

ENHANCING MSME MARKETING PERFORMANCE THROUGH KNOWLEDGE MANAGEMENT: DIGITAL CAPABILITY AND DIGITAL INNOVATION AS MEDIATING VARIABLES

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Abstract

This study examines the impact of Knowledge Management (KM) on Marketing Performance in Micro, Small, and Medium Enterprises (MSMEs), with Digital Capability and Digital Innovation as mediating variables. A quantitative approach was employed, analyzing data from 150 MSMEs in West Kalimantan using Structural Equation Modeling (SEM) with SmartPLS software. The findings reveal that KM significantly influences Marketing Performance both directly and indirectly through Digital Innovation, which acts as a partial mediator. Conversely, Digital Capability does not significantly mediate the relationship between KM and Marketing Performance, indicating its limited role without effective integration into marketing strategies. The results underscore the crucial role of Digital Innovation in enhancing Marketing Performance, suggesting that MSMEs should prioritize innovation-driven strategies supported by robust KM practices. To achieve optimal outcomes, MSMEs are advised to integrate KM with a strong focus on Digital Innovation while improving the application of Digital Capability within their marketing frameworks. These insights provide valuable implications for managerial and policy-level interventions to bolster MSME competitiveness in the digital era.

Keywords: *Knowledge Management, Digital Innovation, Digital Capability, Marketing Performance, MSMEs Competitiveness*

INTRODUCTION

The rapid development of digital technology in recent decades has transformed the global business landscape, including in Indonesia. Micro, Small, and Medium Enterprises (MSMEs), as a vital pillar of the national economy, face significant challenges in optimizing their digital potential. With increasing internet penetration and adoption of digital technology, Indonesian MSMEs have opportunities to expand their market reach and enhance competitiveness. However, the lack of effective utilization of digital technology often hinders achieving these objectives (INDEF, 2024). One critical aspect of improving MSMEs' competitiveness in the digital era is the effective implementation of knowledge management (KM). Knowledge management not only aids in organizing information and experiences but also facilitates the creation of innovation and digital capabilities required to improve digital marketing performance (Yutika, 2024).

Knowledge Management (KM) is a strategic approach that helps organizations organize, acquire, capture, and share knowledge effectively. KM practices enable MSMEs to select, implement, and optimize digital technologies aligned with their business operational needs (Purwanti et al., 2022; Riadi et al., 2023; Sudarti & Dewi, 2023). KM helps MSMEs overcome challenges such as supply chain disruptions, changing consumer behavior, and mobility restrictions by providing critical insights, market trends, and innovative strategies that support decision-making and rapid adaptation. Previous studies show that KM contributes to the development of digital capability, digital orientation, and digital innovation in MSMEs (Riadi et al., 2023; Yutika, 2024). KM plays a crucial role in building digital capabilities and orientation, which subsequently strengthen digital innovation and improve organizational performance.

Digital capability refers to MSMEs' ability to adopt and utilize digital technology for business strategies and operations. This factor is a key driver of marketing performance improvement. Digital capability encompasses organizational skills, knowledge, and expertise in using digital technology for digital transformation, process optimization, innovation, efficiency, and customer interaction (Khin & Ho, 2019; Riadi et al., 2023; Rupeika-

Apoga et al., 2022; Yli-Renko et al., 2020). Furthermore, digital innovation represents a company's ability to creatively utilize digital technology to develop superior solutions, products, or services aligned with digital trends and support business and marketing strategies efficiently (Khin & Ho, 2019; Nasiri et al., 2020; Riadi et al., 2023). Digital innovation focuses on developing and implementing technology-based ideas that help MSMEs create added value and enhance the relevance of their products or services in the global market.

Several studies have demonstrated that digital capability and digital innovation each have a significant positive relationship with MSME marketing performance, particularly in developing countries like Indonesia (Purwanti et al., 2022; Sudarti & Dewi, 2023). Other studies also confirm that digital innovation encourages MSMEs to create new products, services, or processes by leveraging digital technology (Mamduh & Pratikto, 2021). Such innovation enables MSMEs to meet rapidly changing market demands and improve their business sustainability. However, the influence of knowledge management on marketing performance with digital capability and digital innovation as mediating variables requires further exploration. This study aims to examine the impact of knowledge management on MSME marketing performance in Indonesia, focusing on the role of digital capability and digital innovation as mediating variables. By understanding these relationships, this research hopes to provide deeper insights into effective knowledge management strategies for enhancing MSME competitiveness in the digital era.

