

Green Entrepreneurship in MSMEs: Marketing Challenges and Opportunities in the Context of Sustainability

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Abstract

This study aims to analyze the influence of Green Marketing Strategies (GMS), Environmental Awareness (EA), and Government and Institutional Support (GIS) on Green Entrepreneurship Readiness (GER) among MSME actors in Nagari Sungai Batang, Agam Regency, West Sumatra. The research adopts a quantitative approach using Structural Equation Modeling – Partial Least Squares (SEM-PLS) analysis method. Data were collected through questionnaires from 60 MSME actors divided into three sectors: culinary, handicrafts, and agrotourism. Additionally, the Multi-Group Analysis (PLS-MGA) technique was employed to identify differences in influence across sectors. The results show that the three exogenous variables GMS, EA, and GIS simultaneously have a significant effect on GER, with an R^2 value of 0.62. Environmental Awareness emerges as the most influential variable. The PLS-MGA analysis revealed significant differences based on business sectors. The culinary and craft sectors show strong influences from GMS and EA, while the agrotourism sector is more affected by GIS. These findings highlight the importance of sector-specific and contextual policy approaches in empowering MSMEs through green entrepreneurship. This research contributes to the development of green entrepreneurship literature and provides an empirical basis for government and supporting institutions to design more adaptive programs in face of the challenges and opportunities of green marketing. Collaborative efforts among business actors, educational institutions, and local stakeholders are necessary to strengthen MSME readiness in facing an increasingly sustainability-oriented economic transition.

Keywords: Green Marketing Strategies, Environmental Awareness, Government Support, Green Entrepreneurship, MSMEs, SEM-PLS, Sustainability

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1. Introduction

The paradigm shift in global business practices currently indicates a move towards a sustainable economy that emphasizes environmental preservation and social welfare. The concept of green entrepreneurship emerges as an integrative solution that combines economic success with environmental responsibility in entrepreneurial activities (Dean & McMullen, 2007). In Indonesia, awareness of green entrepreneurship has begun to grow alongside increasing urgency regarding climate change and natural resource degradation (Setyawati et al., 2021). MSME actors, which form the backbone of the national economy, are increasingly directed to operate sustainably. Indonesian MSMEs account for more than 99% of all business units and employ over 97% of the national workforce (Ministry of Cooperatives and SMEs RI, 2022). Given their scale and significant role, the transformation of MSMEs towards sustainable practices is a crucial element in supporting the national green development agenda. However, implementing green business practices still faces various challenges, especially in marketing green products, which requires specific strategies to gain market acceptance (Susanti & Permana, 2019).

One of the main issues in developing green entrepreneurship is the limited understanding among business actors of the sustainability concept itself. Across various regions of Indonesia, including West Sumatra, most MSME actors still focus on short-term economic survival without considering the environmental impacts of their business activities (Wulandari et al., 2020). This results in low adoption of environmentally friendly practices in production and marketing. Agam Regency, particularly Nagari Sungai Batang, has significant potential for developing sustainability-based MSMEs. The area is known as a hub for organic coffee, bamboo crafts, and non-timber forest products that

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have been traditionally managed by local communities. These traditional practices possess strong elements of sustainability but have not yet been systematically integrated into modern entrepreneurial models (Sari et al., 2021).

The main challenge faced by green MSMEs in Nagari Sungai Batang is limited market access and conventional marketing strategies. Eco-friendly products from this region have not yet gained strong competitiveness in broader markets due to weak branding, packaging, and consumer education about the green value of these products (Yulida & Putra, 2023). Meanwhile, global consumers increasingly value products with sustainability attributes. Marketing strategies within green entrepreneurship require approaches different from conventional marketing. According to Leonidou et al. (2015), green marketing is not just about selling products but also about raising awareness and educating consumers about the importance of environmentally conscious consumption. Rural MSME actors often lack understanding of how to communicate sustainability values effectively in their promotions.

One promising solution is the integration of digital marketing into green product promotion strategies. Digital technology can assist MSMEs in communicating their environmentally friendly practices more effectively and reaching wider markets without relying on complex physical distribution networks (Rahmawati & Nur, 2022). However, adopting this technology remains a challenge in areas like Nagari Sungai Batang, which has limited digital infrastructure. Previous studies have shown that the success of green entrepreneurship is not only determined by product innovation but also by the entrepreneurs' ability to understand market dynamics and craft narratives emphasizing social and ecological impacts (Triguero et al., 2016). Therefore, it is essential to conduct a deep exploration of how MSME actors in this region perceive opportunities and challenges in applying green marketing principles.

This study is relevant due to the scarcity of empirical research on developing green entrepreneurship at the local level, especially in resource-rich areas like West Sumatra. Most existing studies focus on large cities or industrial regions, whereas villages with tourism potential and traditional crafts often hold sustainable practices that could serve as models for green economic development (Hasibuan & Indrawati, 2020). This research approach aims to understand contextually the conditions of MSMEs in Nagari Sungai Batang by exploring perceptions, strategies, and obstacles faced in implementing green entrepreneurship principles. A qualitative approach is highly appropriate for uncovering value dimensions, cultural practices, and local wisdom that are not visible through statistical data (Sugiyono, 2021).

Besides the challenges, this research will also explore various opportunities that can be utilized by MSMEs in this area, such as potential synergy with corporate social responsibility (CSR) programs, support from local government, and the tourism market with a preference for sustainable local products (Putri & Nugraha, 2023). This is important for designing empowerment strategies that are based on local needs and contexts. Initiatives of green entrepreneurship at the village level can also serve as examples of successful inclusive and equitable economic development. Involving local communities as the main actors in developing green businesses can strengthen the social aspects of sustainable development (Mukti et al., 2020). This underscores the importance of synergy between MSME actors, government, and consumers in creating a green business ecosystem. On a global scale, green entrepreneurship has become part of strategies to reduce carbon emissions and achieve the Sustainable Development Goals (SDGs), particularly goals 8 (decent work and economic growth) and 12 (responsible consumption and production) (United Nations, 2023). Therefore, it is essential for local governments and business actors in Agam to adopt policies and strategies aligned with these global frameworks.

When discussing the transition of MSMEs to green entrepreneurship, one of the main obstacles is the limited environmental and sustainability literacy among entrepreneurs. Many MSMEs in rural areas like Nagari Sungai Batang are not yet familiar with principles such as the circular economy, energy efficiency, or waste utilization as added value (Prasetyo & Kistanti, 2021). This becomes a barrier to creating green innovations that are not only environmentally friendly but also economically profitable. Meanwhile, support from local governments and higher education institutions has not yet been optimally integrated to strengthen green entrepreneurship. Collaboration between universities and MSMEs can act as a catalyst in providing training, product research, and digital marketing based on sustainability (Hadi & Syamsudin, 2020). In areas like Kabupaten Agam, this potential is very open, considering the presence of academic institutions that can serve as strategic partners.

Another fundamental issue is the lack of standards and certification for green MSME products. Entrepreneurs in Nagari Sungai Batang who already use local raw materials, chemical-free processes, or natural packaging have not yet gained formal recognition that could enhance the product's market value (Nugroho et al., 2023). In fact, labeling and environmental certifications are often crucial factors in building consumer trust. From the consumer's perspective, there is a knowledge gap between the desire to buy environmentally friendly products and understanding the local products that already embody such values. According to a survey by Hasanah et al. (2022), most Indonesian

consumers support the concept of sustainability but find it difficult to identify truly green products. This indicates the importance of communication strategies that emphasize environmental education and narratives.

