

DAYASAING
JURNAL MANAJEMEN

Volume 26 Nomer 1
Juni 2024

Diterbitkan oleh Program Magister Manajemen
Universitas Muhammadiyah Surakarta



THE ROLE OF KNOWLEDGE MANAGEMENT IN ENHANCING DIGITAL CAPABILITIES AND DRIVING INNOVATION IN SMES

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Abstract

The adaptability of SMEs to new technologies is essential for their success in an increasingly competitive market environment. Leveraging digital technology to improve business performance requires strong digital capabilities. Effective knowledge management allows SMEs to enhance their digital capabilities, which not only boosts operational efficiency but also fosters market-relevant innovation. This study explores the role of Knowledge Management in fostering Digital Capability and promoting Digital Innovation among Small and Medium-sized Enterprises in West Kalimantan. Using Structural Equation Modeling, data were collected from 102 SMEs through questionnaires. The findings reveal that Knowledge Management significantly influences Digital Capability and Digital Innovation, with path coefficients of 0.932 and 0.949 and t-statistics of 88.110 and 165.798, respectively. This demonstrates that effective knowledge management can markedly enhance digital capabilities and innovation in SMEs, thereby improving their performance. The study offers valuable insights for policymakers and business leaders. By demonstrating the critical role of Knowledge Management in driving digital transformation, the research provides actionable recommendations for SMEs to invest in Knowledge Management Systems and practices, thereby improving operational efficiency, competitiveness, and adaptability to market changes.

Keywords: Knowledge Management, Digital Capability, Digital Innovation, SMEs.

INTRODUCTION

The paradigm shift in business triggered by the digital revolution has significantly impacted various economic aspects, including Small and Medium-sized Enterprises (SMEs). As a creative and innovative sector, conventional SMEs are expected to adopt digital technology to enhance their competitiveness in an increasingly complex market. According to Yu et al. (2022), digital transformation and innovation positively affect operational and organizational performance. SMEs must innovate through digital technology to improve business performance, enhance customer experience and engagement, minimize operations, and create new business models (Kallmuenzer et al., 2024; Z. Wang et al., 2023). Raharja et al. (2021) argue that digital knowledge is a key factor for SMEs in transitioning business strategies towards digitalization. Therefore, digitalizing business has become essential to improving company performance and competing in a dynamic market.

Knowledge Management (KM) is a strategic approach that helps organizations effectively organize, acquire, capture, and share knowledge. KM enables organizations to manage and distribute relevant and critical information, which can then be used to create innovative solutions and accelerate digital transformation (Riadi et al., 2023). Polas et al. (2023) highlight that proper KM practices can help SMEs overcome resource limitations and improve responsiveness to market changes. Adopting 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).

KM forms two main concepts in the optimal management of knowledge assets and human resources to survive and thrive in the digital era: digital capability and digital innovation (Riadi et al., 2023). Digital capability refers to an organization's ability to integrate digital technology to support and accelerate the innovation process (Nadkarni & Prügl, 2021). This capability is crucial for organizational success in responding to technological changes and market demands, as well as supporting digital innovations that enhance operational efficiency and competitive advantage. By proactively adopting digital technology and implementing continuous learning, organizations can generate new ideas and transform existing knowledge into innovative outcomes.

KM plays a primary role in driving digital innovation by leveraging knowledge resources and applying the organization's dynamic capabilities (Mafabi et al., 2012; Riadi et al., 2023; Xu et al., 2010). Success in digital business depends on digital innovation and company performance. Digital innovation helps companies improve customer experience, enhance overall performance (Huang et al., 2023; Leão & da Silva, 2021), and gain a competitive edge. Additionally, digital innovation enables companies to seize new opportunities, adapt to digital disruptions, and remain relevant in a dynamic business landscape (Khin & Ho, 2019; X. Wang et al., 2022). In a rapidly changing digital context, the ability to innovate becomes key to creating customer value and achieving sustainable growth.

This study aims to examine the role of KM in creating digital capabilities and driving digital innovation in SMEs. By understanding this relationship, organizations can identify effective strategies to enhance digital marketing performance. Successful digital transformation not only improves operational efficiency but also provides a competitive edge in an increasingly digital market. This research is expected to provide in-depth insights for organizations in developing sustainable and innovative digital strategies.

