

Integrating Digital Marketing and Green Innovation: How Gen Z Entrepreneurial Orientation Shapes MSME Marketing Performance

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Abstract

Purpose – This study examines the effects of Digital Entrepreneurial Marketing (DEM) and Green Product Innovation (GPI) on MSME Marketing Performance (MP), investigates the interaction between digital and green capabilities, and analyzes the moderating role of Gen Z Entrepreneurial Orientation (GZEO) in strengthening this relationship. **Methodology/approach** – A quantitative explanatory research design was employed using data collected from 110 Gen Z entrepreneurs managing food and beverage MSMEs in Bali, Indonesia. Respondents were selected through purposive sampling, and the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. The analysis included measurement model assessment, structural model evaluation, and bootstrapping for hypothesis testing. **Findings** – The results show that Digital Entrepreneurial Marketing has a positive and significant effect on MSME Marketing Performance ($\beta = 0.284$; $p = 0.004$), while Green Product Innovation also has a positive and significant effect ($\beta = 0.246$; $p = 0.012$). Moreover, the interaction between DEM and GPI significantly improves marketing performance ($\beta = 0.221$; $p = 0.020$). Gen Z Entrepreneurial Orientation positively moderates the effect of digital-green capability integration on marketing performance ($\beta = 0.198$; $p = 0.029$). The model explains 61.2% of the variance in MSME Marketing Performance ($R^2 = 0.612$), indicating substantial explanatory capability. **Originality/value** – This study contributes to the MSME literature by conceptualizing digital entrepreneurial marketing and green product innovation as complementary and interacting strategic capabilities rather than merely independent predictors of performance. It further identifies Gen Z entrepreneurial orientation as a boundary condition that strengthens the performance benefits generated by digital-green capability integration in Gen Z-led food and beverage MSMEs. **Keywords:** Digital Entrepreneurial Marketing; Green Product Innovation; Gen Z Entrepreneurial Orientation; MSME Marketing Performance; Digital-Green Capability Integration; PLS-SEM.

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INTRODUCTION

Micro, small, and medium enterprises constitute a substantial share of economic activity in Indonesia, and the food and beverage subsector represents one of the most active segments within this group (Munandar et al., 2025). Digital transformation has altered how these enterprises reach customers, manage operations, and compete with larger firms (Setiawan et al., 2025). Enterprises that adopt digital entrepreneurial marketing practices, including social media promotion, e-commerce transactions, and data-driven customer engagement, tend to record stronger sales and market outcomes than enterprises that rely on conventional

marketing channels alone (Chinakidzwa & Phiri, 2020; Ukshini et al., 2025; Setini et al., 2026). However, digital adoption alone does not guarantee sustained competitiveness, since routine or superficial digital use does not necessarily translate into measurable performance gains (Harsasi et al., 2026).

Alongside digital transformation, consumer demand for environmentally responsible products has increased, and this shift has encouraged small enterprises to pursue green product innovation. Green product innovation refers to the development of products, packaging, or production processes that reduce environmental impact while meeting market expectations (Najib et al., 2022). Studies conducted among Indonesian micro, small, and medium enterprises indicate that green product innovation strengthens competitive advantage and improves marketing outcomes, particularly when it is embedded in local practices and resources (Wibowo et al., 2025; Mahida & Anggadwita, 2026). The food and beverage subsector offers particular scope for such innovation, since eco-friendly packaging, waste reduction, and locally sourced ingredients are readily observable to consumers (Nurbasari et al., 2026).

The individuals who lead these enterprises also shape how digital marketing and green innovation are pursued. Generation Z, defined broadly as individuals born between the mid-1990s and the early 2010s, has entered entrepreneurship in growing numbers, and this generation exhibits an entrepreneurial orientation marked by proactiveness, innovativeness, and a comparatively high tolerance for risk (Hasanah et al., 2025); (Setini et al., 2026). Gen Z entrepreneurial orientation has been associated with stronger uptake of digital tools and sustainability practices, since founders from this generation tend to treat technology adoption and environmental responsibility as part of a single business identity rather than as separate strategic choices (Jalil et al., 2025; Kartini et al., 2025). A related model integrating green marketing, product innovation, digital strategy, and brand image among Gen Z consumers further supports the plausibility of linking digital and green strategies within one framework (Setini et al., 2026).

Existing research has examined digital marketing and green innovation as separate predictors of marketing performance, and a smaller body of work has modeled one construct as a mediator of the other (Manurung et al., 2025). Fewer studies have treated digital entrepreneurial marketing and green product innovation as parallel factors whose combination produces an effect beyond what either factor produces independently, and fewer still have examined this combination among Gen Z-led enterprises within a specific regional food and beverage market. Clara et al. (2026) examined digital capability and entrepreneurial orientation among food and beverage small and medium enterprises but did not incorporate green product innovation directly, while Nurbasari et al. (2026) examined digital entrepreneurial marketing in Indonesian food and beverage enterprises without incorporating a generational moderator. This gap is notable in Bali, where a food and beverage sector shaped by tourism, cultural identity, and a young entrepreneurial population provides conditions under which digital marketing and green innovation are likely to operate together rather than in isolation.

