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Research Article

Digital Market Orientation, Knowledge Management Orientation, and Innovativeness in SMEs: A Structural Equation Model of Business Performance

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Abstract

Small and medium-sized enterprises (SMEs) are crucial to economic development, yet face persistent challenges in achieving sustainable business performance. Prior research has explored the roles of digitalization, knowledge systems, and innovation in firm success, but few studies integrate these constructs in a single predictive model within the context of developing economies such as the Philippines. This study aims to model the influence of digital market orientation (DMO), knowledge management orientation (KMO), and innovativeness on the business performance of SMEs in Region XII, Philippines. A quantitative cross-sectional design using partial least squares structural equation modeling (PLS-SEM) was employed. Survey data were collected from 400 SME owners using validated instruments measuring DMO, KMO, innovativeness, and business performance. Data were analyzed through SmartPLS 4.0 to assess path coefficients, predictive power, and model fit indices. Descriptive findings indicated very high levels of DMO ($M = 4.42$), KMO ($M = 4.36$), innovativeness ($M = 4.40$), and business performance ($M = 4.29$). Regression analysis revealed that DMO and KMO significantly predicted business performance ($\beta = 0.228$, $p < .001$; $\beta = 0.473$, $p < .001$), while innovativeness showed a weaker yet significant effect ($\beta = 0.130$, $p = .014$). In the final structural model, only DMO and KMO remained significant direct predictors, accounting for 58.3% of the variance in business performance ($R^2 = 0.583$). Model fit indices confirmed excellent fit (CFI = 0.997; RMSEA = 0.026). Digital market orientation and knowledge management orientation are essential strategic capabilities that directly enhance SME performance. While innovation remains conceptually relevant, its performance impact is mediated through digital and knowledge-based capabilities. These findings underscore the need for capacity-building programs focused on digital infrastructure and knowledge systems to promote SME growth in resource-constrained environments.

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1. Introduction

Small and Medium-Sized Enterprises (SMEs) have emerged as significant drivers of economic growth and employment in a number of nations, comprising a sizeable share of international firms. Approximately 70 percent of the world's workforce is employed by these enterprises, which play a vital role in employment generation (United Nations, 2020). (United Nations, 2020). Nonetheless, the performance of Micro, small, and medium-sized enterprises (MSMEs) has been characterized by persistent challenges, such as recurring losses, declining sales, and low survival rates (Muzenda, 2014). (Muzenda, 2014). These issues are exacerbated by the uncertain operational environments in which these enterprises operate (Masoud & Basahel, 2023). (Masoud & Basahel, 2023). In response to these constraints, the integration of digital market orientation (DMO), knowledge management, and innovation becomes vital for MSMEs wanting to establish competitive advantages and increase performance (Baradarani & Kilic, 2018). (Baradarani & Kilic, 2018).

Notably, in the Philippines, MSMEs form a considerable share of firms, with micro-enterprises dominating the scene. The Philippine Statistics Authority (2020) says that 99.59 percent of companies in the Philippines are designated as MSMEs, with micro, small, and medium enterprises totaling 90.49 percent, 8.69 percent, and 0.40 percent, respectively. The aggregate employment contribution of these enterprises amounts to 62.77 percent. However, they indicate restrictions in terms of value-added contributions (35.7 percent), exports (60 percent), and total economic impact (Philippine Statistics Authority, 2020). In this context, this stresses the critical nature of recognizing and resolving the performance dynamics of MSMEs.

As per the DTI's stipulations, Small and Medium Enterprises (SMEs) in the Philippines are classified as such when their aggregate assets do not surpass one hundred million pesos. These enterprises are of paramount importance to the economy of the nation, making substantial contributions to the generation of income, employment, and overall national output (Aldaba, 2014; Habaradas, 2008). Nevertheless, these entities have a multitude of obstacles, such as constrained financial means, inadequate managerial proficiency, and barriers to obtaining market intelligence (Habaradas, 2008). In order to address these issues, the DTI has developed policies and programs to boost the output and competitiveness of small and medium-sized enterprises (SMEs) (Aldaba, 2008). These endeavors include the optimization of the registration process, the provision of start-up support services, and the promotion of entrepreneurial education. Furthermore, the DTI recognizes the relevance of the integration of SMEs into the global industrial network. This calls for the alignment of policies and efforts that enable their participation in the global supply chain (Medalla et al., 2010).

Masoud and Basahel (2023b) emphasize the criticality of digital transformation in shaping organizational performance, focusing specifically on the capabilities, customer experience, and IT innovation functions. The study, conducted in Saudi Arabia, emphasized the positive effects that digital transformation may produce, with customer experience regarded as a pivotal driver. A cross-sectional study of SMEs was also conducted by Byukusenge and Munene (2017). Innovation completely mediates the relationship between knowledge management and company performance, according to the results of their analysis. The findings of this study have significant ramifications for small and medium-sized firms (SMEs) in developing nations and offer useful insights into improving their overall operational efficiency. In a similar vein, Yıldız et al. (2014) shown that there exists a positive correlation between innovativeness and corporate performance, so illuminating the importance of creative methodologies in

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facilitating advantageous results. In addition, Prifti and Alimehmeti (2017) investigated the dynamic relationship between market orientation, innovation, and business performance. Their findings demonstrated that market orientation has a significant effect on each of these outcomes.

SMEs in the Philippines have a substantial impact on the economy, as seen by the 2022 List of Establishments from the Philippine Statistics Authority, which reports a total of 1,109,684 active business businesses in the country. Out of the total, 1,105,143 entities, which accounts for 99.59% of the total, were categorized as MSMEs (Micro, Small, and Medium firms). Among these, micro firms constituted the majority, at 90.49%. The sector exhibits notable strength in wholesale and retail trade, hotel and food service industries, manufacturing, and other service activities. The combined contribution of these industries constituted around 86.90% of the overall count of MSME establishments. The National Capital Region, CALABARZON, Central Luzon, Central Visayas, and Western Visayas have a notable concentration of MSMEs, accounting for around 60.06% of the total number of MSME firms in the country. According to the MSME Statistics from the Department of Trade and Industry Philippines in 2023, these firms created a combined total of 5,607,748 jobs, accounting for 65.10% of the country's overall employment.