LITERATURE REVIEW

MSME Digitalization

Micro, Small, and Medium Enterprises (MSMEs) refer to businesses operated by individuals, groups, small entities, or households. MSMEs serve as a crucial economic pillar in Indonesia, contributing significantly to the nation's economic growth. Currently, the paradigm shift in business driven by the digital revolution has had a profound impact on MSMEs. As a creative and innovative sector, MSMEs are continually driven by business digitalization, which involves adopting new digital technologies to conduct business operations. MSMEs must innovate through digital technology to enhance business performance, improve customer experience and engagement, minimize operations, and create new business models (Kallmuenzer et al., 2024; Martínez-Peláez et al., 2024; Z. Wang et al., 2023). Consequently, business digitalization has become a necessity to remain competitive in dynamic markets (Calderon-Monge & Ribeiro-Soriano, 2024).

Digital Marketing Performance

Digital marketing capability has become a crucial element in modern business strategies, especially for small and medium-sized enterprises (SMEs). According to Chinakidzwa & Phiri (2020), this capability encompasses leveraging digital technology to attract and retain customers and improve business performance. Digital marketing capability functions not only as a promotional tool but also as a determinant of competitive advantage in increasingly saturated markets. In the era of Industry 4.0, Sasmoko et al. (2019) argue that companies must refine their customer service activities through digital platforms, including sales, distribution, and electronic market research. Digital marketing capability is an intelligent system essential for business sustainability in a technology-dominated era (Chaffey & Chadwick, 2022; Purwanti et al., 2022). Moreover, in the context of MSMEs, Saputra et al. (2022) found that digital marketing enables broader market access at more efficient costs, providing SMEs opportunities to compete more effectively.

The concept of marketing performance has been extensively discussed in various scientific studies, showcasing diverse measures used to indicate the success and effectiveness of marketing strategies within a company. Marketing performance can be understood as a construct comprising several indicators, such as sales growth, market share, and sales to existing customers (Chang et al., 2010). Other indicators include market share and sales growth (García-Villaverde et al., 2013), the acquisition of new customers and increased sales to existing customers (Krush et al., 2013), stronger growth in sales revenue, enhanced ability to acquire new customers, larger market share, and increased sales to existing customers (Merrilees et al., 2011). Additionally, brand market share and brand sales growth are key indicators of marketing performance (O'Cass & Weerawardena, 2010). These diverse perspectives on marketing performance provide a comprehensive understanding of how organizations evaluate and improve their marketing strategies. By integrating multiple indicators, companies can better assess their competitive positioning and identify opportunities for strategic enhancement.

Knowledge Management, Digital Capability, and Digital Innovation

Knowledge Management (KM) is a discipline focusing on managing knowledge within organizations, playing a pivotal role in the processes of knowledge creation, storage, distribution, and application. KM implementation offers various benefits, such as enhancing operational efficiency, accelerating innovation, and increasing organizational competitiveness. Polas et al. (2023) emphasize that appropriate KM practices can help MSMEs overcome resource limitations and improve responsiveness to market changes. Furthermore, findings by Giampaoli et al. (2024) underscore the importance of intellectual capital in supporting firms' innovation capabilities through effective knowledge management. The adoption of effective and sustainable KM systems can support digital innovation strategies and enhance overall organizational performance through knowledge collaboration and digital technology integration (Centobelli et al., 2017).

Knowledge Management (KM) serves as a foundational concept in optimizing knowledge assets and human resources for organizations to thrive and evolve in the digital era. KM is instrumental in fostering digital capability and digital innovation (Riadi et al., 2023). Digital capability encompasses an organization's ability to effectively adopt, operate, and utilize digital technologies to support business operations, adapt to technological and market changes, enhance operational efficiency, and create better innovation and interaction with customers through digital channels. By proactively adopting digital technologies and implementing continuous learning, organizations can generate new ideas and transform existing knowledge into innovative outcomes. In an increasingly digital business environment, digital capability forms a critical foundation for organizational success in adapting to technological advancements and market demands. Organizations that equip their employees with digital skills and knowledge can adapt more swiftly to market changes and customer demands. This aligns with previous research indicating that KM can enhance digital technological skills and innovation potential (Saputra et al., 2022; Yli-Renko et al., 2020).

