

Beyond digitalization: how entrepreneurial orientation and competitive advantage drive tourism MSME performance

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ABSTRACT

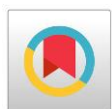
Purpose: to examine the effects of digital transformation and entrepreneurial orientation on tourism MSME performance in Semarang City, Indonesia, with competitive advantage serving as a mediating variable.

Method: this study employed a quantitative explanatory approach using a cross-sectional survey of 200 tourism MSME owners or managers in Semarang City, Indonesia, selected through purposive sampling. Data were collected through structured questionnaires and analysed using PLS-SEM in SmartPLS 4 to evaluate the measurement model and test the proposed hypotheses.

Findings: digital transformation and entrepreneurial orientation positively influence tourism MSME performance and competitive advantage. Competitive advantage also positively affects business performance and partially mediates the relationships between digital transformation, entrepreneurial orientation, and MSME performance. These findings highlight the importance of integrating digital capabilities and entrepreneurial strategies to strengthen competitive advantage and improve tourism MSME performance.

Implications: integrating digital capabilities and entrepreneurial strategies can strengthen competitive advantage and improve tourism MSME performance.

Originality: lies in integrating digital transformation and entrepreneurial orientation to explain tourism MSME performance, with competitive advantage serving as a mediating mechanism.



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Introduction

The rapid advancement of digital technology has fundamentally transformed the business landscape, reshaping how organisations create value, interact with customers, and compete in increasingly dynamic markets (Omol, 2024). Digital transformation, which extends beyond adopting digital tools to encompass broader changes in organisational

processes, business models, and value creation, has become a key strategic consideration for businesses seeking to sustain competitiveness (Vial, 2019; Yaqub & Alsabban, 2023). In the tourism industry, this transformation is particularly significant because tourists increasingly depend on digital platforms to search for information, compare destinations, make reservations, and share their travel experiences (Marco et al., 2018; Shuvo & Islam, 2024; Sigala, 2018). These developments have created new opportunities for tourism enterprises to expand their market reach, improve customer engagement, and enhance operational efficiency (Purnomo & Purwandari, 2025). In Indonesia, micro, small, and medium enterprises (MSMEs) play a vital role in supporting economic growth, employment, and local tourism development (Hayati & Fatarib, 2022). Nevertheless, the benefits of digital transformation are not automatically realised by all businesses, particularly smaller enterprises that face limitations in technological capabilities, financial resources, managerial expertise, and market access (Hansen et al., 2025). Consequently, digitalisation alone may be insufficient to ensure sustainable business performance, highlighting the need to examine the organisational capabilities and competitive mechanisms that enable tourism MSMEs to translate digital opportunities into tangible business outcomes (Purnomo & Purwandari, 2025).

Despite the growing availability of digital technologies, tourism MSMEs continue to face challenges in achieving consistent performance in an increasingly competitive business environment. The utilisation of social media, online marketplaces, digital payment systems, and other technology-enabled platforms may facilitate business operations and customer acquisition; however, the extent to which these tools generate superior performance depends on how effectively they are integrated into business strategies and organisational capabilities. At the same time, tourism MSMEs operate in markets characterised by changing customer preferences, service differentiation requirements, competitive pressures, and demand uncertainty. These conditions underscore the importance of entrepreneurial orientation, which reflects a firm's strategic posture toward innovativeness, proactiveness, and risk-taking in pursuing business opportunities (Wiklund & Shepherd, 2005). Businesses with a strong entrepreneurial orientation may be better positioned to identify emerging market opportunities, develop differentiated tourism products and services, and respond proactively to environmental changes (Cheng et al., 2025; Neupane et al., 2025). However, entrepreneurial initiatives do not necessarily translate into improved performance unless businesses can convert their capabilities and strategic decisions into advantages that customers recognise and competitors find difficult to replicate (Hidayat et al., 2026).

Previous studies provide important theoretical foundations for understanding these relationships, although their findings and analytical emphases suggest that further investigation is warranted. Vial (2019) and Holopainen et al. (2023) conceptualises digital transformation as an organisational process that reshapes value creation through digital technologies, while Marco et al. (2018) and Li et al. (2026) demonstrate the substantial evolution of information technology within tourism management. From an entrepreneurial perspective, Wiklund & Shepherd (2005) and Arabeche et al. (2022) establish the relevance of entrepreneurial orientation in explaining small business performance, particularly through the configuration of entrepreneurial strategies and organisational conditions. Research in tourism entrepreneurship also emphasises that firm performance may result from different combinations of strategic and organisational factors rather than from a single determinant (Kallmuenzer et al., 2019; Pertheban et al., 2023). Furthermore, the resource-based view (RBV) argues that sustainable competitive advantage emerges from resources and capabilities that are valuable, rare, difficult to

imitate, and not readily substitutable (Barney, 1991). Within this perspective, digital capabilities and entrepreneurial orientation may help tourism MSMEs develop distinctive offerings, respond effectively to market demands, and strengthen their competitive positions. Nevertheless, existing research does not fully explain how entrepreneurial orientation and digital transformation jointly contribute to tourism MSME performance through the development of competitive advantage, particularly within the Indonesian context. The research gap, therefore, concerns not merely the identification of performance determinants but also the clarification of the mechanism through which strategic capabilities are translated into competitive advantages and, ultimately, superior business outcomes. Addressing this gap can extend the application of RBV to tourism MSMEs by examining the relationships among digital transformation, entrepreneurial orientation, competitive advantage, and business performance within an integrated analytical framework.

Accordingly, this study examines how digital transformation and entrepreneurial orientation affect tourism MSME performance, with particular attention to competitive advantage's mediating role. Specifically, the study investigates whether digital transformation and entrepreneurial orientation improve business performance directly or indirectly by strengthening firms' competitive positions. The proposed relationships are grounded in the argument that digital transformation can enhance access to information, operational efficiency, and customer engagement. In contrast, entrepreneurial orientation can encourage innovation, proactive market responses, and the exploration of new business opportunities. These capabilities may then enable tourism MSMEs to build competitive advantages through service differentiation, responsiveness to customer needs, and more effective use of organisational resources. By incorporating competitive advantage as a mediating mechanism, this study moves beyond an exclusively technology-centred explanation of business performance. It emphasises the strategic processes through which digital and entrepreneurial capabilities may generate economic value. Its novelty lies in integrating digital transformation and entrepreneurial orientation within a single explanatory framework and examining competitive advantage as a potential pathway linking these capabilities to tourism MSME performance in an emerging-market context. Rather than assuming that these relationships are universally positive, the study empirically evaluates their nature and strength in the specific context of tourism MSMEs.

