“The impact of knowledge management on SMES’ performance during the COVID-19 pandemic: Assessing the significance of digital variables”

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THE IMPACT OF KNOWLEDGE MANAGEMENT ON SMEs' PERFORMANCE DURING THE COVID-19 PANDEMIC: ASSESSING THE SIGNIFICANCE OF DIGITAL VARIABLES

Abstract

The purpose of this study is to investigate the impact of knowledge management on the performance of small and medium-sized enterprises during the COVID-19 period in Indonesia. Furthermore, the study also highlights the role of digital variables such as digital capability, digital orientation, and digital innovation as mediating variables. A total of 247 valid responses were collected for this study through the survey conducted among managers of SMEs in Indonesia. The collected data were analyzed using Structural Equation Modeling with the Partial Least Squares approach. The study's findings revealed several significant insights. It established the positive impact of knowledge management on digital capability, digital orientation, and digital innovation during the COVID-19 pandemic. Additionally, the study identified digital capability as a mediating factor between knowledge management and SMEs' performance. However, the full support for the mediating roles of digital orientation and digital innovation in the relationship between knowledge management and SME performance was not confirmed, suggesting potential context-specific variations. This implies that the influence of knowledge management on SMEs' performance is mainly channeled through digital capability. The research underscores the importance of knowledge management and digital factors in shaping SMEs' performance, particularly in the challenging context of the COVID-19 pandemic.

Keywords firm objectives, organization, product, intellectual property, crisis, technology, behavior, enterprises

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INTRODUCTION

The exploration of knowledge management's role and its impact on the performance of Small and Medium Enterprises (SMEs), especially in times of crisis such as the COVID-19 pandemic, holds profound significance. In the face of unprecedented challenges posed by the pandemic, SMEs have been grappling with disruptions in supply chains, fluctuating consumer behavior, and mobility restrictions, all of which have starkly impacted their performance.

In 2019, data from the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkopukm) underscored SMEs' significance in Indonesia's economy, contributing around 60.51% (Rp9.58 trillion) to the GDP and employing 119.56 million individuals, constituting 96.92% of the workforce. By June 2022, about 19.5 million SMEs (30.4% of the total) had integrated e-commerce platforms. Despite economic fluctuations, these figures have remained stable, re-

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flecting SME resilience. However, Micro, Small, and Medium-Sized Enterprises were severely impacted by the COVID-19 pandemic. The production of Micro and Small Industries (MSIs) declined by 17.63% in 2020 due to mobility restrictions, worsened by Large-Scale Social Restrictions (PSBB). A Mandiri Institute survey of 2,944 MSMEs found 19.3% closed due to COVID-19 policies, and 47.0% operated with constraints during PSBB. Business hour restrictions led 72.04% to report reduced earnings in July and August 2021.

Amid this context, effective knowledge management practices can play a transformative role in empowering MSMEs to navigate the complexities of the crisis. By harnessing and sharing critical insights, market trends, and innovative strategies, knowledge management equips SMEs with the tools necessary to make informed decisions, swiftly adapt to changing circumstances, and uncover novel avenues for growth. Moreover, the pandemic has underscored the importance of building resilience, anticipating risks, and fostering adaptability, all of which are enhanced through robust knowledge management processes. This examination into the interplay between Knowledge Management and SMEs` performance amid the COVID-19 pandemic not only sheds light on the dynamics at play but also offers actionable insights that can bolster the ability of SMEs to weather crises, emerge stronger, and contribute to economic stability.

Furthermore, as SMEs confront the challenges posed by the pandemic, the integration of effective knowledge management practices enables them to navigate uncertainties and lays the foundation for the adoption and effective utilization of digital tools and strategies. Digital capability, encompassing technical proficiency and expertise in digital technologies, is fortified by the insights derived from Knowledge Management. SMEs with comprehensive knowledge are better poised to select, implement, and optimize digital tools that align with their unique business needs and market dynamics. Simultaneously, digital orientation, the strategic alignment of digital efforts with organizational objectives, is bolstered by the insights gleaned from knowledge management practices. This interplay ensures that digital initiatives are rooted in a deep understanding of the market, customer preferences, and emerging trends, driving the pursuit of meaningful innovation.

Consequently, the potential of digital innovation, which represents the transformational outcomes resulting from the synergistic blend of digital capability and orientation, is magnified by the insights harnessed through knowledge management. It is through this cohesive framework that MSMEs can not only weather the storm of crisis but also harness the opportunities presented by the digital landscape to enhance their performance and ensure long-term resilience. Thus, assessing the significance of these digital variables in the context of Knowledge Management offers a comprehensive understanding of how effective knowledge utilization underpins the strategic integration of digital elements, ultimately shaping the trajectory of MSMEs during and beyond crisis scenarios.

1. LITERATURE REVIEW AND HYPOTHESES

In the ever-evolving digital era, Knowledge Management (KM) has become a crucial factor in a company's success in maintaining its competitive advantage. KM is a strategic approach that helps organizations organize, acquire, capture, and share knowledge effectively (Lee et al., 2001). By managing knowledge assets and human capital optimally, KM plays a pivotal role in shaping two core concepts, namely Digital Capability and Digital Innovation, which are essential for thriving in the digital age.

