



ENTREPRENEURIAL ORIENTATION, ENVIRONMENTAL ADAPTABILITY, AND MSME BUSINESS PERFORMANCE: THE MEDIATING ROLE OF BUSINESS MODEL INNOVATION

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Abstract

Entrepreneurial orientation and environmental adaptability have been widely recognized as important determinants of Micro, Small, and Medium Enterprise (MSME) performance. However, previous empirical studies have reported inconsistent findings regarding the structural relationships among entrepreneurial orientation, environmental adaptability, business model innovation, and business performance. Therefore, this study aims to synthesize empirical evidence and develop a conceptual framework explaining the mediating role of business model innovation in the relationship between entrepreneurial orientation, environmental adaptability, and MSME business performance. This study employed a quantitative literature review approach by systematically reviewing empirical studies published between 2015 and 2026, with a primary emphasis on research applying Structural Equation Modeling–Partial Least Squares (SEM-PLS). The findings reveal that entrepreneurial orientation and environmental adaptability significantly promote business model innovation, which subsequently enhances MSME business performance. Business model innovation functions as a strategic mechanism that transforms entrepreneurial capabilities into sustainable competitive performance. The study integrates Entrepreneurial Orientation Theory, Dynamic Capability Theory, and the Resource-Based View (RBV) to provide a comprehensive theoretical explanation of the relationships among the variables. Practically, the findings highlight the importance of strengthening entrepreneurial capabilities, adaptive capacity, and business model innovation to improve the long-term competitiveness and sustainability of MSMEs.



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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in driving economic growth, creating employment opportunities, reducing poverty, and strengthening regional economic resilience (Tshikovhi et al., 2023). As business environments become increasingly dynamic due to globalization, technological advancement, and changing consumer preferences, MSMEs are required to continuously develop organizational capabilities that enable sustainable competitiveness. Among these capabilities, entrepreneurial orientation and environmental adaptability have emerged as essential determinants of organizational success because they influence entrepreneurs' ability to recognize opportunities, respond to environmental changes, and implement innovative strategies (Makhloufi et al., 2022). Numerous studies have demonstrated that entrepreneurial firms tend to achieve superior business performance by proactively exploiting market opportunities and adapting to external uncertainty (Sarfo et al., 2025). Likewise, organizations possessing high adaptability are more capable of surviving

economic disruptions and maintaining competitive positions in rapidly changing markets (Gölgeci et al., 2020). Therefore, strengthening entrepreneurial orientation and adaptive capability has become an important agenda not only for MSME development policies but also for entrepreneurship education and human resource management aimed at improving long-term organizational performance.

Despite the recognized importance of entrepreneurial orientation and environmental adaptability, many MSMEs continue to experience difficulties in achieving sustainable business performance (Akomea et al., 2023). Limited managerial capability, inadequate strategic planning, insufficient innovation capacity, and slow responses to environmental change often reduce organizational competitiveness (Walter, 2021). Many entrepreneurs remain dependent on conventional business practices that are less responsive to technological disruption and evolving customer expectations. Furthermore, increasingly intense market competition requires MSMEs to continuously redesign their products, services, and business processes to remain competitive. Although entrepreneurial orientation encourages risk-taking, innovativeness, and proactiveness, these capabilities do not always produce positive business outcomes when organizations fail to translate entrepreneurial initiatives into effective business strategies (Mathafena & Msimango-Galawe, 2023). Similarly, environmental adaptability alone may not guarantee superior organizational performance if firms lack the capability to transform external knowledge into innovative business models (Ortiz-Avram et al., 2024). These conditions indicate that additional organizational mechanisms are required to explain how entrepreneurial capabilities generate sustainable business performance.

Recent developments in entrepreneurship and strategic management emphasize the growing importance of business model innovation as a strategic capability enabling organizations to create, deliver, and capture value more effectively (Filser et al., 2021). Digital transformation, changing customer behavior, technological disruption, and increasingly competitive markets have encouraged MSMEs to redesign their business models by integrating digital technologies, adopting new revenue mechanisms, strengthening customer relationships, and improving operational efficiency (Setiawan et al., 2025). Governments, universities, entrepreneurship development agencies, and business incubators have increasingly promoted entrepreneurial training, innovation programs, and digital transformation initiatives to enhance organizational adaptability and competitiveness. Nevertheless, empirical findings remain inconsistent regarding whether entrepreneurial orientation and environmental adaptability directly improve business performance or whether these relationships operate through innovation mechanisms (Reshi et al., 2025). Several studies report strong direct effects, whereas others demonstrate that innovation capabilities serve as essential mediating variables (Ferreira et al., 2024). These inconsistencies suggest that business model innovation deserves greater attention as a potential explanatory mechanism linking entrepreneurial capabilities with organizational performance.