Moreover, the importance of the resilience and competitiveness of small and medium-sized enterprises (SMEs) in the Philippines has been acknowledged as essential for achieving sustainable and inclusive economic growth. Companies who had a higher level of competitiveness before to the COVID-19 pandemic were less impacted. Those with stronger abilities in terms of skills, innovation, and financial management were more inclined to implement robust or agile strategies in reaction to the crisis. Companies were able to obtain the necessary knowledge and support to handle the crisis by using the connections within their business ecosystem (Promoting SME Competitiveness in the Philippines: Compete, Connect and Change to Build Resilience to Crises | ITC, 2020).

The economic plan of the Philippines, as outlined during a Philippine Economic Briefing in Davao, emphasizes the significance of Mindanao in the country's economic advancement. Primary endeavors encompass promoting innovation centers, digitization, and engagement in international trade exhibitions to bolster micro, small, and medium companies (MSMEs). Infrastructure development is regarded as a crucial catalyst for short-term economic growth, while digital transformation is recognized as necessary for improving company productivity. This strategy is anticipated to bolster the Philippine Export Development Plan 2023-2028 and stimulate sustained economic expansion in Mindanao and the broader nation (Diokno: Mindanao Positioned to Power PH Economic Progress - Department of Finance, 2023).

Small and Medium Enterprises (SMEs) in the Philippines have substantial obstacles, such as the need to survive and grow in a highly competitive global environment. The World Economic Forum report reveals that 67% of SME executives consider survival and expansion as their primary challenge. Additionally, talent acquisition and retention, maintaining a robust company culture, technology and innovation, funding, and the policy environment are also identified as significant concerns (Desiderio, 2022).

The ASEAN integration offers both advantages and obstacles for Philippine SMEs, which are vital for economic expansion but still face limitations. These factors encompass the availability of funding, complicated registration procedures, stringent regulatory frameworks, and an uneven economic landscape that favors larger companies over smaller ones. In order to effectively compete, small and medium-sized enterprises (SMEs) must undergo a comprehensive business transformation. This

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transformation should encompass several key areas, such as developing entrepreneurial skills, fostering innovation in both process and product creation, and strengthening crisis resilience (Melchor & Mendoza, 2014).

Implementing policy reforms focused on simplifying and optimizing registration procedures, along with offering more extensive government assistance for business starts, has the potential to improve the business landscape for small and medium-sized enterprises (SMEs) in the Philippines. Furthermore, the authors Melchor and Mendoza (2014) have recognized helping women entrepreneurs and promoting employee engagement in entrepreneurial activities within firms as areas that have the potential for additional growth and improvement.

Despite the presence of various studies on business performance predictors such as leadership styles (Yıldız et al., 2014), knowledge management, innovation (Byukusenge & Munene, 2017), and digitalization (Masoud & Basahel, 2023b), these investigations primarily rely on foreign contexts and employ regression or mediation analysis. There is a dearth of research that specifically addresses the complicated relationship between digital market orientation, knowledge management, innovative practices, and the performance of businesses, particularly in the specific context of Philippine Micro, small, and medium-sized enterprises (MSMEs).

SMEs in Region XII face challenges and resource limitations that mirror those experienced by SMEs across other ASEAN economies such as Indonesia, Vietnam, and Thailand. Common constraints—including high levels of informality, underutilization of digital technologies, and limited access to finance—continue to hamper their capacity for innovation and sustainable growth (ERIA/OECD, 2024; ITC, 2020). By situating this study within a broader regional context, its findings contribute not only to localized development strategies but also to the wider ASEAN discourse on SME competitiveness, innovation-readiness, and digital transformation priorities.

In light of the aforementioned considerations, the principal objective of this study is to investigate the effect of Digital Market Orientation (DMO), Knowledge Management (KM), and Innovation on the Business Performance of Small and Medium-sized Enterprises (SMEs) situated in Region XII, Cotabato, Philippines. The specific objectives are outlined as follows:

First, this research aimed to assess the level of SMEs' digital market orientation in terms of orientation towards the digital market, cross-functional operations, customer orientation, and competition orientation. Further, the study also identified the level of SMEs' knowledge management in terms of cultural traits, benchmarking activities, information-sharing habits, system complexity, and memory sizes. Furthermore, the study sought to determine the level of SMEs' innovation in terms of value proposition, channels, costs, human capital, value networks, linkage with partners, assets and capabilities, and revenue sources. Additionally, this study determined the level of SME's business performance in terms of the performance of the market, the performance of the suppliers, the performance of the processes, the performance of the people, and the performance of the customer relationships. Lastly, the study assessed the best-fit model of SMEs' Business Performance. The following are the hypotheses: First, Digital Market Orientation, Knowledge Management, Innovation, and the Business Performance of SMEs do not have a significant relationship with each other. Second, the Business Performance of SMEs is not significantly affected by a single outside factor. Third, there isn't a single model that works best for small and medium-sized businesses.

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2. Materials and Methods

2.1. Research Design

This study employed a quantitative, non-experimental, cross-sectional research design, appropriate for establishing relationships among variables without manipulating the study environment. According to Creswell and Creswell (2022), such a design is most suitable when the objective is to test existing theoretical models and examine variable interrelations using statistical procedures. In this research, Structural Equation Modeling (SEM) was utilized to test the proposed structural model linking digital market orientation, knowledge management orientation, and innovativeness to SME business performance. SEM is a robust multivariate statistical technique that allows for simultaneous estimation of multiple regression equations, capturing both measurement and structural relationships among latent variables. This approach enabled the assessment of direct and indirect effects within a theoretically grounded model.

2.2. Respondents and Sampling Procedure

The respondents of the study were business owners and entrepreneurs managing Small and Medium-sized Enterprises (SMEs) engaged in merchandising, service, or manufacturing industries within Region XII, specifically in General Santos City, Koronadal City, Tacurong, and Kidapawan City. Inclusion criteria stipulated that participants must be actively operating their businesses for at least three years, have their headquarters located within Region XII, and fall under the Philippine Statistics Authority's (PSA) classification of SMEs. According to PSA guidelines, micro-enterprises are defined as those with assets up to PHP 3,000,000 and 1–9 employees; small enterprises have assets between PHP 3,000,001 and PHP 15,000,000 with 10–99 employees; and medium enterprises hold assets between PHP 15,000,001 and PHP 100,000,000 with 100–199 employees. Entrepreneurs who did not meet these criteria, such as those located outside the study area or with shorter operational history, were excluded from the sample.

