Jurnal Aplikasi Bisnis dan Manajemen (JABM), Vol. 12 No.2, May 2026
Permalink/DOI: http://dx.doi.org/10.17358/jabm.12.2.450

Available online
http://journal.ipb.ac.id/index.php/jabm

TECHNOLOGY ADOPTION READINESS AS A MEDIATING MECHANISM BETWEEN OMNICHANNEL STRATEGY, DIGITAL COMPETENCE AND MSME MARKETING PERFORMANCE IN INDONESIA

Siska Ernawati Fatimah[1*], Ratih Hurriyati[2], Soesanty Maulany[1]

[1]Department of Management, Faculty of Economic and Business, Universitas Swadaya Gunung Jati
Jl. Pemuda Raya No.32, Sunyaragi, Kec. Kesambi, Cirebon 45132, West Java, Indonesia
[2]Department of Business Education, Faculty of Economics and Business Education, Universitas Pendidikan Indonesia
Jl. Dr. Setiabudi No.229, Isola, Kec. Sukasari, Bandung 40154, West Java, Indonesia

Article history:

Received
22 August 2025

Revised
4 November 2025

Accepted
6 March 2026

Available online
29 May 2026

Abstract:

Background: The rapid development of digital technology has significantly transformed consumer purchasing behavior. Customers increasingly expect seamless experiences across both online and offline channels, creating new challenges for micro, small, and medium sized enterprises (MSMEs) in managing integrated marketing systems. In this context, MSMEs' ability to adopt and use digital technologies becomes an important factor in improving marketing performance.
Purpose: This study examines the role of technology adoption readiness as a mediating mechanism between omnichannel strategy, digital competence, and MSME marketing performance in Indonesia.
Design/methodology/approach: A quantitative research approach was employed using survey data collected from 180 MSME owners in Cirebon City, West Java, Indonesia, who operate at least two marketing channels. Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) to evaluate both the measurement model and the structural relationship among variables.
Findings/Results: Results indicate that omnichannel strategy and digital competence significantly enhance technology adoption readiness. Furthermore, technology adoption readiness has a significant positive effect on marketing performance. The structural model explains 88.3% of the variance in marketing performance (R^2=0.883), indicating strong predictive capability. The mediation analysis shows that technology adoption readiness fully mediates the relationship between omnichannel strategy, digital competence, and marketing performance.
Conclusion: These findings suggest that MSME marketing performance can be improved not only through channel integration and digital skills but also through strong technological readiness that supports digital transformation.
Originality/value (State of the art): This study contributes to the Technology Organization Environment (TOE) framework by highlighting the mediating role of technology adoption readiness in linking strategic orientation and digital capability to marketing performance in the MSME context.

Keywords: technology adoption readiness, omnichannel strategy, digital competence, MSMEs, marketing performance

How to Cite:
Fatimah, S. E., Hurriyati, R., & Maulany, S. (2026). Technology adoption readiness as a mediating mechanism between omnichannel strategy, digital competence and MSME marketing performance in Indonesia. Jurnal Aplikasi Bisnis dan Manajemen (JABM), 12(2), 66. https://doi.org/10.17358/jabm.12.2.1

[*] Corresponding author:
Email: Siskaef@ugj.ac.id

INTRODUCTION

The rapid pace of digital transformation has significantly reshaped consumer behavior and purchasing decisions. In today's marketplace, buying activities no longer occur solely in physical stores but increasingly extend to digital platforms such as e-commerce websites, social media, and mobile applications (Balbín Buckley & Marquina Feldman, 2024; Elfaki & Ahmed, 2024). As a result, consumers now expect speed, flexibility, and consistency across both online and offline channels. Consequently, businesses, including MSMEs, must adapt by developing integrated marketing systems that deliver coherent, seamless customer experiences (Meng & Wang, 2023; Oluwaseun Peter Oyeyemi et al. 2023). An omnichannel strategy has emerged as a practical approach to address this shift. It integrates various sales and communication channels, such as physical stores, websites, social media, and marketplaces, into a unified system that allows customers to move across channels without disruption. For MSMEs, adoption of this strategy not only expands sales opportunities but also strengthens brand visibility and customer loyalty in a highly competitive digital environment (Gasparin & Slongo, 2023; Indayani et al. 2023). However, successful implementation requires more than multichannel presence; it demands strategic alignment, managerial capability, and technological readiness to ensure consistent service delivery.