KM also plays a pivotal role in driving digital innovation by leveraging knowledge resources and applying dynamic organizational capabilities (Mafabi et al., 2012; Riadi et al., 2023; Xu et al., 2010). Success in the digital business domain relies heavily on digital innovation and corporate performance. Digital innovation helps organizations enhance customer experiences, improve overall company performance (Huang et al., 2023; Leão & da Silva, 2021), and achieve competitive advantages. Additionally, digital innovation enables organizations to seize new opportunities, adapt to digital disruptions, and remain relevant in dynamic business landscapes (Khin & Ho, 2019a; X. Wang et al., 2022). In a rapidly evolving digital context, the ability to innovate becomes a crucial factor for creating customer value and achieving sustainable growth. By integrating KM and digital capability, organizations can more effectively respond to technological and market changes, thereby delivering high-quality and relevant products and services that meet customer needs.

Building upon the theoretical framework and empirical evidence presented in prior studies, this research seeks to explore the relationships between Knowledge Management, Digital Capability, Digital Innovation, and Marketing Performance. The hypotheses formulated are designed to address the significant gaps in understanding how these variables interact and influence MSME success in the digital era. The proposed hypotheses are as follows:

1. Knowledge Management significantly and positively affects Digital Capability.
2. Knowledge Management significantly and positively affects Digital Innovation.
3. Digital Capability significantly and positively affects Marketing Performance.
4. Digital Innovation significantly and positively affects Marketing Performance.
5. Knowledge Management positively and significantly affects Marketing Performance through Digital Capability as a mediating variable.
6. Knowledge Management positively and significantly affects Marketing Performance through Digital Innovation as a mediating variable.

METHOD

This study employs a quantitative approach to analyze the influence of the independent variable, Knowledge Management, on the dependent variable, Marketing Performance, with Digital Capability and Digital Innovation serving as mediating variables. The sample was selected using a purposive sampling technique, with the primary criterion being that the participating MSMEs had integrated digital technology into their operations. The total sample comprised 150 MSMEs in the product and service sectors located in West Kalimantan, all of which agreed to participate by completing a questionnaire. Data collection was conducted both in person and via

online platforms such as Google Forms. The collected data were analyzed using Structural Equation Modeling (SEM) with the assistance of SmartPLS software, encompassing three primary stages.

The first stage involved the analysis of the outer model to assess the validity and reliability of the research indicators. Validity was evaluated using convergent validity and discriminant validity (Hair et al., 2021). Convergent validity was determined by ensuring that the outer loading values exceeded 0.7 and the Average Variance Extracted (AVE) values were greater than 0.5. Discriminant validity was assessed by comparing the square root of the AVE for each construct with the correlations between constructs, ensuring that the square root of the AVE was higher. Additionally, cross-loading values were examined to confirm that each indicator had the highest loading value on its corresponding construct compared to others. Reliability was assessed using Cronbach's Alpha and Composite Reliability, with values exceeding 0.7 considered acceptable. The second stage focused on the analysis of the inner model to evaluate relationships between latent variables. This evaluation involved examining the R Square and Predictive Relevance (Q Square) values. R Square values were used to determine the strength of relationships between variables, with thresholds of 0.25, 0.50, and 0.75 indicating weak, moderate, and strong influences, respectively (Hair et al., 2021). Predictive Relevance (Q Square) values were used to assess the model's predictive power, with values greater than zero indicating good predictive capabilities and strong relevance for subsequent analyses.

The third stage involved hypothesis testing through bootstrapping to generate Path Coefficient values, T-Statistics, and P-Values. A hypothesis was considered significant if the T-Statistics exceeded 1.96 or the P-Value was less than 0.05 at a 5% significance level (Hair et al., 2021). This testing included analyses of direct effects and indirect effects via mediators to determine whether mediation was partial or full. This process enabled the identification of whether the proposed relationships between variables in the hypotheses were statistically supported.