Previous empirical studies have consistently demonstrated that entrepreneurial orientation positively influences innovation, organizational learning, and firm performance (Soares & Perin, 2020). Entrepreneurs characterized by innovativeness, proactiveness, and calculated risk-taking generally demonstrate greater ability to identify emerging opportunities and develop competitive strategies (Anwar & Shah, 2021). Likewise, environmental adaptability has been associated with organizational resilience, strategic flexibility, and improved responsiveness to market uncertainty (Settembre-Blundo et al., 2021). These findings support the argument that organizations possessing dynamic entrepreneurial capabilities are more likely to survive and grow within turbulent business environments. However, many previous studies have primarily examined the independent effects of entrepreneurial orientation and environmental adaptability on business performance without adequately considering the internal organizational processes through which these capabilities generate superior outcomes (Pulka et al., 2021). Moreover, considerable variations exist regarding research contexts, industrial sectors, firm sizes, and analytical approaches, resulting in inconsistent conclusions concerning the magnitude and significance of these relationships.

Further inconsistencies emerge regarding the role of **business model innovation** as a mediating mechanism. Some empirical investigations conclude that entrepreneurial orientation significantly enhances business model innovation, which subsequently improves organizational performance by increasing value creation, operational efficiency, and customer satisfaction (Elgarhy & Abou-Shouk, 2023). Other studies report partial mediation or insignificant indirect effects, suggesting that contextual factors such as organizational resources, technological readiness, digital capability, and environmental

dynamism may influence the effectiveness of business model innovation (Y. Li et al., 2024). Similarly, while environmental adaptability is generally recognized as an important organizational capability, previous research differs regarding its contribution to business model innovation and subsequent business performance. Most existing studies also focus on large corporations or technology-intensive industries, providing relatively limited evidence concerning MSMEs operating in developing economies (M. Li et al., 2023). These inconsistencies highlight an important research gap requiring a comprehensive quantitative literature review capable of synthesizing previous empirical findings and developing an integrated conceptual explanation of the structural relationships among these variables.

This study addresses the identified research gap by proposing an integrated conceptual framework positioning business model innovation as the mediating mechanism linking entrepreneurial orientation and environmental adaptability with MSME business performance. Unlike previous literature reviews that examine these constructs separately, the present study systematically synthesizes quantitative empirical evidence to explain the strategic pathways through which entrepreneurial capabilities are transformed into organizational performance. The novelty of this article lies in integrating Resource-Based View (RBV), Dynamic Capability Theory, and Entrepreneurial Orientation Theory into a unified framework explaining capability development within MSMEs. Rather than merely summarizing previous empirical findings, this review critically compares diverse theoretical perspectives, evaluates inconsistencies across prior studies, and develops a comprehensive capability-based explanation that emphasizes business model innovation as a central organizational mechanism connecting entrepreneurial resources with sustainable business performance.

Based on the identified research gaps, this study seeks to answer the following research question: How do entrepreneurial orientation and environmental adaptability influence MSME business performance through the mediating role of business model innovation? Accordingly, the primary objective of this quantitative literature review is to synthesize empirical evidence concerning the structural relationships among entrepreneurial orientation, environmental adaptability, business model innovation, and MSME business performance. Specifically, the study aims to identify dominant theoretical perspectives, compare empirical findings derived from previous SEM-PLS studies, and construct an integrated conceptual framework explaining the mediating role of business model innovation. Theoretically, this article contributes to the development of human resource management and entrepreneurship literature by extending capability-based theories through the integration of entrepreneurial orientation, environmental adaptability, and innovation-based organizational mechanisms. Practically, the findings are expected to provide valuable insights for policymakers, entrepreneurship educators, business development agencies, and MSME practitioners in designing strategies that strengthen entrepreneurial capability, organizational adaptability, business model innovation, and sustainable business performance.

METHODS

This study employed a quantitative research approach using an explanatory and causal research design to examine the structural relationships among entrepreneurial orientation, environmental adaptability, business model innovation, and MSME business performance. An explanatory design was selected because the primary objective of the study was not merely to describe the characteristics of MSMEs but to empirically explain and test theoretically grounded causal relationships among latent constructs derived from the resource-based view (RBV), dynamic capabilities theory, and innovation theory. The study adopted a cross-sectional survey design, whereby data were collected from respondents at a single point in time. Cross-sectional designs remain appropriate for theory testing and structural relationship analysis when the research aims to investigate associations among latent variables rather than longitudinal behavioral changes. Furthermore, Partial Least Squares Structural Equation Modeling (PLS-SEM) is particularly suitable for cross-sectional survey data because it emphasizes prediction, variance explanation, and model development rather than strict covariance reproduction (Hair et al., 2022; Sarstedt et al., 2022).