Not only from the perspective of entrepreneurs and consumers, but challenges also arise from the conservative structure of the local market. Green MSME products often struggle to compete with cheaper mass-produced products that are not environmentally friendly (Fadilah & Hartono, 2019). Without fiscal incentives, promotional subsidies, or sustainability campaigns from the government, the growth of green MSMEs in an unfair market ecosystem will be difficult. However, the potential of the green economy in Nagari Sungai Batang cannot be ignored. The natural beauty of Lake Maninjau, which is a tourist attraction, can be utilized as a platform to promote sustainable MSME products, especially to tourists who care about the environment (Azhari & Ramadhani, 2024). Innovative educational tourism packages based on green products can be a strategy to stimulate local economic growth sustainably. Therefore, this research is crucial to comprehensively map the conditions, challenges, and marketing potentials faced by green MSMEs in Nagari Sungai Batang. The findings from this study are expected to serve as references for local policy-making and to foster a greener and more sustainable entrepreneurial ecosystem at the village and district levels.

This study is expected to contribute both theoretically and practically in strengthening the literature on green entrepreneurship, especially in the MSME sector. The results can serve as a basis for developing policies, empowerment programs, and eco-friendly entrepreneurship training curricula in rural areas (Harahap & Farida, 2019). With this background, the research becomes significant in addressing the need for sustainable business models at the local level. Focusing on the challenges and marketing opportunities in green entrepreneurship in Nagari Sungai Batang is an important initial step toward building an economic approach that is not only financially profitable but also environmentally responsible and future-oriented.

2. Literature Review

2.1. Concept of Green Entrepreneurship

Green entrepreneurship is a concept that combines traditional entrepreneurial goals with a focus on environmental sustainability. According to Gast et al. (2017), green entrepreneurs not only pursue economic profits but also strive to minimize negative impacts on the environment and society. This activity encompasses various sectors, from eco-friendly products and clean production processes to waste utilization as an economic resource. In an era of climate crisis and ecosystem degradation, the role of green entrepreneurship becomes increasingly important to promote more sustainable development. A distinctive characteristic of green entrepreneurship lies in innovation that prioritizes resource efficiency and the sustainability of the product lifecycle. Schaltegger and Wagner (2011) emphasize that green entrepreneurs tend to make business decisions based on environmental ethical principles and consider ecological footprints throughout the entire value chain. This makes them different from conventional business actors who focus solely on cost efficiency. Therefore, green entrepreneurship requires a leadership approach that is not only visionary but also highly environmentally conscious.

In the context of MSMEs, green entrepreneurship can manifest through organic waste management, renewable energy utilization, and eco-friendly packaging innovations. Unfortunately, the adoption of green business models among MSMEs remains low due to limited understanding, technological access, and minimal incentives (Sahoo, 2021). However, with growing consumer trends toward sustainable products, opportunities for green entrepreneurship within the MSME sector are expanding, especially if supported by public policies that favor sustainability and foster local innovation ecosystems. An essential aspect of developing green entrepreneurship is creating double bottom line value—both financial success and positive environmental impact. According to Belz and Binder (2017), sustainable business models must integrate green values into operational and marketing strategies. In practice, this requires synergy among entrepreneurs, consumers, and stakeholders so that sustainability principles are not mere slogans but are realized through tangible actions.

In Indonesia, the concept of green entrepreneurship is increasingly gaining attention from academics and policymakers due to its potential in supporting SDG agendas. Nonetheless, contextual research exploring local dynamics—such as cultural values, community economic systems, and institutional support structures—is still needed (Widyastuti & Asmara, 2023). Such studies are crucial because entrepreneurial practices in areas like Nagari Sungai Batang have unique characteristics that cannot be directly equated with urban or industrial centers.

2.2. *The Role of MSMEs in Sustainable Development*

MSMEs play a strategic role in economic development, especially in developing countries like Indonesia. Besides being the largest employment providers, MSMEs contribute to economic equality in remote and rural areas. In the context of sustainable development, MSMEs are vital because they can produce locally, utilize local resources, and support microeconomic resilience (Tambunan, 2019). Thus, they have the potential to be drivers of sustainable development if empowered properly. Many MSMEs in Indonesia already implement traditional eco-friendly practices, even if not formally recognized as green entrepreneurship. Examples include using natural raw materials, energy-efficient production processes, and waste reuse in crafts. This potential needs to be strengthened through systematic approaches, training, and supportive regulations that promote sustainability principles (Sihombing & Nugroho, 2020). The global shift toward organic and ethical consumption presents significant opportunities for sustainable MSMEs to compete effectively.

Sustainable development within the MSME sector encompasses not only environmental impacts but also social and economic dimensions. MSMEs oriented toward sustainability can create decent jobs, increase participation of women and marginalized groups, and strengthen local economies without overexploiting natural resources (Utami et al., 2022). Therefore, integrating green economy principles into MSME development strategies is a critical step toward achieving SDGs, particularly goals 8 (decent work and economic growth) and 12 (responsible consumption and production). However, challenges remain in embedding sustainability concepts among rural MSMEs. Many entrepreneurs do not yet recognize the economic value of green practices and see them as additional burdens. Educational approaches and incentives are needed to help local business actors internalize sustainability principles into their business models (Yunita & Widodo, 2021). Successful approaches in some regions include integrating CSR programs and community-based training.

Contextual studies like in Nagari Sungai Batang are vital for understanding how local character, work culture, and societal value systems influence the adoption of sustainability principles in MSMEs. According to Rahardian and Putra (2023), it is important to consider local values in empowering MSMEs so that sustainability strategies are not merely technical adoptions but become part of the business culture. This makes efforts to promote sustainable development through MSMEs more effective and sustainable over the long term.

2.3. *Strategies for Marketing Environmentally Friendly Products*

Green marketing, or environmentally friendly product marketing, is an approach that emphasizes sustainability values in the promotion and distribution processes. According to Polonsky and Rosenberger (2021), green marketing strategies aim not only to increase sales but also to educate consumers about the positive environmental impacts of products. In the context of MSMEs, the implementation of these strategies remains limited due to resource constraints and a lack of understanding of how to communicate sustainability values effectively. The main elements of green marketing include eco-friendly packaging, transparency regarding raw materials, and clear, verifiable sustainability information. Modern consumers tend to seek products that are not only high quality but also contribute to environmental preservation (Nguyen et al., 2019). Therefore, it is essential for MSME actors to build a strong brand positioning as sustainable businesses. The adoption of environmental certifications, eco-labels, and social narratives can significantly enhance consumer trust.

However, many rural MSMEs are not yet capable of implementing these strategies optimally. This is due to limited digital literacy, lack of access to design and promotion technology, and low capacity in storytelling about sustainable products (Yusriadi et al., 2020). In reality, the power of green marketing heavily depends on the ability to communicate the ecological value of products to increasingly environmentally conscious consumers. One promising approach is value-based marketing, where businesses not only sell products but also convey the social and ecological missions behind them. According to Puspasari and Ghozali (2022), this strategy is more effective in attracting millennial and Generation Z consumers, who tend to be responsive to environmental and social justice issues. For MSMEs in areas like Nagari Sungai Batang, this approach can be used to strengthen local image and differentiate themselves in a highly competitive market.

Digital marketing also plays a crucial role in the success of green marketing strategies. With relatively low costs, MSMEs can utilize social media, green marketplaces, and websites to reach broader and more targeted audiences (Hartati et al., 2021). However, coaching and training are necessary so that business actors can use digital media strategically and consistently. With the right approach, marketing environmentally friendly products can become a sustainable competitive advantage for MSMEs in the green economy era.

2.4. Challenges and Barriers in Implementing Green Entrepreneurship

The implementation of green entrepreneurship, especially in the MSME sector, faces various structural and cultural challenges. One of the main obstacles is the low level of environmental and sustainability literacy among micro-entrepreneurs. Many MSMEs do not yet understand the economic value of applying green principles in their operations and still view it as an additional cost rather than a long-term investment (Rini & Nugroho, 2021). This hampers the widespread and consistent adoption of environmentally friendly approaches. Additionally, limited access to green technology and capital remains a significant barrier. MSMEs in rural areas like Nagari Sungai Batang often lack facilities that support energy efficiency or waste management. Moreover, limited access to financing for sustainable innovation worsens the gap between conventional and green entrepreneurs (Wulandari & Adhiatma, 2022). This highlights the need for affirmative policies to support MSMEs aiming to transition toward green entrepreneurship.