Through this structured approach, the study aims to produce valid and reliable findings regarding the contribution of Knowledge Management to Marketing Performance, both directly and through the mediating roles of Digital Capability and Digital Innovation in MSMEs in West Kalimantan. The structured analysis using SEM through SmartPLS ensures results that are valid, reliable, and accountable, providing a robust foundation for strategic decision-making at both managerial and public policy levels to support MSME development in the digital era.

RESULTS AND DISCUSSION

MSME and Respondent Profile

This study involved 150 MSMEs operating in the product and service sectors in West Kalimantan, all of which agreed to participate by completing the research questionnaire. Table 1 illustrates that the respondents were predominantly individuals aged between 20 and 30 years, accounting for 42% of the total participants. The majority of respondents had a high school education background, representing 78%. In terms of roles within the MSMEs, most respondents were business owners (52%). Additionally, most MSMEs employed a workforce of 1 to 4 people, accounting for 54% of the sample. Furthermore, the majority of MSMEs had utilized digital technology for 2 to 3 years. The most commonly used digital platforms were social media, including WhatsApp, Instagram, Facebook, and TikTok, as well as e-commerce platforms such as Shopee, Tokopedia, and Lazada. These findings indicate that the majority of respondent MSMEs have actively integrated digital technology into their business operations, supporting various business and marketing activities.

Table 1. Respondent Characteristics

Characteristics	Category	Quantity	Percentage (%)
Age	20-30 years	63	42
	>30 years	87	58
Education	Senior High School	118	78
	University	32	22
Role	MSME owner	79	52
	Employee	58	38
	Others	13	10
Employee	1-4 person	82	54
	5-19 person	60	40

	>19 person	8	6
Digital Platform*	E-commerce (Shopee, Tokopedia, Lazada, etc.)	103	68
	Media Sosial (WhatsApp, Instagram, Facebook, Tiktok, etc.)	121	80
	Others	30	20
Age of Digital Platform Usage	<2 years	49	33
	2-3 years	86	57
	>3 years	15	10

Note: n = 150; *Multiple-choice answer

Outer Model and Inner Model Analysis

The results of the outer model analysis indicate that all indicators for latent variables meet the validity and reliability criteria. Convergent validity was achieved, as the outer loading values for all indicators exceeded 0.7, and the Average Variance Extracted (AVE) values for each variable were greater than 0.5. Table 2 demonstrates that these indicators effectively explain the constructs they measure. Discriminant validity was also satisfied, as the square root of the AVE for each variable was higher than the correlations with other variables in the model. Moreover, cross-loading values confirmed that each indicator had a stronger relationship with its own construct compared to others, indicating no issues with discriminant validity among variables. From a reliability perspective, the Composite Reliability and Cronbach's Alpha values for all variables exceeded 0.7, suggesting that the indicators consistently measure their respective constructs.

Table 2. Construct Reliability and Validity

Variables	Items	Loading factors	AVE	Composite Reliability
Knowledge Management (KM)	KM1	0.726	0.654	0.903
	KM2	0.819		
	KM3	0.701		
	KM4	0.956		
	KM5	0.817		
Digital Capability (DC)	DC1	0.917	0.660	0.920
	DC2	0.785		
	DC3	0.912		
	DC5	0.774		
	DC6	0.722		
	DC7	0.741		
	Digital Innovation (DI)	DI1		
DI4		0.960		
DI5		0.964		
Marketing Performance (MP)	MP2	0.804	0.627	0.871
	MP3	0.770		
	MP5	0.763		
	MP6	0.830		

In the inner model analysis, the R Square values for the mediating and endogenous latent variables Digital Capability, Digital Innovation, and Marketing Performance were 0.86, 0.89, and 0.76, respectively. These results indicate that the independent and mediating variables collectively explain 86%, 89%, and 76% of the variance in each respective variable. Based on the interpretation categories, these effects are considered strong. Additionally, the predictive relevance (Q Square) values for the dependent variables were positive, indicating that the model has good predictive relevance in explaining the relationships between variables. Table 3 demonstrates that, fundamentally, Knowledge Management exhibits a strong predictive capability for the variables Digital Capability, Digital Innovation, and Marketing Performance.