The present study addresses this gap by developing a conceptual model in which digital entrepreneurial marketing and green product innovation act as parallel predictors of marketing performance among food and beverage micro, small, and medium enterprises in Bali, with their interaction treated as a distinct predictor and Gen Z entrepreneurial orientation treated as a moderator of that interaction. The objectives of this study are to examine the direct effects of digital entrepreneurial marketing and green product innovation on marketing performance, to examine whether the interaction between these two factors produces an effect beyond their separate contributions, and to examine whether Gen Z entrepreneurial orientation strengthens this combined effect.

LITERATURE REVIEW

Digital Entrepreneurial Marketing

Digital entrepreneurial marketing refers to the set of practices through which entrepreneurs use digital platforms, including social media, e-commerce applications, and online payment systems, to identify market opportunities and engage customers directly (Nurbasari et al., 2026). Digital entrepreneurial marketing differs from conventional digital marketing in its emphasis on resourcefulness and opportunity recognition, which reflects the constrained resources typical of small enterprises (Al Buraiki & Nofal, 2026). Prior studies report that digital marketing capability improves market performance among small enterprises across

varied settings, including agro-processing firms in Zimbabwe (Chinakidzwa & Phiri, 2020) and small and medium enterprises in Oman, where digital marketing implementation mediates the relationship between entrepreneurial orientation and performance (Al Buraiki & Nofal, 2026). A meta-analysis of digital marketing strategies confirms a consistent positive association between digital marketing activity and small and medium enterprise performance across multiple countries (Ukshini et al., 2025). Within Indonesia, digital marketing has been linked to improved sales performance when paired with product innovation (Wulan et al., 2025) and to improved marketing capability more broadly (Novitasari et al., 2025).

Green Product Innovation

Green product innovation refers to the development or modification of products, packaging, or ingredients to reduce environmental harm while retaining market appeal (Najib et al., 2022). Among Indonesian food processing small and medium enterprises, organizational capability and market perspective encourage the adoption of green innovation, indicating that green product development is shaped by managerial orientation as much as by external pressure (Najib et al., 2022). Similar patterns appear among batik enterprises, where green innovation mediates the relationship between local wisdom and competitive advantage (Wibowo et al., 2025), and among Bandung-based small enterprises, where green innovation supports business sustainability (Mahida & Anggadwita, 2026). Green technology has also been identified as a mediator between leadership vision and green product development among Surabaya-based enterprises (Handayani et al., 2026). Green product innovation mediates the relationship between green market orientation and sustainable performance (Sulaiman, 2025) and exerts a direct positive effect on marketing performance among small and medium enterprises in other national contexts (Zheng et al., 2022; Ji et al., 2024). Rahman (2023) reports that this relationship strengthens further when an enterprise holds a recognizable brand, a condition relevant to consumer-facing food and beverage businesses.

Gen Z Entrepreneurial Orientation

Entrepreneurial orientation captures the strategic posture of a firm toward proactiveness, innovativeness, and risk-taking (Goyal & Mishra, 2024). When this orientation is examined specifically among Gen Z founders, it reflects a generational disposition toward technology adoption and environmental responsibility that differs from the orientation reported among older founders (Hasanah et al., 2025). Gen Z entrepreneurial orientation strengthens the translation of entrepreneurial marketing activity into marketing performance through the mediating pathway of entrepreneurial resilience (Hasanah et al., 2025), and it is associated with stronger green entrepreneurial orientation when digital knowledge sharing is present (Jalil et al., 2025). Among Indonesian micro, small, and medium enterprises, entrepreneurial orientation interacts with dynamic capability and environmental turbulence to shape marketing capability and firm performance (Iriani et al., 2026), and it combines with motivation and organizational commitment to enhance overall performance (Kartini et al., 2025). These findings support treating Gen Z entrepreneurial orientation as a boundary condition, or moderator, rather than as a direct predictor in the present model.

MSME Marketing Performance

Marketing performance in the small enterprise context is typically measured through indicators such as sales growth, customer growth, market share expansion, and profitability relative to competitors (Novitasari et al., 2025). Digital marketing capability and product innovation each raise marketing performance independently (Wulan et al., 2025), while entrepreneurial orientation contributes to marketing performance both directly and through mediating mechanisms such as market orientation and marketing capability (Al Buraiki & Nofal, 2026). Within the food and beverage subsector, marketing performance depends further on how enterprises differentiate themselves through product attributes, including sustainability claims, that resonate with increasingly discerning consumers (Nurbasari et al., 2026).

Theoretical Foundation

The proposed model draws on Dynamic Capabilities Theory and the Resource-Based View. Dynamic Capabilities Theory holds that firms sustain competitive advantage by reconfiguring internal and external resources in response to changing market conditions, and this reconfiguration capacity has been linked to digital transformation and environmentally oriented performance among small and medium enterprises (Nguyen et al., 2024; Zahoor & Lew, 2022). Within this view, digital entrepreneurial marketing and green

product innovation represent two distinct capabilities that a firm reconfigures in parallel, and their combination represents a higher-order capability that exceeds the sum of its parts. The Resource-Based View complements this perspective by treating entrepreneurial orientation as a strategic resource that amplifies the value created by other capabilities (Campos-Núñez & Serrano-Malebrán, 2024). Labella-Fernández et al. (2026) apply a related logic in showing that entrepreneurial orientation shapes firm performance through green innovation, which supports the treatment of entrepreneurial orientation as a moderating resource in the present model rather than as an antecedent of green product innovation itself. Drawing upon the literature review, this study develops a conceptual framework that explains how digital entrepreneurial marketing and green product innovation contribute to MSME marketing performance. Unlike previous studies that commonly examine digital capability or green innovation as independent strategic factors, this study proposes that both capabilities operate simultaneously and may generate stronger performance outcomes when integrated.