This research matters for both theory and practice because the sustainability of tourism MSMEs depends not only on their ability to adopt digital technologies but also on their capacity to develop entrepreneurial capabilities and establish defensible competitive positions. Theoretically, the study is expected to enrich the literature on digital transformation, entrepreneurship, and small business performance by integrating these perspectives through the RBV framework and clarifying the potential mediating role of competitive advantage. It also seeks to contribute context-specific evidence from Indonesian tourism MSMEs, where resource constraints and changing market conditions may shape the relationship between strategic capabilities and business outcomes. Practically, the findings are expected to give tourism MSME owners and managers insights into how digital investments can align with entrepreneurial strategies to create distinctive customer value and improve business performance. The results may also inform policymakers, tourism development agencies, and business-support institutions in designing capacity-building programs that combine digital literacy, entrepreneurial development, innovation, and competitive strategy rather than focusing exclusively on technology adoption. Ultimately, this study advances the argument that stronger tourism MSME performance requires a strategic approach that goes beyond digitalisation by

linking technological capabilities and entrepreneurial orientation to competitive advantage.

Literature review

Resource-based view (RBV)

The resource-based view (RBV), introduced by Barney (1991), provides the theoretical foundation for explaining how organisational resources and capabilities contribute to competitive advantage and business performance. From this perspective, firms can achieve sustained competitive advantage when they possess and effectively use resources that are valuable, rare, imperfectly imitable, and non-substitutable (Varadarajan, 2023). These resources encompass not only tangible assets but also intangible resources, organisational knowledge, managerial capabilities, and strategic competencies (Bergh et al., 2025). In the context of tourism micro, small, and medium enterprises (MSMEs), digital transformation can strengthen technological and organisational capabilities. At the same time, entrepreneurial orientation represents a strategic posture that supports innovation, proactiveness, and opportunity exploitation.

Digital transformation

Digital transformation refers to the organisational process of integrating digital technologies into business activities to fundamentally improve operations, value creation, and business models (Vial, 2019). Unlike basic digitalisation, which primarily involves converting information or activities into digital formats, digital transformation encompasses broader organisational changes in how businesses operate, engage with customers, and compete in the marketplace (Verhoef et al., 2021). In tourism MSMEs, digital transformation may involve strategically using social media, online marketplaces, digital payment systems, customer relationship management technologies, and digital booking platforms (Latip et al., 2026). These technologies can expand market access, improve operational efficiency, strengthen customer engagement, and help businesses respond more effectively to changing market demands (Hokmabadi et al., 2024).

Entrepreneurial orientation

Entrepreneurial orientation refers to a firm's strategic posture in identifying and pursuing business opportunities through innovative, proactive, and risk-taking behaviour (Dess & Lumpkin, 2005). Lumpkin & Dess (1996) conceptualise entrepreneurial orientation through five dimensions: innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. Innovativeness reflects a willingness to introduce new ideas, products, and processes; proactiveness concerns anticipating and responding to future market demands; risk-taking involves committing resources under uncertainty; competitive aggressiveness represents the intensity of efforts to challenge competitors; and autonomy refers to the independence to pursue entrepreneurial initiatives. In tourism MSMEs, these dimensions may be reflected in developing distinctive tourism experiences, anticipating changing tourist preferences, experimenting with new marketing approaches, responding assertively to competitive pressures, and allowing managers or employees to initiate improvements (Purnomo & Purwandari, 2025).

Competitive advantage

Competitive advantage refers to a firm's ability to create and deliver superior value relative to competitors by effectively deploying resources, capabilities, and market

strategies (Srivastava et al., 2001). Porter (1985) emphasises that firms can establish competitive positions through differentiation, cost leadership, and other strategic approaches that enable them to compete effectively within their industries. From an RBV perspective, competitive advantage is associated with the effective use of valuable resources and capabilities that allow firms to offer benefits competitors cannot easily reproduce (Barney, 1991). For tourism MSMEs, competitive advantage may be reflected in distinctive tourism products and experiences, superior service quality, competitive pricing, and a favourable business reputation (Nguyen & Ngoc, 2024).

Tourism MSME performance

Tourism MSME performance refers to the extent to which a business achieves its operational, market-related, and financial objectives over a given period (Damayanti et al., 2026). Business performance is a multidimensional construct that may be evaluated through financial and nonfinancial indicators, particularly when small enterprises have limited access to comprehensive accounting information (Ahmad et al., 2023). Following the performance perspective discussed by Wiklund & Shepherd (2005), this study considers revenue growth, customer growth, profitability, and business sustainability as indicators of tourism MSME performance. Revenue growth reflects the enterprise's ability to increase sales, customer growth indicates its success in attracting and retaining a market, profitability captures its capacity to generate financial returns, and business sustainability reflects its ability to maintain operations and remain viable over time (Kao et al., 2025).

Hypothesis development

The relationship between digital transformation and business performance can be explained through the RBV, which emphasises that organisational resources and capabilities contribute to performance when they are effectively deployed to create value (Barney, 1991). Digital transformation enables tourism MSMEs to integrate digital technologies into marketing, customer communication, transaction processing, and operations, potentially reducing inefficiencies and expanding customer access. Vial (2019) explains that digital transformation can reshape organisational processes and value creation, while Omrani et al. (2024) examine the drivers of digital transformation in small and medium-sized enterprises, highlighting its relevance to organisational change in smaller businesses. In the tourism sector, digital platforms also facilitate information dissemination and customer interactions, creating opportunities for enterprises to reach broader markets (Marco et al., 2018). These capabilities may contribute to higher revenue, customer growth, profitability, and business sustainability. Nevertheless, the benefits depend on the extent to which digital technologies are aligned with business objectives and organisational capabilities. Based on this theoretical reasoning and the supporting literature, digital transformation is expected to affect tourism MSME performance positively.

