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How Technology Readiness and Entrepreneurial Orientation Shape MSME Marketing Performance in Cirebon City, Indonesia

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Abstract

Many MSMEs now rely on digital technology in their everyday marketing activities, especially to reach customers and promote their products more efficiently. Using digital media, businesses can reach customers more easily, introduce products, and keep in touch with buyers. However, not all MSMEs get better marketing results from using technology. A main reason is that many businesses are not ready to use technology well in their work. While many studies have examined digital adoption and the entrepreneurial mindset, few have examined how readiness to adopt technology affects marketing success in MSMEs. This study examines how technology readiness and an entrepreneurial mindset impact marketing outcomes. It also examines whether an entrepreneurial mindset alters the effect of technology readiness on marketing success. The study collected data from 180 MSME owners and managers in Cirebon City, Indonesia. Participants were selected deliberately, and information was collected through questionnaires. The data were analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The results show that being ready to adopt technology is strongly linked to better marketing results. Having an entrepreneurial mindset also helps marketing success. However, the idea that an entrepreneurial mindset changes the effect of technology readiness was not supported. This means that being ready to use technology directly improves marketing results, regardless of entrepreneurial mindset. The findings show that digital marketing success in MSMEs depends heavily on how ready businesses are to use technology in their operations and decision-making.

KEYWORDS

technology adoption readiness; entrepreneurial orientation; marketing performance; msmes; digital transformation.

Introduction

Digital technology has significantly transformed the way businesses approach marketing in recent years. Many firms now rely on digital platforms to reach customers, build relationships, and expand market coverage more efficiently (Omrani et al., 2024; Verhoef et al., 2021). In the context of micro, small, and medium enterprises (MSMEs), tools such as social media, e-commerce, and digital payment systems are widely utilized in daily marketing activities. These technologies enable MSMEs to overcome geographical limitations, enhance communication with customers, and compete more effectively in dynamic market environments (Bouwman et al., 2019; Clemente-Almendros et al., 2024). However, the adoption of digital technology does not automatically lead to improved marketing performance. Many MSMEs adopt digital tools only superficially, using them primarily for promotional purposes rather than integrating them into comprehensive marketing strategies (Dung & Dung, 2024; Kraus et al., 2022). As a result, the potential benefits of digital transformation are not fully realized. This indicates that, beyond adoption, the effectiveness of digital technology depends on the extent to which firms are ready to utilize it strategically

(da Silva et al., 2025; Iskandar et al., 2024; Martínez-Peláez et al., 2023).

Technology adoption readiness reflects a firm's preparedness to use digital technologies across its operations and marketing (Amin et al., 2025; Jung & Shegai, 2023). This capability encompasses technological infrastructure, digital competencies, managerial support, and the ability to embed digital tools into strategic decision making processes (Faiz et al., 2024; Iskandar et al., 2024). Firms with higher levels of technology adoption readiness are better positioned to leverage digital technologies in a more strategic and integrated manner, thereby enhancing their marketing performance (Clemente-Almendros et al., 2024; Islam Bhuiyan et al., 2024).

Advanced technology is just one part of a company's success. Just as important is a business-focused way of thinking that guides smart decisions (Bargoni et al., 2024; Kusa et al., 2024). This way of thinking boosts creativity, motivates taking action, and supports thoughtful risk-taking. Companies that use this approach are better at spotting new opportunities, testing new marketing ideas, and adapting to market changes (Susanto et al., 2023; Urban & Maphumulo, 2022). While Technology readiness is more about what a company can do, entrepreneurial orientation shows how it uses those abilities in its plans. Research in this area has mostly examined how the use of digital technology affects company success, while the role of organisational readiness in enabling effective technology use remains underexplored (Alam & Asimiran, 2021; Pingali et al., 2023). Moreover, prior research often investigates entrepreneurial orientation and digital technology variables separately, resulting in a limited understanding of how these constructs interact in shaping marketing performance, particularly in MSME contexts. This gap is important because it leaves unclear whether entrepreneurial orientation strengthens the impact of technology adoption readiness or operates independently.