Digital entrepreneurial marketing and green product innovation are positioned as parallel antecedents of MSME marketing performance. Digital entrepreneurial marketing represents a technology-based capability that enables entrepreneurs to identify market opportunities, engage customers, and improve marketing effectiveness through digital platforms. Meanwhile, green product innovation represents a sustainability-oriented capability that allows enterprises to differentiate their products through environmentally responsible practices. Furthermore, this study introduces the interaction between digital entrepreneurial marketing and green product innovation to examine whether the combination of these two capabilities produces an additional effect beyond their individual contributions. The integration of digital capability and green innovation is expected to strengthen MSME competitiveness because digital channels provide mechanisms for communicating sustainability values to consumers.

The study also incorporates Gen Z entrepreneurial orientation as a moderating variable. Gen Z entrepreneurs are characterized by stronger familiarity with digital technologies, innovation orientation, and proactive decision-making. Therefore, their entrepreneurial orientation may influence the extent to which digital and green capabilities are effectively integrated into business strategies. Based on this conceptual reasoning, the research model proposes four hypotheses.

Digital Entrepreneurial Marketing and MSME Marketing Performance

Digital entrepreneurial marketing enables MSMEs to utilize digital technologies, including social media, e-commerce platforms, and online customer engagement tools, to expand market access and strengthen relationships with consumers. Digital capability allows small businesses to respond more quickly to changing market conditions, collect customer information, and implement more effective promotional strategies. Previous studies indicate that digital marketing capability contributes positively to SME performance by improving customer interaction, market reach, and marketing effectiveness (Chinakidzwa & Phiri, 2020; Ukshini et al., 2025; Wulan et al., 2025). Based on these arguments, the following hypothesis is proposed:

H1: Digital entrepreneurial marketing positively influences MSME marketing performance.

Green Product Innovation and MSME Marketing Performance

Green product innovation refers to the development of products, packaging, or production processes that reduce environmental impacts while maintaining consumer value. For food and beverage MSMEs, green innovation can be implemented through environmentally friendly packaging, sustainable ingredient selection, and waste reduction practices. Green innovation provides competitive advantages by creating product differentiation and responding to increasing consumer awareness of environmental sustainability. Previous studies demonstrate that green innovation contributes positively to SME competitiveness and performance (Najib et al., 2022; Zheng et al., 2022; Sulaiman, 2025). Therefore, this study proposes:

H2: Green product innovation positively influences MSME marketing performance.

Interaction between Digital Entrepreneurial Marketing and Green Product Innovation

Although digital entrepreneurial marketing and green product innovation individually contribute to business performance, their combination may generate additional strategic benefits. Digital platforms provide effective channels for communicating the environmental value of green products, while green innovation provides meaningful content that strengthens digital marketing communication. Thus, digital entrepreneurial marketing may enhance the market impact of green innovation by increasing consumer awareness, engagement, and acceptance. This perspective is consistent with Manurung et al. (2025), who found that digital marketing capability and green innovation jointly influence SME performance under dynamic environmental conditions. Accordingly, the third hypothesis is formulated:

H3: The interaction between digital entrepreneurial marketing and green product innovation positively influences MSME marketing performance.

Moderating Role of Gen Z Entrepreneurial Orientation

Entrepreneurial orientation reflects an entrepreneur's tendency toward innovativeness, proactiveness, and risk-taking. In the context of Gen Z entrepreneurs, this orientation is closely associated with digital technology adoption and sustainability-oriented business practices. Entrepreneurs with stronger Gen Z entrepreneurial orientation are expected to be more capable of integrating digital marketing strategies with green innovation because they tend to perceive technology and sustainability as complementary components of modern business development. Previous studies indicate that entrepreneurial orientation strengthens the relationship between entrepreneurial capabilities and business performance (Hasanah et al., 2025; Jalil et al., 2025). Therefore, this study proposes:

H4: Gen Z entrepreneurial orientation strengthens the effect of the interaction between digital entrepreneurial marketing and green product innovation on MSME marketing performance.