Table 3. Determination Coefficient

Variables	Q-square	R-square	Results
Digital Capability (DC)	0.551	0.865	Strong
Digital Innovation (DI)	0.723	0.898	Strong
Marketing Performance (MP)	0.440	0.763	Strong

Hypothesis Testing

The path analysis results, as presented in Table 4, reveal that Knowledge Management significantly influences Digital Capability and Digital Innovation, with T-Statistics values of 96.107 and 175.661, respectively, and P-Values of 0.000, significant at the 0.01 level. These findings suggest that effective knowledge management serves as a primary foundation for adopting digital technologies and fostering innovation in MSME operations. Through efficient knowledge management, MSMEs can enhance their digital capabilities and generate innovations that align with market needs (Binsaeed et al., 2023; Riadi et al., 2023; Sánchez Ramírez et al., 2022; Yutika, 2024). Effective knowledge management not only improves digital capabilities but also creates an environment that encourages collaboration and information exchange among stakeholders. By leveraging information and communication technology, MSMEs can access market data and information in real-time, enabling them to respond more quickly to changing customer needs. Moreover, good knowledge management allows MSMEs to identify new trends and opportunities, driving relevant and sustainable innovation (Zhang et al., 2010).

Tabel 4. Path Coefficients

	t-statistics	p-values	Result
Knowledge Management -> Digital Capability	96.107	0.000*	Accepted
Knowledge Management -> Digital Innovation	175.661	0.000*	Accepted
Digital Capability -> Marketing Performance	1.352	0.177	Rejected
Digital Innovation -> Marketing Performance	3.570	0.000*	Accepted
Knowledge Management -> Marketing Performance	1.813	0.044**	Accepted

Note: *significance level 0.01; ** significance level 0.05

However, the influence of Digital Capability on Marketing Performance was not significant, with a T-Statistics value of 1.352 and a P-Value of 0.177. This finding indicates that the digital capabilities possessed by MSMEs are not sufficient to directly improve marketing performance (Purwanti et al., 2022). Factors such as the lack of integrated digital marketing strategies or customer acceptance of technology may hinder the effectiveness of digital capabilities in supporting marketing performance. Previous studies have demonstrated that enhancing the digital capabilities of stakeholders in MSMEs can drive company performance (Joensuu-Salo & Matalamäki, 2023; X. Wang et al., 2022; Yu et al., 2022). Conversely, Digital Innovation had a positive and significant effect on Marketing Performance, with a T-Statistics value of 3.570 and a P-Value of 0.000. These results highlight the critical role of digital innovation in driving improvements in MSME marketing performance. Customer-oriented digital innovations can create added value and strengthen business competitiveness (Huang et al., 2023; Sudarti & Dewi, 2023; Widyanti & Mahfudz, 2020). Additionally, Knowledge Management also had a direct significant influence on Marketing Performance, with a T-Statistics value of 1.813 and a P-Value of 0.044, indicating that effective knowledge management directly impacts market understanding and more effective marketing strategies (Riadi et al., 2023; Sudarti & Dewi, 2023).

Overall, these findings confirm that digital innovation has a more dominant contribution compared to digital capability in improving marketing performance. Therefore, MSMEs should prioritize implementing market-oriented innovations while continuing to enhance digital capabilities. This study also underscores the importance of leveraging Knowledge Management to drive digital innovation that positively impacts marketing performance in addressing the challenges of the digital era.