To determine an appropriate sample size, the study employed the Raosoft Sample Size Calculator (Raosoft, 2004), which considers the margin of error, confidence level, population size, and response distribution. With an estimated population of 20,000 SMEs in the region, a 5% margin of error, a 95% confidence level, and a 50% response distribution, the calculator recommended a minimum sample size of 377 respondents to ensure statistical validity and generalizability of findings.

To further strengthen the reliability and robustness of the analysis and to account for possible non-responses or incomplete surveys, the study increased the target sample to 400 respondents, who were selected through a simple random sampling technique.

According to existing literature, a sample size of 400 is generally considered sufficient and robust for covariance-based structural equation modeling (CB-SEM), ensuring stable and valid results across a wide range of research contexts (Rožman et al., 2020; Dash & Paul, 2021). Comparative studies show that results obtained from 400 samples closely resemble those from larger sample sizes (e.g., 500+), with consistent relationships and adequate model fit. As noted by Rožman et al. (2020), a sample size of 400 provides a strong balance between feasibility and analytical rigor, especially for models of moderate complexity.

2.3. Research Instruments

The research instrument consisted of four standardized survey tools adapted from established sources. Digital Market Orientation was assessed using the scale developed by Navia et al. (2023), which includes items on customer orientation, competitor orientation,

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cross-functional integration, and digital responsiveness. Knowledge Management Orientation was measured using the instrument by Wang and Ahmed (2004), covering cultural readiness, knowledge sharing practices, knowledge systems, organizational memory, and benchmarking. Innovativeness was assessed using the tool developed by Verna and Bashir (2016), which captures eight dimensions including value proposition, distribution channels, cost structure, human capital, value networks, strategic partnerships, organizational assets, and revenue sources. Business Performance was evaluated using Zulkiffli and Perera's (2011) scale, encompassing market performance, supplier performance, internal process efficiency, people performance, and customer relationship outcomes. All items were scored on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). To ensure content validity and contextual appropriateness, the instruments underwent expert validation and pilot testing involving 30 SME owners not included in the final sample. Internal consistency reliability was assessed through Cronbach's alpha and composite reliability coefficients, both of which met the acceptable threshold of 0.70.

2.4. Data Collection and Analysis

Data collection was carried out through in-person administration of printed questionnaires to enhance response accuracy and minimize nonresponse bias. Research assistants were trained to clarify item content without leading the responses. Each completed questionnaire was manually checked for completeness before inclusion in the dataset. The raw data were encoded, cleaned, and stored in a password-protected digital repository with backup copies. All physical documents were securely locked and scheduled for destruction three years after the study to uphold ethical standards of data retention.

The data were analyzed using a combination of descriptive and inferential statistics. Descriptive statistics, including mean and standard deviation, were computed to summarize the levels of digital market orientation, knowledge management orientation, innovativeness, and business performance among SMEs. The mean provided a measure of central tendency, while standard deviation captured the dispersion of scores. Pearson product-moment correlation was used to assess the bivariate relationships among the independent variables (DMO, KMO, innovativeness) and the dependent variable (business performance). Multiple regression analysis was performed to determine the predictive power of the three independent variables on business performance. Finally, Structural Equation Modeling (SEM) was conducted to identify the best-fitting model for the data and to validate the hypothesized structural paths.

The SEM model was evaluated using multiple fit indices. For the model to be accepted as a good fit, the following thresholds were used: Chi-square/df ratio less than 2.0, Normed Fit Index (NFI), Goodness of Fit Index (GFI), Tucker–Lewis Index (TLI), and Comparative Fit Index (CFI) all above 0.95, Root Mean Square Error of Approximation (RMSEA) less than 0.05, and a P-close value greater than 0.05. These criteria ensured that the hypothesized model aligned closely with the observed data structure.

2.5. Ethical Considerations

All ethical standards were strictly observed throughout the research process. The study adhered to the principles of the Data Privacy Act of 2012 (Republic Act No. 10173), guaranteeing confidentiality, voluntary participation, and the right to withdraw without consequence. Informed consent was obtained from all participants after thoroughly explaining the study's objectives, benefits, risks, and data handling procedures. Anonymity was maintained by removing all personal identifiers from the dataset. Participants were assured that data would be reported in aggregated form only,

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and access was restricted to the principal researcher and authorized personnel. Any psychological, social, or economic risks were mitigated through clear instructions, respondent debriefing, and the option to skip any question deemed uncomfortable. Furthermore, the researcher made use of Turnitin, Grammarly, and plagiarism detection tools to uphold academic integrity and avoid fabrication or falsification of data.

3. Results

3.1. Level of Digital Market Orientation, Knowledge Market Orientation, Innovation, and Business Performance of SMEs in Region XII

As shown in Table 1, SMEs in Region XII demonstrated very high levels across all four constructs examined in this study: digital market orientation (M = 4.42, SD = 0.50), knowledge market orientation (M = 4.36, SD = 0.51), innovation (M = 4.40, SD = 0.50), and business performance (M = 4.29, SD = 0.53). Within digital market orientation, customer orientation received the highest score (M = 4.51), highlighting SMEs' strong emphasis on understanding and meeting customer needs. This finding aligns with Navia et al. (2023b) and Kraus et al. (2012), who argue that customer-centric digital strategies enhance responsiveness and firm competitiveness. Elevated ratings in competition orientation (M = 4.36) and cross-functional alignment (M = 4.35) further emphasize the multidimensional approach SMEs adopt to integrate market intelligence, internal collaboration, and digital tools for strategic agility (Sriayudha et al., 2020; Quinton et al., 2018).

Knowledge market orientation also showed uniformly high ratings, particularly in knowledge sharing (M = 4.48) and organizational memory (M = 4.42). These scores suggest that SMEs place importance on disseminating and retaining institutional knowledge—consistent with the Knowledge-Based View (Grant, 1996) and the Absorptive Capacity Theory (Cohen & Levinthal, 1990). The relatively lower score for knowledge systems (M = 4.21) points to the need for further strengthening digital repositories and formal knowledge infrastructures. High emphasis on sharing and benchmarking reinforces the strategic value of learning from internal and external sources, aligning with findings from Supyuenyong and Swierczek (2011) and Wang et al. (2009).