Digital competence is equally important in supporting marketing transformation among MSME owners and managers. It refers to the ability of MSME owners and managers to utilize digital technologies effectively, manage online content, analyze customer data, and apply innovative tools to improve marketing performance (Kallmuenzer et al. 2025; Martinelli & Tunisini, 2024).

Technology adoption readiness plays a critical role in determining whether strategic and digital initiatives translate into measurable performance outcomes. It reflects the extent to which an enterprise possesses the infrastructure, skills, and organizational mindset necessary to implement digital systems (Salah & Ayyash, 2024). Even well designed omnichannel strategies may not produce optimal results if MSMEs lack the readiness to operationalize technology within their business processes (Fatimah et al. 2024; Pea-Assounga & Bindel Sibassaha, 2024).

Although prior studies often investigated omnichannel strategy, digital competence, and technology readiness separately (González-Varona et al. 2021; Lina & Suwarni, 2022), limited research has investigated how these three dimensions interact simultaneously to influence MSME marketing performance. Therefore, a comprehensive framework is needed to capture the dynamic relationship among strategy, human capability, and technological preparedness in the MSME context.

Therefore, this study addresses the identified research gap by proposing an integrated framework that positions technology adoption readiness as a mediating variable between omnichannel strategy and digital competence, and MSME marketing performance. The novelty of this research lies in empirically examining how these three elements interact simultaneously to influence marketing effectiveness in the digital economy.

From a theoretical perspective, this Integration contributes to the literature on digital marketing and small business transformation by emphasizing the mediating role of technological readiness. Practically, the findings are expected to provide insights for MSME managers, policymakers, and technology providers in designing targeted capacity building programs, strengthening digital infrastructure, and promoting sustainable digital adoption among local enterprises.

This study aims to examine whether technology adoption readiness mediates the relationship between omnichannel strategy, digital competence, and MSME marketing performance in Indonesia. By empirically testing this integrated framework, the study seeks to clarify the transformation mechanism through which strategic alignment and digital capability contribute to performance outcomes.

METHODS

The study was carried out on MSMEs in Cirebon City, West Java, Indonesia, from June to September 2025. Cirebon was selected because it represents a region experiencing rapid urban growth, where MSMEs are increasingly adopting digital business practices. The city's dynamic economic environment provides an appropriate context for examining how small businesses respond to technological and market changes. A quantitative research method was used with a causal explanatory approach to examine the relationship

among the main variables. In particular, this study explores the influence of omnichannel strategy and digital competence on marketing performance through technology adaptation readiness as a mediating variable.

Data were collected using structured questionnaires distributed both online and offline to MSME owners and managers. Purposive sampling was applied, targeting MSMEs that utilize digital marketing or operate at least two sales channels. A total of 180 valid responses were obtained and analyzed. The sample size exceeded the minimum requirement for PLS-SEM analysis, ensuring adequate statistical power for structural model estimation. Measurement items were adapted from validated prior studies and pre-tested with several MSME owners to ensure clarity and contextual relevance before full distribution (Nash, 2024; Prabhat Pandey Dr., Meenu Mishra Pandey., 2014).

The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS software. This method allows simultaneous testing of complex structural relationships and the mediation effect (Del et al. 2021; Edeh et al. 2023). The analysis consisted of two stages: first, evaluating the measurement model (reliability and validity testing), and second, evaluating the structural model (path coefficients, R^2, and mediation effects). To enhance methodological rigour, collinearity was assessed using the Variance Inflation Factor (VIF) values and common method bias was evaluated using Harman's single factor test.

These hypotheses are derived from prior theoretical and empirical studies and grounded in the technology, organization, environment framework:

H1: Omnichannel strategy positively affects technology adoption readiness

H2: Digital competence positively affects technology adoption readiness

H3: Technology adoption readiness positively affects marketing performance

H4: Technology adoption readiness mediates the relationship between omnichannel strategy and marketing performance

H5: Technology adoption readiness mediates the relationship between digital competence and marketing performance

The conceptual framework (Figure 1) of this study illustrates the logical relationships between omnichannel strategy (X1) and digital competence (X2) as independent variables and MSME marketing performance as the dependent variable, with technology adoption readiness serving as a mediating mechanism. The model emphasizes that the effectiveness of omnichannel implementation does not rely solely on channel integration but also depends on MSMEs' digital competence and, more importantly, their readiness to adopt and operationalize technology (Martinelli & Tunisini, 2024; Verhoef et al. 2021).