Tabel 5. Indirect Effects

		t-statistics	p-values	Result
Indirect Effects	Knowledge Management → Digital Capability → Marketing Performance	1324	0.186	Rejected
	Knowledge Management → Digital Innovation → Marketing Performance	3668	0.000*	Accepted
Total Indirect Effect	Knowledge Management → Marketing Performance	1813	0.000*	Accepted

Note: *significance level 0.01

The results of the indirect effects analysis presented in Table 5 indicate that the pathway from Knowledge Management → Digital Capability → Marketing Performance is not significant, with a T-Statistics value of 1.324 and a P-Value of 0.186. This finding suggests that while knowledge management contributes to digital capability, this relationship is not strong enough to produce a significant indirect impact on marketing performance. It is likely that digital capabilities have not been optimally applied within marketing strategies, thereby limiting their effect on marketing performance. This highlights the understanding that good digital capability alone is insufficient without effective integration with appropriate marketing strategies. As Teece (2007) emphasizes, effective knowledge management within an organization helps create competitive advantages; however, to optimize market performance outcomes, direct and synergistic application is necessary. Furthermore, Berthon et al. (2016) emphasize that digital capabilities need to be integrated into broader marketing processes, including communication strategies, advertising, and customer feedback responses. The inability to adapt digital capabilities in marketing practices may hinder MSMEs from achieving desired outcomes. Therefore, it is essential for MSMEs to evaluate and optimize their use of digital capabilities in their marketing efforts to maximize expected performance (Riadi et al., 2023; Sudarti & Dewi, 2023).

Conversely, the pathway from Knowledge Management → Digital Innovation → Marketing Performance shows significant results, with a T-Statistics value of 3.668 and a P-Value of 0.000. This indicates that digital innovation functions as an effective mediator in the relationship between knowledge management and marketing performance. Effective knowledge management enables MSMEs to develop digital technology-based innovations, which ultimately improve marketing performance. This underscores the importance of innovation in creating added value and strengthening competitiveness in the market. Recent research by Khan et al. (2021) demonstrates that effective knowledge management contributes to the development of more adaptive digital innovations, which can meet the evolving demands of the market. Digital innovation not only encompasses the development of new products but also the implementation of more efficient and responsive digital marketing strategies. For example, the use of data analytics can help MSMEs understand consumer behavior and tailor product offerings to customer needs more accurately (Khan et al., 2021). Furthermore, Choudhury & Kar (2021) emphasize that leveraging digital technology in marketing—such as social media, e-commerce, and digital campaigns—must be supported by a strong knowledge foundation. This enables companies to innovate sustainably and implement more effective approaches in attracting customer attention, building strong relationships, and ultimately enhancing their marketing performance. Thus, knowledge management efforts focused on digital innovation should be a priority for MSMEs to build sustainable competitive advantages (Riadi et al., 2023; Sudarti & Dewi, 2023).

Overall, the total indirect effect of Knowledge Management on Marketing Performance shows significance, with a T-Statistics value of 1.813 and a P-Value of 0.000. This result indicates that knowledge management has a significant indirect impact on marketing performance through mediating variables. However, the effectiveness of mediators depends on the type of mediator, where digital innovation demonstrates a more dominant role compared to digital capability. Research by Yang et al. (2020) explains that successful knowledge management can drive innovation, which serves as a key driver of marketing performance. When digital innovation is integrated with marketing processes, the outcomes tend to be more significant because such innovations provide timely and relevant solutions to market needs. Meanwhile, digital capability, while contributing, may not be optimal unless implemented through effective innovation strategies (Soni et al., 2021). Therefore, it is crucial for MSMEs to focus on developing digital innovation as a strategic step to maximize the positive impact of knowledge management on marketing performance (Riadi et al., 2023; Sudarti & Dewi, 2023).

CONCLUSION

The findings of this study provide valuable insights, indicating that while digital capability is an essential aspect in the digital era, digital innovation plays a more crucial role in enhancing marketing performance. Therefore, MSMEs should focus their knowledge management efforts on driving technology-based digital innovation while also improving the effectiveness of digital capability to better achieve their marketing objectives. The analysis reveals that Digital Innovation acts as a partial mediator in the relationship between Knowledge Management and Marketing Performance, with both the direct effect and the indirect effect through Digital Innovation being significant. This highlights that knowledge management not only has a direct impact on marketing performance but is also amplified through digital innovation. Conversely, Digital Capability does not serve as a mediator, as its indirect effect is not significant. Thus, digital innovation emerges as a key element linking knowledge management with marketing performance, while digital capability requires further optimization to achieve better results. To achieve optimal marketing performance, MSMEs are advised to integrate their knowledge management strategies with a focus on digital innovation and to evaluate ways to enhance their digital capability.

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