Previous studies have often discussed digital technology use and entrepreneurial orientation as separate topics. However, there is still limited understanding of how MSMEs become ready to adopt technology before actual adoption, especially regarding marketing performance and the role of entrepreneurial orientation in local business settings such as Cirebon City. This study was conducted to explain how technology readiness influences MSME marketing performance and to examine whether entrepreneurial orientation supports or acts separately from technology readiness in improving marketing outcomes.

This study examines more closely how these two factors operate in practice within MSMEs. Rather than assuming they always reinforce each other, the findings suggest that their roles may differ depending on the context

Hypotheses Development

Technology Adoption Readiness and Marketing Performance

Technology adoption readiness indicates whether a business is prepared to use digital technology in its day-to-day operations (Kurniasari et al., 2023; Qalati et al., 2022). Firms demonstrating higher adoption readiness are generally more effective at implementing digital technologies into practical operations (Sharabati et al., 2024). When firms are adequately prepared for digital transformation, they generally use these technologies more efficiently in their day-to-day operations. Organisations that are well prepared for digital change can use digital tools more easily in their marketing and achieve better results. Previous studies have indicated that firms with better technology adoption readiness tend to achieve superior marketing outcomes (Pingali et al. 2023; Wahyu & Siwi 2024). This indicates that MSMEs that are more ready to use digital technology may perform better in their marketing activities.

H1: Technology Adoption Readiness positively influences MSME Marketing Performance.

Entrepreneurial Orientation and Its Role in Marketing Performance

Entrepreneurial orientation can be seen in how firms innovate, take initiative, and manage risk in their decision-making. Firms that demonstrate strong entrepreneurial orientation tend to identify market opportunities more effectively and develop innovative marketing strategies (Al Buraiki & Nofal, 2026). These characteristics encourage firms to experiment with new marketing approaches and to utilize digital technologies more strategically. Earlier research has found that entrepreneurial orientation can improve a firm's performance in changing environments (Andriani et al., 2024; Salehe et al., 2024).

H2: Entrepreneurial orientation has a significant positive effect on MSME marketing performance.

Moderating Role of Entrepreneurial Orientation

The impact of technology readiness on marketing performance may be more pronounced in MSMEs with stronger entrepreneurial orientation (Al Buraiki & Nofal, 2026; Fatimah et al., 2024). Firms that possess strong entrepreneurial capabilities are generally more capable of transforming technological resources into innovative marketing strategies(Li et al., 2024; Probohudono et al., 2025). By exploring new opportunities and adopting digital technologies creatively, firms can maximize the benefits of technology adoption readiness in improving marketing outcomes (Al Buraiki & Nofal, 2026; Al-Momani et al., 2023).

H3: Entrepreneurial Orientation strengthens the influence of Technology Adoption Readiness on MSME Marketing Performance.

Methods

Research Type

The study uses a numerical approach to examine how ready small businesses are to adopt technology, their business mindset, and their marketing performance. This method helps test the suggested connections with real data and check the overall model. Data were gathered through a detailed survey of small business owners and managers who actively use online platforms for marketing.

Population and Sample

The study looked at 2,687 active MSMEs in Cirebon City, Indonesia. To obtain reliable results, the sample size was carefully selected. Although PLS-SEM guidelines suggest a minimum based on model complexity, and the 10-times rule would cover the three main factors affecting marketing performance, the study recognized that this rule had limits. So, a bigger sample was used to make the results more reliable and steady. Following advice on statistical power, 180 respondents were selected, providing sufficient data to examine both direct and moderating effects. The study used purposive sampling, focusing on MSMEs that met specific criteria. These included at least two years in business, active use of digital marketing platforms, and direct involvement in marketing decisions.

Research Location

This study was conducted in Cirebon City, Indonesia. The selection of this location is not merely practical but also analytically relevant. Cirebon represents a context in which many MSMEs are in the process of transitioning from traditional to digital business practices. This transition creates variation in both technology adoption readiness and entrepreneurial orientation, making it a suitable setting to

examine how these factors influence marketing performance in a real-world context.