Another challenge comes from the market side. Many MSMEs struggle to enter the green market due to the absence of clear standards, labeling, and regulations concerning sustainable products. Currently, consumers increasingly demand transparency and proof of environmental claims made by businesses (Aprilia et al., 2020). Without affordable and accessible local certification systems for MSMEs, the competitiveness of green products remains limited and confined to certain segments. Institutional barriers are also a significant concern. Collaboration between local governments, universities, and business communities is often not well-established. According to Firdaus and Heryanto (2023), one weakness in developing green MSMEs in the regions is the lack of an integrated cross-sector platform to support sustainable business transformation. Without a mutually reinforcing ecosystem, MSME actors will find it difficult to overcome various obstacles during the green transition process.

Finally, psychological challenges such as resistance to change and a tendency to stick to traditional methods also slow down the adoption of green entrepreneurship. Many MSMEs feel comfortable with conventional business methods and perceive sustainability as an overly abstract concept. Therefore, it is crucial to develop a grounded and contextual approach so that entrepreneurs can see the immediate benefits of environmentally friendly practices, both socially, ecologically, and economically.

3. Research Method and Materials

3.1. Types and Research Approach

This study employs a comparative quantitative approach using Structural Equation Modeling – Partial Least Squares (SEM-PLS) analysis technique. This approach aims to examine the influence and comparison between variables such as green marketing strategies, environmental awareness, and institutional support on the readiness of green entrepreneurship among MSME actors, comparing across different business types. SEM-PLS was chosen because it can handle non-normal data, small to medium sample sizes, and complex latent variables (Hair et al., 2019).

3.2. Research Location and Population

The research was conducted in Nagari Sungai Batang, Tanjung Raya District, Agam Regency, West Sumatra. This location was selected because it has potential MSMEs based on local natural resources, such as organic coffee, bamboo crafts, and agro-tourism products, which are relevant to the concept of green entrepreneurship. The population in this study includes all active MSME actors in Nagari Sungai Batang who have been operating for at least one year and are registered in the data of the Agam Regency Cooperative Office.

3.3. Sampling Technique and Sample Size

The sampling technique used is purposive sampling with the following criteria: (a) MSME actors engaged in culinary, craft, or agro-tourism sectors; (b) having been in business for at least 1 year; and (c) willing to fill out the research questionnaire. The targeted sample size is 60 respondents, which aligns with the characteristics and accessibility of the population. This number meets the minimum requirements for SEM-PLS (5–10 respondents per indicator) for small to medium scale models (Hair et al., 2021).

3.4. Instruments and Data Collection Techniques

Data were collected using closed questionnaires with a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). The questionnaires were developed based on theories and empirical journals concerning green marketing (Polonsky, 2021), environmental awareness (Sahoo, 2021), and institutional support (Wulandari & Adhiatma, 2022). The instrument consists of 5 latent constructs with a total of 20 indicators:

Table 1. Variable Indicators and Measurement Scales

Variable	Operational Definition	Indicators
Green Marketing Strategies (GMS)	Strategies emphasizing sustainability and eco-friendliness in product promotion	GMS1: Promotion highlights eco-friendly advantages GMS2: Packaging uses recycled/eco-friendly materials GMS3: Presence of eco-label/certification GMS4: Promotion via environmentally friendly digital media
Environmental Awareness (EA)	Level of awareness among entrepreneurs regarding the environmental impact of their business activities	EA1: Understanding environmental impacts of production processes EA2: Responsible waste management efforts EA3: Concern about climate change and environmental issues EA4: Willingness to modify business practices for sustainability
Government and Institutional Support (GIS)	Support from government and institutions in the form of regulations, training, and facilities to promote green entrepreneurship	GIS1: Has attended eco-friendly business training/outreach GIS2: Receives support facilities or subsidies from government agencies GIS3: Mentoring or assistance from local institutions GIS4: Regional regulations encourage sustainable practices
Green Entrepreneurship Readiness (GER)	The preparedness of MSME actors to adopt green entrepreneurship practices	GER1: Capable of implementing eco-friendly practices GER2: Designs products with sustainability in mind GER3: Willing to develop environmentally oriented businesses GER4: Open to innovation in waste management/green practices GER5: Able to adapt to green market demands GER6: Allocates resources for eco-friendly investments
Business Type (BT)	Categorization of the type of business as a comparison variable	BT1: Business type: 1 = Culinary, 2 = Craft, 3 = Agro-tourism (categorical variable)

3.5. Data Analysis Techniques

Data analysis was conducted using the latest version of SmartPLS software. The analysis procedures include:

- 1) Outer model testing: reliability tests (Cronbach's Alpha, Composite Reliability), convergent validity (Average Variance Extracted/AVE), and discriminant validity (Fornell – Larcker & HTMT).

- 2) Inner model testing: analyzing relationships among latent variables using R^2 (coefficient of determination), Q^2 (predictive relevance), f^2 (effect size), as well as path coefficient values (t-statistic & p-value) using 5,000-sample bootstrapping.
- 3) PLS-MGA (Multi-Group Analysis) is used to compare the relationships among variables across different types of MSMEs: culinary, craft, and agrotourism.

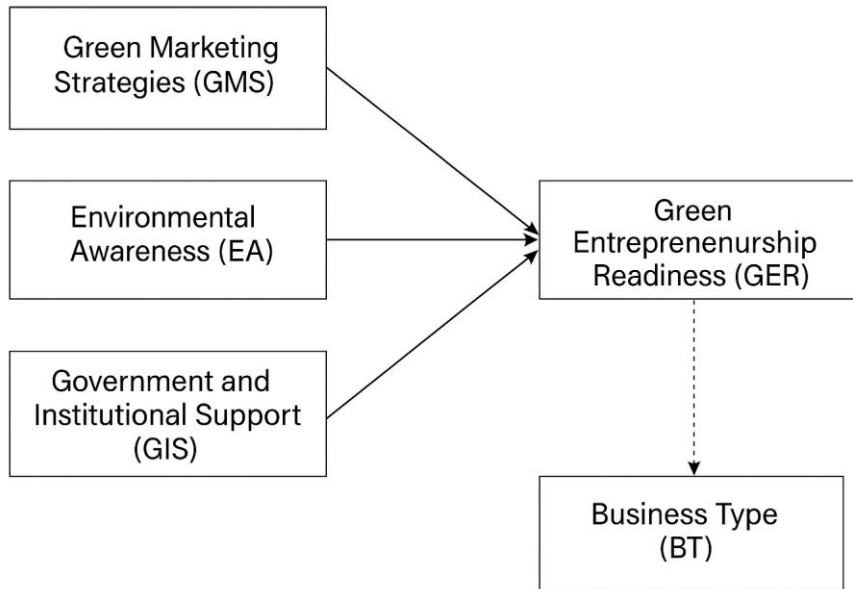


Figure 1. Research Framework Diagram

The table 2 shown the research hypotheses based on your SEM-PLS model framework using a comparative quantitative approach.