H1: Digital transformation positively affects tourism MSME performance.

The positive relationship between digital transformation and competitive advantage can be explained by the RBV, which argues that strategically valuable resources and capabilities enable firms to establish superior competitive positions (Barney, 1991). Digital transformation can strengthen the capabilities of tourism MSMEs by improving their access to market information, facilitating customer engagement, increasing service accessibility, and enabling more efficient business processes (Purnomo & Purwandari, 2025). These capabilities may support product and service differentiation, faster

responses to customer needs, and improved delivery of customer value. Vial (2019) emphasises the organisational and strategic implications of digital transformation, suggesting that its significance extends beyond technology adoption to changes in value creation and competitive positioning. Similarly, developing digital capabilities in SMEs provides a relevant basis for understanding how smaller enterprises adapt their resources to changing business environments (Omrani et al., 2024). In tourism markets, where customers increasingly rely on digital channels to evaluate destinations and service providers, effective digital transformation may help MSMEs strengthen visibility, improve service delivery, and distinguish their offerings from competitors. Therefore, digital transformation is expected to enhance the competitive advantage of tourism MSMEs.

H2: Digital transformation positively affects the competitive advantage of tourism MSMEs.

The relationship between entrepreneurial orientation and business performance rests on the idea that entrepreneurial strategic behaviour helps firms identify opportunities, innovate, and respond proactively to environmental changes. According to Lumpkin & Dess (1996), entrepreneurial orientation encompasses innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy, which collectively characterise how firms pursue opportunities and respond to competition. From an RBV perspective, these dimensions represent intangible organisational capabilities that may improve the effectiveness of resource utilisation and strategic decision-making (Barney, 1991). Wiklund & Shepherd (2005) examine the relationship between entrepreneurial orientation and small business performance and show the importance of considering entrepreneurial orientation alongside the conditions under which firms operate. In tourism MSMEs, entrepreneurial orientation may encourage the development of innovative tourism experiences, the exploration of emerging market segments, proactive responses to changing tourist preferences, and the pursuit of new business opportunities (Neupane et al., 2025). Such activities can support customer acquisition, revenue growth, and long-term business viability. Although the outcomes of entrepreneurial behaviour may depend on available resources and environmental conditions, a stronger entrepreneurial orientation is theoretically expected to contribute positively to tourism MSME performance.

H3: Entrepreneurial orientation positively affects tourism MSME performance.

Entrepreneurial orientation is expected to enhance competitive advantage because it encourages firms to develop distinctive offerings, anticipate market changes, and respond actively to competitive challenges. Lumpkin & Dess (1996) explain that entrepreneurial orientation comprises several dimensions that influence how organisations pursue opportunities and compete, including innovativeness, proactiveness, risk-taking, competitive aggressiveness, and autonomy. Through the RBV, these dimensions can be interpreted as organisational capabilities that support the development and deployment of strategically valuable resources (Barney, 1991). In tourism MSMEs, innovativeness may generate unique tourism products and experiences, proactiveness may enable businesses to respond to emerging tourist preferences, and calculated risk-taking may facilitate experimentation with new services and market opportunities. Competitive aggressiveness can motivate enterprises to strengthen their market positions, while autonomy may support timely decision-making and entrepreneurial initiatives. Evidence from tourism entrepreneurship research also indicates the importance of examining entrepreneurial and organisational factors when explaining firm outcomes in tourism businesses (Kallmuenzer et al., 2019). By translating entrepreneurial behaviour into distinctive products, responsive services, and stronger

market positioning, tourism MSMEs may develop advantages over competitors. Therefore, entrepreneurial orientation is expected to positively influence competitive advantage.

H4: Entrepreneurial orientation positively affects the competitive advantage of tourism MSMEs.

The relationship between competitive advantage and business performance is central to both strategic management and RBV. Barney (1991) argues that resources and capabilities that enable firms to establish valuable, hard-to-imitate positions can support superior performance, while Porter (1985) emphasises the importance of creating distinctive customer value through competitive strategies. For tourism MSMEs, competitive advantage may arise from unique tourism products, superior service quality, competitive pricing, and a favourable business reputation. These characteristics can strengthen customer preferences, increase the likelihood of repeat purchases, improve market differentiation, and support more stable revenue generation. In addition, research on tourism entrepreneurship suggests that business performance should be understood in relation to the configuration of strategic and organisational factors rather than as the consequence of a single resource (Kallmuenzer et al., 2019). When tourism MSMEs can offer value that customers perceive as superior to competing alternatives, they may be better positioned to attract customers, maintain profitability, and sustain their operations. Accordingly, competitive advantage is expected to contribute positively to tourism MSME performance.

H5: Competitive advantage positively affects tourism MSME performance.

The mediating role of competitive advantage can be explained through RBV by distinguishing between the possession or development of organisational capabilities and the performance outcomes generated when those capabilities are converted into market value (Barney, 1991). Although digital transformation can improve operational processes and customer interactions, its performance implications may depend on whether these improvements create meaningful differentiation or other advantages relative to competitors. Vial (2019) conceptualises digital transformation as a process that changes organisational value creation, providing a theoretical basis for examining the strategic outcomes of integrating digital technology. Similarly, digital transformation in SMEs involves organisational and strategic considerations beyond the mere availability of technology (Omrani et al., 2024). In tourism MSMEs, digital platforms may improve visibility, accessibility, booking convenience, and customer communication. However, these benefits may translate into stronger business performance when they enable enterprises to deliver distinctive experiences, improve perceived service quality, or respond more effectively to tourist needs than competing businesses. Competitive advantage may therefore function as an intermediate mechanism through which digital transformation contributes to revenue growth, customer growth, profitability, and business sustainability. This reasoning suggests that digital transformation may affect performance both directly and indirectly through competitive advantage.

H6: Competitive advantage mediates the relationship between digital transformation and the performance of tourism MSMEs.