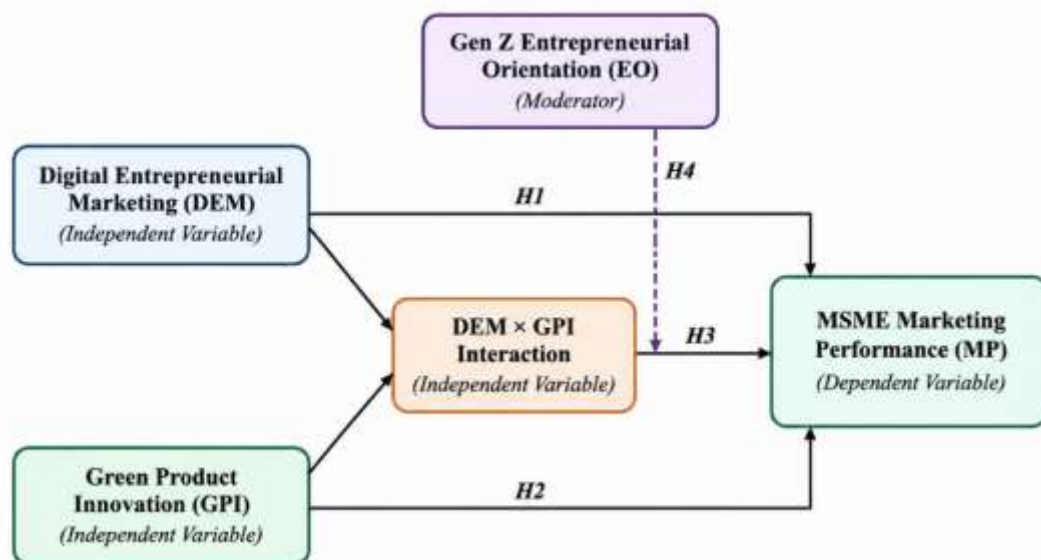


Figure 1. Conceptual Framework

Figure 1 presents the conceptual framework. Digital entrepreneurial marketing and green product innovation are positioned as parallel exogenous constructs, their interaction term is positioned as a third predictor, and MSME marketing performance is positioned as the endogenous construct. Gen Z entrepreneurial orientation is positioned as a moderator acting on the path from the interaction term to marketing performance.

METHOD

This Study Employed A Quantitative Explanatory Research Design To Examine The Relationships Between Digital Entrepreneurial Marketing, Green Product Innovation, Gen Z Entrepreneurial Orientation, And Msme Marketing Performance. The Research Model Was Developed Based On The Dynamic Capability Theory And Resource-Based View (Rbv). Dynamic Capability Theory Explains That Firms Achieve Competitive Advantage Through Their Ability To Adapt, Integrate, And Reconfigure Internal And External Resources In Response To Environmental Changes. In This Study, Digital Entrepreneurial Marketing Represents An Adaptive Capability That Enables Msmes To Respond To Digital Transformation, While Green Product Innovation Represents A Strategic Resource That Creates Differentiation And Sustainability Value. Furthermore, Rbv Emphasizes That Valuable, Rare, And Difficult-To-Imitate Resources Contribute To Superior Performance. Therefore, Gen Z Entrepreneurial Orientation Is Positioned As A Moderating Capability That Strengthens The Relationship Between Digital-Green Capability Integration And Msme Marketing Performance.

The study was conducted among food and beverage MSMEs managed by Gen Z entrepreneurs in Bali, Indonesia. The population was selected because this sector demonstrates intensive consumer interaction, increasing digital adoption, and growing sustainability awareness. The study employed purposive sampling based on four criteria: (1) respondents were owners or founders of food and beverage MSMEs; (2) respondents belonged to the Gen Z generation; (3) businesses had operated for at least one year; and (4) businesses utilized digital platforms for marketing activities. A total of 110 valid questionnaires were collected from MSMEs located in Denpasar, Badung, Gianyar, and other regencies in Bali. All measurement items were assessed using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The constructs were measured reflectively using indicators adapted from previous studies covering digital entrepreneurial marketing, green product innovation, Gen Z entrepreneurial orientation, and MSME marketing performance.

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLLS software. The analysis consisted of two stages: the measurement model evaluation and the structural model evaluation. The measurement model was assessed through indicator loading, Cronbach's Alpha, Composite Reliability (CR), Average Variance Extracted (AVE), and discriminant validity. The structural model was evaluated through coefficient of determination (R^2), predictive relevance (Q^2), path coefficients, t-statistics, and p-values obtained through bootstrapping procedures. Hypothesis testing used a significance level of 5% ($p < 0.05$). The moderating effect of Gen Z entrepreneurial orientation was examined using the interaction term approach in PLS-SEM, where the interaction construct between digital entrepreneurial marketing and green product innovation was multiplied by Gen Z entrepreneurial orientation to predict MSME marketing performance. The moderation hypothesis was supported when the interaction coefficient showed a significant effect based on bootstrapping results. This approach is consistent with RBV, which views entrepreneurial orientation as an intangible strategic resource that enhances the value and effectiveness of other organizational capabilities.

RESULT AND DISCUSSION

Respondent Characteristics

Characteristics	Category	Frequency (n = 110)	Percentage (%)
Gender	Female	64	58.0
	Male	46	42.0
Age Range	21–27 years old	110	100.0
Business Location	Denpasar	30	27.3
	Badung	28	25.5

	Gianyar	22	20.0
	Other Bali Regencies	30	27.2
Business Age	1–3 years	72	65.5
	More than 3 years	38	34.5

Table 2 presents the demographic characteristics of the respondents. The study involved 110 Gen Z entrepreneurs managing food and beverage MSMEs in Bali, Indonesia. Female entrepreneurs represented the majority of respondents (58%), while male entrepreneurs accounted for 42%. This composition indicates the increasing participation of young women in consumer-oriented entrepreneurial activities, particularly within the food and beverage sector.

