this study include in-depth interviews, observation, and documentation. Informants are selected using purposive

sampling, focusing on MSME actors who have experience in managing businesses and adopting digital technologies. Interviews are conducted semi-structured to allow flexibility in exploring relevant issues while maintaining focus on the research objectives. Observations are carried out to understand real business practices, while documentation is used to support and validate the findings (John W. Creswell & J. David Creswell, 2018). This combination of data collection methods ensures the credibility and richness of the research data.

Data analysis in this study is conducted using NVivo software to facilitate systematic and structured qualitative analysis. The analysis process includes data coding, categorization, and theme identification to uncover patterns and relationships within the data. NVivo helps organize large volumes of qualitative data and improves the accuracy of analysis. The findings are then interpreted to provide a comprehensive understanding of MSME management transformation. This analytical approach enables the researcher to generate meaningful insights and draw reliable conclusions based on empirical evidence.

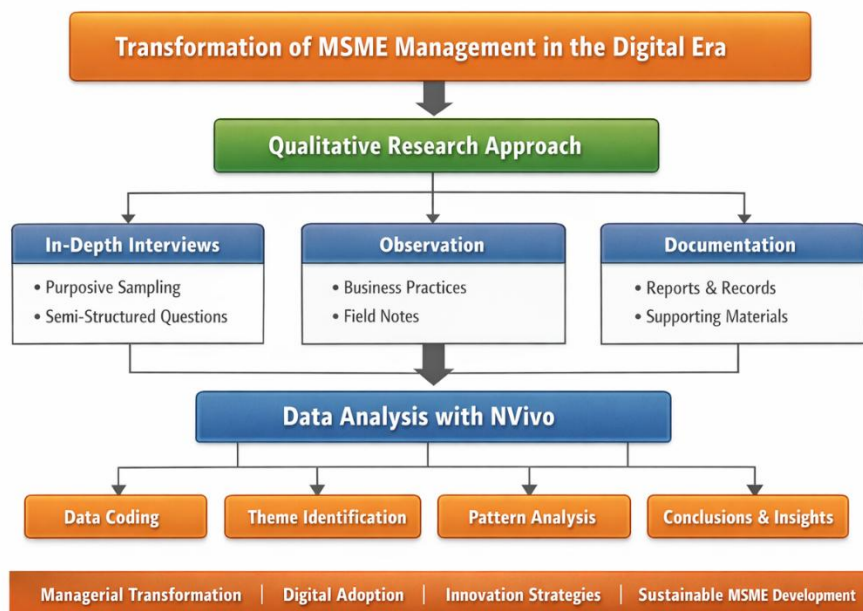


Figure 1.

Research Framework of MSME Management Transformation in Barru Regency in the Digital Era Using NVivo Based Qualitative Analysis

The research framework illustrated in Figure 1 describes the process of analyzing the transformation of MSME management in Barru Regency in the digital era using a qualitative approach. The framework begins with data collection techniques, including in-depth interviews, observations, and documentation, which aim to capture comprehensive and contextual information from MSME actors and relevant stakeholders. These methods

provide rich qualitative data related to business practices, digital adoption, and managerial strategies. The collected data are then processed systematically using NVivo software, which facilitates data organization, coding, and thematic analysis in a structured and transparent manner.

Furthermore, the framework highlights the analytical process carried out through several stages, including data coding, categorization, and theme identification. This process enables the researcher to uncover patterns and relationships related to digital transformation, managerial capabilities, innovation practices, and challenges faced by MSMEs. The final outcome of this analysis is a comprehensive understanding of how MSME management evolves in response to digital transformation (Gregory Vial, 2019; Markus Wäger & Karl S. Warner, 2019). The framework also emphasizes that the use of NVivo enhances the accuracy, reliability, and depth of qualitative analysis, thereby strengthening the validity of the research findings (Carmel Maher et al., 2018).