Instrumentation or Tools

Information for this research was gathered through questionnaires distributed to MSME owners and managers. The questionnaire used a scale from 1 to 5, where 1 represented strongly disagree and 5 represented strongly agree. The questions were developed from several previous studies, but some sections were modified to reflect the MSME situation in Cirebon City. A number of terms were rewritten in simpler language because several respondents were more familiar with practical business expressions than academic wording. Some terms were simplified to help respondents understand the statements more easily. The measurement covered aspects such as the use of digital technology, employee capability, system connectivity, use of information, and support from management. Entrepreneurial orientation was reflected through innovation, proactive behavior, and willingness to face business risks. Marketing performance was observed through sales growth, customer growth, customer loyalty, wider market reach, and the use of digital marketing. Prior to the main survey, the questionnaire was piloted with 30 MSME participants to identify unclear or less relevant statements. Input from lecturers and business practitioners was also used to refine the instrument before wider distribution.

Data Collection Procedures

The research process involved direct interaction with MSME owners and managers in Cirebon City. Before filling out the questionnaire, respondents received an explanation of the study's aim and how their information would be protected. Respondents voluntarily participated in the study after receiving an explanation of the research's purpose and how their information would be kept confidential. Only questionnaires that were fully completed and met the research requirements were processed in the final stage of analysis.

Data Analysis

The questionnaire results were analyzed using SmartPLS. In the early stage of the analysis, the study checked whether the indicators matched the variables they were intended to measure. The evaluation considered several values commonly used in PLS-SEM studies, such as loadings, Cronbach's alpha, composite reliability, AVE, and discriminant validity, before proceeding to the next stage of analysis. Relationship among variables was also examined to avoid overlapping effects in the model. For this purpose, VIF values were checked during the analysis process. The results indicated that the variables did not show problematic multicollinearity. In addition, because all responses were collected from the same group of participants, the study considered the possibility of common method bias. A full collinearity assessment was therefore conducted, and the results suggested that the level of bias was not substantial. Once the indicators met the required criteria, the study continued by examining the relationships among the variables. The analysis focused on whether one variable influenced another and how strong the influence appeared in the model. The researchers also reviewed the R^2 and effect size results to assess how well the variables explained the study's outcomes. To strengthen the interpretation of the findings, bootstrapping was carried out in SmartPLS. The bootstrapping results were later used to help explain the relationships among variables in the study model (Alkhasoneh et al., 2025; Hultt, 2021).

Result and Discussion

Descriptive Analysis

The following section describes the characteristics of the respondents involved in this study before presenting the main analysis results (see Table 1). The demographic information is useful for interpreting the subsequent analysis of the research variables.

Building on the respondent profile described earlier, the analysis now examines simple statistics for the main research variables to provide an overview of how the data is distributed. This study included 180 MSME owners and managers in Cirebon City. They came from different business areas and regularly used digital platforms for marketing. Female participants were more common in this study, accounting for 69% of respondents, while male participants accounted for 31%. In terms of age, many respondents were over 38, followed by those aged 32-37.

Regarding education, most respondents had a bachelor's degree (42%), 34% had finished senior high school, and 24% had a diploma. From a business perspective, the largest proportion of respondents worked in the food sector (54%), followed by fashion (34%) and other areas (12%). On digital platforms, WhatsApp Business (38%), Instagram (26%), and TikTok (25%) were the top marketing tools.