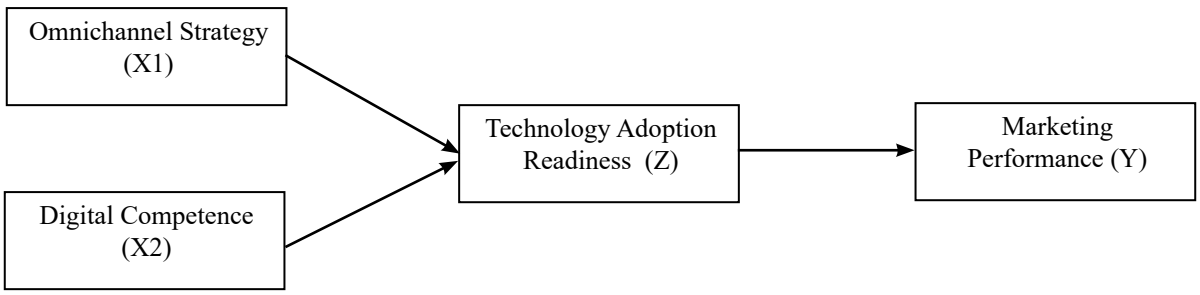

Figure 1. Proposed conceptual framework showing the mediating role of technology adoption readiness

Aligned with the Technology–Organisation–Environment (TOE) theory (Tornatzky & Fleischer, 1990), technology adoption readiness represents the technological dimension that enables strategic and organizational capabilities to be translated into measurable marketing outcomes. In this framework, omnichannel strategy reflects strategic alignment, digital competence represents organizational capability, and technology readiness acts as the enabler mechanism that connects these dimensions to improved performance indicators such as sales growth, customer loyalty, and operational efficiency (Salah & Ayyash, 2024). Thus, the framework demonstrates that MSME competitiveness in the digital era is achieved through the alignment of strategy, digital capability, and technological preparedness, where technological adoption readiness plays a central mediating role in transforming capability into performance (Öztürk, 2025).

RESULTS

Descriptive Analysis

This section describes the demographic characteristics of MSME owners who participated in this study. The profile includes gender, age, education level, business sector, and the digital marketing channels used in their business activities. Understanding respondent characteristics is important to provide context for interpreting the empirical findings. In addition, the demographic information illustrates the general profile of MSMEs that are actively involved in digital marketing practices in Cirebon City. The detailed distribution of respondents is presented in Table 1.

The majority of respondents were female (71%), with most aged above 38 years (47%). A bachelor's degree was the most common educational background (37%), followed by senior high school (34%) and diploma qualification (29%). Culinary business dominated the sample (54%), followed by fashion (34%). In terms of digital marketing channels, WhatsApp Business was the most frequently used platform (41%), followed by Instagram and TikTok (each 24%). Overall, the findings suggest that MSMEs in the sample actively utilize digital marketing platforms, particularly accessible social messaging tools.

Table 1. Respondent characteristics

Category	Possible Answer	F	%
Gender	Female	128	71
	Male	52	29
Age	20-25 years old	16	9
	26 - 31 years old	28	15
	32 – 37 years old	51	28
	≥38 years old	85	47
Education	Senior High School	61	34
	Diploma	43	29
	Bachelor	68	37
MSME Sector	Culinary	97	54
	Fashion	62	34
	Etc	21	12
Social Media Channel	Instagram	43	24
	WhatsApp Business	73	41
	Facebook	8	4
	TikTok	42	24
	Marketplace	9	5
	Others	5	2

Model Fit Results

The model fit was assessed using the standardized root mean square residual (SRMR). The SRMR value for both the saturated and estimated models was 0.110. Although slightly above the conservative threshold of 0.10, this value is considered acceptable in PLS-SEM, which prioritizes predictive accuracy over strict global goodness of fit criteria. As PLS SEM is primarily variance based and prediction oriented, model evaluation focuses more on path significance, R^2 values, and predictive relevance than overall fit indices. Therefore, the structural model is deemed adequate for subsequent hypothesis testing.