RESULTS AND DISCUSSION

Research Results

This study explores the transformation of MSME management in Barru Regency in the digital era through qualitative analysis of interviews with five business actors. The informants represent diverse sectors, including wild forest honey, food processing, snack production, cheesecake business, and small-scale culinary enterprises. Interviews were conducted on April 1 and April 17, 2026, providing a contextual understanding of current business practices. The findings reveal that MSMEs are undergoing gradual adaptation to digitalization, although the level of adoption varies significantly. The data were analyzed using thematic categorization, focusing on management practices, challenges, digital technology utilization, institutional support, and sustainability strategies. Overall, the results indicate a transitional phase in MSME management, characterized by a blend of traditional and digital approaches.

In terms of business management practices, most informants adopt simple and flexible systems. Planning activities are generally based on market demand, seasonal availability of raw materials, and short-term sales targets. Production processes are adjusted to customer orders to minimize waste and ensure efficiency. Marketing strategies rely predominantly on social media platforms and personal networks, reflecting a cost effective approach. Financial management is mostly conducted manually through basic record-keeping of income and expenditures. Some informants have begun separating personal and business finances, indicating an emerging awareness of financial

accountability. However, the absence of standardized financial systems suggests limited managerial capacity.

The findings further indicate that production management is closely linked to resource availability and business scale. Informants such as Nurul Azizah highlighted the dependency on natural conditions for raw materials, particularly in the wild forest honey business. This creates fluctuations in production capacity and income stability. Similarly, small-scale food producers rely on home-based production systems, which limit scalability. Despite these constraints, MSMEs demonstrate adaptability by aligning production with demand patterns. This approach reduces operational risks but also restricts opportunities for expansion. Consequently, production efficiency remains constrained by both internal and external factors.

Marketing practices among MSMEs are predominantly digital but remain relatively basic in execution. Social media platforms are widely used due to their accessibility and low cost. Informants such as Nurdiana and Khaerunnisa emphasized the importance of Instagram and WhatsApp in reaching customers. However, the use of advanced digital tools such as marketplaces and paid advertising remains limited. This is primarily due to insufficient digital literacy and lack of technical skills. As a result, marketing efforts are often inconsistent and lack strategic planning. Despite these limitations, digital platforms have significantly expanded market reach compared to traditional methods.

Financial management practices reveal a transitional stage toward more structured systems. Most informants rely on manual bookkeeping, recording daily income and expenses. While this approach provides basic financial oversight, it lacks analytical depth for decision-making. Only a few informants have started using digital financial applications, indicating early adoption of financial technology. The separation between personal and business finances is not consistently practiced, which may affect financial transparency. These findings suggest that financial management remains one of the weakest aspects of MSME operations. Strengthening this area is essential for long-term sustainability.

Regarding challenges, limited capital emerges as a major constraint for MSME development. Informants reported difficulties in expanding production capacity due to insufficient financial resources. Additionally, intense market competition, particularly in the food sector, poses significant challenges. Businesses must continuously innovate to maintain competitiveness. Another critical issue is limited access to broader markets, which restricts revenue growth. Human resource constraints, including lack of skilled labor, further

complicate business operations. These challenges collectively hinder the growth potential of MSMEs in the region.

Digital technology presents both opportunities and challenges for MSMEs. On one hand, social media platforms enable cost effective marketing and customer engagement. On the other hand, the limited ability to utilize advanced digital tools restricts optimal benefits. Informants acknowledged the potential of marketplaces and financial applications but expressed difficulties in their implementation. This indicates a gap between awareness and practical application. The findings suggest that digital transformation is still in its early stages among MSMEs. Enhancing digital literacy is therefore crucial for maximizing technological benefits.

Institutional support, particularly in the form of training and mentorship, remains limited among the informants. Only a small number of participants reported attending training programs related to MSME management and digital marketing. Those who participated experienced improvements in promotional strategies and branding awareness. However, the majority rely on self-learning and informal knowledge sharing. This lack of structured support limits the ability of MSMEs to adopt best practices. Strengthening collaboration between government institutions and MSMEs is essential. Such initiatives could significantly enhance managerial competencies and business performance.