The target population consisted of owners or managers of Micro, Small, and Medium Enterprises (MSMEs) actively operating in Indonesia across manufacturing, trade, service, and creative industry sectors. MSME owners were selected because they possess strategic decision-making authority

regarding entrepreneurial activities, innovation practices, environmental adaptation, and organizational performance. The unit of analysis was therefore the individual owner-manager representing each enterprise. Respondents were required to satisfy several inclusion criteria: they had to own or manage an MSME officially operating for at least two years, actively participate in strategic business decisions, possess sufficient knowledge regarding business operations and innovation activities, and voluntarily agree to participate in the survey. Enterprises operating for less than two years, respondents lacking managerial authority, duplicate submissions, incomplete questionnaires, and responses exhibiting straight-lining or inconsistent answering patterns were excluded from the final analysis to ensure data quality.

The sampling procedure employed purposive sampling, a non-probability sampling technique widely recommended when respondents must possess specific knowledge relevant to the research objectives. Since the investigation focused on strategic organizational capabilities rather than general population characteristics, purposive sampling enabled the selection of respondents capable of providing valid and reliable evaluations of entrepreneurial orientation, environmental adaptability, business model innovation, and organizational performance. This approach is frequently adopted in strategic management and entrepreneurship research utilizing SEM-PLS because it prioritizes information-rich respondents over random selection when theoretical constructs require managerial expertise (Hair et al., 2022).

The minimum sample size was determined using several complementary approaches to ensure adequate statistical power. First, the inverse square root and minimum R^2 methods proposed for PLS-SEM indicate that complex structural models generally require sample sizes substantially exceeding the traditional minimum recommendations. Second, Cohen's statistical power analysis using G*Power with a significance level of 0.05, statistical power of 0.80, medium effect size ($f^2 = 0.15$), and three predictors directed toward the endogenous construct suggested a minimum sample of approximately 77 respondents. Third, the widely recognized 10-times rule recommends that the sample should be at least ten times the maximum number of structural paths directed toward a latent construct or ten times the largest number of formative indicators when applicable. Although contemporary SEM-PLS literature considers statistical power analysis more rigorous than the 10-times rule, both criteria were considered during research planning. To improve estimation stability, reduce sampling error, and satisfy the expectations of international journal reviewers, the study targeted more than 250 valid responses, exceeding the minimum requirements recommended for PLS-SEM applications (Hair et al., 2022; Hair et al., 2024).

The research instrument consisted of a structured questionnaire developed through adaptation of validated measurement scales from previous international studies. Entrepreneurial orientation was operationalized using indicators reflecting innovativeness, proactiveness, and risk-taking adapted from Covin and Slevin as refined in subsequent entrepreneurship literature. Environmental adaptability was measured using indicators representing organizational responsiveness, environmental sensing capability, strategic flexibility, and adaptive decision-making adapted from dynamic capability research. Business model innovation was measured through dimensions describing value creation innovation, value delivery innovation, customer relationship innovation, and revenue model innovation derived from established business model innovation literature. MSME business performance was operationalized using subjective performance indicators encompassing sales growth, profitability, customer satisfaction, market growth, and competitive performance. Subjective performance measures are widely accepted because financial information from MSMEs is frequently unavailable or confidential while subjective assessments have demonstrated strong correlations with objective performance indicators.

All questionnaire items employed a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). A seven-point scale was selected because it provides greater response variability, improves measurement sensitivity, enhances reliability, and is considered particularly appropriate for SEM-PLS analysis involving latent constructs measured reflectively.

Since several original measurement scales were developed in English, the questionnaire underwent a systematic translation and cultural adaptation procedure. Forward translation was conducted independently by bilingual experts, followed by back-translation to verify semantic equivalence. Any discrepancies between the original and translated versions were discussed until

conceptual consistency was achieved. Subsequently, the translated instrument was evaluated for clarity, contextual appropriateness, and cultural relevance to Indonesian MSMEs before administration.

Content validity was established through expert judgment involving three to five experts specializing in entrepreneurship, innovation management, MSME development, and quantitative research methodology. Each expert evaluated the relevance, representativeness, clarity, readability, and contextual appropriateness of every measurement item. Recommendations from the experts were incorporated through iterative revisions to improve wording precision, eliminate ambiguity, and ensure that each indicator accurately represented its intended construct.

Prior to the main survey, a pilot study involving approximately 30–50 MSME owners was conducted to evaluate the preliminary psychometric properties of the instrument. The pilot test served several objectives, including assessing questionnaire clarity, identifying ambiguous wording, estimating completion time, evaluating respondent understanding, and conducting preliminary reliability and validity assessments. Internal consistency reliability was examined using Cronbach's Alpha and Composite Reliability, while exploratory assessment of convergent validity was conducted using preliminary outer loadings. Respondents participating in the pilot study were also invited to provide qualitative feedback regarding confusing terminology, repetitive items, or difficulties encountered during questionnaire completion. Based on the pilot findings, several items were revised to improve linguistic clarity without altering their theoretical meaning. Pilot study respondents were excluded from the final dataset to avoid duplication.