Regarding age distribution, all respondents were categorized as Gen Z entrepreneurs, ranging from 21 to 27 years old. This characteristic corresponds with the research criteria and reflects the relevance of studying this generation because Gen Z entrepreneurs generally demonstrate high familiarity with digital platforms, social media-based marketing, and technology-enabled business practices. Based on business location, respondents were distributed across major economic areas in Bali, including Denpasar (27.3%), Badung (25.5%), Gianyar (20.0%), and other regencies (27.2%). These areas represent regions with intensive tourism activities and strong consumer interactions. Furthermore, most businesses had operated for one to three years (65.5%), indicating that many respondents were in the early development stage and required strategic capabilities to strengthen competitiveness.

Measurement Model Assessment

The measurement model was assessed prior to the evaluation of the structural model to establish the reliability and validity of the constructs. The assessment comprised convergent validity and discriminant validity. Convergent validity was evaluated using indicator loadings, Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). The measurement model was considered satisfactory when indicator loadings exceeded 0.70, Cronbach's Alpha and CR values were greater than 0.70, and AVE values exceeded 0.50

Convergent Validity and Reliability Test

Table 3 presents the results of the convergent validity and reliability assessment. All measurement indicators achieved loading values above the recommended threshold of 0.70, indicating adequate indicator reliability. In addition, Cronbach's Alpha values ranged from 0.815 to 0.861, while Composite Reliability values ranged from 0.879 to 0.906. These values exceeded the minimum criterion of 0.70, demonstrating satisfactory internal consistency reliability.

Table 3. Convergent Validity and Reliability Results

<i>Construct</i>	<i>Indicator</i>	<i>Outer Loading</i>	<i>Cronbach's Alpha</i>	<i>Composite Reliability (CR)</i>	<i>AVE</i>
<i>Digital Entrepreneurial Marketing (DEM)</i>	DEM1	0.821	0.861	0.906	0.708
	DEM2	0.846			
	DEM3	0.858			
	DEM4	0.839			
<i>Green Product Innovation (GPI)</i>	GPI1	0.798	0.842	0.894	0.681
	GPI2	0.826			
	GPI3	0.849			
	GPI4	0.827			
<i>Gen Z Entrepreneurial Orientation (GZEO)</i>	GZEO1	0.784	0.829	0.887	0.665
	GZEO2	0.809			
	GZEO3	0.837			

<i>DEM × GPI Interaction</i>	GZEO4	0.829			
	INT1	0.773	0.815	0.879	0.649
	INT2	0.798			
	INT3	0.824			
	INT4	0.827			
<i>MSME Marketing Performance (MP)</i>	MP1	0.796	0.847	0.897	0.686
	MP2	0.824			
	MP3	0.846			
	MP4	0.844			

Source: Author's compilation based on research findings (2026)

Discriminant Validity Test

Discriminant validity was assessed using two approaches: the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT). The Fornell–Larcker criterion requires the square root of the Average Variance Extracted (AVE) for each construct to be greater than its correlations with the other constructs. Meanwhile, HTMT values below 0.90 indicate adequate discriminant validity.

Table 4. Fornell–Larcker Criterion

<i>Construct</i>	<i>DEM</i>	<i>GPI</i>	<i>GZEO</i>	<i>INT</i>	<i>MP</i>
<i>DEM</i>	0.841				
<i>GPI</i>	0.522	0.825			
<i>GZEO</i>	0.468	0.491	0.815		
<i>INT</i>	0.574	0.536	0.503	0.806	
<i>MP</i>	0.613	0.587	0.542	0.561	0.828

Source: Author's compilation based on research findings (2026)

As shown in Table 4, the square root of the AVE for each construct, represented by the diagonal values, is greater than its correlations with the other constructs. Specifically, the diagonal values range from 0.806 to 0.841 and exceed the corresponding inter-construct correlations.

Table 5. Heterotrait–Monotrait Ratio (HTMT)

<i>Construct</i>	<i>DEM</i>	<i>GPI</i>	<i>GZEO</i>	<i>INT</i>	<i>MP</i>
<i>DEM</i>	–				
<i>GPI</i>	0.642	–			
<i>GZEO</i>	0.598	0.612	–		
<i>INT</i>	0.704	0.673	0.651	–	
<i>MP</i>	0.756	0.721	0.684	0.702	–

Source: Author's compilation based on research findings (2026)

As presented in Table 5, All HTMT values are below the recommended threshold of 0.90, ranging from 0.598 to 0.756. The highest HTMT value is 0.756 between DEM and MP, which remains below the threshold. Therefore, the HTMT results further confirm that the constructs are empirically distinct and demonstrate satisfactory discriminant validity

Structural Model Assessment

After confirming the reliability and validity of the measurement model, the structural model was evaluated. The assessment included Goodness of Fit, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and hypothesis testing.

Goodness of Fit

The model fit was assessed using the Standardized Root Mean Square Residual (SRMR). The SRMR measures the discrepancy between the observed and model-implied correlations, with values below 0.08 indicating an acceptable model fit. The results of the model fit assessment are presented in Table 6.

Table 6. Model Fit Assessment

<i>Model Fit Criterion</i>	<i>Obtained Value</i>	<i>Recommended Threshold</i>	<i>Decision</i>
<i>SRMR</i>	0.067	< 0.08	Acceptable Model Fit

resented in Table 6, the Standardized Root Mean Square Residual (SRMR) value was 0.067, which is below the recommended Source: Author's compilation based on research findings (2026)

threshold of 0.08. This result indicates that the discrepancy between the observed and model-implied correlations is within an acceptable range. Therefore, the proposed structural model demonstrates an acceptable model fit and is considered appropriate for further structural model assessment.