To enhance competitiveness, MSMEs implement various adaptive strategies. Maintaining product quality is identified as a primary factor in building customer trust. Informants also emphasize the importance of innovation, particularly in product variation and packaging design. Competitive pricing strategies are applied to attract and retain customers. Additionally, social media is utilized for promotional campaigns, including discounts and special offers. Customer feedback is actively sought to improve products and services. These strategies reflect a customer-oriented approach, which is critical in a competitive market environment.

In conclusion, the transformation of MSME management in Barru Regency reflects a gradual shift toward digital integration. While digital tools have been adopted to some extent, their utilization remains suboptimal due to limited skills and resources. MSMEs continue to rely on traditional management practices, particularly in financial and operational aspects. The findings highlight the need for targeted interventions, including digital training, financial literacy programs, and access to capital. Strengthening institutional support mechanisms will play a crucial role in accelerating MSME development. Ultimately, enhancing managerial capacity and technological

adoption is essential for achieving sustainable business growth in the digital era.

Data Analysis Using Nvivo

Data analysis in this study was conducted using a qualitative approach supported by NVivo software. The use of NVivo aimed to assist the researcher in managing, organizing, and systematically analyzing qualitative data related to the transformation of MSME management in Barru Regency in the digital era. The data analyzed consisted of in-depth interviews with MSME actors, local business owners, and relevant stakeholders involved in business development and digital adoption. In addition, observational notes and supporting documentation related to business operations, digital marketing practices, and financial management were included to enrich the analysis. The use of NVivo enabled the researcher to structure large volumes of textual data efficiently and transparently. Through this software, patterns of managerial transformation, digital adoption behavior, and strategic decision-making processes were identified more accurately. NVivo also facilitated systematic coding and categorization of emerging themes. As a result, the analytical process became more structured, traceable, and analytically rigorous.

Through NVivo, data analysis was conducted in several coding stages, namely open coding, axial coding, and selective coding. The open coding stage was used to identify initial concepts emerging from the interview data, such as digital adoption practices, financial management strategies, marketing transformation, resource limitations, and technological challenges faced by MSME actors. These preliminary codes represented the fundamental dimensions of MSME management transformation. The next stage, axial coding, was carried out to connect and group related categories into broader thematic structures, including digital transformation strategies, managerial capability development, innovation practices, and structural barriers in MSME development. This stage allowed the researcher to examine relationships between variables and identify patterns across different informants. Finally, selective coding was employed to formulate the core theme that explains the interrelationship between digital transformation and the sustainability of MSME management in Barru Regency. Therefore, the use of NVivo not only enhanced analytical depth and accuracy but also strengthened the empirical validity and conceptual credibility of the research findings.