The mediating role of competitive advantage in the relationship between entrepreneurial orientation and business performance is also consistent with RBV. Entrepreneurial orientation represents a strategic posture that encourages firms to innovate, act proactively, assume calculated risks, challenge competitors, and pursue initiatives autonomously (Lumpkin & Dess, 1996). Nevertheless, entrepreneurial behaviour does not necessarily generate superior performance unless it produces valuable marketplace outcomes. From an RBV perspective, entrepreneurial orientation

can support the development and deployment of capabilities that enable firms to create distinctive customer value and establish stronger competitive positions (Barney, 1991). Wiklund & Shepherd (2005) demonstrate the relevance of entrepreneurial orientation to small business performance, while Kallmuenzer et al. (2019) highlight the importance of configurations of entrepreneurial and organisational factors in tourism firm performance. In tourism MSMEs, entrepreneurial initiatives may improve performance when they create unique tourism experiences, differentiated services, stronger customer relationships, or more effective responses to market opportunities. Competitive advantage may consequently explain how entrepreneurial orientation is translated into tangible business outcomes. Thus, entrepreneurial orientation is expected to influence tourism MSME performance indirectly by strengthening competitive advantage, in addition to any direct effect on performance.

H7: Competitive advantage mediates the relationship between entrepreneurial orientation and tourism MSME performance.

Method

This study used a quantitative approach and an explanatory research design to examine the relationships among digital transformation, entrepreneurial orientation, competitive advantage, and tourism micro, small, and medium enterprises (MSMEs) performance. Specifically, the study investigated the direct effects of digital transformation and entrepreneurial orientation on MSME performance, the effects of these two independent variables on competitive advantage, the effect of competitive advantage on MSME performance, and the mediating role of competitive advantage in the relationships between the independent variables and business performance. A cross-sectional research design was adopted, in which data were collected from respondents at a single point in time during the research period. This design was considered appropriate for examining the hypothesised relationships among the research constructs within the existing business conditions of tourism MSMEs in Semarang City, Indonesia. The conceptual framework was grounded in the RBV, which emphasises the role of organisational resources and capabilities in developing competitive advantage and improving firm performance (Barney, 1991).

The population comprised tourism-related MSMEs operating in Semarang City, including culinary businesses, regional souvenir enterprises, homestays, travel agencies, tourism-oriented creative economy businesses, and other enterprises supporting tourist destinations. Purposive sampling was employed to select respondents who met three criteria: (1) the MSME had been operating for at least two years; (2) the business used digital technology in its operational or marketing activities; and (3) the owner or manager was willing to participate in the study. The study selected business owners or managers as respondents because they were considered knowledgeable about their enterprises' digital practices, entrepreneurial strategies, competitive positions, and business performance. The study included 200 respondents, a sample size intended to support analysis of the proposed structural model using Partial Least Squares Structural Equation Modelling (PLS-SEM). Given the non-probability sampling approach, the findings primarily apply to the businesses represented in the sample. They should not automatically be generalised to all tourism MSMEs in Semarang City without considering potential sampling limitations.

Primary data were collected through structured questionnaires distributed to eligible tourism MSME owners or managers in Semarang City. The questionnaire measured four constructs: digital transformation, entrepreneurial orientation,

competitive advantage, and MSME performance. All indicators were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The operational definitions and measurement indicators were adapted from established theoretical and empirical literature to ensure conceptual consistency with the research framework. The operational definitions, indicators, and corresponding theoretical sources are presented in Table 1.

Table 1 operational definitions and measurement indicators

Variables	Operational definition	Indicators	References
Digital transformation (X1)	The extent to which an MSME integrates digital technologies into its business processes, customer interactions, and value-creation activities.	1. Use of social media for business purposes. 2. Utilization of online marketplaces. 3. Adoption of digital payment systems. 4. Use of digital customer databases. 5. Integration of technology into business operations.	Vial (2019); Omrani et al. (2024)
Entrepreneurial orientation (X2)	The strategic posture of an MSME in pursuing business opportunities through innovation, proactive behavior, risk-taking, competitive action, and independent decision-making.	1. Product and service innovation. 2. Proactiveness in identifying and responding to market opportunities. 3. Willingness to take calculated business risks. 4. Competitive aggressiveness. 5. Autonomy in business decision-making.	Lumpkin & Dess (1996); Wiklund & Shepherd (2005)
Competitive advantage (Z)	The extent to which an MSME establishes a favorable competitive position by delivering distinctive value and differentiating its offerings from those of competitors.	1. Service differentiation. 2. Uniqueness of tourism products or services. 3. Service quality. 4. Competitive pricing. 5. Business reputation.	Porter (1985); Barney (1991)
Tourism MSME performance (Y)	The extent to which an tourism MSME achieves its business objectives in terms of growth, financial outcomes, and continuity of operations.	1. Revenue or turnover growth. 2. Customer growth. 3. Profitability. 4. Business sustainability.	Wiklund & Shepherd (2005)

Secondary data were obtained from relevant institutional publications and documentary sources, including the Central Statistics Agency, the Semarang City Tourism Office, the Ministry of Tourism and Creative Economy, scientific journal articles, and relevant research reports. These sources provided context on tourism development, MSME characteristics, digital transformation, and the business environment in which the respondents operated. The data analysis was conducted using SmartPLS 4 software. First, descriptive statistics were used to summarise respondent characteristics and response patterns. Second, the measurement model (outer model) was evaluated to assess indicator validity and construct reliability. Indicator loadings of approximately 0.70 or higher were preferred, while convergent validity was assessed using an average variance extracted (AVE) value above 0.50. Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability, with values of at least 0.70 generally considered acceptable. Indicators with weak loadings were considered for removal only when theoretically justified and when their removal did not compromise content validity.