As shown in Table 2, the main variables exhibit different levels based on their mean scores. Technology adoption readiness, with a mean of 4.05 (SD = 0.98), reflects a relatively high level of readiness among MSMEs. Entrepreneurial

Table 1. Respondents' of Characteristics

Category	Description	Frequency	%
Gender	Female	125	69
	Male	55	31
Age	Aged 20-25 years	15	8
	Aged 26-31 years	29	16
	Aged 32-37 years	49	27
	Aged 38 years and above	87	49
Education Level	High School	61	34
	Diploma	43	24
	Bachelor	76	42
MSME Sector	Culinary	97	54
	Fashion	62	34
	Others	21	12
Social Media Channels	Instagram	46	26
	WhatsApp Business	68	38
	Facebook	5	3
	TikTok	45	25
	Marketplace	7	4
	Others	9	5

Source: Result Processing data

Table 2. Descriptive Statistics of Research Variables

Construct	Mean	Standard. Deviation	Clasification
Technology Adoption Readiness	4.05	0.98	High
Entrepreneurial Orientation	3.87	0.93	Moderate High
Marketing Performance	3.88	0.97	Moderate High

Source: Result Processing data

Orientation shows a mean of 3.87 (SD =0.93), reflecting a moderate-to-high level of entrepreneurial behavior. Meanwhile, Marketing Performance has a meanvalue of 3.88 (SD = 0.97),
suggesting a moderate-to-high level of performance. These results indicate that MSMEs in Cirebon City are generally well-prepared to adopt digital technologies and demonstrate relatively strong entrepreneurial orientation.

Model Measurement Test Results

Several indicators were examined to assess the quality of the measurement model, including loadings, AVEs, Cronbach's alphas, and composite reliabilities. The results showed that all indicators met the recommended threshold values.

Table 3 shows the outcome of the measurement model assessment. The loading values for all indicators were above 0.70, indicating that the indicators were able to reflect the variables used in the study. The AVE scores also exceeded the recommended value of 0.50 for each construct, indicating that the indicators adequately explained the constructs. The reliability results did not show major issues in the measurement model. The values of Cronbach's alpha and composite reliability for each variable were already above the minimum level commonly used in PLS-SEM analysis. This result suggests that the indicators used in the questionnaire were relatively stable and consistent in representing the constructs measured in the study. An additional assessment was conducted to compare the constructs included in the model. Based on the HTMT results in Table 4, the values remained within the acceptable range. This indicates that the variables used in the study measured different aspects and were not excessively correlated with one another.

Based on the HTMT results in Table 4, the constructs did not appear to overlap excessively, which supports the distinction among the variables used in this study.

Structure of Analysis Model

To assess the structural model, the coefficient of determination (R^2) is the primary indicator. The results show that marketing performance has an R^2 value of 0.926 (adjusted R^2 = 0.925), meaning that 92.6% of its variance is explained by technology adoption readiness, entrepreneurial orientation, and their interaction. Table 4 summarizes the model's explanatory power results.

Table 5 indicates that marketing performance has an R^2 of 0.926 (adjusted R^2 = 0.925), suggesting that most of its variation (92.6%) is explained by technology adoption readiness, entrepreneurial orientation, and their interaction. While this shows strong explanatory power, such a high value is uncommon in behavioral studies and needs to be interpreted carefully. This may be due to the close relationship between the constructs in the context of MSME digital transformation. Another possible issue is the use of self-reported data, which can introduce common-method bias, leading respondents' responses to be influenced by their perceptions rather than actual behavior. However, efforts were made to minimize this issue through careful questionnaire design and clear separation of measurement items. Furthermore, the indicators of marketing performance were designed to capture outcome-oriented dimensions that are conceptually distinct from the predictor constructs, reducing the likelihood of conceptual overlap. In addition, the HTMT and VIF results did not indicate severe multicollinearity or excessive construct overlap.

Table 6 shows that Technology Adoption Readiness and Entrepreneurial Orientation had relatively strong effect sizes on Marketing Performance. In contrast, the interaction effect between Technology Adoption Readiness and Entrepreneurial Orientation produced a very small f^2 value (0.013), indicating that the moderating effect was negligible in the model.

Figure 1 shows the overall pattern of relationships in the model. The results suggest that MSMEs with better technology readiness and stronger entrepreneurial orientation tend to report better marketing performance. However, the combined effect of the two variables does not appear to be particularly strong in this study.

Hypothesis Testing

This section discusses the results of both direct and moderating relationships between the variables.