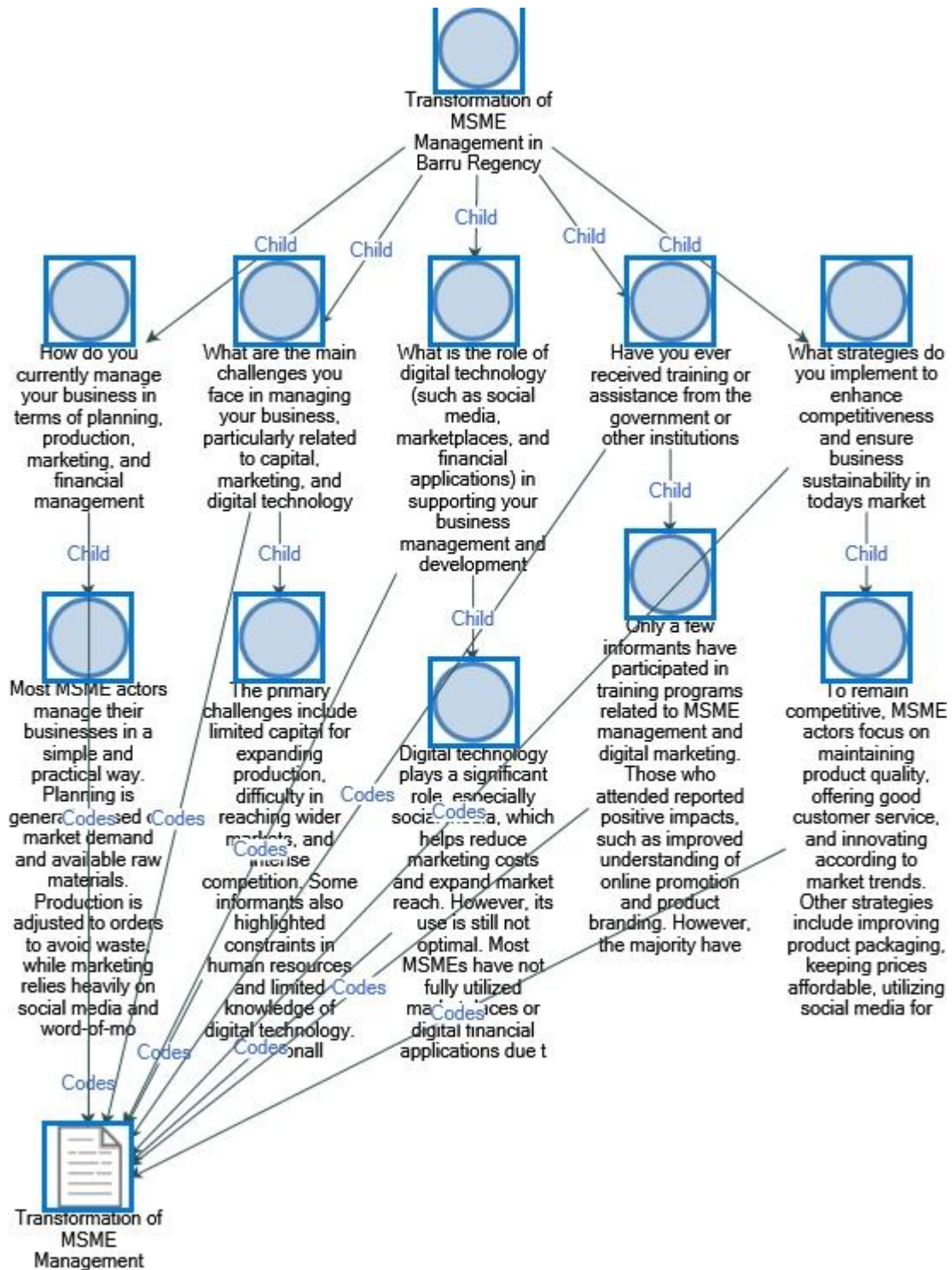


Figure 2.
Conceptual Model of MSME Management Transformation in Barru Regency
Based on NVivo Qualitative Analysis

Figure 2 illustrates a conceptual model of MSME management transformation in Barru Regency derived from qualitative analysis using NVivo. The model is structured around a central theme "Transformation of

Figure 3 presents a word cloud visualization derived from interview data, illustrating the most frequently occurring terms related to MSME management transformation in Barru Regency. The prominence of words such as “business,” “management,” “digital,” “technology,” and “marketing” indicates that these themes are central to the experiences and perspectives of MSME actors. Larger and bolder words represent higher frequency and significance in the dataset, suggesting that business operations and managerial practices remain the primary focus, while digital technology and marketing are increasingly elements in supporting enterprise development. Additionally, terms such as “financial,” “capital,” and “customers” reflect the ongoing importance of resource management and market orientation within MSME activities.

The word cloud highlights several contextual and supporting themes, including “challenges,” “knowledge,” “planning,” and “competitiveness,” which point to the constraints and strategic considerations faced by MSMEs. The appearance of terms like “social,” “media,” and “promotion” underscores the growing role of digital platforms in expanding market reach and enhancing business visibility. Meanwhile, words such as “training,” “assistance,” and “innovation” suggest the relevance of capacity-building efforts and external support in facilitating transformation. Overall, this visualization provides a concise yet comprehensive overview of the dominant issues and emerging trends shaping MSME management, emphasizing a gradual shift from conventional practices toward more digitally integrated and competitive business models.