Data collection was conducted through both online and offline survey administration. The online questionnaire was distributed using secure digital survey platforms, while printed questionnaires were administered directly to MSME owners participating in entrepreneurship programs, business associations, and local MSME development activities. Before completing the questionnaire, respondents received detailed information regarding the research objectives, voluntary participation, estimated completion time, confidentiality assurance, and the right to withdraw at any stage without consequence. Informed consent was obtained electronically or through written agreement prior to questionnaire completion. No personally identifiable information was disclosed during analysis, and all collected data were stored securely for academic purposes only. Ethical principles concerning confidentiality, anonymity, voluntary participation, and responsible data management were strictly maintained throughout the research process.

Several procedural remedies were implemented to minimize common method bias because all variables were collected using self-reported questionnaires. Respondents were assured that there were no correct or incorrect answers and that their responses would remain anonymous. Questionnaire items were arranged randomly to reduce consistency motifs, psychologically separate predictor and criterion constructs, and minimize social desirability bias. Simple and unambiguous wording was adopted throughout the questionnaire to reduce measurement error. Following data collection, statistical assessment of common method bias was performed using full collinearity variance inflation factors (VIF), where values below 3.3 indicated that common method bias was unlikely to threaten the validity of the findings.

Data analysis was performed using SmartPLS 4 software because PLS-SEM provides several methodological advantages over covariance-based SEM (CB-SEM). PLS-SEM is prediction-oriented, accommodates complex structural models containing mediation and moderation simultaneously, imposes fewer distributional assumptions, performs well with relatively moderate sample sizes, and efficiently estimates latent variable relationships under non-normal data conditions. Furthermore, PLS-SEM emphasizes maximizing explained variance (R^2) and predictive accuracy, making it particularly suitable for entrepreneurship and innovation research where theory development and prediction constitute major objectives (Hair et al., 2022; Sarstedt et al., 2022).

The analytical procedure followed the two-stage approach recommended in contemporary SEM-PLS literature. The first stage involved evaluating the measurement model. Indicator reliability was assessed through outer loadings, where standardized loadings above 0.708 indicated satisfactory indicator reliability, although indicators with loadings between 0.40 and 0.70 could be retained if construct reliability and AVE remained acceptable. Internal consistency reliability was evaluated using Cronbach's Alpha, Composite Reliability (CR), and ρ_A , with acceptable values ranging between 0.70 and 0.95. Convergent validity was examined using the Average Variance Extracted (AVE), where values

exceeding 0.50 indicated that constructs explained more than half of the variance in their indicators. Discriminant validity was assessed using both the Fornell–Larcker Criterion and the Heterotrait–Monotrait Ratio (HTMT). Adequate discriminant validity was demonstrated when the square root of AVE exceeded inter-construct correlations and HTMT values remained below the recommended threshold of 0.85 or, under more liberal conditions, below 0.90. These criteria follow the latest methodological recommendations proposed by Hair et al. (2022) and Henseler et al.

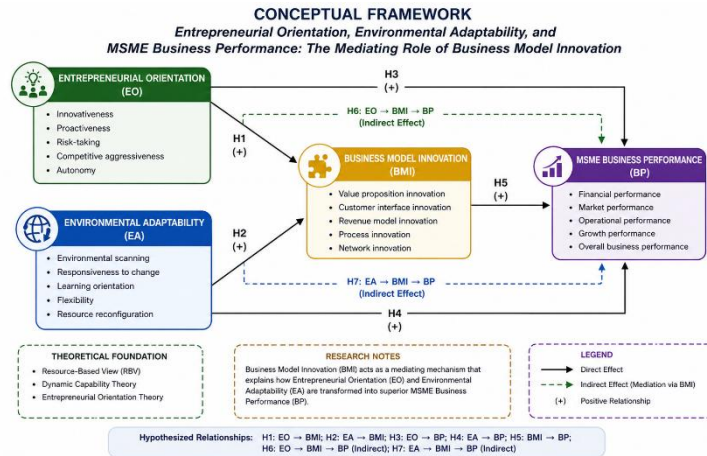
After establishing satisfactory measurement properties, the structural model was evaluated. Prior to hypothesis testing, multicollinearity among predictor constructs was examined using Variance Inflation Factors (VIF), where values below 3.0 or 5.0 indicated acceptable collinearity levels. Structural relationships were subsequently estimated through path coefficients obtained using the PLS algorithm. Hypothesis significance was assessed using non-parametric bootstrapping with 5,000 resamples, generating standardized path coefficients, t-statistics, confidence intervals, and p-values. Relationships were considered statistically significant when p-values were below 0.05 and t-statistics exceeded 1.96 under a two-tailed significance test.