Innovation was also rated very high, with SMEs scoring highest in value networks (M = 4.58), human capital (M = 4.57), and external partnerships (M = 4.47). These results underscore a dual focus on internal capability-building and external collaboration, supporting the idea that innovation is rooted in relational capital and workforce development (Yusuff, 2020; Martínez-Román & Romero, 2017). The emphasis on networks and partnerships reflects SMEs' strategic use of external linkages to access resources and co-develop market solutions, as highlighted by Rogers' (2003) diffusion theory and Radas and Božić (2009). Furthermore, the strong ratings for human capital confirm the importance of technical expertise and organizational learning in fostering innovation (Ng et al., 2019; Kmieciak et al., 2012).

Business performance was also perceived as very high, particularly in dimensions such as interaction and job satisfaction (M = 4.53) and HR diversity policies (M = 4.46), suggesting that SMEs prioritize employee well-being and inclusivity. These findings support prior research indicating that cohesive workplace environments and formalized HR systems contribute to operational resilience and strategic alignment (Gamage, 2014; Soto-Acosta et al., 2016). While hiring disadvantaged individuals received a comparatively lower score (M = 3.82), it still fell

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within the high range, pointing to emerging attention toward corporate social responsibility. Sustainability-oriented practices, including environmental performance management (M = 4.27) and work-life adaptability (M = 4.26), further affirm the relevance of non-financial dimensions of performance (Expósito & Sanchis-Llopis, 2018).

The results highlight that SMEs in Region XII exhibit strong orientations toward digitalization, knowledge management, innovation, and multidimensional performance. These orientations appear mutually reinforcing and consistent with theoretical and empirical studies emphasizing the role of dynamic capabilities and strategic alignment in enhancing SME success (Buli, 2017; Farida & Setiawan, 2022; Akter et al., 2021).

Table 1. SMEs' Levels of Digital Market Orientation, Knowledge Market Orientation, Innovation, and Business Performance

Indicators	SD	Mean	Descriptive Level
Digital Market	0.58	4.42	Very High
Customer Orientation	0.48	4.51	Very High
Orientation to the Competition	0.65	4.36	Very High
Cross-functional Orientation	0.57	4.35	Very High
Economic Performance	0.64	4.44	Very High
Digital Market Orientation	**0.50**	**4.42**	**Very High**
Culture	0.57	4.36	Very High
Sharing	0.58	4.48	Very High
System	0.70	4.21	Very High
Memory	0.56	4.42	Very High
Benchmark	0.64	4.33	Very High
Knowledge Market Orientation	**0.51**	**4.36**	**Very High**
Value Proposition	0.58	4.38	Very High
Channels	0.75	4.26	Very High
Costs	0.62	4.29	Very High
Human Capital	0.66	4.57	Very High
Value Networks	0.55	4.58	Very High
Linkage w/ Partners	0.66	4.47	Very High

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Assets & Capabilities	0.67	4.29	Very High
Revenue Sources	0.62	4.36	Very High
Innovation	**0.50**	**4.40**	**Very High**
Innovation-Proactiveness	0.57	4.31	Very High
Risk taking-Transportation	0.57	4.29	Very High
Ecological Materials-Environmental Performance Mgt	0.63	4.27	Very High
Hiring Disadvantaged People-Community Responsibility	0.91	3.82	High
Training and Development-Performance Support	0.59	4.41	Very High
HR Policy-Diversity Management	0.65	4.46	Very High
Interaction-Job Satisfaction	0.71	4.53	Very High
Work-life-Adaptability	0.67	4.26	Very High
Business Performance	**0.53**	**4.29**	**Very High**

Relationship between Digital Market Orientation and Business Performance

As presented in Table 2, Results reveal a strong and statistically significant positive correlation between digital market orientation (DMO) and business performance among SMEs in Region XII ($r = .664$, $p < .001$). This suggests that firms with stronger digital engagement—particularly in customer responsiveness, market sensing, and internal digital alignment—tend to achieve better business outcomes. Customer orientation ($r = .608$, $p < .001$) and economic performance ($r = .573$, $p < .001$) emerged as the strongest DMO predictors of performance, highlighting the strategic role of digitally mediated customer-centricity in driving firm success.

Further analysis shows that DMO dimensions also correlate positively with internal performance metrics such as employee training, job satisfaction, and diversity management. For instance, customer orientation is strongly linked to training and development ($r = .564$) and interaction-job satisfaction ($r = .442$), indicating that firms prioritizing digital customer strategies also invest in internal human capital. Similarly, competition orientation is strongly associated with innovation-proactiveness ($r = .606$) and risk-taking ($r = .523$), suggesting that digital awareness of market competition fosters entrepreneurial behavior.

These findings are consistent with the Resource-Based View (Barney, 1991), which posits that intangible capabilities such as digital orientation serve as strategic assets. Prior studies affirm that DMO enhances firm adaptability and performance, particularly when integrated with CRM systems, data analytics, and customer intelligence platforms (Navia et al., 2023; Ranjan, 2023; Paşcalău et al., 2024). Quinton et al. (2018) and Goldman et al. (2020) likewise emphasized that digital orientation enables SMEs to respond swiftly to market changes, thereby improving strategic agility and operational efficiency.

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Table 2. Significance of the Relationship between Digital Market Orientation and Business Performance

Digital Market Orientation	Business Performance								
	INP	RTT	EMP	HDR	TDS	HPM	IJS	WLA	**Overall**
Digital Market	.502** .000	.459** .000	.437** .000	.432** .000	.465** .000	.460** .000	.322** .000	.423** .000	**.543** .000**
Customer Orientation	.559** .000	.564** .000	.496** .000	.416** .000	.564** .000	.497** .000	.442** .000	.420** .000	**.608** .000**
Orientation to the Competition	.606** .000	.523** .000	.382** .000	.424** .000	.450** .000	.425** .000	.385** .000	.392** .000	**.553** .000**
Cross-functional Orientation	.495** .000	.481** .000	.455** .000	.455** .000	.513** .000	.465** .000	.393** .000	.420** .000	**.571** .000**
Economic Performance	.538** .000	.496** .000	.439** .000	.396** .000	.522** .000	.460** .000	.409** .000	.464** .000	**.573** .000**
Overall	**.632** .000**	**.588** .000**	**.513** .000**	**.496** .000**	**.584** .000**	**.536** .000**	**.454** .000**	**.495** .000**	**.664** .000**

Legend: *INP -Innovation-Proactiveness; RTT -Risk taking-Transportation; EMP -Ecological Materials-Environmental Performance Mgt; HDR -Hiring Disadvantaged People-Community Responsibilities; TDS -Training and Development-Performance Support; HPM -HR Policy-Diversity Management; IJS -Interaction-Job Satisfaction; and WLA-Work-life-Adaptability.*

Relationship between Knowledge Management Orientation and Business Performance

As shown in Table 3, As shown in Table 6, knowledge management orientation (KMO) is strongly and positively correlated with business performance among SMEs in Region XII ($r = .733$, $p < .001$). The highest correlations were observed in the dimensions of culture ($r = .674$) and system ($r = .627$), suggesting that both organizational values and formal knowledge infrastructures significantly enhance SME performance.