The findings in Table 7 highlight several important relationships. Technology adoption readiness has a clear positive influence on marketing performance ($\beta = 0.551$, $t = 11.107$, $p < 0.001$), suggesting that firms better prepared to use digital technologies tend to achieve stronger marketing outcomes. A similar pattern can be observed for entrepreneurial orientation. Firms that are more proactive, innovative, and willing to take risks also demonstrate better marketing performance ($\beta = 0.470$, $t = 10.041$, $p < 0.001$). However, when both variables are examined together, the interaction effect is not significant ($\beta = 0.025$, $t = 1.773$, $p =$

Table 3. Results of Measurement Model Assessment

Construct	Indicator	Factor Loading	AVE	Cronbach's Alpha	Composite Reliability
Technology Adoption Readiness (X)	TAR1	0.865	0.795	0.957	0.964
	TAR2	0.895			
	TAR3	0.916			
	TAR4	0.918			
	TAR5	0.890			
	TAR6	0.898			
	TAR7	0.855			
Entrepreneurial Orientation (M)	EO1	0.882	0.755	0.935	0.949
	EO2	0.823			
	EO3	0.894			
	EO4	0.873			
	EO5	0.902			
	EO6	0.835			
Marketing Performance (Y)	MP1	0.768	0.741	0.912	0.935
	MP2	0.794			
	MP3	0.732			
	MP4	0.863			
	MP5	0.803			

Source: Result Processing data

0.078). This indicates that entrepreneurial orientation does not necessarily strengthen the relationship between technology readiness and marketing performance. Put simply, although each factor positively affects marketing performance individually, their combined presence does not yield greater improvement than when considered separately.

The findings of this study offer several insights into how MSMEs manage their marketing activities in a digital context. Instead of looking at each variable in isolation, it is more useful to understand how these factors interact and influence performance in practice. Some results are quite expected, while others provide a different perspective. For that reason, this section not only explains what was found but also explores why these patterns may occur and what they mean for MSMEs. It also acknowledges certain limitations and identifies areas for further examination.

Interpretation of Key Findings

Small and medium businesses that are ready to use technology often get better marketing results. Just having digital tools is not enough; using them skillfully every day is important. Well-prepared businesses use digital technology to reach more people, connect with customers more easily, and improve their marketing. This is quite common in MSMEs, where decisions are often shaped by practical constraints rather than formal strategies.

This finding is consistent with earlier research on digital transformation, which emphasizes that readiness extends beyond infrastructure and involves the ability to apply technology in meaningful ways (Clemente-Almendros et al., 2024; Verhoef et al., 2021). Having a business mindset focused on creativity, taking action, and risk-taking is important for marketing success. Companies that support these qualities find opportunities quickly and use smart plans. Their willingness to try new things and adapt to market changes gives them an edge, aligning with earlier studies on the importance of this mindset. Interestingly, being ready with technology and having this mindset each improve performance on their own, but using both together does not further improve results. For small and medium businesses, being good with technology alone might be enough to boost marketing without extra strategic thinking.

The unique challenges small and medium businesses face might explain these results. Limited resources often make it hard to use both technology and strategy simultaneously. Differences across industries, overlapping measurement approaches, or steady entrepreneurial attitudes can also reduce the combined effect. Earlier studies about small businesses have found similar results. This helps explain why the expected interaction effect does not clearly appear.

These results should be carefully examined because the study does not directly explain why these connections occur. Still, the findings suggest that being ready with technology might be more important than having a strategic mindset for marketing success in small and medium businesses. This idea, based on the resource-based view, says that practical skills like technology readiness can directly affect performance, challenging the idea that strategy always improves the link between ability and results. Using the TOE framework, the results show that being prepared as a company might matter more than strategic actions in some cases. This means the connection between skills and strategy changes depending on the situation and may depend on the specific challenges small and medium businesses face, especially when resources are limited.