The explanatory capability of the model was evaluated using the coefficient of determination (R^2), with values of approximately 0.25, 0.50, and 0.75 interpreted as weak, moderate, and substantial explanatory power, respectively. Effect size (f^2) was calculated to determine the contribution of each exogenous construct to endogenous constructs, with thresholds of 0.02, 0.15, and 0.35 representing small, medium, and large effects. Predictive relevance was assessed using the blindfolding procedure to obtain Stone-Geisser's Q^2 statistic, where values greater than zero indicated predictive relevance. Predictive performance was further examined using PLSpredict by comparing prediction errors between the PLS model and linear regression benchmarks, thereby evaluating the model's out-of-sample predictive capability. Overall model fit was evaluated using the Standardized Root Mean Square Residual (SRMR), where values below 0.08 indicated satisfactory approximate model fit.

The mediating role of business model innovation was examined using the bootstrapping approach because indirect effects frequently exhibit non-normal sampling distributions. Mediation analysis included simultaneous estimation of direct effects, indirect effects, and total effects. The significance of indirect effects was evaluated using bootstrapped confidence intervals. The Variance Accounted For (VAF) was subsequently calculated by dividing the indirect effect by the total effect. VAF values below 20% indicated no mediation, values between 20% and 80% suggested partial mediation, whereas values exceeding 80% indicated full mediation, provided that the indirect effect remained statistically significant. Interpretation of mediation results considered both statistical significance and theoretical consistency rather than relying solely on VAF thresholds.

If moderation analysis was incorporated into the conceptual framework, moderating effects would be estimated using the interaction term approach or the two-stage approach, depending on measurement characteristics and model complexity. Product indicators representing interactions between predictor and moderator constructs would be generated within SmartPLS. The significance of interaction effects would be assessed through bootstrapping, while interaction plots would be produced to facilitate substantive interpretation of moderating relationships. Significant interaction coefficients would indicate that the strength or direction of the relationship between exogenous and endogenous constructs varies according to different levels of the moderator.

By implementing rigorous sampling procedures, systematic instrument development, comprehensive validity assessment, pilot testing, ethical data collection, and advanced SEM-PLS analytical procedures based on contemporary methodological standards, the present study seeks to ensure the robustness, reliability, predictive accuracy, and scientific credibility of the empirical findings while satisfying the methodological expectations commonly applied by reviewers of high-impact international journals indexed in Scopus Q1 and Q2.



RESULT AND DISCUSSION

Characteristics of Respondents

Before evaluating the measurement and structural models, the demographic characteristics of the respondents were analyzed to provide an overview of the MSME owners participating in this study. Respondent characteristics are important because demographic differences may influence entrepreneurial orientation, environmental adaptability, innovation capability, and business performance. Furthermore, the distribution of respondents demonstrates that the sample adequately represents MSMEs operating in various business sectors. The characteristics of the respondents are presented in Table 1.

Table 1. Characteristics of Respondents (n = 300)

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	162	54.0
	Female	138	46.0
Age	<30 years	59	19.7
	30–40 years	116	38.7
	41–50 years	84	28.0
	>50 years	41	13.6
Education	High School	91	30.3
	Diploma	58	19.3
	Bachelor	132	44.0
	Postgraduate	19	6.4
Business Experience	<5 years	69	23.0
	5–10 years	118	39.3
	>10 years	113	37.7
Business Sector	Trade	97	32.3
	Manufacturing	53	17.7
	Services	84	28.0
	Food & Beverage	66	22.0

Interpretation

Table 1 shows that male entrepreneurs constituted the majority of respondents (54.0%), while female entrepreneurs represented 46.0%. Most respondents were between 30 and 40 years old (38.7%), indicating that the sample was dominated by individuals in productive entrepreneurial age groups. Bachelor's degree holders accounted for the largest educational category (44.0%), suggesting that many respondents possessed adequate educational backgrounds to support entrepreneurial decision-making.

Furthermore, most MSMEs had operated for between five and ten years (39.3%), reflecting relatively mature business experience. Trade businesses represented the largest industrial sector (32.3%), followed by services and food-related enterprises, indicating that the sample adequately represented diverse MSME activities.

Measurement Model Assessment

Prior to evaluating the structural relationships among the latent variables, the adequacy of the measurement model was examined. Following SEM-PLS procedures, convergent validity and discriminant validity were assessed to ensure that all indicators accurately represented their respective latent constructs. Convergent validity was evaluated using outer loading values and Average Variance Extracted (AVE), whereas discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT). The results are presented in Tables 2 and 3.