Digital Capability refers to the talent, skills, and knowledge of an organization in managing digital technology for digital transformation, process optimization, and new product development (Moorman & Slotegraaf, 1999; Yli-Renko et al., 2020). In an increasingly digitalized business environment, Digital Capability serves as the foundation for an organization's success in adapting to technological changes and market demands,

as well as driving digital innovation that yields high-quality products and services. By mastering digital technologies and utilizing resources effectively, organizations can achieve a competitive advantage and deliver superior customer experiences. In other words, Digital Capability is a critical pillar in responding to the dynamics of the digital market.

On the other hand, digitalization plays an important role in ensuring business continuity during the pandemic (Zainurossalamia et al., 2022; Lestari et al., 2021; Riadi et al., 2022; Achmad et al., 2023). Digital Innovation is the outcome of the synergy between Knowledge Management and Digital Capability. KM plays a central role in driving digital innovation by harnessing knowledge resources and implementing organizational dynamic capabilities (Xu et al., 2010; Zhang et al., 2010; Tan & Nasurdin, 2010; Mafabi et al., 2012). Through proactive adoption of digital technologies and continuous learning, organizations can generate novel ideas and transform existing knowledge into innovative outcomes. In the rapidly changing digital context, the ability to innovate becomes the key to survival and growth. Digital Innovation empowers organizations with an edge in creating value for customers and achieving sustainable growth.

Knowledge Management (KM) is crucial for an organization's Digital Capability and Digital Orientation. It enhances digital tech skills and innovation potential (Moorman & Slotegraaf, 1999; Yli-Renko et al., 2020, Saputra et al., 2022). Effective KM improves tech management, adaptation, and decision-making (Yli-Renko et al., 2020, Shahzad, 2020). It shapes the strategic approach to digital tech and fosters a positive digital orientation (Khin & Ho, 2020; Leonardi, 2011; Rupeika-Apoga et al., 2022; Kindermann et al., 2020). KM aligns internal and external elements, facilitating proactive exploration of digital opportunities and market intelligence (Leonardi, 2011). A forward-thinking digital orientation is crucial for a competitive edge (Rupeika-Apoga et al., 2022). Moreover, KM promotes Digital Innovation by leveraging knowledge resources and dynamic capabilities (Xu et al., 2010; Zhang et al., 2010; Tan & Nasurdin, 2010; Mafabi et al., 2012; Chen & Huang, 2009). It encourages risk-taking and a culture of innovation (Khin & Ho, 2020). Empirical studies consistently support the positive correlation between KM and Digital Innovation (Khin & Ho, 2020; Rupeika-Apoga et al., 2022). Effective KM enables organizations to achieve a competitive edge through continuous digital innovation.

Digital Capability and Company Performance are crucial in today's digital business environment. Digitization helps businesses survive the COVID-19 pandemic. Digital capability involves managing and using digital technology for product development, process optimization, and digital transformation (Moorman & Slotegraaf, 1999; Yli-Renko et al., 2020). Digitally capable organizations can better use digital tools and resources, improving operational efficiency and innovation. Companies perform better by equipping employees with digital skills and knowledge to quickly adapt to market changes and customer demands (Kindermann et al., 2020; Yli-Renko, 2020).

A strong Digital Capability helps companies stay ahead of competitors by improving their products and services with technology (Bouncken et al., 2021; Wang, 2022). Agility and responsiveness allow companies to seize digital opportunities, optimize internal processes, and improve customer experiences, increasing profitability and market share (Cenamor et al., 2019; Kindermann, 2020). Digital Capability encourages employees to try new things and use new technologies by promoting continuous learning and improvement (Lewis et al., 2004; Khin & Ho, 2020). Therefore, organizations with higher Digital Capability are more likely to succeed in the digital era because they can navigate digital disruptions and capitalize on the dynamic digital landscape.

The impact of digital orientation on company`s performance is crucial to digital success. Digitalization has benefited many economic sectors (Yudaruddin et al., 2023; Yudaruddin, 2023a, 2023b). Digital Orientation is an organization's strategy for adopting digital technology and embracing digital innovation (Khin & Ho, 2020; Leonardi, 2011). A positive Digital Orientation encourages experimentation, openness to change, and proactive digital advancement (Quinton et al., 2018; Shahzad, 2020). Strong Digital Orientation organizations explore digital opportunities, inno-

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vate, and gather market intelligence to achieve financial success and market leadership.

Digital Orientation helps organizations adapt to digital disruptions by encouraging risk-taking and a forward-thinking mindset (Kindermann et al., 2020). This adaptability allows companies to capitalize on digital trends, meet market demands quickly, and stay ahead (Shahzad, 2020; Quinton et al., 2018). Positive Digital Orientation drives the development of innovative products and services that meet customer needs and preferences, increasing customer satisfaction and loyalty (Huang et al., 2023; Liu et al., 2020). Thus, organizations with a strong Digital Orientation are better positioned to perform better and succeed in the ever-changing digital landscape.

The digital era's success depends on digital innovation and company performance. Digital innovations create and implement new digital products, processes, and business models that add value to customers and boost organizational growth and competitiveness (Westerman et al., 2011; Liu et al., 2020). Digital innovation helps companies perform better financially and gain a competitive edge.