Model Measurement Test Results

The measurement model was evaluated using outer loadings, Average Variance Extracted (AVE), Cronbach's alpha, and composite reliability to ensure the validity and reliability of the research instruments. These indicators assess the extent to which the observed variables consistently and accurately represent their respective latent constructs. Table 2 indicates that all indicator loadings exceed the recommended threshold of 0.70, confirming adequate indicator reliability. The AVE values for all constructs are above 0.50, demonstrating satisfactory convergent validity. Furthermore, Cronbach's Alpha and composite reliability values exceed 0.70, indicating acceptable internal consistency. These results confirm that the measurement model meets the established validity and reliability criteria and is suitable for further structural model analysis.

Structural Model Analysis

The structural model analysis was conducted to evaluate the explanatory power of the proposed research model. Several statistical indicators were used to assess the model, including the coefficient of determination (R^2), effect size (f^2), and the significance of the path coefficients. The coefficient of determination indicates the proportion of variance in the endogenous variables that can be explained by the exogenous variables in the model. Meanwhile, the path coefficient significance was used to determine whether the hypothesized relationships among variables were statistically supported. These indicators provide a comprehensive assessment of the explanatory power and predictive capability of the proposed structural model.

Table 2. Measurement model evaluation

Variable	Indicator	Outer Loading	AVE	Cronbach's Alpha	Composite Reliability
Omnichannel Strategy	X1.1	0.809	0.589	0.768	0.851
	X1.2	0.728			
	X1.3	0.787			
	X1.4	0.744			
Digital Competence	X2.1	0.798	0.638	0.811	0.876
	X2.2	0.770			
	X2.3	0.808			
	X2.4	0.817			
Marketing Performance	Y1	0.769	0.649	0.852	0.902
	Y2	0.793			
	Y3	0.737			
	Y4	0.864			
	Y5	0.799			
Technology Adoption Readiness	Z1	0.828	0.629	0.864	0.894
	Z2	0.802			
	Z3	0.820			
	Z4	0.736			
	Z5	0.837			

As shown in Table 3, omnichannel strategy and digital competence explain 85.2% of the variance in technology adoption readiness. Furthermore, technology adoption readiness explains 88.3% of the variance in marketing performance. These values indicate substantial explanatory power of the proposed structural model. Although the R^2 value for marketing performance (0.883) appears relatively high, this result remains methodologically acceptable in variance based PLS-SEM, which emphasizes predictive capability and variance explanation rather than strict global model fit criteria. Moreover, the theoretically grounded mediating role of technology adoption readiness within the TOE framework logically strengthens the explanatory capacity of the structural relationships. This result strengthens the explanatory power of the structural model. In addition, the Variance Inflation Factor (VIF) values were below the recommended threshold of 5, indicating that multicollinearity was not a concern and that the structural estimates are stable and reliable.

As presented in Table 4, the omnichannel strategy shows a strong total effect on technology adoption readiness (0.813) and an indirect effect on marketing performance (0.776). Digital competence also demonstrates a positive effect on technology adoption readiness (0.150) and an indirect effect on marketing performance (0.141). In addition, technology adoption readiness exhibits a strong direct effect on marketing performance (0.940), confirming its central role in the structural model. Overall, these findings indicate that the effects of omnichannel strategy and digital competence on marketing performance operate primarily through technology adoption readiness as a mediating mechanism. Structural model and path analysis results of MSME marketing performance in Figure 2.

Hypothesis Testing

This section presents the results of the hypothesis testing based on the structural model analysis. The analysis evaluates both direct and indirect relationships among the variables included in the proposed research framework. The significance of each relationship was assessed using the path coefficient, t-statistic, and p-value obtained from the PLS SEM analysis. A hypothesis is considered statistically supported when the p-value is below the significance level of 0.05. The results provide empirical evidence regarding the relationships proposed in the conceptual framework. The summary of the hypothesis testing result is presented in Table 5.