Discussion

The findings of this study indicate that MSME management in Barru Regency is currently in a transitional phase, where traditional practices coexist with emerging digital approaches. Most business actors still rely on simple, experience-based management systems, particularly in planning, production, and financial recording. This reflects limited managerial capacity and a lack of standardized business procedures. However, the gradual shift toward digitalization—especially in marketing demonstrates an increasing awareness of the importance of technology in enhancing business performance. This duality suggests that MSMEs are not resistant to change, but rather constrained by structural and capability-related limitations that slow the transformation process.

From a production perspective, MSMEs show a high level of adaptability in managing limited resources. The dependence on natural conditions and small-scale production systems indicates that business sustainability is strongly influenced by external environmental factors. While aligning production with

demand helps minimize risks and inefficiencies, it also restricts scalability and long-term growth. This finding highlights the need for improved production planning and resource management strategies. Without such improvements, MSMEs may struggle to expand their operations and compete in broader markets, particularly in an increasingly competitive and digitalized economic environment.

In terms of marketing, the study reveals that digital platforms especially social media have become essential tools for MSME actors. The use of platforms such as Instagram and WhatsApp enables businesses to reach a wider audience at relatively low cost. However, the utilization of digital technology remains basic and lacks strategic depth. MSMEs have not fully explored advanced features such as data analytics, targeted advertising, and marketplace integration. This gap between usage and optimization indicates that digital literacy remains a critical issue. Strengthening digital competencies is therefore necessary to ensure that MSMEs can fully leverage technological opportunities for business growth.

Financial management emerges as one of the weakest aspects of MSME operations. The reliance on manual bookkeeping and the inconsistent separation of personal and business finances limit the ability of entrepreneurs to make informed financial decisions. Although some MSME actors have begun adopting digital financial tools, the overall level of financial literacy remains low. This condition not only affects business transparency but also reduces access to external financing opportunities, such as bank loans or investment support. Therefore, improving financial management skills and promoting the use of digital financial applications are essential steps toward strengthening business sustainability.

Finally, the study emphasizes the importance of external support and adaptive strategies in driving MSME transformation. Limited access to training and institutional assistance has constrained the ability of MSMEs to adopt best practices in management and digitalization. Nevertheless, those who received training reported significant improvements, particularly in marketing and branding. This demonstrates that capacity-building programs can have a substantial impact when effectively implemented. In response to competitive pressures, MSMEs adopt various strategies, including product innovation, quality improvement, and customer-oriented services. These efforts indicate a strong willingness to adapt and survive. However, a more integrated approach involving government support, financial access, and continuous training is required to accelerate MSME transformation and ensure long-term competitiveness in the digital era.

CONCLUSION

Conclusion

In conclusion, the transformation of MSME management in Barru Regency reflects a gradual and ongoing shift from traditional practices toward digital integration, although the process remains uneven and constrained by limited capital, low digital literacy, and weak financial management systems. While MSME actors have demonstrated adaptability through the use of social media for marketing and customer engagement, the overall utilization of digital technology is still basic and not yet optimized for strategic growth. The findings also highlight the critical role of external support, particularly training and institutional assistance, in enhancing managerial capacity and technological adoption. Therefore, strengthening digital skills, improving financial literacy, expanding access to capital, and fostering collaborative support mechanisms are essential to accelerate MSME development and ensure sustainable competitiveness in the digital era.

Suggestions

It would be unrealistic to expect MSMEs to fully transform without targeted support, so practical and coordinated interventions are essential. Therefore, it is recommended that local governments and related institutions intensify capacity-building programs focusing on digital literacy, financial management, and business strategy, ensuring they are accessible and continuous rather than one-time activities. MSME actors should also be encouraged to adopt simple digital tools for bookkeeping and expand their use of online marketplaces to complement social media marketing. In addition, improving access to micro-financing and facilitating partnerships with private sectors or digital platforms can help overcome capital constraints. Finally, strengthening mentoring systems and peer learning among MSMEs will support knowledge sharing and accelerate the overall transformation toward more sustainable and competitive business practices in the digital era.

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