A knowledge-oriented culture promotes open communication, continuous learning, and innovation receptiveness—key enablers of strategic alignment and adaptability (Borodako et al., 2023; Lin, 2015; Wang et al., 2009). Simultaneously, robust knowledge systems support the storage, dissemination, and effective use of information, thereby improving responsiveness and operational decision-making (Ha et al., 2021; Pour & Asarian, 2019).

Benchmarking ($r = .631$), memory ($r = .583$), and sharing ($r = .532$) also demonstrated substantial correlations with performance indicators, underscoring the role of experiential learning and collaborative knowledge flows. These findings reinforce the Knowledge-Based View (Grant, 1996) and Absorptive Capacity Theory (Cohen & Levinthal, 1990), both of which emphasize that competitive advantage arises from an organization's ability to acquire, internalize, and apply knowledge.

Moreover, KMO contributes to broader organizational outcomes—including innovation, employee development, and community engagement—by embedding knowledge practices into strategic and human resource systems. As Wang et al. (2009) and Dash (2022) suggest, the performance benefits of KMO are further amplified when aligned with customer focus and market responsiveness. Ultimately, the results affirm that SMEs with strong knowledge cultures and systems are more agile, competitive, and socially attuned.

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Table 3. Significance of the Relationship between Knowledge Market Orientation and Business Performance

Knowledge Market Orientation	Business Performance								
	INP	RTT	EMP	HDR	TDS	HPM	IJS	WLA	**Overall**
Culture	.484** .000	.585** .000	.582** .000	.455** .000	.630** .000	.552** .000	.564** .000	.508** .000	**.674** .000**
Sharing	.440** .000	.496** .000	.412** .000	.339** .000	.541** .000	.425** .000	.418** .000	.391** .000	**.532** .000**
System	.516** .000	.543** .000	.560** .000	.485** .000	.498** .000	.532** .000	.438** .000	.465** .000	**.627** .000**
Memory	.452** .000	.497** .000	.478** .000	.371** .000	.515** .000	.561** .000	.474** .000	.434** .000	**.583** .000**
Benchmark	.506** .000	.575** .000	.594** .000	.477** .000	.527** .000	.528** .000	.395** .000	.480** .000	**.631** .000**
Overall	**.578** .000**	**.648** .000**	**.634** .000**	**.514** .000**	**.648** .000**	**.624** .000**	**.546** .000**	**.548** .000**	.733** .000**

Legend: *INP -Innovation-Proactiveness; RTT -Risk taking-Transportation; EMP -Ecological Materials-Environmental Performance Mgt; HDR -Hiring Disadvantaged People-Community Responsibilities; TDS -Training and Development-Performance Support; HPM -HR Policy-Diversity Management; IJS -Interaction-Job Satisfaction; and WLA-Work-life-Adaptability.*

Relationship between Innovativeness and Business Performance

As shown in Table 4, innovativeness is significantly and positively associated with business performance among SMEs in Region XII ($r = .648$, $p < .001$). This moderate to strong correlation emphasizes the crucial role of innovation in enhancing firm outcomes in dynamic market environments. Among the innovation dimensions, channels ($r = .565$) and revenue sources ($r = .530$) were the most influential predictors, indicating that strategic adjustments in distribution methods and revenue models contribute substantially to performance.

Innovations in revenue sources—such as product diversification and creative pricing—drive firm growth and productivity (Jin & Choi, 2019; Löfsten, 2014; Expósito & Sanchis-Llopis, 2018). Likewise, advancements in delivery channels and customer engagement platforms reinforce the importance of how services are rendered, not just what is offered (Turnbull et al., 2019).

Additionally, human capital innovations showed strong correlations with training and development ($r = .486$) and diversity management ($r = .497$), suggesting that investments in workforce development support internal capability building and strategic renewal (Kafetzopoulos et al., 2019; Hult et al., 2004).

These findings are consistent with the Dynamic Capabilities Framework (Teece, 1997), which underscores the importance of reconfiguring resources to meet shifting market demands. Supporting literature further affirms that innovation enhances performance across various metrics, including productivity, customer satisfaction, and adaptability (Prajogo, 2016; Tsai & Yang, 2013).

Moreover, successful innovation is often underpinned by organizational learning and knowledge management capabilities. As Nielsen (2019) and Turnbull et al. (2019) note, firms that

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strengthen their absorptive capacity and intellectual capital are better positioned to convert innovative practices into sustained business performance.

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Table 4. Significance of the Relationship between Innovation and Business Performance

Innovation	Business Performance								
	INP	RTT	EMP	HDR	TDS	HPM	IJS	WLA	**Overall**
Value Proposition	.497** .000	.487** .000	.461** .000	.330** .000	.432** .000	.424** .000	.314** .000	.391** .000	**.511** **.000**
Channels	.507** .000	.506** .000	.495** .000	.472** .000	.418** .000	.453** .000	.345** .000	.439** .000	**.565** **.000**
Costs	.494** .000	.481** .000	.458** .000	.351** .000	.469** .000	.424** .000	.382** .000	.413** .000	**.534** **.000**
Human Capital	.457** .000	.476** .000	.428** .000	.324** .000	.486** .000	.497** .000	.401** .000	.401** .000	**.532** **.000**
Value Networks	.366** .000	.355** .000	.344** .000	.216** .000	.333** .000	.328** .000	.302** .000	.306** .000	**.390** **.000**
Linkage w/ Partners	.496** .000	.483** .000	.468** .000	.391** .000	.367** .000	.341** .000	.316** .000	.378** .000	**.501** **.000**
Assets & Capabilities	.461** .000	.493** .000	.411** .000	.276** .000	.386** .000	.446** .000	.321** .000	.404** .000	**.488** **.000**
Revenue Sources	.530** .000	.506** .000	.457** .000	.367** .000	.419** .000	.432** .000	.312** .000	.431** .000	**.530** **.000**
Overall	**.608** **.000**	**.606** **.000**	**.563** **.000**	**.439** **.000**	**.528** **.000**	**.535** **.000**	**.430** **.000**	**.506** **.000**	.648** .000