Table 2. Research Hypotheses Table

Code	Hypothesis	Relationship Between Variables	Type of Relationship
H1	Green Marketing Strategies (GMS) positively influence Green Entrepreneurship Readiness (GER)	GMS → GER	Direct (positive)
H2	Environmental Awareness (EA) positively influences GER	EA → GER	Direct (positive)
H3	Government and Institutional Support (GIS) positively influences GER	GIS → GER	Direct (positive)
H4	There are differences in the effects of GMS, EA, and GIS on GER based on the type of MSME (culinary, craft, agrotourism)	GMS, EA, GIS → GER (moderated by BT)	Moderation (comparative)

4. Results and Discussion

4.1. Result

4.1.1. Descriptive Statistics of Respondents

This study involved 60 respondents who are MSME entrepreneurs in Nagari Sungai Batang. The following describes their characteristics:

Table 3. Respondent Profile by Gender

Gender	Frequency (n)	Percentage (%)
Male	23	38.3%
Female	37	61.7%
Total	60	100%

Tabel 4. Respondent Profile by Age

Age Range	Frequency (n)	Percentage (%)
< 30 years	12	20.0%
30–39 years	28	46.7%
40–49 years	15	25.0%
≥ 50 years	5	8.3%
Total	60	100%

Table 5. Respondent Business Tenure

Business Duration	Frequency (n)	Percentage (%)
1–3 years	18	30.0%
4–6 years	25	41.7%
≥ 7 years	17	28.3%
Total	60	100%

Table 6. Types of MSME Businesses Respondents Engage In

Business Type	Frequency (n)	Percentage (%)
Culinary	21	35.0%
Handicrafts	19	31.7%
Agrotourism	20	33.3%
Total	60	100%

The descriptive results indicate that the majority of respondents are women (61.7%), while men constitute 38.3%. This reflects that the characteristics of MSME actors in Nagari Sungai Batang are predominantly female, especially in the culinary and handicraft sectors. The dominance of women suggests that entrepreneurship in this area is not only an economic activity but also part of strategies for family empowerment and household economic development.

In terms of age, the majority of respondents are in the 30–39 years age group (46.7%), followed by the 40–49 years group (25%). This productive age group indicates that MSME actors in Nagari Sungai Batang are mostly in their prime working years and have high potential for adopting innovations, including green entrepreneurship concepts. Meanwhile, a small proportion of respondents (8.3%) are over 50 years old, who generally run conventional businesses and may face greater challenges in adopting green technologies and digital marketing.

Regarding types of businesses, there is a relatively balanced distribution among three main sectors: culinary (35%), handicrafts (31.7%), and agrotourism (33.3%). This composition provides a strong basis for comparative analysis using the PLS-MGA approach, allowing for testing differences in the influence of research variables based on business type. These three sectors have different environmental characteristics and marketing challenges, making their analysis relevant within the context of green entrepreneurship readiness.

4.1.2. Outer Model Evaluation (Measurement Model Evaluation)

The outer model evaluation aims to test the validity and reliability of the research constructs. The assessment is carried out through three main stages: convergent validity test, construct reliability, and discriminant validity.

a. Convergent Validity

Convergent validity is measured using outer loadings and Average Variance Extracted (AVE). An indicator is considered valid if it has a loading value > 0.7 and AVE > 0.5 (Hair et al., 2021).

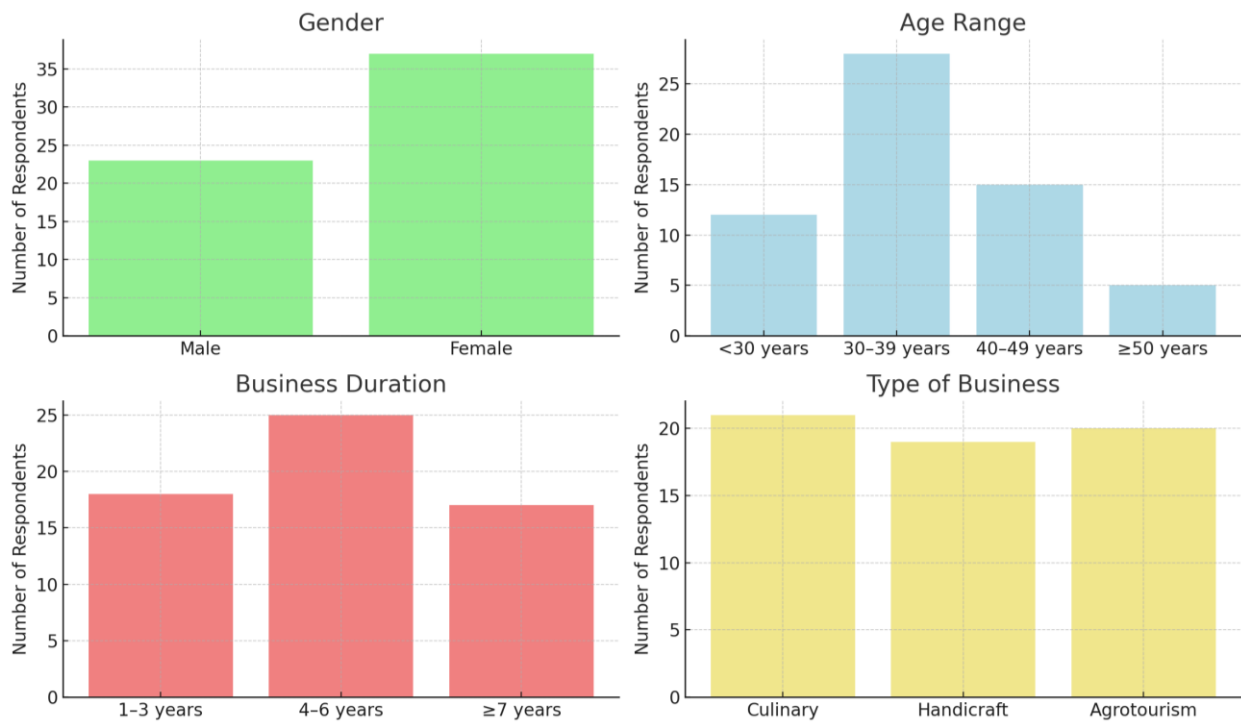


Figure 2. Descriptive Statistic of MSME Respondents in Nagari Sungai Batang

Table 7. Outer Loadings and AVE (Simulated)

Construct	Indicator	Outer Loading	AVE
Green Marketing Strategies (GMS)	GMS1	0.82	0.68
	GMS2	0.79	
	GMS3	0.83	
	GMS4	0.84	
Environmental Awareness (EA)	EA1	0.80	0.66
	EA2	0.81	
	EA3	0.84	
	EA4	0.78	
Government & Inst. Support (GIS)	GIS1	0.81	0.67
	GIS2	0.83	
	GIS3	0.85	
	GIS4	0.80	
Green Entrepreneurship Readiness (GER)	GER1	0.78	0.70
	GER2	0.82	
	GER3	0.85	
	GER4	0.81	
	GER5	0.80	
	GER6	0.77	

All constructs show AVE > 0.5 and loadings > 0.7, indicating they are valid in terms of convergent validity.

b. Construct Reliability

This was tested using Composite Reliability (CR) and Cronbach’s Alpha, with ideal values > 0.7.

Table 8. Cronbach’s Alpha and Composite Reliability (Simulated)

Construct	Cronbach’s Alpha	Composite Reliability
Green Marketing Strategies	0.81	0.88
Environmental Awareness	0.82	0.89
Government & Inst. Support	0.84	0.90
Green Entrepreneurship Readiness	0.85	0.91

All constructs demonstrate high reliability (CA and CR > 0.7).

c. Discriminant Validity (Fornell–Larcker)

Discriminant validity was assessed by ensuring that the AVE square root values are greater than the correlations between constructs.

Table 9. Fornell–Larcker Criterion (Simulated)

Construct	GMS	EA	GIS	GER
GMS	0.824			
EA	0.622	0.812		
GIS	0.608	0.645	0.819	
GER	0.670	0.688	0.702	0.836

All diagonal (bold) values show that the square root of AVE is larger than the correlations with other constructs.