Comparison with Previous Studies

As in earlier studies, these findings show a common pattern: MSMEs that are better prepared use digital tools more easily, often achieving better marketing results. The key difference is not whether firms use technology, but how smoothly they integrate it into their daily work. A similar pattern appears with entrepreneurial attitude. Businesses that try new things, take initiative, and quickly adjust often do better than others. This works because flexibility helps them adapt plans quickly in fast-changing markets (Clemente-Almendros et al., 2024; Kusa et al., 2024; Verhoef et al., 2021).

However, the situation is not the same everywhere. Unlike some earlier studies, this research does not find that entrepreneurial attitude balances things out (Dung & Dung, 2024; Wang & Zhang, 2025). This suggests that an entrepreneurial attitude might not always be as important as other skills. The situation might explain this. In places like Cirebon, where many MSMEs are still learning digital skills, just being ready to use technology can already improve results. Adding more strategies might not make much of a difference here.

Real-life challenges also matter. With limited resources, MSMEs often struggle to manage multiple skills at once. This can weaken the link between being ready with technology and having an entrepreneurial attitude.

Overall, these findings suggest that the connection between skills and strategy changes depending on the specific challenges MSMEs face, especially when resources are limited and progress is slow.

Limitations Cautions

There are several limitations to keep in mind when interpreting the results of this study. First, the sample only includes MSMEs in Cirebon City, so the results might not fully reflect what happens in other areas with different digital setups or market conditions. Another limit is the small range of factors studied. This research examines readiness to adopt technology and entrepreneurial attitude, but other important factors, such as digital skills, market focus, and uncertain conditions, are not part of the study. There is also a methodological issue to consider. Since the data come from people reporting on themselves, there may be some bias that cannot be completely avoided, even though the survey was carefully designed to reduce this bias. Also, the fairly high R^2 value might indicate that some ideas are closely connected, so we

Table 4. HTMT Discriminant Validity

Construct	TAR	EO	MP
Technology Adoption Readiness (TAR)	-	0.684	0.721
Entrepreneurial Orientation (EO)	0.684	-	0.755
Marketing Performance (MP)	0.721	0.755	-

Source: Result Processing data

Table 5. Results of R-Square and Adjusted R-Square

Structural Model	R^2 Value	Adjusted R^2
X to Y	0.926	0.925

Source: Result Processing data

Table 6. Output F Square

Variable	Marketing Performance	Moderating Effect TAR × EO
Technology Adoption Readiness (TAR)	0.961	
Entrepreneurial Orientation (EO)	0.853	
TAR X EO		0.013