Digital innovation enhances customer experience and boosts company performance (Leão & da Silva, 2021; Huang et al., 2023). Digital product and service innovations help companies meet customers' changing needs and preferences, increasing customer satisfaction and loyalty (Osmundsen et al., 2018; Saksonova & Kuzmina-Merlino, 2017). Additionally, digital innovations can streamline internal processes, improving operational efficiency and cost savings (Choi et al., 2013). Digital innovation improves performance by optimizing resource allocation and supply chain management (Halldorsson et al., 2007).

Digital innovation helps organizations adapt to market changes and stay ahead of the competition (Leão & da Silva, 2021). Investment in digital innovation helps companies seize new opportunities, adapt to digital disruptions, and stay relevant in the fast-changing business landscape (Wang et al., 2022; Khin & Ho, 2020). Innovating business models and processes can lead to revenue growth, market share expansion, and sustained competitive advantage (Bouncken et al., 2021; Leão & da Silva, 2021). However, digital innovation's impact on company performance varies by context and industry (Chae et al., 2014; Liu et al., 2020). Digital innovation offers growth opportunities but also risks and challenges, such as continuous investment and digital disruption management (Teece, 2018). For organizations to succeed in the digital age, they must embrace digital innovation and use it to create customer value and improve performance.

Digital Capability significantly mediates the relationship between Knowledge Management (KM) and Company`s Performance. Organizations need KM to create, acquire, share, and apply knowledge, which improves decision-making, innovation, and effectiveness (Chen & Huang, 2012). KM's impact on company performance is amplified when organizations have strong Digital Capability, the ability to manage digital technologies for product development, process optimization, and digital transformation.

Digital Capability lets organizations use KM knowledge to innovate, adapt to market changes, and improve efficiency (Masoud & Basahel, 2023; Bouwman et al., 2019). By teaching employees' digital skills and encouraging continuous learning, companies can quickly adapt to the changing digital landscape and improve performance (Kindermann et al., 2020). Digital Capability allows organizations to explore new digital opportunities and experiment with new technologies, giving them a competitive edge in the digital marketplace (Shahzad, 2020). Thus, Digital Capability mediates the relationship between KM and Company Performance, emphasizing the importance of managing digital technologies to maximize Knowledge Management's benefits.

The mediating role of Digital Orientation – an organization's strategic position and commitment to digital technology and innovation – influences the relationship between Knowledge Management (KM) and Company Performance. KM practices create knowledge resources that boost innovation and decision-making (Chen & Huang, 2012). KM's impact on company performance depends on the organization's Digital Orientation, which determines how efficiently knowledge resources are used to achieve positive results.

Strong Digital Orientation organizations are more likely to implement innovative practices and technologies, maximizing KM knowledge use (Quinton et al., 2018; Hassan & Raziq, 2019). This proactive approach helps companies seize digital opportunities, adapt to disruptions, and stay ahead (Kindermann et al., 2020). A positive Digital Orientation encourages experimentation, digital transformation, and customer-centricity, which improves Company Performance (Khin & Ho, 2020). Thus, Digital Orientation mediates the relationship between KM and Company Performance, emphasizing the need for a forward-thinking and innovative approach to fully benefit from Knowledge Management.

Digital Innovation mediates the Knowledge Management (KM)-Company`s Performance relationship. KM practices help create, share, and apply knowledge, improving decision-making, problem-solving, and innovation (Chen & Huang, 2012). The creation and implementation of new digital products, processes, or business models that add value to customers and boost organizational growth and competitiveness is called digital innovation.

Innovative digital products, processes, and strategies can create new customer value when organizations use KM to drive Digital Innovation (Liu et al., 2020). These innovations improve customer experiences, business efficiency, and customer satisfaction and loyalty (Leo & da Silva, 2021; Huang et al., 2023; Choi et al., 2013). Organizations can stay ahead of the competition, adapt to market changes, and achieve sustainable growth and competitive advantage by investing in Digital Innovation (Wang et al., 2022; Bouncken, 2021). Thus, Digital Innovation mediates the relationship between KM and Company Performance, highlighting that effective knowledge management can lead to transformative digital innovations that improve organizational outcomes. This shows how important KM is in creating a dynamic environment that drives Digital Innovation and improves company performance.

The study examines how variables affect Indonesian SMEs. The independent variable is knowledge management (KMN), and the dependent variable is company's performance. The study uses digital capability (DIC), digital innovation (DII), and digital orientation (DIO) as mediating variables. All these variables were measured using item of scales developed by previous researchers based on literature, with modifications to account for Indonesian SMEs' unique circumstances. In this study, the following hypotheses are proposed:

H1: Knowledge Management has a positive effect on Digital capability of SMEs during the COVID-19 pandemic.

H2: Knowledge Management has a positive effect on Digital orientation of SMEs during the COVID-19 pandemic.

H3: Knowledge Management has a positive effect on Digital innovation of SMEs during the COVID-19 pandemic.

H4: Digital capability has a positive effect on firm performance of SMEs during the COVID-19 pandemic.

H5: Digital orientation has a positive effect on firm performance of SMEs during the COVID-19 pandemic.

H6: Digital innovation has a positive effect on firm performance of SMEs during the COVID-19 pandemic.

H7: The effect of knowledge management on firm performance is mediated by digital capability and digital innovation of SMEs during the COVID-19 pandemic.

H8: The effect of knowledge management on firm performance is mediated by digital orientation of SMEs during the COVID-19 pandemic.

H9: The effect of knowledge management on firm performance is mediated by digital innovation of SMEs during the COVID-19 pandemic.