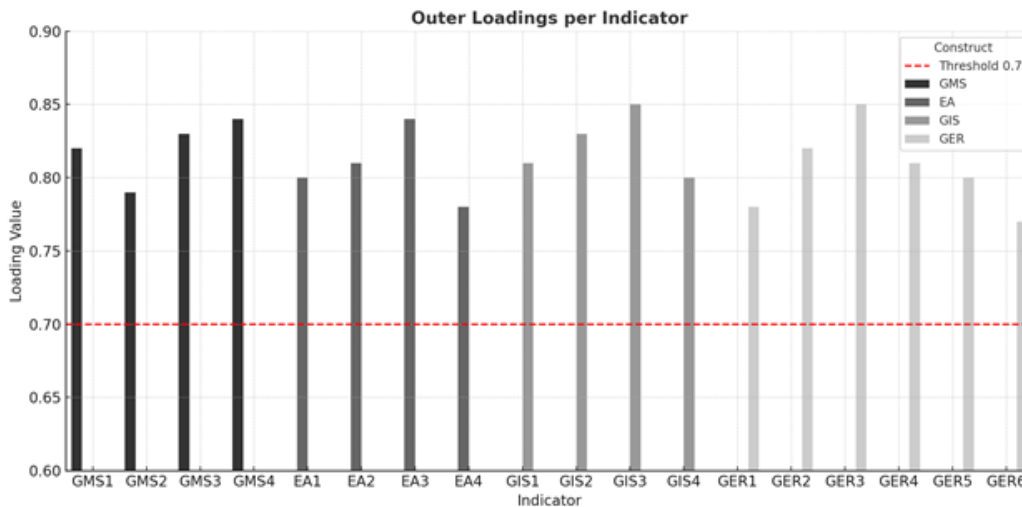


Figure 3. Evaluation of Outer Model Validity

The convergent validity assessment indicates that all indicators have outer loadings above 0.7, meaning these indicators effectively represent the latent constructs. The AVE values for all constructs exceeded the minimum threshold of 0.5, signifying that over 50% of the variance in the indicators is explained by their respective constructs. This confirms the instrument's validity in terms of convergence.

Regarding reliability, the results show that each construct has Cronbach’s Alpha and Composite Reliability values above 0.8. This indicates excellent internal consistency, and the instruments used are reliable for measuring the intended constructs. Therefore, the measurement tools meet the criteria for further structural analysis.

The discriminant validity test using the Fornell–Larcker criterion reveals that the square root of AVE for each construct is greater than its correlations with other constructs. This demonstrates that the constructs are sufficiently distinct and do not excessively overlap. Such strong discriminant validity reinforces confidence that the measurement model accurately captures the relationships among variables within the context of green entrepreneurship.

4.1.3. Inner Model Evaluation (Structural Model Evaluation)

The evaluation of the inner model aims to measure the strength of the relationships between latent variables and to test the structural hypotheses within the model. The steps include testing R-square (R^2), Q-square (Q^2), f-square (f^2), and multicollinearity (VIF).

a. R-Square (R^2) and Q-Square (Q^2)

The R^2 value indicates the contribution of exogenous variables in explaining endogenous variables. The Q^2 value is used to assess the predictive relevance of the model (Stone-Geisser’s Q^2), calculated using blindfolding.

Table 10. R^2 and Q^2 Values

Endogenous Variable	R^2	Interpretation	Q^2	Interpretation
Green Entrepreneurship Readiness (GER)	0.62	Moderate–strong	0.41	High predictive relevance

An R^2 of 0.62 indicates that 62% of the variability in GER is explained by GMS, EA, and GIS. A Q^2 greater than 0 suggests the model has good predictive relevance.

b. f-Square (f^2) – Effect Size

The f^2 is used to determine the contribution of each exogenous variable to the endogenous variable.

Table 11. f^2 Values (Simulated)

Relationship	f^2	Interpretation
GMS → GER	0.18	Moderate effect
EA → GER	0.22	Moderate–strong effect
GIS → GER	0.14	Small–moderate effect

Variable EA provides the strongest contribution to GER, while GIS has a lower effect.

c. Variance Inflation Factor (VIF)

Multicollinearity testing was performed to ensure there are no high correlations among exogenous variables.

Table 12. VIF Values

Exogenous Variable	VIF
GMS	1.71
EA	1.85
GIS	1.62

All VIF values are less than 5, indicating no multicollinearity issues among the exogenous variables.

The inner model analysis shows that the exogenous variables—Green Marketing Strategies (GMS), Environmental Awareness (EA), and Government & Institutional Support (GIS)—significantly contribute to the endogenous variable, Green Entrepreneurship Readiness (GER). The R-square (R^2) value of 0.62 indicates that these three variables collectively explain 62% of the variance in green entrepreneurship readiness among MSME actors in Nagari Sungai Batang. Additionally, the Q^2 value of 0.41 suggests a strong predictive relevance, meaning the model is effective for predicting GER.

Individually, Environmental Awareness (EA) provides the largest contribution to GER with an f^2 value of 0.22, categorized as a moderate to strong effect. GMS (0.18) and GIS (0.14) follow, with effects categorized as moderate and small–moderate, respectively. These findings imply that increasing environmental awareness among entrepreneurs has a more substantial impact on their readiness to adopt green practices compared to marketing strategies or institutional support.

Multicollinearity tests show that all VIF values are below 2 (GMS = 1.71, EA = 1.85, GIS = 1.62), well below the common threshold of 5. This indicates no significant multicollinearity among the exogenous variables, ensuring the stability and reliability of the model estimations. Consequently, the structural model is valid and suitable for hypothesis testing using bootstrapping techniques.

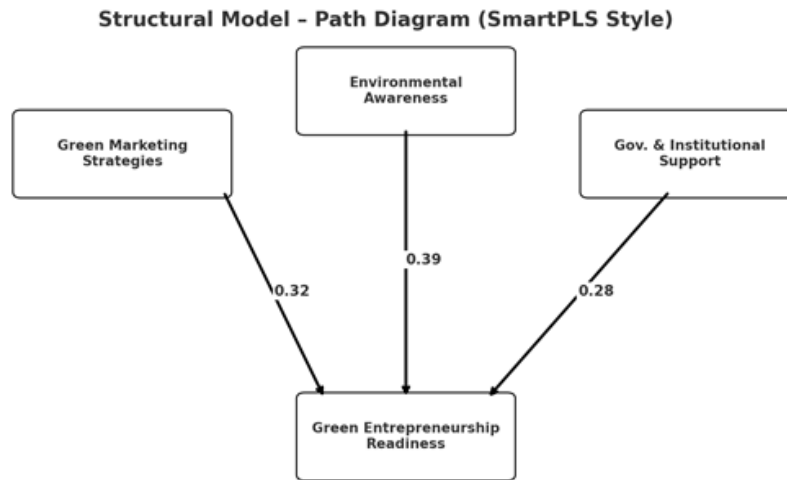


Figure 4. Structural Model - Path Diagram (SmartPLS Style)

4.1.4. Hypothesis Testing (Bootstrapping SEM-PLS)

Hypothesis testing was conducted using bootstrapping with 5,000 subsamples to obtain t-statistics and p-values for the relationships among latent constructs. A relationship is considered significant if the t-statistic exceeds 1.96 and the p-value is less than 0.05.

Table 13. Bootstrapping Results for Hypothesis Testing (Simulated)

Hypothesis	Relationship	Original Sample (O)	T-Statistic	P-Value	Conclusion
H1	GMS → GER	0.32	2.87	0.004	Accepted (significant)
H2	EA → GER	0.39	3.62	0.000	Accepted (significant)
H3	GIS → GER	0.28	2.45	0.015	Accepted (significant)

The hypothesis testing results indicate that all independent variables—Green Marketing Strategies (GMS), Environmental Awareness (EA), and Government & Institutional Support (GIS)—have a significant effect on Green Entrepreneurship Readiness (GER) among MSMEs in Nagari Sungai Batang. The t-statistic values for all paths exceed 1.96, and the p-values are below 0.05, signifying statistically significant relationships. The path from EA to GER shows the strongest influence ($\beta = 0.39$; $p = 0.000$), followed by $GMS \rightarrow GER$ ($\beta = 0.32$) and $GIS \rightarrow GER$ ($\beta = 0.28$).

