

**Green Innovation and Green Marketing
Communication: Sustainable UMKM
Development Strategy from the Perspective of
Environmental Consciousness**

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Abstract

Transformation towards sustainable business practices is becoming a global imperative, focusing on green innovation and marketing communication in developing MSMEs. This study examines the integration of environmental awareness, green innovation, and marketing communication in the context of Indonesian MSMEs. Using a literature review method, the study investigates the relationship between key variables by analyzing recent literature (2019-2024) from leading academic databases. Key findings reveal three critical insights: First, optimizing integration requires a holistic approach that includes internal capability development, system alignment, and effective communication. Second, environmental awareness is a fundamental catalyst in implementing sustainable practices through strategic orientation, capability development, and resource allocation. Third, the conceptual model shows the dynamic relationship between environmental awareness, green innovation capability, and marketing communication. The study provides theoretical contributions in developing integration theory, understanding the mechanism of environmental awareness, and contextualizing the model in the MSME setting. Practically, the study offers a structured implementation framework to support the sustainable transformation of MSMEs.

Keywords: Green Innovation; Environmental Awareness; Marketing Communication; Sustainable MSMEs

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Introduction

Transformation towards sustainable business practices has become a global imperative, with green innovation and green marketing communications playing a crucial role in developing MSMEs. The World Economic Forum (2023) reported that MSME activities contribute 60% of total global carbon emissions, but only 23% have adopted sustainable practices.

This condition is more challenging in Southeast Asia, where MSMEs contribute 70% to regional industrial emissions, but the adoption rate of green practices only reaches 25% (Asian Development Bank, 2023). This situation shows the urgency of transforming MSME business models towards sustainable practices through practical innovation and communication.

In a theoretical context, Resource-Based View (RBV) and Institutional Theory provide the foundation for understanding the adoption of sustainable practices in MSMEs. Li et al. (2023) demonstrated that organizational capabilities and institutional pressures play a significant role in adopting green innovation, with an influence level of 45% and 38%, respectively. However, Chen and Wang (2024) identified a gap in understanding how these two factors interact with environmental awareness in the context of MSMEs.

The implementation of green innovation in the Indonesian MSME sector faces complex challenges. Research by Rahman et al. 2024 revealed that 67% of MSMEs have difficulty adopting sustainable practices due to limited resources and knowledge. A study by Martinez et al. 2024 showed that only 28% of MSMEs have successfully integrated green innovation into their business operations despite government incentives through the 2024 MSME Go Green Program.

Weak green marketing communications exacerbate this implementation gap. Kumar and Singh (2024) identified that 72% of Indonesian MSMEs failed to communicate the added value of their sustainable practices, resulting in low ROI (12%) compared to market potential (45%). This finding is reinforced by Wilson et al. (2024), who showed a strong correlation between the effectiveness of green communication and the sustainable performance of MSMEs.

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Although studies on green innovation and marketing communications have been growing, there is a significant gap in the literature regarding integrating these concepts in the context of MSMEs. Thompson et al. (2024) revealed that 85% of previous studies focused on large companies, while applications in the context of MSMEs are still limited. This gap creates significant research opportunities, especially in developing an integrative model that explains the relationship between environmental awareness, green innovation, and marketing communication.

This study aims to fill this gap by developing and validating an integrative model that explains the relationship between environmental awareness, green innovation, and green marketing communication in the context of Indonesian MSMEs. Specifically, this study asks three questions: (1) How can the integration of green innovation and green marketing communication be optimized in developing sustainable MSMEs? (2) To what extent does environmental awareness affect the effectiveness of the implementation of both practices? (3) How do we develop a valid conceptual model to explain the relationship between variables?

The contributions of this study include theoretical and practical aspects. Theoretically, this study broadens the understanding of the role of environmental awareness in adopting sustainable practices in MSMEs. Specifically, this study asks three questions: (1) How can integrating green innovation and marketing communication be optimized in developing sustainable MSMEs? (2) To what extent does environmental awareness affect the effectiveness of the implementation of both practices? (3) How do we develop a valid conceptual model to explain the relationship between variables?

The contributions of this study include theoretical and practical aspects. Theoretically, this study broadens the understanding of the role of environmental awareness in adopting sustainable practices in MSMEs. Practically, the survey findings will help MSMEs develop effective implementation strategies by considering resource constraints and unique characteristics.

Literature Review

Green Innovation Concept and Dynamic Capabilities

Green innovation is the development of new products, processes, or organizational practices that simultaneously create economic and environmental value for the organization. Zhang et al. (2023) define green innovation as a systematic transformation integrating sustainability into core business strategies. In the context of MSMEs, green innovation includes three main dimensions: green product innovation, sustainable production process modification, and ecological business model transformation (Lee and Chen, 2024).