2. METHOD

The study used question items from Abbas et al. (2020), Byukusenge and Munene (2017), Hassan and Raziq (2019), Mafabi et al. (2012), and Tan and

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Nasurdin (2010) to measure knowledge management (KMN). Digital innovation (DII) and company`s performance (PER) were measured using a five-item scale from Wang et al. (2022), Khin and Ho (2020), Byukusenge and Munene (2017), Paladino, A. (2007), and Hogan and Coote (2014). Wang et al. (2022), Heredia et al. (2022), Zhou and Wu (2010), and Khin and Ho (2020) developed a seven-item scale to measure digital capability (DIC). The mediating variable, digital orientation (DIO), was examined using a five-item scale by Bendig et al. (2023), Khin and Ho (2020), Gatignon and Xuereb (1997), and Zhou et al. (2005). Each variable was measured using a 5-point Likert scale from strongly disagree to strongly agree (Table 1).

To gather data for the study, a survey was developed and shared with managers of SMEs in Indonesia from July to December 2021. The participants were selected using purposive random

Table 1. Measurement items

Variables	Item	References
Knowledge Management (KMN)	I feel that relevant knowledge and information are easily accessible and available to me (KMN1)	Abbas et al. (2020), Byukusenge and Munene (2017), Hassan and Raziq (2019), Mafabi et al. (2012), Tan and Nasurdin (2010)
	I find sharing knowledge and experiences with business partners or relevant stakeholders efficient (KMN2)	
	The implementation of new knowledge and innovations has been successful in my business operations (KMN3)	
	I use systems or platforms that support collaboration with business partners to share knowledge (KMN4)	
	I actively participate in training or self-development activities to enhance my knowledge (KMN5)	
Digital capability (DIC)	I feel I have sufficient skills and knowledge in operating digital technology to support my business (DIC1)	Wang et al. (2022), Heredia et al. (2022), Zhou and Wu (2010), Khin and Ho (2020)
	I actively adopt digital technologies such as websites, social media, e-commerce, and business software in my business operations (DIC2)	
	I have adequate access to digital infrastructure, such as stable internet connection and hardware, to support the use of digital technology (DIC3)	
	I regularly participate in digital training or development programs to enhance my skills and understanding of digital technology (DIC4)	
	I quickly adapt to technological changes and emerging market trends (DIC5)	
	I am involved in e-commerce or have an online platform to sell products and services (DIC6)	
	My customers interact and engage actively through digital channels such as social media or websites (DIG7)	
Digital orientation (DIO)	I am aware that adopting digital technology can enhance the efficiency and competitiveness of my business (DIO1)	Bendig et al. (2023), Khin and Ho (2020), Gatignon and Xuereb (1997), Zhou et al. (2005)
	I actively search for opportunities to utilize digital technology in various aspects of my business (DIO2)	
	I proactively integrate digital technology innovations into my products, services, or business processes (DIO3)	
	I have adequate plans and resources to address challenges in the process of business digitalization (DIO4)	
	I am prepared to adapt to the changes brought about by the adoption of digital technology in our business (DIO5)	
Digital Innovation (DII)	I creatively and innovatively utilize limited digital resources to support my business activities (DII1)	Wang et al. (2022), Khin and Ho (2020 Byukusenge and Munene (2017), Paladino (2007)
	I adopt relevant and efficient digital technologies to support my business processes without burdening the budget (DII2)	
	I collaborate with others or form partnerships to access digital resources at affordable costs (DII3)	
	I use open-source solutions or free software to gain benefits from digital technologies without significant expenses (DII4)	
	I align my business strategies with digital trends without incurring significant expenses (DII5)	
Company Performance (PER)	After adopting digital technology, I have experienced a significant increase in sales (PER1)	Wang et al. (2022), Hogan and Coote (2014)
	I feel that my business operates more efficiently since implementing digital technology (PER2)	
	I have observed an improvement in profitability and profit margins after adopting digital technology (PER3)	
	My customers provide positive feedback and are satisfied with the services after digital technology adoption (PER4)	
	Digital technology adoption has enabled me to create new products or services or enhance the existing ones (PER5)	

sampling, and a total of 247 valid responses were collected. Preliminary processing was conducted to ensure the accuracy and sufficiency of respondent entries. The survey was divided into two sections and delivered using Google Forms. The first section gathered profile data such as gender, number of workers, education level, age, and period of company operation. The values of all the variables under inquiry were included in the second section.

This study used purposive random sampling to distribute a survey to Indonesian SME managers between July and December 2021. 247 responses were collected and preprocessed to ensure data accuracy and sufficiency. The survey had two parts: a profile section with gender, age, education level, business length, and employee count. The second part of the survey included all study variables' values. Table 2 summarizes the sample demographics, showing respondent distribution by characteristics. The gender distribution was 52.2% male and 48.8% female. The majority of participants (51.4%) were 25-50 years old, followed by 35.2% (18-25) and 13.4% (50+). The respondents' education levels were 60.3% university or college, 35.2% senior high school, and 4.5% junior high school. The table also shows the distribution of respondents by business length and employee count. These demographic insights help explain the study participants' traits and inform the research findings.

Table 2. Sample demographics

Source: Author calculation (2023).