RESEARCH METHOD

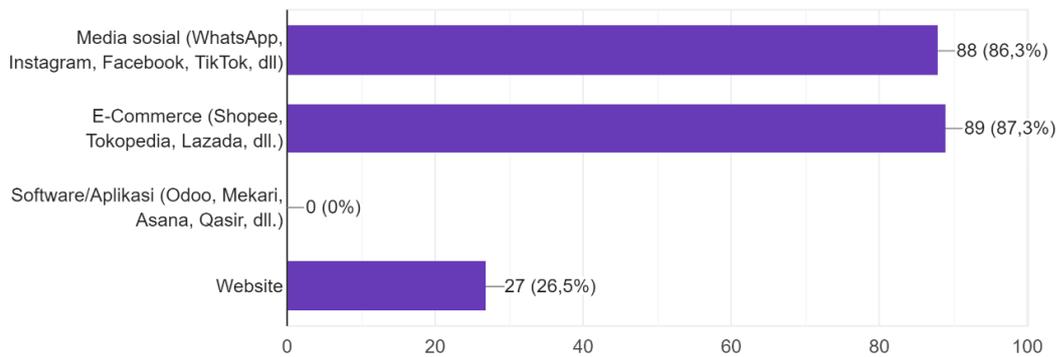
This quantitative study utilized purposive random sampling to gather data from 102 SME respondents in West Kalimantan, collected between June and July 2024. The data collection process was divided into two sections: the first section detailed the demographic and professional profiles of the respondents, including age, education, and their roles within the SMEs. The second section involved evaluating the research variables through structured instruments. These instruments focused on the exogenous variable, Knowledge Management (KM), and the endogenous variables, Digital Capability (DC) and Digital Innovation (DI). Data collection was facilitated through the distribution of questionnaires, both in-person and via Google Forms, with each variable's indicators assessed on a Likert scale from 1 to 5. The gathered data were subsequently analyzed using Structural Equation Modeling (SEM) techniques (Hair et al., 2021) employing the SmartPLS software for comprehensive analysis.

RESULTS AND DISCUSSION

3.1 Profile of SMEs and Respondents

This study's data was collected from 102 SMEs engaged in both products and services in West Kalimantan, who consented to participate in the survey. The demographic analysis revealed that 44.1 percent of the respondents were aged between 20 and 30 years, and 65.7 percent had completed high school education. The respondents held various positions within the SMEs, including owners (55.9 percent), owner-managers (18.6 percent), and employees (25.5 percent). Most of these SMEs employed a workforce ranging from 1 to 4 employees (37.3 percent), followed by those employing 5 to 19 employees (25.5 percent). On average, the SMEs have been

operational for more than 4 years, with significant adoption of digital technology for 2 to 3 years. The primary digital technologies used by these SMEs include social media platforms (WhatsApp, Instagram, Facebook, TikTok, etc.) and e-commerce platforms (Shopee, Tokopedia, Lazada, etc.). This demonstrates that a substantial number of the respondent SMEs have effectively incorporated digital technology into their business operations.



Figur 1. Adoption of Digital Technology in SMEs

Note: n = 102; multiple responses allowed

3.2 Outer and Inner Models Assessment

The outer model serves to evaluate the reliability and validity of the research variables. According to Hair et al. (2021), several criteria are employed to assess the model, including convergent and discriminant validity, as well as composite reliability. Convergent validity reflects the degree to which different measures of the same construct correlate. Here, each construct is assessed to ensure that all factor loadings exceed 0.70, indicating that the measured items are strongly correlated with their respective constructs. The Average Variance Extracted (AVE) must be greater than 0.50, which measures the proportion of variance captured by the construct relative to the variance due to measurement error. An AVE value above 0.50 signifies that more than half of the variance of the items is accounted for by the construct, indicating robust convergent validity. Furthermore, composite reliability is deemed satisfactory if the Composite Reliability (CR) value exceeds 0.70, indicating that the items within the construct exhibit good internal consistency and measure the construct with minimal error. Table 1 presents the outer model test results, demonstrating satisfactory validity and reliability using the SEM-PLS approach.

Table 1.
Construct Reliability and Validity

Variable	Item	Loading factors	AVE	Composite Reliability
Knowledge Management (KM)	KM1	0.715	0.650	0.902
	KM2	0.797		
	KM3	0.716		
	KM4	0.954		
	KM5	0.825		
Digital Capability (DC)	DC1	0.927	0.651	0.917
	DC2	0.761		
	DC3	0.905		
	DC4	0.905		
	DC5	0.779		

	DC6	0.743		
	DC7	0.701		
Digital Innovation (DI)	DI1	0.733		
	DI4	0.972	0.810	0.927
	DI5	0.974		

The inner model, or structural model, is applied to explore the relationships among latent constructs. This method provides a deeper understanding of the interrelationships between variables and their mutual effects. The Q-square (Q^2) statistic is used to assess the predictive power of the structural model for endogenous variables via the blindfolding technique. A positive Q-square value suggests that the model holds predictive relevance. According to Table 2, the structural model demonstrates valid predictive strength for the Digital Capability (DC) and Digital Innovation (DI) variables. The R-square (R^2) statistic, also known as the coefficient of determination, illustrates the proportion of variance in the endogenous variables that is explained by the exogenous variables in the model. The R-square value spans from 0 to 1, with higher values indicating superior predictive power of the model. Table 2 reveals that the Knowledge Management (KM) variable has fundamentally strong predictive capabilities for both the DC and DI variables.