Legend: *INP -Innovation-Proactiveness; RTT -Risk taking-Transportation; EMP -Ecological Materials-Environmental Performance Mgt; HDR -Hiring Disadvantaged People-Community Responsibilities; TDS -Training and Development-Performance Support; HPM -HR Policy-Diversity Management; IJS -Interaction-Job Satisfaction; and WLA-Work-life-Adaptability.*

Influence of Digital Marketing Orientation, Knowledge Market Orientation, and Innovation on Business Performance

Table 5 presents the multiple regression results, indicating that digital market orientation (DMO), knowledge management orientation (KMO), and innovation collectively explain 58.3% of the variance in business performance among SMEs in Region XII ($R^2 = .583$, $p < .001$). This highlights the substantial combined influence of these strategic capabilities on firm outcomes.

Among the predictors, KMO emerged as the strongest contributor ($\beta = .473$, $p < .001$), followed by DMO ($\beta = .228$, $p < .001$) and innovation ($\beta = .130$, $p = .014$). The central role of KMO supports prior findings that knowledge-sharing culture, organizational memory, and absorptive capacity are vital for improving firm adaptability and performance (Meylananda et al., 2021; Wahyuni & Giantari, 2022). These practices enable firms to transform internal and external knowledge into strategic advantage.

DMO also showed a significant positive effect, affirming its role in enhancing market responsiveness and digital engagement (Mahmoud et al., 2016; Koçak et al., 2017;

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Ashrafi & Ravasan, 2018). Firms that effectively integrate digital tools with customer and competitor orientation are better positioned to respond to dynamic market conditions.

Although innovation had the smallest beta coefficient, it remains a significant predictor. This finding echoes studies by Mulyana and Hendar (2020) and Han et al. (1998), which suggest that innovation often functions in tandem with other capabilities, translating knowledge and digital orientation into performance outcomes. While it may not be the primary driver in the model, innovation likely plays an indirect or mediating role—reinforcing the effects of DMO and KMO through new product development, improved processes, and strategic renewal (Aziz, 2013; Wang & Ahmed, 2004; Saini, 2015).

These results reinforce the Dynamic Capabilities Framework (Teece, 1997), which emphasizes the integration and reconfiguration of internal competencies to sustain competitive advantage. KMO facilitates knowledge acquisition and diffusion, DMO supports proactive sensing and engagement, and innovation converts these capacities into value-creating activities.

For practitioners, the findings suggest that SMEs should prioritize integrated capability-building—investing in knowledge systems, digital infrastructure, and innovation-friendly cultures to achieve sustained business performance.

Table 5. Significance of the influence of Digital Marketing Orientation, Knowledge Market Orientation and Innovation on Business Performance

	Business Performance			
(Variables)	*B*	β	*t*	*Sig.*
Constant	.450		2.751	.006
Digital Market Orientation	.242	.228	4.476	.000
Knowledge Market Orientation	.497	.473	9.365	.000
Innovation	.138	.130	2.473	.014
R	.763			
R^2	.583			
ΔR	.580			
F	193.088			
ρ	.000			

Regression Weights Across Models

Table 6 summarizes the standardized regression weights across three structural models examining the influence of digital market orientation (DMO), knowledge management orientation (KMO), and innovation on business performance. DMO emerged as a consistently significant predictor, with its strongest effect observed in Model 3 (β = .357, p < .01), underscoring its role in enhancing market responsiveness, digital agility, and customer-centricity (Navia et al., 2023; Pașcalău et al., 2024; Ranjan, 2023).

KMO demonstrated the highest predictive strength in Model 2 (β = .599, p < .001), before decreasing in Model 3 (β = .312, p < .05). Despite this reduction, KMO remained statistically significant, affirming its strategic relevance in driving firm performance through knowledge-sharing practices, systems, and

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organizational learning (Ha et al., 2016; Grant, 1996).

In contrast, innovation was only significant in Model 1 (β = .116, p < .001), and lost significance in Models 2 and 3. This decline supports the argument that innovation's performance impact may depend on complementary capabilities such as absorptive capacity and strategic alignment (Cohen & Levinthal, 1990; Forsman & Temel, 2011; Hult et al., 2004).

Among the tested models, Model 3 offers the most realistic strategic configuration for SMEs. It reflects the actionable levers—DMO and KMO—that resource-constrained firms can prioritize to enhance competitiveness without heavy investment in innovation infrastructure (Supyuenyong & Swierczek, 2011; Wahyuni & Giantari, 2022). Thus, while innovation remains conceptually relevant, DMO and KMO provide more immediate and scalable pathways to performance improvement.

Table 6. Regression Weights of the 3 Generated Models

	Exogenous Variables to Endogenous Variables		
Model	**Digital Market Orientation**	**Knowledge Market Orientation**	**Innovation**
1	.269***	.511***	.116***
2	.228**	.599***	.011^{NS}
3	.357**	.312*	.248^{NS}

Table 7 shows the significant covariances among digital market orientation (DMO), knowledge management orientation (KMO), and innovation (INN) in the best-fitting model. DMO and KMO shared a covariance of 0.160 (p < .001), indicating that digitally oriented firms tend to also adopt strong knowledge management practices. The covariance between KMO and INN (0.172, p < .001) highlights how knowledge-sharing cultures support innovation development (Wang et al., 2009; Lin, 2015). Likewise, the relationship between DMO and INN (0.171, p < .001) reflects how market responsiveness facilitates innovation in dynamic environments (Teece, 1997; Koçak et al., 2017).

These findings affirm the synergistic interaction among the three constructs, underscoring that innovation thrives when digital strategies and knowledge systems are in place. In SMEs, such integration forms the foundation of dynamic capabilities essential for sustainable performance and adaptability.