Table 3. Structural model evaluation

Endogenous Variable	R Square	Adjusted R-Square
Technology Adoption Readiness	0.852	0.851
Marketing Performance	0.883	0.883

Table 4. Total effect result

Variable	Marketing Performance	Technology Adoption
Strategy Omnichannel	0,776	0,813
Digital Competence	0,141	0,150
Technology Adoption	0,940	0,000

Table 5. Summary of hypothesis testing results

Hypothesis	Independent Variable	Path Analysis	t value	P Value	Result
H1	Omnichannel strategy to technology adoption readiness	0.813	19.527	0.000	Supported
H2	Digital competence to technology adoption readiness	0.150	3.369	0.001	Supported
H3	Technology adoption readiness to marketing performance	0.940	87.889	0.000	Supported
H4	Technology adoption readiness mediates the relationship between omnichannel strategy and marketing performance	0.764	17.377	0.000	Supported
H5	Technology adoption readiness mediates the relationship between digital competence and marketing performance	0.141	3.406	0.001	Supported

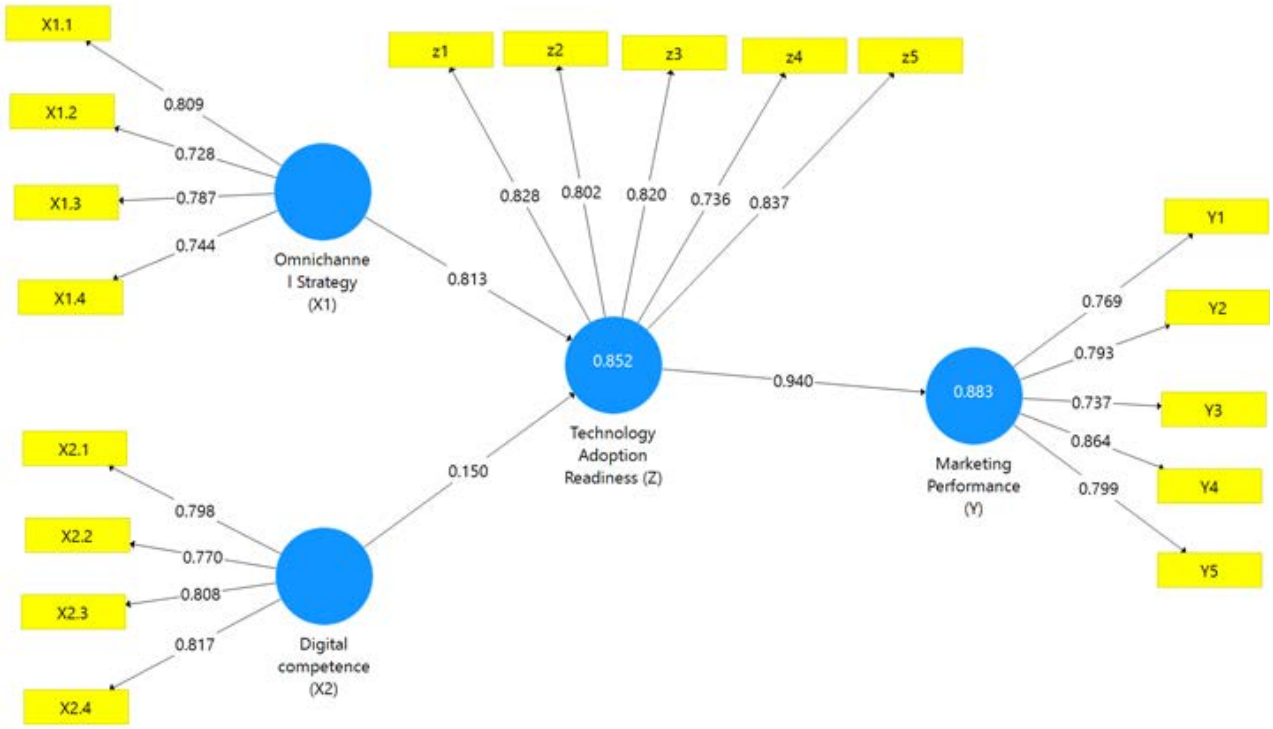

Figure 2. Structural model and path analysis results of MSME marketing performance

The results indicate that all proposed hypotheses are statistically supported. Omnichannel strategy has a positive and significant effect on technology adoption readiness ($\beta = 0.813$, $p < 0.001$), supporting H1. Digital competence also significantly influences technology adoption readiness ($\beta = 0.150$, $p = 0.001$), supporting H2. Furthermore, technology adoption readiness significantly affects marketing performance ($\beta = 0.940$, $p < 0.001$), supporting H3. Regarding the mediating hypothesis, omnichannel strategy significantly influences marketing performance through technology adoption readiness ($\beta = 0.764$, $p < 0.001$), supporting H4. Similarly, digital competence has a significant indirect effect on marketing performance via technology adoption readiness ($\beta = 0.141$, $p = 0.001$), supporting H5. These findings provide empirical support for the proposed conceptual framework.