Characteristics	Group	Frequency	Percentage
Gender	Male	129	52.2
	Female	118	48.8
Age	18 - < 25	87	35.2
	25 - < 50	127	51.4
	> 50	33	13.4
Education	University/ Collage	149	60.3
	Senior high school	87	35.2
	Junior high school	11	4.5
Length of business operation	3 – < 5 Years	82	33.2
	5 – 10 Years	108	43.7
	> 10 Years	57	23.1
Length of employment experience	<10	153	61.9
	10 - < 25	61	24.7
	25 - < 50	24	9.7
	> 50	9	3.6

Note: n = 247.

The collected data were subjected to variance-based analysis using SEM (Structure Equation Modeling), specifically employing Partial Least Squares (PLS). PLS was chosen as the analytical method due to its flexibility and ability to handle complex models without imposing strict assumptions and theoretical foundations (Hair et al., 2016). The data were analyzed using both the outer and inner models. The outer model was first tested to evaluate the reliability and validity of the variables. Multiple criteria, such as convergent and discriminant validity, as well as composite reliability, were used to assess the model. Additionally, each construct was examined to ensure that all factor loadings were greater than 0.70, and the average variance extracted (AVE) was greater than 0.50, indicating convergent validity.

The inner model, on the other hand, was tested to investigate the relationships between the study concept, the significant value, and R-square. This structural method allowed for a deeper understanding of the interconnections between the variables and their effects on each other. By employing variance-based analysis, the study provides robust insights into the mediating role of digital capability, digital innovation, and digital orientation in the relationship between knowledge management and firm performance among SMEs in Indonesia.

3. RESULTS

The examination of the data's validity and reliability continued with a detailed analysis of the variables as presented in Table 3. The Digital capability (DIC) construct demonstrated strong relationships with its items, with loadings ranging from 0.916 to 0.956. The internal consistency of this construct was high, indicated by a Cronbach's Alpha coefficient of 0.977. Furthermore, the composite reliability exceeded the recommended threshold at 0.981, and the average variance extracted (AVE) reached 0.881, confirming its convergent validity. Similarly, the Digital orientation (DIO) construct displayed robust outcomes. The item loadings ranged from 0.861 to 0.938, indicating substantial relationships between the latent construct and its indicators. Internal consistency was high, as shown by a Cronbach's Alpha value of 0.954. The composite reliability value of 0.964 sur-

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Table 3. Validity and reliability result

Variables	Item	Item loadings	Cronbach's Alpha	Composite reliability	AVE
Digital capability (DIC)	DIC1	0.919	0.977	0.981	0.881
	DIC2	0.941			
	DIC3	0.943			
	DIC4	0.946			
	DIC5	0.946			
	DIC6	0.956			
	DIC7	0.916			
Digital orientation (DIO)	DIO1	0.930	0.954	0.964	0.844
	DIO2	0.935			
	DIO3	0.928			
	DIO4	0.938			
	DIO5	0.861			
Digital Innovation (DII)	DII1	0.961	0.968	0.975	0.887
	DII2	0.969			
	DII3	0.968			
	DII4	0.943			
	DII5	0.863			
Company's Performance (PER)	PER1	0.931	0.925	0.943	0.769
	PER2	0.952			
	PER3	0.951			
	PER4	0.749			
	PER5	0.778			
Knowledge Management (KMN)	KMN1	0.922	0.905	0.928	0.724
	KMN2	0.939			
	KMN3	0.927			
	KMN4	0.706			
	KMN5	0.729			

passed the acceptable limit, and the AVE of 0.844 affirmed the construct's convergent validity.

Item loadings for the Digital Innovation (DII) construct ranged from 0.861 to 0.969, indicating significant associations between the latent construct and its items. Cronbach's Alpha was 0.968, indicating high internal consistency. The composite reliability was 0.975 and the AVE was 0.887, indicating convergent validity. Company Performance (PER) also performed well. The latent construct and its indicators were strongly correlated with item loadings of 0.749 to 0.952. High internal consistency was shown by Cronbach's Alpha of 0.925. The construct's reliability and convergent validity were confirmed by its composite reliability of 0.943 and AVE of 0.769, which exceeded the recommended thresholds. Finally, Knowledge Management (KMN) yielded good results. Items had item loadings from 0.706 to 0.939, indicating strong relationships between the latent construct and its items. The Cronbach's Alpha coefficient of 0.905 indicated good internal consistency. The composite reliability exceeded the recommended threshold of 0.928, and the AVE was 0.724, confirming convergent validity. Validity and reliability analysis of the constructs support the measurement model's robustness. The measurement model's Cronbach's Alpha, item loadings, composite reliability, and AVE values demonstrate its credibility and consistency, enabling hypothesis testing and statistical analysis.