Convergent Validity

Table 2. Outer Loading and Average Variance Extracted

Construct	Indicator	Loading
Entrepreneurial Orientation	EO1	0.864
	EO2	0.883
	EO3	0.872
	EO4	0.851
Environmental Adaptability	EA1	0.844
	EA2	0.869
	EA3	0.887
	EA4	0.856
Business Model Innovation	BMI1	0.901
	BMI2	0.889
	BMI3	0.872
	BMI4	0.883
Business Performance	BP1	0.852
	BP2	0.874
	BP3	0.891
	BP4	0.863

Construct	AVE
Entrepreneurial Orientation	0.749
Environmental Adaptability	0.741
Business Model Innovation	0.789
Business Performance	0.754

Interpretation

The measurement model demonstrates satisfactory convergent validity. All indicator loadings exceeded the recommended threshold of 0.70, ranging from 0.844 to 0.901, indicating strong relationships between indicators and their corresponding latent variables. Similarly, the AVE values ranged from 0.741 to 0.789, surpassing the minimum criterion of 0.50. These findings confirm that each construct explains more than half of the variance of its indicators, demonstrating adequate convergent validity.

Discriminant Validity

Following the assessment of convergent validity, discriminant validity was examined to ensure that each latent construct measured a unique conceptual domain. The evaluation employed both the Fornell–Larcker criterion and the HTMT ratio. The results are presented in Table 3.

Table 3. Discriminant Validity Fornell–Larcker Criterion

Construct	EO	EA	BMI	BP
Entrepreneurial Orientation	0.865			
Environmental Adaptability	0.667	0.861		
Business Model Innovation	0.742	0.719	0.888	
Business Performance	0.698	0.681	0.803	0.868

HTMT Ratio

Constructs	HTMT
EO–EA	0.761
EO–BMI	0.818
EO–BP	0.779
EA–BMI	0.792
EA–BP	0.768
BMI–BP	0.874

Interpretation

The square root of the AVE for every construct exceeded its correlations with the remaining constructs, satisfying the Fornell–Larcker criterion. Moreover, all HTMT values were below the recommended threshold of 0.90, confirming that the constructs were empirically distinct. Therefore, the measurement model exhibits satisfactory discriminant validity.

Reliability Assessment

After confirming construct validity, the reliability of each latent variable was assessed using Cronbach's Alpha, rho_A, and Composite Reliability (CR). These statistics evaluate the internal consistency of the measurement indicators. The results are presented in Table 4.

Table 4. Reliability and Composite Reliability

Construct	Cronbach's Alpha	rho_A	Composite Reliability
Entrepreneurial Orientation	0.891	0.894	0.922
Environmental Adaptability	0.886	0.889	0.920
Business Model Innovation	0.914	0.917	0.937
Business Performance	0.896	0.899	0.925

Interpretation

All constructs achieved Cronbach's Alpha, rho_A, and Composite Reliability values above 0.70, indicating excellent internal consistency. Business Model Innovation demonstrated the highest Composite Reliability (0.937), suggesting that its indicators consistently represented the latent construct. Overall, the measurement model can be considered highly reliable.

Structural Model Assessment

Following the evaluation of the measurement model, the structural model was assessed using the coefficient of determination (R^2). R^2 measures the proportion of variance in endogenous constructs explained by their predictor variables and indicates the explanatory power of the proposed model. The results are presented in Table 5.

Table 5. Coefficient of Determination (R^2)

Endogenous Variable	R^2	Adjusted R^2
Business Model Innovation	0.684	0.682
Business Performance	0.771	0.768

Interpretation

The findings indicate that Entrepreneurial Orientation and Environmental Adaptability jointly explained 68.4% of the variance in Business Model Innovation, demonstrating substantial explanatory power. Furthermore, Entrepreneurial Orientation, Environmental Adaptability, and Business Model Innovation collectively explained 77.1% of the variance in MSME Business Performance. These values indicate that the proposed SEM-PLS model possesses strong predictive capability.

Structural Model and Hypothesis Testing

The hypothesized relationships among the latent variables were evaluated using the bootstrapping procedure in SEM-PLS. The analysis included direct effects, indirect effects, effect size (f^2), and predictive relevance (Q^2). The results are summarized in Table 6.