Table 7. Covariances: (Group number 1 – Best Fit Model)

Variables			**Estimates**	**S.E.**	**P-value**
Digital Market Orientation	<-->	Knowledge Market Orientation	.160	.016	***
Knowledge Market Orientation	<-->	Innovation	.172	.017	***
Digital Market Orientation	<-->	Innovation	.171	.017	***

Best Fit Model on SMEs' Business Performance

Structural Model 3 emerged as the best-fitting configuration, showing excellent model fit across multiple indices: CFI = 0.997, TLI = 0.993, GFI = 0.983, RMSEA = 0.026, and CMIN/DF = 1.280, all within acceptable thresholds. These values indicate that the model adequately represents the relationships among digital market orientation (DMO), knowledge management orientation (KMO), innovation (INN), and business performance among SMEs.

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In this final model, DMO and KMO remained significant direct predictors of business performance, while innovation was excluded as a direct path due to its nonsignificant contribution. This supports the view that innovation functions more effectively as an enabling or mediating construct rather than an independent driver, aligning with the Resource-Based View (Barney, 1991) and Dynamic Capabilities Framework (Teece, 1997). Foundational capabilities like digital responsiveness and knowledge utilization emerged as central to sustainable performance.

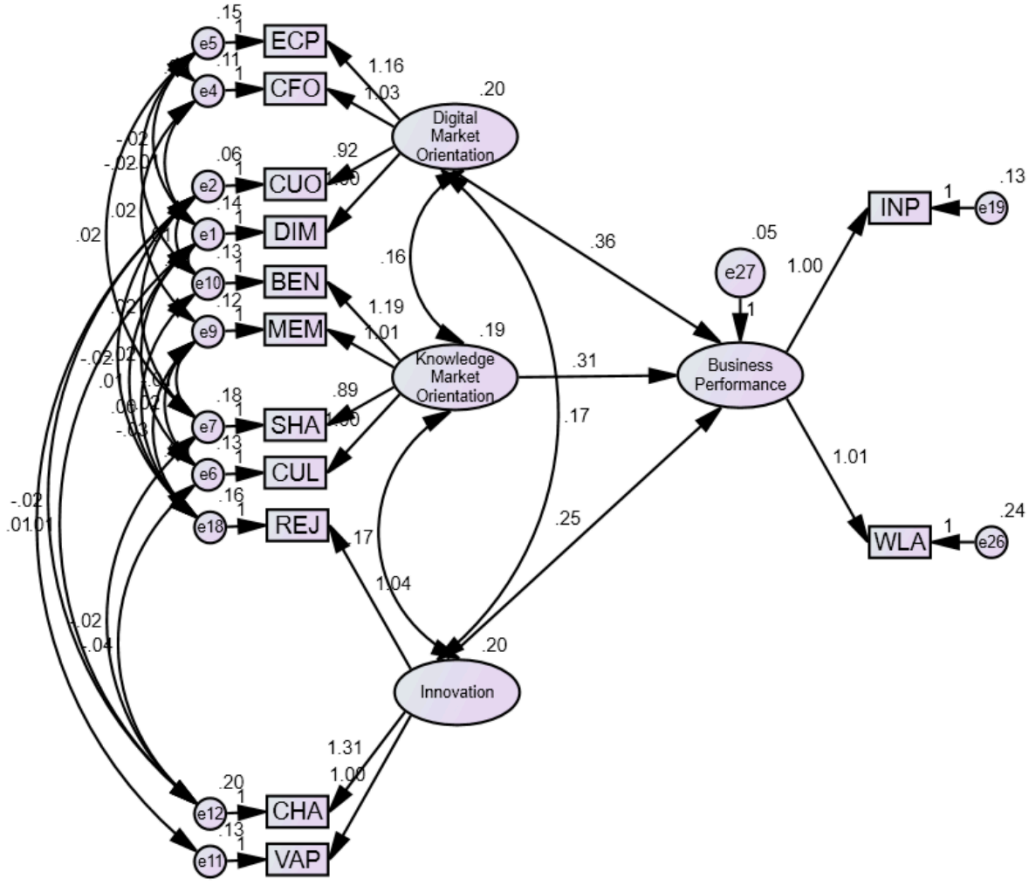

Figure 1. Structural Model 3 in Standardized Solution

Legend:

DIM – Digital Market
CUO – Customer Orientation
OTC – Orientation to the Competition
CFO – Cross-functional Orientation
ECP – Economic Performance
DMO – Digital Market Orientation

BEN – Benchmark
MEM – Memory
SYS – System

REJ – Revenue Sources
AAC – Assets & Capabilities
LWP – Linkage with Partners
VAN – Value Networks
HUC – Human Capital
COS – Costs
CHA – Channels
VAP – Value Proposition
INN – Innovation

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SHA – Sharing
CUL – Culture
KMO – Knowledge Market Orientation
INP – Innovation (Business Performance)
RTT – Risk Taking
EMP – Environmental Management Performance
HDR – Hiring Disadvantaged People
TDS – Training & Development Support
HPM – Human Performance Management
IJS – Interaction, Job Satisfaction
WLA – Work-Life Balance
BUP – Business Performance

Supporting literature reinforces this structure. Olavarrieta and Friedmann (2008), Lin et al. (2008), and Dash (2022) emphasize that market and knowledge orientations often facilitate innovation's impact by strengthening absorptive capacity and organizational learning. The significant covariances among DMO, KMO, and INN—ranging from 0.160 to 0.172 ($p < .001$)—further highlight their synergistic relationships, suggesting that innovation gains traction through digital and knowledge infrastructures.

Strategically, the findings highlight the importance of prioritizing digital platforms, customer-centric systems, and organizational knowledge-sharing to drive SME performance (Liu et al., 2025; Pașcalău et al., 2024; Acayip et al., 2025). While innovation remains a vital construct, its measurable impact is contingent on the maturity of DMO and KMO, positioning these orientations as critical pathways to long-term competitiveness.