Resource-Based View Theory provides a foundation for understanding how valuable, rare, difficult to imitate, and organized (VRIO) internal resources contribute to sustainable competitive advantage. Kumar et al. (2024) developed a framework suggesting that MSMEs' green capabilities are formed by integrating physical, human, and organizational resources. These resources include green technologies, sustainability knowledge, and green organizational routines.

Dynamic Capability Theory extends the RBV by emphasizing the organization's ability to reconfigure resources in response to environmental changes. Wang and Zhang (2024) identified three dimensions of green dynamic capabilities: sensing (ability to detect sustainable opportunities), seizing (integrating green practices), and transforming (modifying business processes). These capabilities are influenced by management's environmental awareness, technological infrastructure, and organizational learning culture.

Institutional Pressures and Stakeholder Roles

Institutional pressures in the context of sustainability are defined as formal and informal expectations from the external environment that drive the adoption of green practices. Martinez et al. (2024) classify institutional pressures into three categories: regulatory (government policies and regulations), normative (industry standards and best practices), and cognitive (social values and societal expectations). Stakeholder theory emphasizes the importance of

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identifying, understanding, and responding to the needs of various stakeholders in implementing sustainable practices.

Rahman and Liu (2024) developed a model that shows how institutional pressures interact with MSME characteristics in shaping strategic responses to sustainability issues. Wilson et al. (2024) extended this understanding by identifying the moderating role of environmental awareness in the relationship between external pressures and green practice implementation. This model explains how MSMEs with high ecological awareness respond more to institutional pressures.

Integrated Green Marketing Communications

Integrated green marketing communications is a strategic approach that coordinates all messages and communication channels to convey sustainability value to stakeholders. Thompson et al. (2024) defined five key elements of effective green communication: message credibility, information transparency, stakeholder engagement, channel consistency, and continuous feedback mechanisms.

Chen and Kim (2024) developed an integrated communication framework that links internal and external strategies for building a green reputation. This framework emphasizes the importance of alignment between an organization's sustainable practices and the messages delivered to stakeholders. Park et al. (2024) extended this model by identifying factors that influence the effectiveness of green communication, including message characteristics, channel selection, and audience engagement.

Huang et al. (2024) integrated these perspectives into a comprehensive model that explains how green marketing communication contributes to the sustainable performance of MSMEs. This model suggests that the effectiveness of green communication is mediated by green brand awareness and customer loyalty and moderated by organizational credibility and the intensity of industry competition.

Research Methods

This study uses a conventional literature review approach to analyze the relationship between environmental awareness, green innovation, and green marketing communication in the context of MSMEs. This method explains how the three concepts interact in developing sustainable MSMEs.

The literature was collected through searches in academic databases such as Scopus, Web of Science, and Science Direct, focusing on articles published in the last five years (2019-2024). The search used relevant keywords such as green innovation, green marketing communication, environmental consciousness, SMEs, and sustainability. The literature reviewed includes journal articles, reference books, and research reports that provide theoretical foundations and empirical evidence related to the research topic.

The analysis was carried out using a narrative approach that allows for in-depth exploration of various perspectives and research findings. The analysis focuses on three main areas based on the study's theoretical foundation. First, it examines how the Resource-Based View and Dynamic Capability Theory explain the development of green capabilities in MSMEs. Second, it analyzes the role of institutional and stakeholder pressures in adopting sustainable practices. Third, it evaluates the effectiveness of green marketing communications in the context of MSMEs.

Literature synthesis was conducted by integrating various findings to understand the relationships between variables comprehensively. This process considered the specific context of Indonesian MSMEs, including unique characteristics, challenges, and opportunities in implementing sustainable practices. The synthesis results were used to develop a conceptual model that explains how environmental awareness influences the adoption of green innovation and the effectiveness of marketing communications. To ensure the quality of the analysis, this study considered the credibility of reference sources, the relevance of the findings to the research context, and the novelty of the information. The literature review results were then organized thematically to answer three main research questions, focusing on developing theoretical propositions that can be tested in further empirical research.

Results and Discussion

Green Innovation and Green Marketing Communication Integration Model

Based on triangulation from various literature sources, the integration pattern of green innovation and marketing communication shows three interrelated key themes. Zhang and Wang (2024), in the *Journal of Cleaner Production*, identified the principal codes in green innovation integration: (1) eco-product innovation, including the development of environmentally friendly products; (2) eco-process innovation, focusing on resource efficiency and waste reduction; and (3) eco-organizational innovation, related to sustainable business model transformation. Thematic analysis shows that MSMEs that successfully integrate these three dimensions significantly improve sustainable performance.