Third, the structural model (inner model) was evaluated to examine the explanatory and predictive relationships among the constructs. The coefficient of determination (R^2) was used to evaluate the proportion of variance in endogenous constructs explained by their predictors. Fourth, all seven hypotheses were evaluated using bootstrapping to estimate the significance of the structural path coefficients and indirect effects. At a two-tailed significance level of 5%, a p-value below 0.05 and a t-statistic above 1.96 were used as conventional criteria for statistical significance, with confidence intervals also considered where available. Finally, the mediating role of competitive advantage was assessed by examining the specific indirect effects of digital transformation and entrepreneurial orientation on MSME performance through competitive advantage. The significance of each indirect effect was evaluated using bootstrapped confidence intervals and p-values. The mediation results were interpreted alongside the corresponding direct effects to distinguish the nature of the mediating relationship. This analytical procedure provided a systematic basis for evaluating the seven hypotheses and assessing whether competitive advantage functions as a mechanism through which digital transformation and entrepreneurial orientation contribute to tourism MSME performance.

Results and discussion

Respondent characteristics

The characteristics of the respondents were analysed to provide an overview of the demographic profiles and business backgrounds of the tourism micro, small, and medium enterprise (MSME) owners or managers participating in this study. The analysis included 200 respondents from tourism-related MSMEs in Semarang City, Indonesia. All respondents met the eligibility criteria: their businesses had operated for at least two years and had incorporated digital technology into their business activities. Respondents were classified by gender, age group, and type of business. The distribution of respondents across these categories is presented in Table 2.

Table 2 demographic and business characteristics of respondents

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	88	44.0
	Female	112	56.0
	Total	200	100.0
Age group	Under 30 years	35	17.5
	31–40 years	78	39.0
	41–50 years	57	28.5
	Over 50 years	30	15.0
	Total	200	100.0
Type of business	Culinary	85	42.5
	Souvenirs and local gifts	42	21.0
	Homestay	25	12.5
	Travel services	18	9.0
	Creative economy	30	15.0
	Total	200	100.0

Source: primary data, processed.

As presented in Table 2, female respondents accounted for 56.0% of the sample (112 respondents), while male respondents represented 44.0% (88 respondents). This distribution indicates that women constituted a slightly larger proportion of the tourism

MSME owners or managers surveyed. In terms of age, the largest group was 31–40 years, comprising 78 respondents (39.0%). This was followed by respondents aged 41–50 years, representing 28.5% of the sample (57 respondents). Respondents under 30 years accounted for 17.5% (35 respondents), while those over 50 years represented 15.0% (30 respondents). Collectively, respondents aged 31–50 years constituted 67.5% of the sample, indicating that most participating business owners or managers fell within these two age groups. Regarding business type, culinary enterprises formed the largest segment, accounting for 42.5% of respondents (85 businesses). Souvenir and local gift businesses represented 21.0% (42 businesses), followed by creative economy enterprises at 15.0% (30 businesses), homestays at 12.5% (25 businesses), and travel services at 9.0% (18 businesses). The predominance of culinary enterprises indicates that this business category was the most strongly represented in the study sample.

Evaluation of the measurement model (outer model)

The measurement model was evaluated to assess the validity and reliability of the constructs used in this study. Specifically, convergent validity was examined using the average variance extracted (AVE), while internal consistency reliability was assessed using composite reliability (CR) and cronbach's alpha. Following commonly accepted measurement model criteria, an AVE value greater than 0.50 indicates that a construct explains more than half of the variance in its indicators. Meanwhile, composite reliability and cronbach's alpha values above 0.70 generally indicate acceptable internal consistency reliability. The results of the measurement model evaluation are presented in Table 3.

Table 3 convergent validity and construct reliability

Construct	AVE	Composite reliability	Cronbach's alpha
Digital transformation	0.691	0.918	0.888
Entrepreneurial orientation	0.704	0.922	0.895
Competitive advantage	0.712	0.925	0.901
Tourism MSME performance	0.738	0.918	0.882

Source: primary data, processed.

As shown in Table 3, all four constructs demonstrate satisfactory convergent validity. The AVE values range from 0.691 to 0.738, exceeding the recommended minimum threshold of 0.50. Specifically, tourism MSME performance records the highest AVE value (0.738), followed by competitive advantage (0.712), entrepreneurial orientation (0.704), and digital transformation (0.691). These results indicate that each construct explains a substantial proportion of the variance in its associated indicators, supporting the measurement model's convergent validity. The construct reliability results also indicate satisfactory internal consistency. Composite reliability values range from 0.918 to 0.925, while cronbach's alpha values range from 0.882 to 0.901. All values exceed the recommended threshold of 0.70, suggesting that the indicators within each construct demonstrate a high degree of internal consistency. Competitive advantage shows the highest composite reliability (0.925) and cronbach's alpha (0.901), whereas tourism MSME performance shows a composite reliability of 0.918 and a cronbach's alpha of 0.882. Overall, the results support the convergent validity and internal consistency reliability of all four constructs. Accordingly, the measurement model meets these assessment criteria and can proceed to further evaluation, including discriminant validity and structural model assessment.

Structural model evaluation (inner model)

The structural model was evaluated to assess the explanatory power of the proposed research model and determine how well the independent and mediating variables explain the endogenous constructs. The coefficient of determination (R^2) was used to evaluate the proportion of variance in each endogenous construct explained by its respective predictor variables. In this study, R^2 was assessed for two endogenous constructs: Competitive Advantage and MSME Performance. The results of the structural model evaluation are presented in Table 4.

Table 4 coefficient of determination (R^2)

Endogenous construct	Predictor variables	R^2	Explained variance (%)
Competitive advantage	Digital transformation and entrepreneurial orientation	0.632	63.2
Tourism MSME performance	Digital transformation, entrepreneurial orientation, and competitive advantage	0.718	71.8

Source: primary data, processed.

As presented in Table 4, the R^2 value for competitive advantage is 0.632, indicating that digital transformation and entrepreneurial orientation jointly explain 63.2% of the variance in competitive advantage among the tourism MSMEs examined in this study. The remaining 36.8% of the variance is attributable to factors outside the proposed model and unexplained variation. This result suggests that the two independent variables provide substantial explanatory information regarding the competitive positioning of the sampled tourism MSMEs. Meanwhile, the R^2 value for tourism MSME performance is 0.718, indicating that digital transformation, entrepreneurial orientation, and competitive advantage collectively explain 71.8% of the variance in tourism MSME performance. The remaining 28.2% reflects variance not explained by these predictors. This finding indicates that the proposed model accounts for a substantial proportion of the differences in business performance among the tourism MSMEs included in the analysis. Including competitive advantage alongside digital transformation and entrepreneurial orientation provides a broader explanation of tourism MSME Performance by incorporating both organisational capabilities and their potential competitive outcomes.