This study examines the relationship among omnichannel strategy, digital competence, technology adoption readiness, and MSME marketing performance. The findings indicate that these variables interact in shaping how MSMEs achieve better marketing outcomes in the digital business environment. In particular, technology adoption readiness plays an important role in translating strategic initiatives and digital competence into improved marketing performance. This finding highlights the importance of technological preparedness in supporting MSME digital transformation. Overall, the results provide empirical evidence regarding the factors that influence MSME marketing performance in the context of digital marketing adoption.

Omnichannel Strategy and Technology Adoption Readiness

The results indicate that an omnichannel strategy has a positive and significant influence on technology adoption readiness among MSMEs. These findings suggest that the integration of multiple sales channels encourages businesses to improve their technological preparedness. When MSMEs combine stores with digital platforms such as social media, marketplaces, and e-commerce systems, they need more structured technological support to manage these channels effectively (Darvidou, 2024; Gerea et al. 2021). Previous studies have highlighted that omnichannel implementation requires coordination between operational systems and digital platforms to ensure consistent customer experiences (Belvedere et al. 2021; Verhoef et al. 2021) From the perspective of the Technology (TOE) framework, strategic integration across marketing channels creates technological pressure that stimulates technological adoption within organizations (Martinelli & Tunisini 2024). Therefore,

the findings confirm that omnichannel strategy encourages MSMEs to strengthen their technological readiness to manage increasingly complex digital business processes (Tornatzky & Fleischer, 1990),

Digital Competence and Technology Adoption Readiness

The findings also show that digital competence has a positive and significant effect on technology adoption readiness. MSME owners who possess higher levels of digital knowledge and skills tend to be more confident in adopting and utilizing new technological systems. Digital competence enables business owners to understand the benefits of digital tools such as customer relationship management systems, social media analytics and e-commerce platforms (Bruce et al. 2023). Previous studies have emphasized that digital literacy and managerial capability are important drivers of digital technology adoption among small businesses (Febriani et al. 2025, Kim & Jin, 2024). In addition, digital competence reduces resistance to technological change because business owners are more familiar with digital tools and processes. These findings indicate that strengthening digital competence is an important step in preparing MSMEs to successfully adopt technological systems in their business operations.

The Influence of Technology Adoption Readiness on Marketing Performance

Technology adoption readiness was found to have a strong and significant influence on marketing performance (Proskurnina et al. 2021; Schrotenboer et al. 2022). This result indicates that businesses that are technologically prepared are better able to implement digital marketing strategies and manage customer interaction across multiple channels. Technological readiness allows MSMEs to utilize digital platforms more effectively for promotion, customer communication, and transaction management. Previous research has also shown that the adoption of digital technologies improved operational efficiency and enhanced customer experience in small businesses (Salah & Ayyash, 2024). In addition, technological preparedness supports data driven decision making, which helps businesses respond more effectively to market changes. Therefore, the findings confirm that technology adoption readiness plays an important role in improving marketing performance among MSMEs. Furthermore, previous studies also suggest that technology-supported integration contributes to long term competitiveness. The findings confirm that marketing performance improvements materialize when strategic initiatives are supported by adequate technological systems (Darvidou, 2024; Gerea et al. 2021) .

The Mediating Role of Technology Adoption Readiness in the Relationship between Omnichannel Strategy and Marketing Performance

The results further demonstrate that technology adoption readiness mediates the relationship between omnichannel strategy and marketing performance (Salah & Ayyash, 2024). This finding suggests that omnichannel strategy alone is not sufficient to directly improve business performance. Instead, its impact occurs through the ability of MSMEs to adopt and utilize appropriate technological systems. Previous studies have also indicated that strategic initiatives require adequate technological infrastructure to generate measurable performance outcomes (Bahri et al. 2023; Lina & Suwarni, 2022). Without integrated systems such as order management tools, digital inventory systems, and online customer communication platforms, the potential benefits of omnichannel strategies may not be fully realized. Therefore, technological readiness acts as a mechanism that enables strategic channel integration to translate into improved marketing performance.