Table 8. Goodness of Fit Measures of Structural Model 3

INDEX	CRITERION	MODEL FIT VALUE
P-Close	**> 0.05**	.981
CMIN/DF	**0 < value < 2**	1.280
P-value	**> 0.05**	.118
GFI	**> 0.95**	.983
CFI	**> 0.95**	.997
NFI	**> 0.95**	.986
TLI	**> 0.95**	.993
RMSEA	**< 0.05**	.026

Legend: *CMIN/DF - Chi-Square/Degrees of Freedom; NFI - Normed Fit Index; TLI-Tucker-Lewis Index; CFI-Comparative Fit Index; GFI-Goodness of Fit Index; RMSEA-Root Means Square of Error Approximation; Pclose-P of Close Fit; and P-value-Probability Level.*

Structural Model Fit and Best-Fitting Model

The progressive refinement from Model 1 to Model 3 reflects both a theoretical and empirical advancement in identifying the most parsimonious and substantively meaningful explanation for business performance among SMEs. Model 1, which incorporated the full set of observed indicators and paths, demonstrated poor fit, with indices well below accepted thresholds—such as a CMIN/DF of 7.830, GFI of 0.702, CFI of 0.768, and RMSEA of 0.128. Model 2 offered some improvement (CFI = 0.850, RMSEA = 0.103), but still fell short of established criteria for acceptable model fit. It was only with the emergence of Model 3—featuring a refined structure excluding innovation as a direct path—that the model achieved excellent goodness-of-fit metrics, including a CFI of 0.997, TLI of 0.993, RMSEA of 0.026, and a highly acceptable CMIN/DF value of 1.280. The P-close of 0.981 further affirms the model's close fit to the data (see Table 9).

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The structural integrity of Model 3 emphasizes the pivotal roles of digital market orientation and knowledge management orientation as the principal drivers of SME performance. These findings are consistent with the Resource-Based View (Barney, 1991) and Dynamic Capabilities Theory (Teece, 1997), which prioritize strategically embedded organizational capabilities—such as digital responsiveness and knowledge acquisition—as key sources of competitive advantage. The model's parsimony reflects the theoretical proposition that innovation, while inherently valuable, may not always exert a direct influence on performance outcomes, particularly when robust digital and knowledge infrastructures are present.

The exclusion of innovation from the final model does not undermine its relevance; instead, it highlights the context-dependent nature of innovation's role in performance. As noted by Ardito (2021) and Dogbe (2020), innovation may function more effectively as a mediating or moderating variable, exerting influence through its interaction with absorptive capacity, market orientation, or digital capability. In essence, innovation's value is contingent upon the firm's readiness to support, absorb, and implement novel ideas within an integrated strategic framework.

Model 3 presents not only the best empirical fit but also the most theoretically sound configuration. It affirms that digital and knowledge-driven orientations provide the necessary structural and cognitive foundations for SMEs to achieve superior business outcomes. These findings offer important implications for both researchers and practitioners: strategic investments in digital capabilities and knowledge systems should be prioritized, while innovation strategies may yield greater returns when embedded within these foundational capabilities.

Table 9. Summary of Goodness of Fit Measures of the Three Generated Models

Model	P-value (>0.05)	CMIN / DF (0<value<2)	GFI (>0.95)	CFI (>0.95)	NFI (>0.95)	TLI (>0.95)	RMSEA (<0.05)	P-close (>0.05)
1	.000	7.830	.702	.768	.743	.745	.128	.000
2	.000	5.463	.759	.850	.823	.833	.103	.000
3	.118	1.280	.983	.997	.986	.993	.026	.981

Legend: CMIN/DF – *Chi Square/Degrees of Freedom*; NFI –*Normed Fit Index;* GFI – Goodness *of Fit Index;* TLI -*Tucker-Lewis Index;* RMSEA – *Root Mean Square of Error Approximation*; and CFI – Comparative *Fit Index*

Practical Implications for SMEs

The findings of this study offer valuable insights for SME owners and policymakers aiming to enhance business performance through digital market orientation and knowledge management. Despite increased adoption of tools like mobile-based CRM and social media for customer engagement (Joensuu-Salo et al., 2018), SMEs in Region XII face structural challenges that hinder strategic transformation. These include limited access to financing (Wang, 2016; Indrawati et al., 2020), a shortage of technical skills and innovative human capital (Gaast et al., 2016; Sossa et al., 2018), and internal barriers such as informal structures and resistance to change. Broader issues—such as burdensome regulations, weak institutional support (Lopes et al., 2025; Peng et al., 2012), and lack of trust among SMEs (Mehandjiev et al., 2022)—further complicate the digital and knowledge transformation agenda. Therefore, targeted strategies including digital capacity-building, accessible financing, and

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policy reforms are necessary to address these gaps (ITC, 2020; Melchor & Mendoza, 2014; Aldaba, 2014). While centered on Region XII, these insights resonate with trends across ASEAN, where SMEs commonly face lagging digitalization and fragmented innovation systems (ERIA/OECD, 2024). Thus, the validated structural model in this study may be applicable across similarly situated Southeast Asian contexts and could inform cross-country policy benchmarking.

4. Conclusion

Based on the study's key findings, digital market orientation (DMO) and knowledge management orientation (KMO) emerged as the most significant drivers of business performance among SMEs in Region XII, Philippines, while innovation played a more nuanced, indirect role. Structural Model 3, which demonstrated superior model fit, confirmed that DMO and KMO have direct and substantial effects on performance, underscoring the critical importance of digital responsiveness and knowledge-sharing systems in sustaining competitive advantage. Although innovation did not significantly predict performance in the final model, its strong covariances with DMO and KMO highlight its strategic relevance when supported by foundational capabilities. These results affirm the Resource-Based View and Dynamic Capabilities Framework, suggesting that SMEs aiming to enhance performance should prioritize investments in digital infrastructure and knowledge systems to effectively leverage innovation and remain adaptable in dynamic market environments.

5. Recommendations

In light of the findings, this study recommends that SMEs strengthen their digital market orientation and knowledge management orientation as primary drivers of business performance. Firms should invest in digital tools such as customer relationship management (CRM) platforms and data-driven marketing systems to enhance market sensing and responsiveness. Simultaneously, knowledge management practices—such as institutionalizing knowledge-sharing mechanisms and fostering a culture of continuous learning—should be embedded across organizational levels to reinforce strategic agility and internal capability building. Although innovation did not show a direct effect in the final model, it remains a valuable enabler of growth when supported by robust digital and knowledge infrastructures. SMEs are encouraged to align innovation initiatives with internal data, employee creativity, and collaborative networks.

From a policy perspective, targeted support for SMEs through accessible financing schemes, digital infrastructure subsidies, and knowledge-driven capacity-building programs can accelerate enterprise transformation. Finally, future research is advised to examine additional variables that may account for the remaining 41.7% of unexplained variance in business performance. Factors such as leadership style, organizational culture, employee engagement, market competitiveness, or external environmental conditions may offer deeper insights into performance outcomes and contribute to more comprehensive strategic models for SME development.

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