Table 4. R-square results

Dependent variable	R Square
Digital capability (DIC)	0.128
Digital orientation (DIO)	0.065
Digital Innovation (DII)	0.075
Company Performance (PER)	0.322

The outcomes of the R-square analysis, presented in Table 4, offer insights into the proportion of variability within the dependent variables that is accounted for by the structural models. These estimations provide valuable information on the extent to which the model predicts the vari-

Table 5. Summary of path coefficient

Hypothesis	Path coefficient	T statistic	P-value	Result
H1: KNM → DIC	0.358	6.754	0.000	Supported
H2: KNM → DIO	0.262	4.499	0.000	Supported
H3: KNM → DII	0.274	4.647	0.000	Supported
H4: DIC → PER	0.395	6.393	0.000	Supported
H5: DIO → PER	0.187	2.673	0.008	Supported
H6: DII → PER	0.147	2.124	0.034	Supported

ance in each respective dependent variable. The R-square values depict the percentage of variability explained by the constructs under investigation. In this context, the results illustrate that Digital capability (DIC), Digital orientation (DIO), Digital Innovation (DII), and Company Performance (PER) have R-square values of 0.128 or 12.8%, 0.065 or 6.5%, 0.075 or 7.5%, and 0.322 or 32.2%, respectively. The remaining variance of 87.2%, 93.5%, 92.5%, and 67.8% in the corresponding constructs is attributed to factors beyond the scope of the study model. It is notable that Company Performance (PER) appears to be primarily influenced by Digital capability (DIC), Digital orientation (DIO), and Digital Innovation (DII). Concurrently, Digital capability (DIC), Digital orientation (DIO), and Digital Innovation (DII) seem to be influenced by Knowledge Management (KMN), highlighting the intricate relationships among these variables. In assessing the overall effectiveness of the inner model, the R-square values of the dependent variables are analyzed alongside the Q-Square test size and the magnitude of the structural path coefficients. The Q-Square measure, a critical evaluation criterion in Partial Least Squares (PLS), reflects the structural component of the model's predictive performance. The Q-Square value, calculated as $1 - (1 - 0.128)\cdot(1 - 0.065)\cdot(1 - 0.075)\cdot(1 - 0.322) = 0.488$, indicates that the model accurately explains approximately 48.8% of the variability in DIC, DIO, DII, and KMN. The remaining 51.2% of variance is influenced by external factors beyond the model's scope. Integrating the Q-Square measure into the analysis enhances the understanding of the predictive capacity of the model and its implications for the relationships between the constructs.

Table 5 shows systematic analysis of structural equation modeling hypotheses. This summary highlights the construct-test result relationships and their significance. The path coefficient of 0.358 supports Hypothesis 1 (*H1*) that Knowledge Management (KMN) improves Digital Capability (DIC). This coefficient's t-statistic of 6.754 and P-value of 0.000 support the hypothesis. In *H2*, Knowledge Management (KMN) and Digital Orientation are examined. P-value less than 0.000, path coefficient 0.262, t-statistic 4.499, and path coefficient support *H2*'s claim of a positive and significant influence. A path coefficient of 0.274, a t-statistic of 4.647, and a P-value less than 0.000 show a positive and significant correlation between Knowledge Management (KMN) and Digital Innovation (DII). The result supports Hypothesis 3 (*H3*). Hypothesis 4 (*H4*), which examines how digital capability (DIC) affects company performance (PER), has a path coefficient of 0.395. This result, with a t-statistic of 6.393 and a P-value of 0.000, supports *H4* that Digital capability (DIC) improves Company Performance (PER). Hypothesis 5 (*H5*) examines the relationship between digital orientation (DIO) and company performance. With a path coefficient of 0.187, a t-statistic of 2.673, and a P-value below 0.008, Hypothesis 5 (*H5*) is supported. Hypothesis 6 (*H6*) examines DII and PER. The path coefficient was 0.147, the t-statistic 2.124, and the P-value less than 0.034. *H6* is supported by this strong result demonstrating DII and PER's positive and significant effects.

Table 6. Summary of mediation effects

Hypothesis	Path coefficient	T statistic	P-value	Result
H7: KMN → DIC → PER	0.141	3.879	0.000	Supported
H8: KMN → DIO → PER	0.049	1.873	0.062	Rejected
H9: KMN → DII → PER	0.040	1.662	0.097	Rejected

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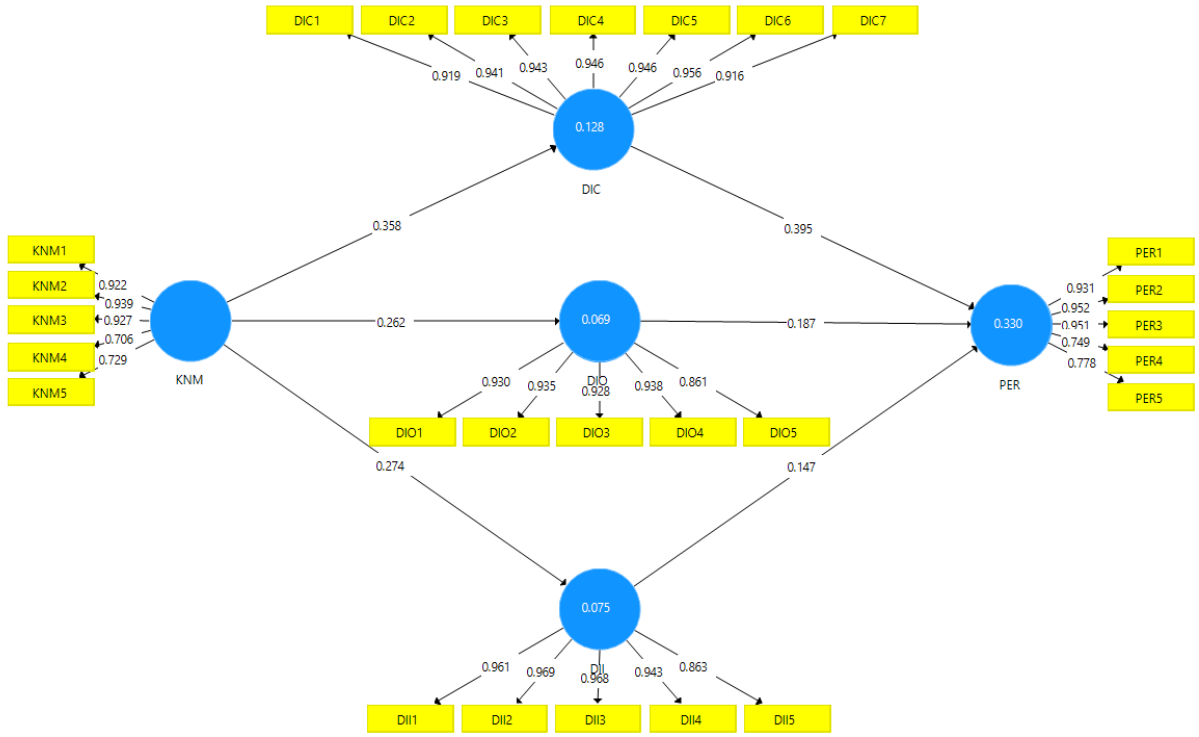