Hypothesis testing

Hypothesis testing was conducted using the bootstrapping procedure in SmartPLS 4 to assess the significance, direction, and magnitude of the hypothesised relationships among the research constructs. The evaluation was based on the path coefficients, t-statistics, and p-values. For a two-tailed test at the 5% significance level, a relationship was considered statistically significant when the t-statistic exceeded 1.96, and the p-value was below 0.05. The results of the hypothesis testing are presented in Table 5.

Table 5 structural model and mediation hypothesis testing results

Hypothesis	Coefficient	T-statistic	P-value
H1: digital transformation → tourism MSME performance	0.241	3.187	0.001
H2: digital transformation → competitive advantage	0.426	6.014	0.000
H3: entrepreneurial orientation → tourism MSME performance	0.228	2.976	0.003
H4: entrepreneurial orientation → competitive advantage	0.391	5.522	0.000
H5: competitive advantage → tourism MSME performance	0.417	5.891	0.000

Hypothesis	Coefficient	T-statistic	P-value
H6: digital transformation → competitive advantage → tourism MSME performance	0.178	4.283	0.000
H7: entrepreneurial orientation → competitive advantage → tourism MSME performance	0.163	3.947	0.000

Source: primary data, processed.

As shown in Table 5, all seven hypotheses are supported because their path coefficients are positive and statistically significant at the 5% significance level. For the direct relationships, digital transformation positively and significantly affects tourism MSME performance ($\beta = 0.241$, $t = 3.187$, $p = 0.001$), supporting H1. Digital transformation also positively and significantly affects competitive advantage ($\beta = 0.426$, $t = 6.014$, $p < 0.001$), supporting H2. Entrepreneurial orientation also demonstrates positive and statistically significant relationships with both endogenous constructs. Its effect on tourism MSME performance is positive and significant ($\beta = 0.228$, $t = 2.976$, $p = 0.003$), supporting H3. Furthermore, entrepreneurial orientation positively affects competitive advantage ($\beta = 0.391$, $t = 5.522$, $p < 0.001$), supporting H4.

Competitive advantage positively and significantly affects tourism MSME Performance ($\beta = 0.417$, $t = 5.891$, $p < 0.001$), supporting H5. The mediation results further indicate that competitive advantage significantly mediates the relationships of digital transformation and entrepreneurial orientation with tourism MSME performance. The indirect effect of digital transformation on tourism MSME performance through Competitive Advantage is positive and significant ($\beta = 0.178$, $t = 4.283$, $p < 0.001$), supporting H6. Similarly, the indirect effect of entrepreneurial orientation on tourism MSME performance through competitive advantage is positive and significant ($\beta = 0.163$, $t = 3.947$, $p < 0.001$), supporting H7. This suggests that entrepreneurial behaviour may improve business performance by enabling tourism MSMEs to build stronger competitive positions.

The effect of digital transformation on tourism MSME performance

The findings indicate that digital transformation positively influences the performance of tourism MSMEs, suggesting that businesses integrating digital technologies into their marketing, customer interactions, payment systems, and operational processes tend to achieve better business outcomes. This finding implies that digital transformation is not merely a technological investment but also a strategic capability that can improve market access, operational efficiency, customer engagement, and opportunities for business growth. This result is consistent with Vial (2019) and Holopainen et al. (2023), who conceptualises digital transformation as an organisational process that reshapes value creation through digital technologies, and Marco et al. (2018), who highlight the significant role of information technology in transforming tourism management and business practices. It also aligns with the RBV proposed by Barney (1991), which explains that organisational resources generate value when firms deploy them effectively to improve their competitive positions and performance. In the context of tourism MSMEs in Semarang City, digital transformation may enable culinary businesses to promote their products through social media, souvenir enterprises to reach customers beyond physical tourist destinations, and homestays or travel services to communicate with prospective customers and facilitate reservations through digital platforms. These practices can reduce dependence on conventional marketing channels and create additional opportunities to attract customers. Nevertheless, the benefits of

digital transformation depend on business owners' ability to integrate technology into broader business strategies, not merely establish online accounts or accept digital payments. The practical implication is that tourism MSME owners should prioritise digital capabilities that directly support business objectives, including targeted digital marketing, customer database management, online transaction integration, and the regular evaluation of digital marketing outcomes. Policymakers and business development institutions should complement digital literacy training with practical assistance in digital strategy, data utilisation, and technology integration. Future research should investigate whether digital skills, organisational readiness, and financial resource availability strengthen or constrain the relationship between digital transformation and business performance.

The effect of digital transformation on competitive advantage

The findings show that digital transformation positively influences the competitive advantage of tourism MSMEs, indicating that strategic use of digital technologies can help businesses establish more favourable market positions relative to competitors. This result suggests that digital capabilities may contribute to competitive differentiation by improving business visibility, facilitating customer communication, increasing service accessibility, and enabling enterprises to respond more effectively to customer preferences. This finding aligns with Vial (2019) and Holopainen et al. (2023), who explains that digital transformation changes organisational processes and value-creation mechanisms, and with Omrani et al. (2024), whose work on digital transformation in SMEs highlights the organisational factors associated with adopting and implementing digital technologies. From the RBV perspective, digital technology becomes strategically valuable when it is integrated with organisational knowledge, managerial expertise, and business processes in ways that enable firms to create distinctive customer value (Barney, 1991). This theoretical argument is particularly relevant to tourism MSMEs in Semarang City, where businesses may use digital platforms not only to advertise their products but also to communicate distinctive cultural experiences, showcase local culinary specialties, present authentic souvenirs, and provide convenient access to accommodation or travel information. However, because digital tools are increasingly accessible to competing businesses, technology adoption alone may not provide a sustainable competitive advantage. The advantage is more likely to emerge when digital resources are combined with distinctive products, personalised customer service, local knowledge, and a recognisable business identity. The practical implication is that tourism MSMEs should move beyond simply maintaining a digital presence and focus on using digital technologies to communicate unique value propositions and improve customer experiences. Business owners should also monitor competitors' digital strategies and customer feedback to identify opportunities for meaningful differentiation. Future research could examine whether digital marketing capability, customer relationship management, or digital innovation mediates or moderates the relationship between digital transformation and competitive advantage.