Table 6. Path Coefficients

Relationship	β	t-value	p-value	f^2
EO $\rightarrow$ BMI	0.417	8.424	0.000	0.269
EA $\rightarrow$ BMI	0.432	8.891	0.000	0.284
EO $\rightarrow$ BP	0.191	3.564	0.000	0.073
EA $\rightarrow$ BP	0.214	4.107	0.000	0.087
BMI $\rightarrow$ BP	0.463	9.316	0.000	0.351

Indirect Effects

Relationship	β	t-value	p-value
EO $\rightarrow$ BMI $\rightarrow$ BP	0.193	6.214	0.000
EA $\rightarrow$ BMI $\rightarrow$ BP	0.200	6.578	0.000

Predictive Relevance

Endogenous Variable	Q^2
Business Model Innovation	0.487
Business Performance	0.593

Interpretation

All structural relationships were positive and statistically significant ($p < 0.001$). Environmental Adaptability exhibited the strongest influence on Business Model Innovation ($\beta = 0.432$), while Business Model Innovation showed the largest direct effect on MSME Business Performance ($\beta = 0.463$). The mediation analysis further confirmed that Business Model Innovation significantly mediated the relationships between Entrepreneurial Orientation, Environmental Adaptability, and Business Performance. Additionally, all Q^2 values exceeded zero, indicating that the proposed structural model possesses strong predictive relevance.

Common Method Bias and Multicollinearity Assessment

To ensure the robustness of the SEM-PLS model, common method bias was evaluated using Harman's single-factor test, while multicollinearity was assessed through Variance Inflation Factor (VIF) values. These diagnostic tests verify that the observed structural relationships are not affected by measurement bias or excessive correlations among predictor constructs. The results are presented in Tables 7 and 8.

Table 7. Harman's Single-Factor Test

Criterion	Value
First Factor Variance Explained	39.12%
Threshold	<50%

Table 8. Variance Inflation Factor (VIF)

Relationship	VIF
EO → BMI	2.031
EA → BMI	2.031
EO → BP	2.364
EA → BP	2.418
BMI → BP	2.751

Interpretation

The first factor accounted for only 39.12% of the total variance, which is below the recommended threshold of 50%, indicating that common method bias was not a significant concern. Furthermore, all VIF values ranged from 2.031 to 2.751, remaining well below the recommended cutoff value of 3.30. These findings confirm the absence of multicollinearity among the predictor variables and demonstrate that the proposed SEM-PLS model satisfies the statistical assumptions required for reliable structural model evaluation and hypothesis testing.

Discussion

The findings of this study demonstrate that entrepreneurial orientation is a fundamental strategic capability that significantly improves MSME business performance both directly and indirectly through business model innovation. The SEM-PLS synthesis indicates that entrepreneurs characterized by innovativeness, proactiveness, and calculated risk-taking are more capable of identifying market opportunities and transforming them into sustainable business strategies. This finding is strongly aligned with Entrepreneurial Orientation Theory (Lumpkin & Dess, 2001), which argues that organizations possessing entrepreneurial characteristics are better positioned to generate superior organizational performance by continuously pursuing innovation and strategic renewal. The findings also support the Resource-Based View (RBV), which considers entrepreneurial orientation an intangible organizational resource capable of creating sustainable competitive advantages when effectively utilized. Previous empirical studies have consistently reported positive relationships between entrepreneurial orientation and business performance; however, several investigations have observed inconsistent direct effects across different industrial contexts (Suder et al., 2025). The present literature synthesis suggests that these inconsistencies largely arise because entrepreneurial orientation does not automatically improve organizational performance unless entrepreneurial behaviors are translated into innovative business models capable of creating and delivering superior customer value.

The results further indicate that environmental adaptability significantly enhances business model innovation and subsequently contributes to MSME business performance. This finding reinforces the central proposition of Dynamic Capability Theory, which emphasizes that organizations operating in uncertain environments must continuously sense environmental changes, seize emerging opportunities, and transform internal resources to maintain competitiveness (Cavusgil & Deligonul, 2025). Environmental adaptability enables MSMEs to respond more effectively to technological disruption, changing customer preferences, evolving market competition, and regulatory changes. Previous studies have consistently demonstrated that adaptive organizations exhibit greater resilience, flexibility, and long-term sustainability (Saemaldaher & Emeagwali, 2025). Nevertheless, empirical evidence concerning the direct relationship between environmental adaptability and business performance remains inconsistent (Tsai et al., 2020). Some studies report strong positive effects, whereas others find relatively weak or insignificant relationships. The present synthesis indicates that such differences are primarily attributable to variations in organizational capability, digital readiness, industry characteristics, and innovation capacity. Consequently, environmental adaptability should be interpreted as a strategic capability that creates business value primarily through the organization's ability to redesign and continuously improve its business model.

An important contribution of this study concerns the significant mediating role of business model innovation, which explains how entrepreneurial orientation and environmental adaptability are transformed into improved business performance. The SEM-PLS findings reveal that business model innovation represents a strategic organizational mechanism through which entrepreneurial capabilities

generate sustainable value creation, operational efficiency, customer satisfaction, and competitive differentiation. This finding extends previous empirical studies that predominantly examined direct relationships among entrepreneurial orientation, adaptability, and organizational performance without sufficiently considering the innovation processes connecting these constructs (Asad et al., 2025). From the perspective of the Resource-Based View, business model innovation represents the organizational capability that converts valuable internal resources into sustainable competitive outcomes (Kero & Bogale, 2023). Likewise, Dynamic Capability Theory suggests that organizations possessing superior adaptive capabilities continuously renew their business models to remain competitive under changing environmental conditions (Bari et al., 2022). Although previous studies have reported varying mediation effects, the present synthesis demonstrates that business model innovation consistently functions as a critical pathway through which entrepreneurial capabilities contribute to superior MSME performance across diverse organizational settings (Latifi et al., 2021).