Figure 1. Structural equation model

Table 6 displays the results of PLS with 5,000 bootstrapped subsamples to assess digital variables' mediating role. This table quickly summarizes mediation analyses, including path coefficients, t-statistics, and P-values to support conclusions. In Hypothesis 7 (*H7*), Digital capability (DIC) mediates Knowledge Management (KMN) and Company Performance (PER), with a path coefficient of 0.141. The t-statistic is 3.879, well above the critical value of 1.96, and the P-value is 0.000. These findings support *H7*. Digital capability (DIC) mediates the partnership between Knowledge Management (KMN) and Company Performance (PER). The examination of Hypothesis 8 (*H8*) shows that Digital orientation (DIO) does not mediate the effect of Knowledge Management (KMN) on Company Performance (PER). A path coefficient of 0.049 and a t-statistic of 1.873 fall short of the 1.96 threshold. Additionally, P = 0.062. The rejection of H8 suggests that Digital orientation (DIO) does not mediate the relationship between Knowledge Management (KMN) and Company Performance (PER). Hypothesis 9 (*H9*) shows that Digital Innovation (DII) does not mediate the effect of Knowledge Management (KMN) on Company Performance. The path coefficient is 0.040, with a t-statistic of 1.662 and a P-value of 0.097 – both below the critical thresholds. It is concluded that Digital Innovation (DII) does not mediate the relationship between Knowledge Management (KMN) and Company Performance (PER).

4. DISCUSSION

This study examines the impact of knowledge management on SMEs` performance. Furthermore, the study highlights the roles of digital variables, such as digital capability, digital orientation, and digital innovation, in mediating the relationship between knowledge management and SME performance during the COVID-19 pandemic, thereby supporting *H1*, *H2* and *H3*. The results demonstrate that knowledge management has a positive influence on digital capability, digital orientation, and digital innovation during the COVID-19 pandemic among SMEs. These findings indicate a positive relationship between knowledge management practices and the enhancement of digital capability, digital orientation, and digital innovation within SMEs during the COVID-19 pandemic. In other words, knowledge management practices positively contribute to the digital skills, digital strategic

approach, and digital innovative outcomes in the context of small and medium-sized enterprises (SMEs) amidst the COVID-19 pandemic.

The results presented in the provided information are aligned with the research conducted by various scholars and researchers in the field of Knowledge Management, Digital Capability, Digital Orientation, and Digital Innovation. The concept that effective Knowledge Management (KM) plays a crucial role in shaping an organization's Digital Capability and Digital Orientation, leading to Digital Innovation, has been highlighted by several researchers. Specifically, the findings are consistent with the work of Kindermann et al. (2020), Khin and Ho (2020), Xu et al. (2010), Zhang et al. (2010), Tan and Nasurdin (2010), Mafabi et al. (2012), Shahzad (2020), Leonardi (2011), and Rupeika-Apoga et al. (2022).

These researchers have collectively emphasized that effective KM practices contribute to an organization's ability to manage digital technologies, adapt to disruptions, and foster innovation potential. Furthermore, they have underlined the connection between KM and the development of Digital Capability, Digital Orientation, and ultimately Digital Innovation. The findings also echo the idea that organizations with robust KM practices are better equipped to identify digital solutions, create dynamic training programs, and make informed decisions regarding digital technology, aligning with the concept of leveraging knowledge resources for digital growth.

Regarding digital variables, the findings indicate that digital capability, digital orientation, and digital innovation have a significant and positive impact on SME performance during the COVID-19 pandemic, thereby supporting hypotheses 4, 5, and 6. The presence of this positive impact signifies that the enhancement of digital capability, digital orientation, and digital innovation can foster an improvement in SME performance during the COVID-19 pandemic. These results indicate that the presence of strong digital capability, positive digital orientation, and successful digital innovation within SMEs during the COVID-19 pandemic is associated with a substantial enhancement in their overall performance. This suggests that SMEs that effectively manage digital technologies, embrace digital transformation, and foster innovative practices are better equipped to navigate the challenges of the pandemic and achieve improved performance outcomes.