The effect of entrepreneurial orientation on tourism MSME performance

The findings reveal that entrepreneurial orientation positively influences tourism MSME performance, indicating that businesses characterised by innovation, proactiveness, calculated risk-taking, competitive aggressiveness, and autonomy tend to perform better. This result suggests that an entrepreneurial strategic posture helps

business owners identify market opportunities, respond to changing customer preferences, and develop initiatives that support business growth. The finding is consistent with Lumpkin & Dess (1996) and Dess & Lumpkin (2005), who conceptualise entrepreneurial orientation through multiple dimensions that shape how firms pursue opportunities and compete, and with Wiklund & Shepherd (2005), who examine the relationship between entrepreneurial orientation and small business performance. This also aligns with Kallmuenzer et al. (2019), who emphasise the importance of examining combinations of entrepreneurial and organisational factors when explaining performance in tourism firms. Within the RBV framework, entrepreneurial orientation is an intangible organisational capability that influences how firms recognise, combine, and deploy resources to create economic value (Barney, 1991). In the context of tourism MSMEs in Semarang City, entrepreneurial orientation may be reflected in culinary businesses developing new menu concepts, souvenir producers introducing locally inspired products, homestay operators adapting their services to tourist preferences, and travel businesses creating differentiated travel experiences. Proactive owners may also anticipate seasonal demand and explore emerging customer segments, while calculated risk-taking may encourage experimentation with new services or promotional strategies. However, entrepreneurial initiatives must be aligned with market demand and available resources because excessive risk-taking or poorly planned innovation may undermine financial stability. Practically, tourism MSME owners should develop structured approaches to opportunity identification, product experimentation, customer feedback, and business planning while maintaining appropriate risk management. Entrepreneurship development programs should therefore combine creativity and innovation training with market research, financial literacy, and strategic decision-making skills. Future research should examine whether entrepreneurial orientation has different performance implications across tourism business categories and whether environmental uncertainty, resource constraints, or managerial capabilities influence the strength of this relationship.

The effect of entrepreneurial orientation on competitive advantage

The findings indicate that entrepreneurial orientation positively influences competitive advantage, suggesting that tourism MSMEs with stronger entrepreneurial characteristics are better positioned to develop distinctive offerings and respond to competitive pressures. This result implies that innovation, proactiveness, calculated risk-taking, competitive aggressiveness, and autonomy can help businesses identify differentiation opportunities and build stronger market positions. This finding aligns with Lumpkin & Dess (1996) and Dess & Lumpkin (2005), who explain how entrepreneurial orientation shapes organisational behaviour in pursuing opportunities, and with Barney (1991), whose RBV framework emphasises the strategic importance of valuable organisational capabilities in creating competitive advantage. This also aligns with Kallmuenzer et al. (2019), who argue that entrepreneurial and organisational factors are relevant to understanding outcomes in tourism enterprises. The theoretical connection is that entrepreneurial orientation is not merely a willingness to start new initiatives; it also shapes how organisations mobilise resources to develop distinctive value that competitors may find difficult to reproduce. In Semarang City's tourism MSME sector, this capability may be expressed through unique local food products, souvenirs that reflect regional identity, accommodation services tailored to specific visitor segments, or travel packages that combine cultural attractions with personalised experiences. Proactive businesses may identify emerging tourist interests earlier, while

competitive aggressiveness may push them to improve their offerings in response to rivals. Nevertheless, entrepreneurial behaviour produces a meaningful competitive advantage only when innovations are relevant to customers and can be implemented consistently. Therefore, tourism MSME owners should translate entrepreneurial ideas into market-tested products and services, systematically assess customer preferences, and develop distinctive brand identities based on local strengths. Business development institutions can support this process through innovation mentoring, market access programs, collaborative product development, and training in competitive strategy. Future research should examine which dimensions of entrepreneurial orientation contribute most to competitive advantage and whether product innovation or market responsiveness explains the link between entrepreneurial orientation and competitive positioning.

The effect of competitive advantage on tourism MSME performance

The findings demonstrate that competitive advantage positively influences tourism MSME performance, indicating that businesses with stronger differentiation, distinctive products, better service quality, competitive pricing, and favourable reputations tend to achieve better business outcomes. This finding suggests that the ability to offer customer value that is perceived as superior to competing alternatives is an important determinant of business success. This result aligns with Porter's (1985) competitive strategy perspective, which emphasises differentiation and cost-based positioning as ways to establish favourable competitive positions, and with Barney's (1991) RBV, which explains how valuable, hard-to-imitate resources can support sustained competitive advantage. It is also broadly consistent with Kallmuenzer et al. (2019), whose research highlights the relevance of strategic and organisational factors to tourism firm performance. From an RBV perspective, competitive advantage represents the market-oriented outcome of deploying organisational resources and capabilities effectively, thereby helping firms attract customers, strengthen their market positions, and generate economic value. In the context of tourism MSMEs in Semarang City, businesses may achieve this advantage by offering distinctive local culinary experiences, maintaining consistent service standards, developing souvenirs with recognisable regional characteristics, or providing reliable, personalised tourism services. These attributes may encourage customer recommendations, repeat purchases, and positive online reviews, supporting revenue generation and business continuity. However, competitive advantage does not necessarily guarantee superior performance if businesses fail to control costs, maintain service consistency, or adapt to changing customer expectations. The practical implication is that MSME owners should regularly assess their competitive positions through customer feedback, competitor benchmarking, service quality monitoring, and evaluation of pricing strategies. They should also invest in distinctive products and customer experiences while ensuring that their value propositions remain financially sustainable. Future research should examine how individual dimensions of competitive advantage relate to different performance outcomes and whether customer satisfaction, loyalty, or perceived value helps explain the relationship between competitive advantage and business performance.