Coefficient of Determination (R^2)

Table 7. R^2 and Q^2 Results

<i>Endogenous Variable</i>	R^2	Q^2
MSME Marketing Performance	0.612	0.571

Source: Author's compilation based on research findings (2026)

The R^2 value of 0.612 indicates that digital entrepreneurial marketing, green product innovation, the interaction effect between both capabilities, and Gen Z entrepreneurial orientation explain 61.2% of the variance in MSME marketing performance. The remaining 38.8% is explained by other factors outside the proposed model. The Q^2 value of 0.571 indicates strong predictive relevance because the value is greater than zero. Therefore, the model provides meaningful predictive capability for MSME marketing performance.

Effect Size Test (f^2)

The effect size was examined to determine the contribution of each exogenous construct to MSME marketing performance. The f^2 values were interpreted according to Cohen's criteria, where values of 0.02, 0.15, and 0.35 represent small, medium, and large effects, respectively.

Table 8. Effect Size (f^2) Results

<i>Predictor</i>	<i>Endogenous Construct</i>	f^2	<i>Effect Size</i>
<i>Digital Entrepreneurial Marketing (DEM)</i>	MSME Marketing Performance (MP)	0.186	Medium
<i>Green Product Innovation (GPI)</i>	MSME Marketing Performance (MP)	0.154	Medium
<i>DEM × GPI Interaction (INT)</i>	MSME Marketing Performance (MP)	0.112	Small
<i>GZEO × DEM × GPI Interaction</i>	MSME Marketing Performance (MP)	0.086	Small

Source: Author's compilation based on research findings (2026)

The effect size (f^2) was examined to assess the substantive contribution of each predictor to MSME Marketing Performance. Following Cohen's criteria, f^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large effects, respectively. As presented in Table 8, Digital Entrepreneurial Marketing (DEM) showed an f^2 value of 0.186, indicating a medium effect on MSME Marketing Performance. Green Product Innovation (GPI) also demonstrated a medium effect, with an f^2 value of 0.154. Meanwhile, the interaction between Digital Entrepreneurial Marketing and Green Product Innovation (DEM $\times$ GPI) produced an f^2 value of 0.112, indicating a small effect. The moderating interaction involving Gen Z Entrepreneurial Orientation (GZEO $\times$ DEM $\times$ GPI) yielded an f^2 value of 0.086, which also represents a small effect. Overall, the effect-size results indicate that DEM and GPI make relatively stronger substantive contributions to MSME Marketing Performance, whereas the interaction and moderating effects provide smaller but additional contributions to the explanatory power of the model.

Hypothesis Testing

Hypothesis testing was conducted to examine the significance and direction of the relationships proposed in the structural model. The analysis was performed using the bootstrapping procedure in SmartPLS with 5,000 resamples. The evaluation was based on the path coefficient (β), t-statistic, and p-value. A hypothesized relationship was considered statistically significant when the p-value was below 0.05. The results of the hypothesis testing are presented in Table 9.

Table 9. Hypothesis Testing Results

<i>Hypothesis</i>	<i>Relationship</i>	<i>Path Coefficient (β)</i>	<i>t-Statistic</i>	<i>p-Value</i>	<i>Decision</i>
H1	DEM $\rightarrow$ MP	0.284	2.870	0.004	Supported
H2	GPI $\rightarrow$ MP	0.246	2.510	0.012	Supported
H3	DEM $\times$ GPI $\rightarrow$ MP	0.221	2.330	0.020	Supported
H4	GZEO $\times$ (DEM $\times$ GPI) $\rightarrow$ MP	0.198	2.190	0.029	Supported

Source: Author's compilation based on research findings (2026)

Note: DEM = Digital Entrepreneurial Marketing; GPI = Green Product Innovation; GZEO = Gen Z Entrepreneurial Orientation; MP = MSME Marketing Performance.

As presented in Table 9, all four hypotheses are supported, as all relationships show positive path coefficients and p-values below 0.05. Digital Entrepreneurial Marketing (DEM) has the strongest effect on MSME Marketing Performance ($\beta = 0.284$; $p = 0.004$), followed by Green Product Innovation ($\beta = 0.246$; $p = 0.012$) and the interaction between DEM and GPI ($\beta = 0.221$; $p = 0.020$). Furthermore, Gen Z Entrepreneurial Orientation significantly strengthens the effect of digital-green capability integration on marketing performance ($\beta = 0.198$; $p = 0.029$). Overall, these findings confirm that digital capability, green innovation, their integration, and Gen Z entrepreneurial orientation play significant roles in improving MSME marketing performance.

DISCUSSION

The findings of this study demonstrate that MSME marketing performance is shaped by the simultaneous role of digital capability, sustainability-oriented innovation, and entrepreneurial orientation. All four proposed hypotheses were supported, indicating that Digital Entrepreneurial Marketing (DEM) and Green Product Innovation (GPI) contribute directly to MSME Marketing Performance (MP), while the integration of DEM and GPI generates an additional positive effect. Furthermore, Gen Z Entrepreneurial Orientation (GZEO) strengthens the effectiveness of this digital-green capability integration. These findings provide empirical support for the proposed integration of Dynamic Capability Theory and the Resource-Based View (RBV) in explaining marketing performance among Gen Z-led food and beverage MSMEs in Bali.