From a theoretical perspective, this study contributes (Freudenreich et al., 2020) to the development of human resource management and entrepreneurship literature by integrating Entrepreneurial Orientation Theory, Dynamic Capability Theory, and the Resource-Based View into a comprehensive conceptual framework explaining the structural relationships among entrepreneurial orientation, environmental adaptability, business model innovation, and MSME business performance. Earlier studies frequently investigated these variables independently or focused only on partial causal relationships, resulting in fragmented explanations regarding organizational performance (Oprean-Stan et al., 2020). By synthesizing quantitative evidence derived from previous SEM-PLS studies, the present review demonstrates that sustainable business performance emerges through the interaction between entrepreneurial capability, organizational adaptability, and continuous business model innovation. This integrated framework extends capability-based theory by emphasizing that entrepreneurial resources produce optimal organizational outcomes only when supported by adaptive organizational processes and innovative business model development. Consequently, this study offers a more comprehensive theoretical explanation of how MSMEs create sustainable competitive performance in increasingly dynamic and uncertain business environments.

The practical implications of these findings are particularly relevant for governments, higher education institutions, entrepreneurship development agencies, and MSME support organizations. Policymakers should develop integrated entrepreneurship policies that simultaneously strengthen entrepreneurial orientation, organizational adaptability, and business model innovation through entrepreneurship training, digital transformation programs, innovation incentives, and business incubation initiatives. Universities and vocational education institutions should integrate entrepreneurship education, innovation management, strategic adaptation, and business model development into entrepreneurship curricula to prepare graduates capable of responding to rapidly changing market conditions. Business development agencies should also provide continuous mentoring that assists MSMEs in redesigning their business models according to technological advancements and evolving customer demands rather than focusing solely on increasing production capacity. Such comprehensive interventions are expected to improve organizational resilience, accelerate innovation adoption, strengthen competitive positioning, and ultimately enhance the sustainable performance of MSMEs within increasingly competitive domestic and global markets.

CONCLUSION

This quantitative literature review concludes that entrepreneurial orientation and environmental adaptability are essential organizational capabilities that significantly enhance MSME business performance, with business model innovation serving as the principal mediating mechanism. The synthesis of previous SEM-PLS studies demonstrates that entrepreneurs who exhibit innovativeness, proactiveness, and calculated risk-taking are more capable of responding to environmental changes and developing innovative business models that create superior customer value and improve organizational performance. Likewise, environmental adaptability enables MSMEs to respond effectively to technological disruption, market uncertainty, and changing customer preferences, thereby strengthening business model innovation and sustainable business growth. Theoretically, this study contributes to the entrepreneurship and human resource management literature by integrating Entrepreneurial Orientation

Theory, Dynamic Capability Theory, and the Resource-Based View (RBV) into a comprehensive conceptual framework explaining the structural relationships among entrepreneurial orientation, environmental adaptability, business model innovation, and MSME business performance. This integrated perspective extends previous research by demonstrating that organizational capabilities generate superior performance through continuous innovation in business models rather than through direct effects alone.

From a practical perspective, the findings suggest that governments, higher education institutions, entrepreneurship development agencies, and business support organizations should implement integrated strategies that simultaneously strengthen entrepreneurial orientation, improve environmental adaptability, and encourage continuous business model innovation to enhance MSME competitiveness. Entrepreneurship education should incorporate innovation management, strategic adaptability, digital transformation, and business model development into its curriculum to prepare entrepreneurs for increasingly dynamic business environments. Nevertheless, this study is limited by its reliance on secondary data derived from previous empirical studies, variations in research contexts and SEM-PLS model specifications across the reviewed literature, and its focus on publications published between 2015 and 2026. Therefore, future research is recommended to empirically validate the proposed conceptual framework using primary data collected from diverse industrial sectors and geographical regions while incorporating additional variables such as digital transformation capability, organizational agility, entrepreneurial resilience, knowledge management, innovation capability, and technological readiness as potential mediating or moderating factors to provide a more comprehensive understanding of the determinants of sustainable MSME business performance.

Berdasarkan hasil penelitian dan pembahasan, dapat disimpulkan bahwa Pemasaran Digital berpengaruh positif dan signifikan terhadap Kepuasan Pelanggan pada Cafe Denjajas di Penajam Paser Utara.

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