Table 2.
 Determination Coefficient

Variable	Q-square	R-square	Result
Digital Capability (DC)	0.535	0.866	Strong
Digital Innovation (DI)	0.709	0.898	Strong

3.3 Hypothesis Testing

The path analysis results demonstrate that Knowledge Management (KM) exerts a highly significant influence on both Digital Capability (DC) and Digital Innovation (DI) within organizations. With a path coefficient of 0.932, a t-statistic of 88.110, and a p-value of 0.000, the impact of Knowledge Management on Digital Capability is statistically significant at the 0.01 level. This clearly demonstrates that superior knowledge management markedly boosts the digital capabilities of SMEs. Companies that emphasize efficient knowledge management can enhance their proficiency in utilizing digital technologies, thereby improving operational efficiency, competitiveness, and adaptability to technological advancements (Sánchez Ramírez et al., 2022). For SMEs, enhanced digital capabilities facilitate a more effective response to technological changes and market demands, consequently boosting their competitiveness in an increasingly digital marketplace.

Table 3.
 Path Analysis and Hypothesis Testing

	Sample Mean	Standard Deviation	t-statistics	p-values	Result
Knowledge Management - > Digital Capability	0.932	0.011	88.110	0.000*	Accepted
Knowledge Management - > Digital Innovation	0.949	0.006	165.798	0.000*	Accepted

Note: *significance level 0.01

Similarly, with a path coefficient of 0.949, a t-statistic of 165.798, and a p-value of 0.000, it is evident that knowledge management significantly impacts digital innovation in SMEs. Digital innovation involves the development of new products, services, or processes through the use of digital technology. Companies proficient in knowledge management are more capable of innovating and creating new digital solutions that align with the dynamic market demands, thereby achieving a competitive edge. Research by Arias-Pérez et al. (2021) and Binsaeed et al. (2023) corroborates these findings, indicating that a strategic focus on digitalization and knowledge management is vital for enhancing innovation capabilities. These studies underscore the significance of knowledge acquisition and utilization in fostering digital innovation, leading to the creation of market-relevant new products and services.

The findings of this study hold several important practical implications for companies, particularly SMEs in Indonesia. Firstly, companies need to invest in effective knowledge management systems and practices to enhance their digital capabilities and innovation. This includes training employees, implementing knowledge management systems, and fostering a culture of knowledge sharing. Secondly, developing digital capabilities is essential for better leveraging digital technology. Companies should focus on digital technology training for employees, adopting new technologies, and integrating digital technology into their business processes. Lastly, companies must promote digital innovation by creating an environment that supports creativity and experimentation. This can be achieved through investment in research and development (R&D), collaboration with research institutions, and leveraging customer feedback to develop new products and services.

CONCLUSIONS

The findings of this study confirm that Knowledge Management has a very strong and significant influence on Digital Capability and Digital Innovation in SMEs. The path analysis results, with a path coefficient of 0.932 and a t-statistic of 88.110, indicate that effective knowledge management significantly enhances the digital capabilities of SMEs. This enables organizations to better leverage digital technologies, thereby improving operational efficiency, competitiveness, and responsiveness to technological changes. Consequently, it is crucial for SMEs to invest in effective knowledge management systems and practices and to develop their digital capabilities to achieve competitive advantage and sustainability in the digital era.

Additionally, with a path coefficient of 0.949 and a t-statistic of 165.798, the study finds that knowledge management also has a very strong impact on digital innovation. Digital innovation in SMEs includes the creation of new products, services, or processes using digital technology. Companies that are effective in knowledge management can innovate and create relevant digital solutions, thereby meeting rapidly changing market demands and gaining a competitive edge. This underscores the importance of investing in knowledge management as a strategy to achieve excellence in the digital era.

ACKNOWLEDGEMENT

We would like to thank Institut Teknologi dan Bisnis Sabda Setia for providing the necessary resources and facilities for conducting this research.

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