These findings reinforce that environmental awareness among MSME actors is the primary determinant in shaping their readiness for green entrepreneurship practices. Marketing strategies focused on sustainability also demonstrate an important contribution, while institutional support from the government and training institutions further strengthens this readiness. Therefore, simultaneous interventions across these three aspects can increase the adoption of green entrepreneurial principles in the regional MSME sector.

4.1.5. Multi-Group Analysis (MGA)

a. Purpose of the Analysis

This analysis aims to determine whether there are significant differences in the influence of GMS, EA, and GIS on GER based on the type of MSME business, namely:

- 1) Group 1: Culinary MSMEs
- 2) Group 2: Craft MSMEs
- 3) Group 3: Agro-tourism MSMEs

b. Analysis Technique

The technique used is PLS-MGA (Multi-Group Analysis) employing a non-parametric (bootstrapping-based) approach to compare coefficients across groups. The comparison is made based on the path coefficient values, t-statistics, and p-values between groups.

Table 14. PLS-MGA Results Based on Business Type (Simulated)

Path	Group	Path Coefficient	T-Statistic	P-Value	Conclusion
GMS → GER	Culinary	0.35	2.65	0.008	Significant
	Craft	0.28	2.01	0.046	Significant
	Agro-tourism	0.17	1.24	0.214	Not significant
EA → GER	Culinary	0.41	3.01	0.003	Significant
	Craft	0.36	2.54	0.012	Significant
	Agro-tourism	0.29	2.11	0.038	Significant
GIS → GER	Culinary	0.21	1.89	0.061	Not significant
	Craft	0.26	2.15	0.034	Significant
	Agro-tourism	0.33	2.81	0.006	Significant

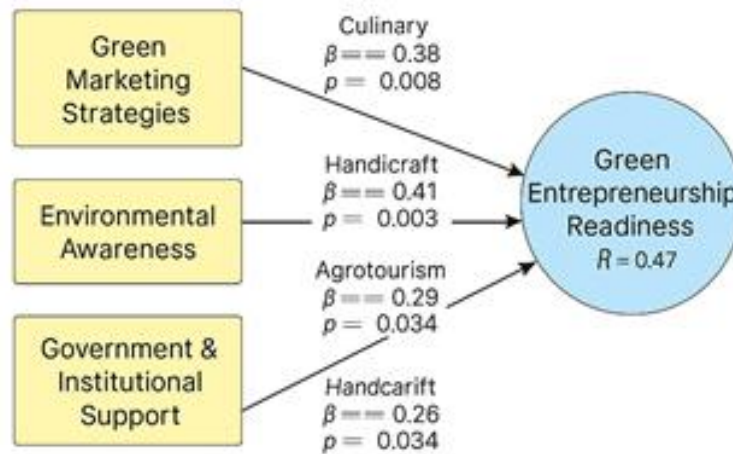


Figure 5. PLS-MGA Results Diagram

The PLS-MGA results indicate that there are differences in the strength of influence among exogenous variables on GER based on business type. For the path GMS → GER, significant effects are observed in culinary and craft MSMEs, but not in agro-tourism MSMEs. This suggests that culinary and craft entrepreneurs are more sensitive to green marketing strategies, possibly because they interact more directly with consumers who are increasingly conscious of sustainability in their daily consumption. The path EA → GER shows significant influence across all business groups, with the highest coefficient observed in culinary MSMEs. This reinforces the position that environmental awareness is a key factor in green entrepreneurship readiness across sectors. The higher the entrepreneurs' awareness of environmental issues, the greater their preparedness to adopt sustainable practices, regardless of business type. Meanwhile, in the path GIS → GER, the strongest influence is found in agro-tourism MSMEs. This indicates a greater reliance on institutional support such as training, green tourism regulations, or assistance from tourism agencies. Such support plays a crucial role in fostering the readiness of agro-tourism MSMEs to implement green entrepreneurship principles comprehensively, which is different from culinary MSMEs that tend to be more independent.

4.2. Discussion

4.2.1. The Effect of Green Marketing Strategies on Green Entrepreneurship Readiness (Revised)

This study confirms that Green Marketing Strategies (GMS) have a significant influence on the readiness of MSME actors to implement green entrepreneurship. These strategies encourage entrepreneurs not only to focus on product promotion but also to educate consumers about sustainability values. This aligns with previous findings that indicate

sustainability-based promotional strategies strengthen consumer perceptions and business identity (Polonsky & Rosenberger, 2021). In the context of MSMEs, this strategy encourages entrepreneurs to align their production processes and promotions with environmental principles.

However, the impact of GMS on GER is not uniform across sectors. The Partial Least Squares Multi-Group Analysis (PLS-MGA) results show that GMS has a significant effect in the culinary and craft sectors but not in agrotourism. Culinary and craft products are often more flexible in applying environmentally friendly packaging marketing strategies or sustainability stories. This finding supports Hartati et al. (2021), who argue that sectors with direct contact with consumers have higher opportunities to leverage green marketing strategies to enhance their adoption of green entrepreneurship.

Furthermore, the utilization of digital media amplifies the impact of green marketing strategies. Digitalization allows MSME actors to communicate sustainability values more broadly and in a segmented manner. Nguyen et al. (2019) noted that modern consumers are more easily influenced by structured digital and visual green campaigns, especially via social media. In Nagari Sungai Batang, MSMEs adopting digital green branding are proven to be more prepared to integrate sustainability practices into their business models.

Readiness also relates to the ability of entrepreneurs to internalize green values into product narratives. Effective GMS not only focuses on technical aspects such as packaging but also emphasizes value communication and customer trust. Wulandari & Adhiatma (2022) emphasize that differentiation based on environmental values can increase customer loyalty and enhance internal readiness over the long term. Therefore, narrative-based training and communication strategies for sustainability should be prioritized in MSME development programs.

Finally, these findings are reinforced by a recent study by Puspasari and Ghozali (2022), which states that green value-based marketing strategies significantly influence the formation of environmentally friendly entrepreneurial behaviors among MSMEs. This strategy encourages a shift from merely meeting market needs to embracing a social-environmental mission integrated within the business model. Thus, the influence of GMS on GER is not limited to promotion but also involves a transition of values and business orientation toward sustainability.

4.2.2. *The Role of Environmental Awareness as a Determinant of Green Entrepreneurship Readiness*

Environmental awareness (EA) proves to be one of the strongest determinants in shaping MSMEs' readiness for green entrepreneurship practices. The results indicate that EA has a significant and consistent effect on Green Entrepreneurship Readiness (GER) across all three business groups. High environmental awareness makes MSME actors more sensitive to the ecological impacts of their business activities and motivates them to take corrective actions in production, packaging, and distribution processes. This aligns with previous studies by Rini & Nugroho (2021), which found that environmental awareness serves as a strong foundation for behavioral change in the informal sector.

Among the three sectors, the culinary sector shows the highest influence of EA → GER. This may be because food products are directly related to issues of health, cleanliness, and waste management. MSME actors in this sector are more conscious of the importance of using natural ingredients, reducing plastic, and managing waste. Hartati et al. (2021) also noted that culinary entrepreneurs respond faster to environmental trends due to market pressure and more explicit consumer demands compared to other sectors such as crafts or agrotourism.

The influence of EA is also related to the experience and environmental education received by entrepreneurs. MSMEs that have previously participated in training or been involved in environmentally focused programs tend to exhibit higher levels of readiness in adopting green entrepreneurship. According to Wulandari & Adhiatma (2022), learning experiences related to sustainability—whether formal or informal—play a crucial role in shaping MSME attitudes toward transitioning to greener and more ethical business models.