The mediating role of competitive advantage in the relationship between digital transformation and tourism MSME performance

The findings indicate that competitive advantage mediates the relationship between digital transformation and tourism MSME performance, suggesting that digital

transformation contributes to business performance partly by helping enterprises establish stronger competitive positions. This result implies that the value of digital transformation extends beyond its direct contribution to operational efficiency and customer access; it may also arise from the ability to use digital technologies to differentiate products, improve service delivery, and create superior customer experiences. The finding is theoretically consistent with Barney's (1991) RBV, which explains that resources and capabilities can contribute to performance when they are effectively deployed to generate competitive advantage. It also complements Vial's (2019) conceptualisation of digital transformation as a broader organisational process involving changes in value creation rather than merely the adoption of technology. In the tourism MSME context, digital platforms may increase business visibility and facilitate communication. Still, these improvements are more likely to contribute to stronger performance when they are translated into meaningful advantages, such as easier reservations, more responsive customer service, distinctive online content, or convenient access to unique local experiences. For example, a homestay that uses digital booking channels and promptly responds to customer inquiries may differentiate itself through convenience and service responsiveness. At the same time, a culinary MSME may combine social media promotion with distinctive local products to attract customers and encourage repeat purchases. Because the direct relationship between digital transformation and performance also remains significant, the findings are consistent with complementary partial mediation: digital transformation is associated with performance both directly and indirectly through competitive advantage. The practical implication is that tourism MSMEs should evaluate digital initiatives not only by online reach or technology adoption but also by the competitive value they create for customers. Business owners should align digital investments with clear differentiation strategies, customer experience improvements, and measurable business objectives. Policymakers should similarly support programs that integrate digital capability development with product innovation and competitive strategy. Future research should examine which forms of digital capability generate the greatest competitive benefits and whether the indirect relationship varies by enterprise size, business type, digital maturity, or resource availability.

The mediating role of competitive advantage in the relationship between entrepreneurial orientation and tourism MSME performance

The findings show that competitive advantage mediates the relationship between entrepreneurial orientation and tourism MSME performance, indicating that entrepreneurial behaviour contributes to business performance partly by strengthening competitive positions. This finding suggests that innovation, proactiveness, calculated risk-taking, competitive aggressiveness, and autonomy are more likely to translate into meaningful business outcomes when they enable enterprises to offer distinctive products, improve service quality, respond effectively to customer needs, or strengthen their market reputations. This result aligns with Lumpkin & Dess (1996) and Dess & Lumpkin (2005), who conceptualise entrepreneurial orientation as a multidimensional strategic posture, and Wiklund & Shepherd (2005), who establish the relevance of entrepreneurial orientation to small business performance. It also supports the logic of RBV, according to which organisational capabilities create value when they are deployed to establish competitive advantages that contribute to superior business outcomes (Barney, 1991). In tourism MSMEs in Semarang City, an entrepreneurial owner may identify demand for a new culinary experience, develop a distinctive souvenir, or design

an innovative travel package. However, the initiative is more likely to improve business performance when it creates an advantage that customers value and competitors cannot easily replicate. Entrepreneurial activity alone may not be sufficient if new products fail to meet customer expectations, operational costs become excessive, or businesses lack the capacity to maintain service quality. The finding therefore highlights the importance of turning entrepreneurial initiatives into viable, differentiated market offerings. The practical implication is that tourism MSME owners should integrate opportunity identification and innovation with customer research, competitive analysis, financial planning, and consistent service delivery. Entrepreneurship support programs should go beyond encouraging business creativity and risk-taking by helping owners assess market demand, test new offerings, and develop sustainable differentiation strategies. Future research should examine whether product innovation, market responsiveness, customer value creation, or business model innovation better explains how entrepreneurial orientation translates into competitive advantage and, subsequently, business performance.

Conclusions

This study concludes that digital transformation and entrepreneurial orientation play important roles in improving the performance of tourism MSMEs in Semarang City, Indonesia. Both variables positively influence MSME performance and competitive advantage, and competitive advantage also positively affects business performance. Furthermore, competitive advantage mediates the relationships between digital transformation and MSME performance and between entrepreneurial orientation and MSME performance. These findings indicate that the benefits of digital technology and entrepreneurial capabilities extend beyond their direct contributions to business outcomes, as they can also improve performance by strengthening firms' competitive positions. Among the direct relationships examined, competitive advantage demonstrates the strongest association with MSME performance, emphasising the importance of differentiation, service quality, product uniqueness, competitive pricing, and business reputation in achieving better business outcomes.

This study contributes theoretically by extending the RBV to tourism MSMEs through an integrated framework that links digital transformation, entrepreneurial orientation, competitive advantage, and business performance. The findings highlight competitive advantage as a potential mechanism through which technological and entrepreneurial capabilities are translated into improved business outcomes. From a managerial perspective, tourism MSME owners should go beyond adopting digital technologies and focus on integrating digital capabilities with innovation, market responsiveness, and distinctive customer value. Policymakers and business development institutions should support this process through integrated programs that combine digital literacy, entrepreneurship development, product innovation, and competitive strategy. Nevertheless, this study has several limitations. Its cross-sectional design limits the ability to establish causal relationships over time, while purposive sampling limits the generalizability of the findings beyond the sampled businesses. In addition, the study focuses on tourism MSMEs in a single city, and its findings may not fully represent businesses operating in other geographical or institutional contexts.

Future research should address these limitations by employing longitudinal designs to examine how digital transformation, entrepreneurial orientation, competitive advantage, and business performance evolve. Studies with larger, more geographically diverse samples, as well as probability-based sampling where feasible, could improve

the generalizability of the findings across different tourism MSME contexts. Future researchers could also incorporate additional variables, such as digital literacy, organisational innovation, customer satisfaction, dynamic capabilities, and environmental uncertainty, to provide a more comprehensive explanation of business performance. Comparative studies across tourism subsectors, cities, or regions could further show whether the proposed relationships differ by business characteristics and market conditions. Finally, future research could examine the individual dimensions of digital transformation, entrepreneurial orientation, and competitive advantage to identify which capabilities contribute most strongly to performance. Such investigations would provide more detailed theoretical insights and practical guidance for developing sustainable and competitive tourism MSMEs.

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