The research findings align with multiple scholars, including Zainurossalamia et al. (2022), Lestari et al. (2021), Riadi et al. (2022), and Achmad et al. (2023), confirming the pivotal role of digitization for business survival during the pandemic. Similarly, Moorman and Slotegraaf (1999), Yli-Renko et al. (2020), and Kindermann et al. (2020) support the significance of Digital Capability, which enhances operational efficiency and innovation. The research also echoes Khin and Ho (2020), Leonardi (2011), Quinton et al. (2018), Shahzad (2020), and Quinton et al. (2018) by demonstrating that positive Digital Orientation drives innovation and positions organizations for financial success. Lastly, Westerman et al. (2011), Liu et al. (2020), Leão and da Silva (2021), Osmundsen et al. (2018), and Saksonova and Kuzmina-Merlino (2017) concur on the importance of Digital Innovation in improving customer experiences and overall company performance in the digital landscape.

Furthermore, this study indicates that digital capability mediates the influence of knowledge management on SME performance. However, contrasting results were found regarding the role of digital orientation and digital innovation, which do not mediate the relationship between knowledge management and SME performance. The findings suggest that while digital capability acts as a mediator between knowledge management and SME performance, the study revealed contradictory results for the mediating roles of digital orientation and digital innovation in the relationship between knowledge management and SME performance. In other words, digital capability plays a role in explaining how knowledge management affects SME performance, but the study did not find evidence to support the idea that digital orientation and digital innovation similarly mediate this relationship. This could imply that the influence of knowledge management on SME performance is primarily channeled through digital capability, while digital orientation and digital innovation might not have a significant mediating effect in this context. Thus, it does not support hypothesis 5 and 6.

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These research findings are in line with previous studies conducted in the dynamic context of the digital era. Several researchers are relevant to these findings, including Lee et al. (2001), who emphasized the significance of knowledge management in organizing, acquiring, capturing, and sharing knowledge within organizations. Moorman and Slotegraaf (1999) introduced the concept of Digital Capability as an organization's skills and expertise in managing digital technology. Other studies, such as Xu et al. (2010), Zhang et al. (2010), Tan and Nasurdin (2010), and Mafabi et al. (2012), investigated the relationship between knowledge management and digital innovation, highlighting the role of knowledge resources and dynamic capabilities in driving innovation in digital contexts. However, the study's contradictory findings concerning the mediating roles of digital orientation and digital innovation in the relationship between knowledge management and SME Performance may not fully support the hypotheses proposed. This may be associated with variations in organizational or industry contexts, indicating that the mediating effects of digital orientation and digital innovation could be context dependent. The findings emphasize the significant role of digital capability as a mediator between knowledge management and SME performance. Thus, while digital capability plays a significant role in explaining how knowledge management influences SME performance, the roles of digital orientation and digital innovation might not have substantial mediating effects in this specific context. Further research and exploration are necessary to better understand these contradictory outcomes. in this regard, the study's outcomes align with Wang et al. (2022), who discussed the importance of digital capability and digital innovation in responding to market changes and achieving competitive advantage. However, the complex interplay of digital orientation and digital innovation as mediators might require more comprehensive investigations to grasp their roles fully.

CONCLUSION AND RECOMMENDATIONS

The primary objective of this study was to examine the impact of knowledge management on SMEs' performance and to explore the mediating roles of digital capability, digital orientation, and digital innovation in this relationship during the COVID-19 pandemic. The study utilized a survey methodology and collected data from managers of SMEs in Indonesia through purposive random sampling. A total of 247 valid responses were collected for this study through the survey conducted among managers of SMEs in Indonesia. The collected data were analyzed using Structural Equation Modeling (SEM), which allowed for a comprehensive assessment of the proposed relationships.

The findings of the study provided several significant insights. The positive influence of knowledge management on digital capability, digital orientation, and digital innovation during the COVID-19 pandemic was established. The study also found that digital capability plays a mediating role between knowledge management and SME performance. However, the mediating roles of digital orientation and digital innovation in the relationship between knowledge management and SME performance were not fully supported, indicating potential context-specific variations. This suggests that the influence of knowledge management on SME performance is predominantly channeled through digital capability.

This study underscores the importance of knowledge management and digital variables in shaping SME performance, particularly in the challenging context of the COVID-19 pandemic. The study's outcomes align with previous research, highlighting the interconnectedness of knowledge management, digital capability, digital orientation, and digital innovation. However, the nuanced findings regarding the mediating roles of digital orientation and digital innovation call for further investigation and nuanced understanding in the pursuit of advancing knowledge in this field.

The implications of these findings are noteworthy for both theory and practice. The study contributes to the existing literature on knowledge management, digital capability, and SME performance by high-

lighting the mediating effects of digital capability and the nuanced roles of digital orientation and digital innovation. Practically, SMEs should prioritize knowledge management practices that enhance digital capability, as this plays a pivotal role in improving overall performance. Moreover, a balanced approach that considers both digital orientation and digital innovation is essential for achieving sustained success in the dynamic digital landscape.

For future research, it is recommended to conduct more comprehensive investigations into the mediating roles of digital orientation and digital innovation, considering potential contextual influences. Further exploration of different industries and regions could shed light on variations in the relationships observed. Additionally, longitudinal studies could provide insights into the long-term impact of knowledge management and digital variables on SME performance, especially in the post-pandemic recovery phase.

AUTHOR CONTRIBUTIONS

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