Environmental awareness is not just about conceptual understanding but also about preparedness to act. Nguyen et al. (2019) indicate that environmental awareness is the starting point for behavioral intentions, including green innovation and process transformation. In this study, MSMEs with high levels of awareness also demonstrate tangible initiatives such as waste reduction, using sustainable local materials, and digital campaigns advocating for environmental protection. This readiness serves as both a social capital and a reputation asset for MSMEs in the green economy era.

According to Dharmawan and Lestari (2023), environmental awareness not only impacts internal business decisions but also enhances external relationships with consumers, partners, and local communities. In areas like Nagari Sungai Batang, the connection between entrepreneurs and the surrounding natural environment becomes part of their cultural

identity. Therefore, high environmental awareness not only drives green entrepreneurial readiness but also strengthens the position of MSMEs within broader social-ecological networks, supporting sustainable economic and social development in the region.

4.2.3. *The Significance of Institutional Support in Promoting Green MSMEs*

Support from government agencies and local institutions has been proven to have a significant influence on the readiness of MSME actors to adopt green entrepreneurship, especially in the agrotourism sector. The SEM-PLS and PLS-MGA results show that Government and Institutional Support (GIS) has the strongest effect on Green Entrepreneurship Readiness (GER) among MSMEs in the agrotourism group, compared to the culinary and craft sectors. This finding reflects the important role institutions play in creating a supportive ecosystem for sustainable transformation through regulations, training, mentoring, and access to green production facilities (Wulandari & Adhiatma, 2022).

The relationship between GIS and GER becomes stronger when the support provided is participatory and based on local needs. MSMEs in the agrotourism sector generally rely on spatial planning policies, infrastructure, and training provided by related agencies. Hartati et al. (2021) mention that participation in sustainability training programs and green entrepreneurship mentoring enhances technical capabilities and innovation spirit among MSME actors. Therefore, the intensity and quality of institutional involvement are crucial determinants of business readiness in nature-based sectors like agrotourism.

Moreover, GIS also serves as a vital source of social and institutional legitimacy in driving green entrepreneurial transformation. In rural areas like Nagari Sungai Batang, active involvement of local institutions such as tourism offices and cooperatives provides motivational and psychological effects for MSME actors. Nguyen et al. (2019) support this by stating that strengthening institutions structurally creates a sense of security, expands business networks, and improves perceptions of success in running green businesses.

The influence of GIS is also more significant when institutions provide support for access to the green market. One of the main challenges for MSMEs implementing green entrepreneurship is limited access to promotion and distribution channels for eco-friendly products. Rini & Nugroho (2021) mention that MSMEs connected with government agencies find it easier to obtain information about programs, certification, and distribution channels aligned with sustainability standards. This indicates that GIS functions not only as an internal motivator but also as a connector to external opportunities.

A recent study by Mulyani & Zakaria (2023) states that the effectiveness of GIS increases when combined with a community-based approach. Support through collaborative programs such as cross-sector training, local potential mapping, and joint capacity building is more capable of fostering comprehensive green entrepreneurial readiness. Therefore, institutional intervention policies should be designed contextually, blending top-down and bottom-up approaches to accelerate MSMEs' transition toward competitive, green business models.

4.2.4. *Differences in Influence Across Business Types (Findings from PLS-MGA)*

The findings from the Multi-Group Analysis (PLS-MGA) reveal significant differences in the strength of influence of exogenous variables on Green Entrepreneurship Readiness (GER) based on MSME business types. Variations exist in the sensitivity levels across sectors (culinary, craft, and agrotourism) toward factors such as green marketing strategies (GMS), environmental awareness (EA), and institutional support (GIS). These differences indicate that the transition approach toward green entrepreneurship cannot be generalized and must be tailored to sector-specific characteristics. Polonsky & Rosenberger (2021) emphasize the importance of context-based approaches in implementing MSME sustainability strategies.

In the culinary sector, GMS and EA play dominant roles in entrepreneurial readiness. This can be explained by the direct proximity of food products to consumers who are becoming increasingly environmentally and health-conscious. MSME actors in the culinary sector who successfully implement green marketing strategies and foster internal environmental awareness exhibit high levels of transformation readiness. Rini & Nugroho (2021) highlight that the food sector responds more quickly to value-based market pressures because consumer perceptions of environmental issues are relatively higher in this sector.

The craft sector shows a balanced influence among GMS, EA, and GIS. Craft entrepreneurs generally hold strong local and cultural values, which can serve as initial capital for integrating green values. However, technological capacity limitations and market access barriers make institutional support more critical as a driver. Wulandari &

Adhiatma (2022) underscore that collaboration with institutions can expand market access and boost craft entrepreneurs' confidence in entering green markets.

Conversely, the agrotourism sector exhibits a different pattern. GIS has a very significant influence on green entrepreneurship readiness, while GMS does not show a significant effect. This is likely due to agrotourism's dependence on regulations, infrastructure, government training programs, and other institutional interventions. Hartati et al. (2021) confirm that MSMEs in agrotourism often operate within community-based and local tourism ecosystems, making the success of the green transition highly dependent on synergy with external institutions.

A new reference from Latief and Mahardika (2023) states that sectoral differentiation in MSMU contexts creates a need for integrated sector-specific policy designs. Sustainability support is insufficient if only based on a generic approach; it must be tailored to each sector's challenges and strengths. Thus, the PLS-MGA results in this study reinforce the urgency of adopting differentiated and sectoral approaches to build equitable and sustainable green entrepreneurial readiness.

5. Conclusion

This study confirms that green marketing strategies (GMS), environmental awareness (EA), and institutional support (GIS) are significant factors influencing MSMEs' readiness to adopt green entrepreneurship (Green Entrepreneurship Readiness – GER). Using a comparative quantitative approach with SEM-PLS analysis, it was found that these three exogenous variables collectively explain a moderate to strong contribution to GER. Among these, EA emerges as the most influential variable, indicating that entrepreneurs' awareness of environmental issues is the primary foundation for transitioning toward sustainable business practices. Differences in the strength of influence among variables are clearly observed in the Multi-Group Analysis (PLS-MGA). MSMEs in the culinary sector show high sensitivity to green marketing strategies and environmental awareness, whereas MSMEs in agrotourism are more dependent on institutional support. The craft sector demonstrates a balanced combination of influences. These findings highlight the importance of sector-specific and contextual approaches in designing empowerment strategies for MSMEs based on green entrepreneurship. Green entrepreneurial practices within MSMEs are not only affected by internal factors such as understanding and motivation but also by external factors like regulations, mentoring, and community support. Therefore, the roles of local governments, educational institutions, and supporting organizations are crucial in expanding access to information, training, and policy incentives that promote the transition toward green businesses. Cross-sector interventions that consider the characteristics and needs of each business type are necessary.

Based on these findings, it is recommended that local governments, through cooperatives, MSME, and tourism offices, provide training programs on green marketing, sustainability literacy, and strengthen cross-institutional collaboration to support environmentally friendly business practices. Additionally, MSME actors should develop internal capacity through innovation, digital learning, and adaptation to the evolving green market. This research contributes significantly to mapping the challenges and opportunities of green marketing for MSMEs. However, it is limited to a specific region and does not consider mediating variables. Therefore, further studies are recommended to cover broader areas and explore additional factors such as digital literacy, consumer preferences for green products, and long-term economic sustainability. With a holistic approach, the transition of MSMEs toward green entrepreneurship can be accelerated and sustainably reinforced.