Source: Result Processing data

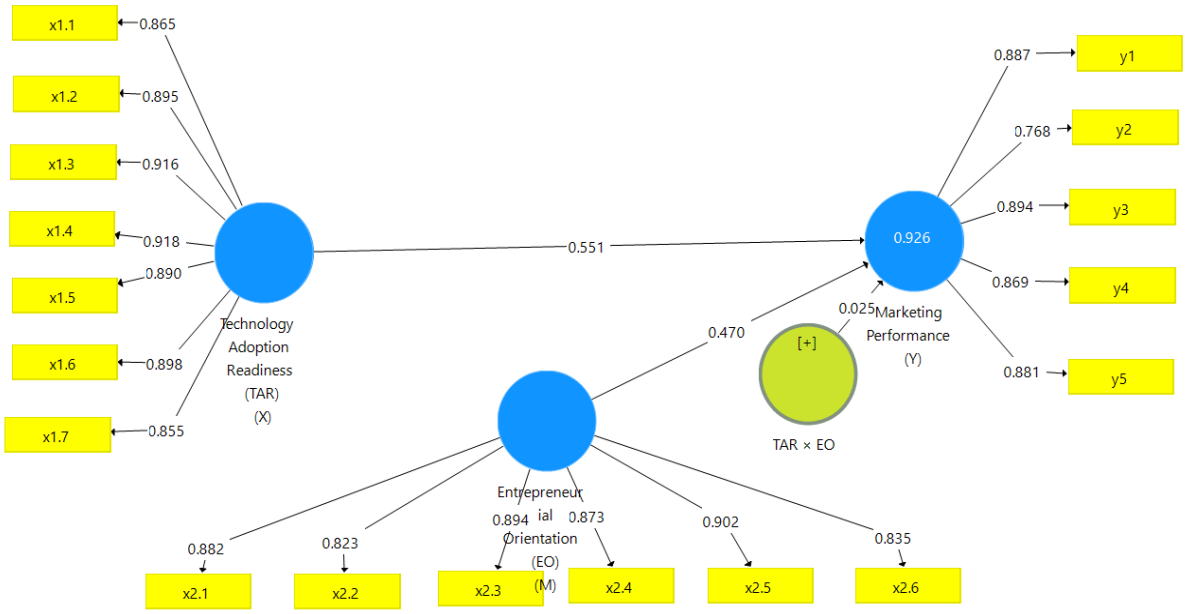

Figure 1. Structural Model Results

Table 7. Hypothesis Testing

Hypothesis	Independent Variable	Path Coefficient	t Statistic	P Value
H1	Technology Adoption Readiness → Marketing Performance	0.551	11.107	0.000
H2	Entrepreneurial Orientation → Marketing Performance	0.470	10.041	0.000
H3	Technology Adoption Readiness X Entrepreneurial Orientation	0.025	1.773	0.078

Source: Result Processing data

should be careful when assessing how well the model explains things. Finally, the lack of a clear moderating effect of entrepreneurial orientation should be carefully considered. This study does not directly examine hidden factors such as measurement overlap, sector differences, or limited differences among participants. These might have affected the results and could be studied more in future research. These limitations are quite common in MSME research, where access to broader and more diverse data is often limited.

Recommendations for Future Research

Future studies can expand on this research in several ways. One option is to add more factors, such as digital skills, innovation ability, or market focus, to provide a broader view of what affects MSME marketing success. It would also help to look at different regions or countries. The connections found in this study might differ depending on the level of digital use, so comparing across different places could provide a fuller understanding. Another area to explore is the use of long-term studies. Because digital change happens over time, studying it over a longer period could better show how these changes affect business results. Further research could also examine the role of the entrepreneurial mindset in different contexts, such as across industries or at different levels of technology use. This might help explain when and why its impact is stronger or weaker. Also, combining number-based and story-based research methods could provide a deeper understanding of how the relationships in this study operate. This is especially important for understanding why the effect of the entrepreneurial mindset is not always the same across different situations.

Conclusion

This suggests that, in MSME settings, practical capability may matter more than strategic alignment, especially when resources are limited. Rather than working in the same way, both variables appear to contribute through different roles. Technology adoption readiness appears to play a more direct role, as better-prepared firms tend to achieve stronger marketing outcomes. In many cases, effective use of digital tools is already enough to support performance improvements. On the other hand, entrepreneurial orientation also contributes positively, but it does not strengthen the relationship between technology readiness and marketing performance. This suggests that, within the MSME context examined, technology readiness alone may already provide sufficient leverage without requiring additional reinforcement from strategic orientation. Overall, these results point to the importance of focusing on practical capability development, particularly in terms of how digital technologies are used in everyday business activities.

These findings contribute to the literature by refining existing assumptions about the role of strategic orientation in digital transformation, showing that its influence may operate independently rather than interactively under certain conditions. In practical terms, this implies that strengthening technology adoption readiness should be prioritized as a primary driver of marketing performance, while entrepreneurial orientation remains important but not necessarily as a reinforcing mechanism.

Future research is encouraged to explore boundary conditions of this relationship across different regional and sectoral contexts, as well as to examine additional factors that may explain when entrepreneurial orientation plays a moderating role.

Author contributions

Both authors participated in the entire research process. The first author worked on creating the idea, planning the study, gathering the data, and writing the first draft. The second author handled data analysis, explained the results, and improved the manuscript. Besides these roles, the study gives a new view on how being ready for technology and having an entrepreneurial mindset connect in MSMEs. The results show that the expected influence observed in earlier studies does not always appear, especially during digital changes, adding more detail to current discussions of MSME success and skill development.

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