The Mediating Role of Technology Adoption Readiness in the Relationship between Digital Competence and Marketing Performance

Similarly, technology adoption readiness mediates the relationship between digital competence and marketing performance. Although digital competence enhances the ability of MSME owners to understand and utilize digital technologies, these capabilities must be supported by the actual adoption of technological system to produce performance improvement. Previous studies have suggested that human capability contributes to business performance primarily through its influence on organizational processes and technology implementation (Febriani et al, 2025; Kim & Jin, 2024). In this context, digital competence helps MSME owners recognize the value of technological tools and encourages them to adopt these systems in their operations. As a result, technological readiness becomes the mechanism through which digital competence contributes to improved marketing outcomes. Overall, the findings emphasize that the combination of digital capability and technological adoption is essential for enhancing MSME competitiveness.

However, the findings of this study should be interpreted with caution. The relationships identified in this research may be influenced by contextual factors that vary across regions and business environments. Differences in regional digital infrastructure, technology accessibility, and market maturity may affect the extent to which MSMEs can adopt digital technologies effectively. In addition, variations in managerial capability and resource availability may also influence the level of technology adoption readiness among MSMEs. Therefore, the results of this study should be understood within the specific context of MSMEs operating in Cirebon City.

Theoretical Contribution

This study provides several theoretical contributions to the literature on digital marketing and MSME development. First, the study integrates omnichannel strategy, digital competence, and technology adoption readiness into a single research framework to explain MSME marketing performance. Previous studies have often examined these variables separately, while limited research has explored their interaction within a unified model. Second, the findings strengthen the application of the Technology Organization Environment (TOE) framework by highlighting the mediating role of technology adoption readiness. Third, the results demonstrate that digital transformation among MSMEs requires alignment between strategic orientation, organizational capability, and technological preparedness. Overall, this study contributes to a better understanding of the mechanisms that support MSME competitiveness in the digital economy.

Managerial Implications

The findings provide important managerial implications for MSME owners, policymakers, and digital service providers. MSME managers should view omnichannel strategy as a structured and technology supported transformation process rather than merely expanding presence across multiple digital platforms. Strengthening digital competence and investing in an integrated technological system are crucial steps in improving marketing performance. For policymakers, expanding access to digital literacy programs, providing incentives for technology adoption and developing inclusive digital infrastructure are essential to accelerate MSME readiness. Meanwhile, technology providers are encouraged to design user friendly, adaptable, and cost-efficient technological systems, tailored to the needs of small-scale enterprises. Collectively, these efforts can enhance resilience, operational efficiency, and long-term competitiveness of MSMEs in a rapidly evolving digital environment.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study examines the relationship between omnichannel strategy, digital competence, technology adoption readiness, and MSME marketing performance. These findings indicate that both omnichannel strategy and digital competence significantly influence technology adoption readiness among MSMEs. In addition, technology adoption readiness has a strong and significant effect on marketing performance. The results also confirm that technology adoption readiness plays a mediating role in the relationship between omnichannel strategy, digital competence, and marketing performance. The structural model explains a substantial proportion of the variance in marketing performance ($R^2 = 0.883$), indicating strong explanatory capability of the proposed framework. However, this study has several limitations. The data were collected from MSMEs located in a single city, which may limit the generalizability of the findings. In addition, the cross-sectional design does not allow examination of the causal relationship over time. Future studies are encouraged to include broader geographic coverage and longitudinal approaches to provide deeper insights into MSME digital transformation.

Recommendations

Future initiatives should focus on strengthening digital literacy, improving access to affordable and scalable technology, and enhancing collaboration among government, academia and industry to support MSME digital transformation. Capacity building programs aimed at improving digital skills among MSME owners are particularly important for facilitating effective technology adoption. In addition, expanding access to digital infrastructure and financial support for technology investment may help reduce barriers faced by small businesses in adopting digital systems. Future research is encouraged to incorporate external variables such as regulatory support, competitive dynamics, and digital ecosystem development. Including these contextual variables may provide a more comprehensive understanding of the factors influencing MSME performance within the digital economy.

FUNDING STATEMENT: This research did not receive any specific grant from funding agencies in the public, commercial, or not–for–profit sectors.

CONFLICTS OF INTEREST: The authors declare no conflict of interest.

DECLARATION OF GENERATIVE AI: ChatGPT and Grammarly were used to help edit the manuscript, primarily to improve grammar and sentence flow. The authors were fully responsible for the final writing, revisions, and content choices.

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