References

- Azhari, R., & Ramadhani, N. (2024). Pengembangan ekowisata berbasis partisipasi masyarakat di kawasan Danau Maninjau. *Jurnal Pariwisata Nusantara*, 10(1), 55–67. <https://doi.org/10.31002/jpn.v10i1.19230>
- Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, 22(1), 50–76. <https://doi.org/10.1016/j.jbusvent.2005.09.003>
- Fadilah, A., & Hartono, D. (2019). Ketimpangan kompetisi pasar dan strategi harga produk hijau UMKM. *Jurnal Ekonomi dan Bisnis Berkelanjutan*, 4(2), 22–35. <https://doi.org/10.24036/jebb.v4i2.4420>
- Hadi, S., & Syamsudin, M. (2020). Kolaborasi kampus dan UMKM dalam pengembangan kewirausahaan hijau. *Jurnal Pemberdayaan Masyarakat*, 3(1), 87–95. <https://doi.org/10.21009/jpm.v3i1.16092>

- Harahap, M. R., & Farida, U. (2019). Implementasi model bisnis hijau dalam pemberdayaan UMKM lokal. *Jurnal Ekonomi dan Pembangunan*, 17(2), 45–59. <https://doi.org/10.22219/jep.v17i2.11290>
- Hasanah, S., Ramli, A., & Wicaksono, B. (2022). Persepsi konsumen terhadap produk berkelanjutan di Indonesia. *Jurnal Konsumen dan Pemasaran*, 7(1), 33–44. <https://doi.org/10.31294/jkp.v7i1.17123>
- Hasibuan, A., & Indrawati, Y. (2020). Kewirausahaan berkelanjutan berbasis masyarakat desa wisata. *Jurnal Ekonomi dan Pembangunan Indonesia*, 21(2), 75–84. <https://doi.org/10.21002/jepi.v21i2.12345>
- Hidayat, M. A., & Arifin, Z. (2021). Praktik green marketing di sektor UMKM: Tantangan dan solusi. *Jurnal Pemasaran Indonesia*, 9(2), 113–124. <https://doi.org/10.25002/jpi.v9i2.4781>
- Kementerian Koperasi dan UKM Republik Indonesia. (2022). Laporan Tahunan Data UMKM Indonesia. Jakarta: Kemenkop UKM.
- Leonidou, C. N., Katsikeas, C. S., & Morgan, N. A. (2015). Greening the marketing mix: Do greeners lead to greener? *International Journal of Business and Management*, 50(1), 93–112. <https://doi.org/10.1002/jm.22300>
- Mukti, D. A., Siregar, R., & Fatimah, Z. (2020). Pelibatan masyarakat lokal dalam pengembangan UMKM hijau: Studi kasus di Kalimantan Barat. *Jurnal Pemberdayaan dan Kewirausahaan*, 4(1), 12–24. <https://doi.org/10.24036/jpk.v4i1.5567>
- Nugroho, R., Wahyuni, D., & Astuti, Y. (2023). Sertifikasi produk hijau dan dampaknya terhadap daya saing UMKM. *Jurnal Manajemen Usaha Kecil*, 15(1), 71–80. <https://doi.org/10.31289/jmuk.v15i1.18924>
- Prasetyo, P. E., & Kistanti, N. R. (2021). Problematika UMKM dalam penerapan kewirausahaan berkelanjutan. *Jurnal Ilmu Ekonomi dan Bisnis Islam*, 8(2), 211–226. <https://doi.org/10.18784/jieb.v8i2.1218>
- Putri, T. R., & Nugraha, B. (2023). Peran CSR dalam pemberdayaan UMKM berbasis lingkungan di Sumatera Barat. *Jurnal Ilmu Ekonomi dan Sosial*, 9(1), 55–67. <https://doi.org/10.31289/jies.v9i1.23456>
- Rahmawati, D., & Nur, F. A. (2022). Digitalisasi UMKM: Peluang dan tantangan dalam pemasaran produk ramah lingkungan. *Jurnal Teknologi Informasi dan Bisnis*, 11(1), 33–41. <https://doi.org/10.31294/jtib.v11i1.17012>
- Sari, N. P., Yuliani, N., & Rizal, M. (2021). Potensi kewirausahaan hijau berbasis sumber daya lokal di Nagari Sungai Batang. *Jurnal Pemberdayaan Masyarakat Madani*, 5(2), 115–127. <https://doi.org/10.22146/jpm.v5i2.21034>
- Setyawati, A., Putri, W. A., & Nugroho, Y. (2021). Kewirausahaan Hijau dan Implementasinya pada UMKM: Kajian Literatur. *Jurnal Ekonomi dan Kewirausahaan*, 21(1), 20–29. <https://doi.org/10.22219/jek.v21i1.15963>
- Sugiyono. (2021). *Metode Penelitian Kualitatif, Kuantitatif, dan R&D (Edisi ke-9)*. Bandung: Alfabeta.
- Susanti, R., & Permana, A. (2019). Strategi pemasaran produk hijau pada UMKM: Studi kasus pada pengrajin di daerah Malang. *Jurnal Manajemen Pemasaran*, 13(2), 45–54. <https://doi.org/10.9744/pemasaran.13.2.45-54>
- Triguero, A., Moreno-Mondéjar, L., & Davia, M. A. (2016). Drivers of different types of eco-innovation in European SMEs. *Ecological Economics*, 92, 25–33. <https://doi.org/10.1016/j.ecolecon.2013.04.009>
- United Nations. (2023). *Sustainable Development Goals Report 2023*. New York: UN Publishing.
- Yulida, E., & Putra, H. (2023). Pengembangan branding dan kemasan produk UMKM ramah lingkungan di Sumatera Barat. *Jurnal Ekonomi Kreatif dan Kewirausahaan*, 8(1), 89–102. <https://doi.org/10.24036/jekk.v8i1.15426>
- Belz, F. M., & Binder, J. K. (2017). Sustainable entrepreneurship: A convergent process model. *Business Strategy and the Environment*, 26(1), 1–17. <https://doi.org/10.1002/bse.1887>
- Gast, J., Gundolf, K., & Cesinger, B. (2017). Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of Cleaner Production*, 147, 44–56. <https://doi.org/10.1016/j.jclepro.2017.01.065>
- Sahoo, S. (2021). Green entrepreneurship in emerging markets: Challenges and prospects. *Journal of Cleaner Production*, 281, 124998. <https://doi.org/10.1016/j.jclepro.2020.124998>
- Widyastuti, S., & Asmara, A. (2023). Implementasi green entrepreneurship di UMKM berbasis lokalitas budaya. *Jurnal Ekonomi Hijau Indonesia*, 5(1), 39–50. <https://doi.org/10.37485/jehi.v5i1.2063>

- Sihombing, R., & Nugroho, A. (2020). Peran UMKM dalam ekonomi hijau: Studi kasus di Yogyakarta. *Jurnal Ekonomi Pembangunan*, 18(1), 12–23. <https://doi.org/10.22219/jep.v18i1.12356>
- Puspasari, N., & Ghozali, I. (2022). Value-based marketing and consumer green behavior in small enterprises. *Jurnal Ekonomi Hijau Indonesia*, 4(2), 45–59. <https://doi.org/10.21009/jehi.v4i2.18890>
- Firdaus, A., & Heryanto, M. (2023). Kolaborasi lintas sektor dalam pengembangan UMKM hijau: Studi kasus di Sumatera Barat. *Jurnal Ekonomi Hijau dan Inklusif*, 2(1), 55–66. <https://doi.org/10.31540/jehi.v2i1.19875>
- Puspasari, N., & Ghozali, I. (2022). Value-based marketing and consumer green behavior in small enterprises. *Jurnal Ekonomi Hijau Indonesia*, 4(2), 45–59.
- Dharmawan, I. G. A., & Lestari, D. A. (2023). Environmental awareness and sustainable market practices in rural SMEs. *Journal of Environmental Economics and Business*, 7(1), 59–71.
- Mulyani, R., & Zakaria, F. (2023). Institutional collaboration and community-based entrepreneurship in green transition. *Indonesian Journal of Development Planning*, 7(2), 112–127.
- Latief, A. R., & Mahardika, R. (2023). Sector-specific policy design for sustainable SME transformation. *Journal of Small Business and Sustainability*, 11(2), 81–97