Digital Entrepreneurial Marketing and MSME Marketing Performance

The results support H1, demonstrating that Digital Entrepreneurial Marketing has a positive and significant effect on MSME Marketing Performance ($\beta = 0.284$; $t = 2.870$; $p = 0.004$). Among the relationships examined in the model, DEM has the largest path coefficient, indicating the importance of digital marketing capability in explaining marketing performance. This finding suggests that digital entrepreneurial marketing provides MSMEs with more than an additional promotional channel. Digital platforms enable entrepreneurs to interact directly with customers, identify market opportunities, respond to changing consumer preferences, and extend their market reach beyond conventional geographical boundaries. This capability is particularly relevant for food and beverage MSMEs in Bali, where social media, online marketplaces, and digital payment systems facilitate frequent interactions between businesses and consumers.

The finding is consistent with Chinakidzwa and Phiri (2020), who demonstrated that digital marketing capabilities improve market performance, and with Ukshini et al. (2025), whose meta-analysis identified a consistent positive association between digital marketing strategies and SME performance. The result is also consistent with Indonesian evidence showing that digital marketing contributes to MSME sales and marketing performance, particularly when combined with innovation-related capabilities. From the perspective of Dynamic Capability Theory, DEM can therefore be interpreted as an adaptive organizational capability. Its strategic value lies not merely in possessing digital technology but in the entrepreneur's ability to use digital resources to sense market opportunities, engage customers, and continuously adjust marketing activities in response to market changes. This distinction is important because digital adoption alone does not necessarily generate superior performance; rather, performance improvements depend on how effectively digital resources are transformed into market-oriented activities.

Green Product Innovation and MSME Marketing Performance

The results also support H2, showing that Green Product Innovation positively and significantly affects MSME Marketing Performance ($\beta = 0.246$; $t = 2.510$; $p = 0.012$). This result demonstrates that environmentally oriented product innovation can function as a source of marketing value rather than merely as a response to environmental concerns. For food and beverage MSMEs, green product innovation can be manifested through environmentally friendly packaging, sustainable ingredient selection, waste reduction, and more responsible production processes. Such practices can differentiate products from competing alternatives and strengthen consumers' perceptions of the value offered by MSMEs. Consequently, sustainability becomes part of the firm's market positioning and value proposition rather than an activity separated from marketing strategy.

This result is consistent with previous studies demonstrating the strategic relevance of green innovation. Najib et al. (2022) found that organizational capability and market perspective encourage green innovation among Indonesian food-processing SMEs, while Wibowo et al. (2025) demonstrated the role of green innovation in strengthening competitive advantage. Other studies cited in the manuscript similarly associate green innovation with business sustainability and marketing performance. From the Resource-Based View, green product innovation can be regarded as a strategic organizational resource capable of creating differentiated customer value. The present finding therefore extends the interpretation of sustainability from an environmental obligation to a market-oriented strategic resource. For Gen Z-led MSMEs, the ability to translate environmental responsibility into visible product attributes can contribute to stronger market positioning and performance.

Interaction between Digital Entrepreneurial Marketing and Green Product Innovation

The support for H3 represents an important finding of this study. The interaction between DEM and GPI has a positive and significant effect on MSME Marketing Performance ($\beta = 0.221$; $t = 2.330$; $p = 0.020$). Thus, digital capability and green innovation do not operate solely as independent determinants of marketing performance; their integration creates an additional performance effect. This interaction can be explained by the complementary nature of the two capabilities. Green product innovation creates environmentally relevant value, whereas digital entrepreneurial marketing provides mechanisms through which that value can be communicated effectively to consumers. An environmentally responsible product may have limited marketing impact when consumers are unaware of its sustainability attributes. Digital channels allow MSMEs to make those attributes visible through product information, visual communication, storytelling, customer engagement, and online promotional activities.

Conversely, digital marketing becomes strategically more meaningful when MSMEs have distinctive product attributes to communicate. Green innovation therefore provides substantive content for digital marketing, while digital capability increases the market visibility of green innovation. This complementarity explains why their combined implementation can produce performance outcomes beyond their individual effects. The result is consistent with Manurung et al. (2025), who reported that digital marketing capability and green innovation jointly influence SME performance under dynamic environmental conditions. However, the present study develops this relationship further by explicitly treating $DEM \times GPI$ as an interaction effect, rather than examining digital marketing and green innovation only as separate predictors. The finding also provides support for Dynamic Capability Theory. Competitive advantage does not necessarily result from possessing isolated capabilities; it can emerge from the ability to integrate and reconfigure complementary capabilities. In this study, the integration of digital and sustainability-oriented capabilities represents such a configuration, allowing MSMEs to connect technological market access with environmentally differentiated value creation. This provides empirical support for the theoretical reasoning developed in the conceptual framework.

Moderating Role of Gen Z Entrepreneurial Orientation

The findings further support H4, demonstrating that Gen Z Entrepreneurial Orientation positively and significantly strengthens the relationship between digital-green capability integration and MSME Marketing Performance ($\beta = 0.198$; $t = 2.190$; $p = 0.029$). This finding indicates that the benefits generated by combining digital marketing and green innovation depend partly on the entrepreneurial characteristics of the business owner. Entrepreneurs characterized by stronger innovativeness, proactiveness, and risk-taking are more likely to identify opportunities arising from technological and sustainability trends and to experiment with new ways of integrating these capabilities. Thus, possessing digital technology and implementing green innovation may not be sufficient in themselves. Entrepreneurial orientation determines, at least partly, how effectively these resources are configured and converted into marketing outcomes.

This interpretation is especially relevant to the Gen Z context. The manuscript conceptualizes Gen Z entrepreneurs as exhibiting strong familiarity with digital technologies and openness toward sustainability-oriented practices. Rather than perceiving digitalization and environmental sustainability as independent business initiatives, entrepreneurs with stronger entrepreneurial orientation may be more capable of integrating them within a unified market strategy. The finding is consistent with Hasanah et al. (2025), who found that entrepreneurial orientation contributes to marketing performance among Gen Z entrepreneurs through entrepreneurial resilience, and with Jalil et al. (2025), who identified links between digital knowledge capabilities and green entrepreneurial orientation among younger entrepreneurs. From an RBV perspective, this result supports the treatment of entrepreneurial orientation as an intangible strategic resource that enhances the value generated from other organizational capabilities. The contribution of GZEO is therefore not limited to having a direct influence on performance. Instead, its strategic importance lies in strengthening the firm's ability to convert integrated digital and green capabilities into superior marketing outcomes. This supports the study's decision to position GZEO as a boundary condition in the proposed model.

Theoretical and Managerial Implication

Taken together, the findings provide an integrated explanation of MSME marketing performance. The results suggest that superior marketing performance does not arise solely from digital adoption or green innovation in isolation. Rather, it emerges from the configuration of digital capability, sustainability-oriented innovation, and entrepreneurial orientation. This supports Dynamic Capability Theory by demonstrating the importance of integrating and reconfiguring complementary organizational capabilities and extends the RBV by showing that entrepreneurial orientation can amplify the value generated by these capabilities. The findings also have practical implications for Gen Z-led food and beverage MSMEs. Entrepreneurs should avoid treating digital marketing and sustainability as separate strategic programs. Green product attributes should be actively incorporated into digital communication, while digital channels should be used to communicate sustainability-related value to consumers. At the same time, entrepreneurial development initiatives should strengthen innovativeness, proactiveness, and opportunity recognition so that young entrepreneurs can effectively combine technological and sustainability resources. For policymakers and MSME support institutions, these findings imply that business development programs should move

beyond stand-alone digital marketing training. Programs aimed at young entrepreneurs would benefit from integrating digital capability development, green product innovation, and entrepreneurial capability development. Such an integrated approach is more consistent with the empirical finding that the combined configuration of these resources contributes to MSME marketing performance. This implication is also consistent with the practical direction identified in the manuscript's conclusion.

CONCLUSION AND SUGGESTIONS

This study concludes that digital entrepreneurial marketing and green product innovation are important strategic capabilities that enhance MSME marketing performance. The findings demonstrate that digital entrepreneurial marketing has a positive and significant effect on marketing performance, indicating that the ability of MSMEs to utilize digital platforms, engage customers, and adapt marketing activities through digital channels contributes to stronger market outcomes. Furthermore, green product innovation was found to positively influence MSME marketing performance. This finding highlights that sustainability-oriented practices, such as environmentally friendly product development, sustainable packaging, and waste reduction, can create differentiation advantages and increase consumer value. Therefore, green innovation should not be viewed only as an environmental responsibility but also as a strategic marketing capability.

The study also confirms that the interaction between digital entrepreneurial marketing and green product innovation generates additional benefits beyond their individual effects. This finding indicates that digital transformation and sustainability innovation should be implemented simultaneously because digital platforms provide effective channels for communicating the value of green products to consumers. Moreover, Gen Z entrepreneurial orientation strengthens the relationship between digital-green capability integration and MSME marketing performance. This finding suggests that entrepreneurial characteristics, including innovativeness, proactiveness, and openness toward technological change, play an important role in maximizing the value of digital and sustainability capabilities.

Theoretically, this study contributes to the literature by extending the Dynamic Capability Theory and Resource-Based View. The findings demonstrate that competitive advantage among MSMEs emerges not only from possessing individual resources but also from the ability to integrate technological capabilities, sustainability innovation, and entrepreneurial orientation. From a practical perspective, MSME development programs should move beyond conventional digital marketing training by incorporating sustainability innovation and entrepreneurial capability development. Policymakers, business support institutions, and entrepreneurship programs should encourage young entrepreneurs to adopt integrated digital and green strategies to improve long-term competitiveness.

Despite these contributions, this study has several limitations. First, the research employed a cross-sectional design, which limits the ability to examine changes in MSME performance over time. Second, the study focused only on food and beverage MSMEs in Bali, which may limit the generalizability of the findings to other sectors and regions. Future studies are encouraged to employ longitudinal approaches, examine broader MSME sectors, and include additional variables such as financial capability, institutional support, and market orientation.

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