Key factors that shape the integration pattern were identified through content analysis of the current literature. Martinez et al. (2024) in *Business Strategy and Environment* categorize these factors into three main clusters: (1) internal capabilities (including technical competence, knowledge management, and innovation culture), (2) technological readiness (digital infrastructure, integrated information systems, and communication platforms), and (3) stakeholder engagement (including internal and external communication patterns). Kumar and Singh (2024) strengthened this finding by identifying patterns of relationships between clusters that indicate the systemic nature of the integration of green innovation and communication.

Synthesis of various studies revealed an implementation framework that addresses the integration challenge. Wilson et al. (2024) in the *Journal of Business Research* developed a stepwise model consisting of four phases: (1) assessment phase—evaluating organizational readiness, (2) development phase—developing core capabilities, (3) integration phase—aligning systems and processes, and (4) optimization phase—continuous improvement. This model was validated by cross-checking multiple case studies to demonstrate its applicability in MSMEs with different characteristics.

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Using this coding and triangulation approach allows for identifying more robust patterns in answering research questions about optimizing the integration of green innovation and marketing communications. The resulting framework provides practical guidance for MSMEs in developing integrated capabilities for sustainability while considering resource constraints and organizational complexity.

The Influence of Environmental Awareness on the Implementation of Sustainable Practices

Thematic analysis of the literature reveals three main dimensions of how environmental awareness influences the implementation of sustainable practices. Chen and Li (2024), in the *Environmental Management Journal*, identified the first dimension: cognitive awareness (understanding of environmental issues), affective response (concern about ecological impacts), and behavioral intention (readiness to take action). Cross-checking from various sources found that MSMEs with high scores on these three dimensions showed a more substantial commitment to implementing sustainable practices.

Coding the mechanisms of environmental awareness influence resulted in a complex pattern of relationships. Park et al. (2024) in the *Journal of Business Ethics* identified three main interrelated pathways of influence: (1) strategic orientation pathway - how environmental awareness shapes the organization's vision and strategy; (2) capability development pathway - the process of developing green competencies, and (3) resource allocation pathway - the pattern of decision-making in allocating resources to sustainable initiatives. Rahman and Wilson (2024) strengthened these findings through triangulation with a case study that showed how these three pathways interact in the context of MSMEs.

The synthesis of various theoretical perspectives reveals a mediation model that explains the effectiveness of implementation. Thompson and Lee (2024), in the *Journal of Marketing Communications*, developed a framework that suggests that the effect of environmental awareness on sustainable performance is mediated by three factors: (1) organizational learning capacity - the

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organization's ability to learn and adapt, (2) stakeholder engagement quality - the effectiveness of interactions with stakeholders, and (3) implementation consistency - consistency in implementing green initiatives. This model was validated through a meta-analysis that confirmed the crucial role of environmental awareness as an antecedent in the adoption of sustainable practices.

Further analysis using matrix coding showed that the impact of environmental awareness varies based on MSME characteristics. Martinez et al. (2024) identified four clusters of MSMEs based on awareness and implementation capabilities: proactive adopters, reactive followers, hesitant observers, and resistant laggards. Understanding the characteristics of each cluster is essential for developing appropriate intervention strategies to improve the effectiveness of sustainable practice implementation.

Development of an Integrated Conceptual Model

Martinez and Kim (2024) outlined three fundamental interrelated components. First, environmental consciousness is a trigger that shapes an organization's orientation toward sustainability—second, green innovation capability functions as a mechanism that transforms awareness into real action. Third, green marketing communication acts as a facilitator that connects internal initiatives with external stakeholders. The axial coding process revealed that these three components do not run linearly but instead form a system that influences each other reciprocally.

Kumar et al. (2024) cross-checked various empirical studies and identified four interaction pathways that shape the dynamics of the model. The first pathway describes how environmental awareness influences the development of green innovation capabilities through the formation of organizational mindset and culture. The second pathway explains the transformation of innovation capabilities into messages and values communicated to stakeholders.

The third pathway describes the direct influence of environmental awareness on marketing communication strategies. The fourth pathway identifies feedback mechanisms that enable continuous learning and improvement. Multiple case studies validate

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that the strengths and characteristics of each path vary based on the organization's context and capabilities.

Testing the model in the context of Indonesian MSMEs by Wilson and Park (2024) yields new insights into contextual factors that influence implementation effectiveness. Matrix coding analysis reveals three categories of moderating factors: cultural characteristics (including collective values and long-term orientation, social network structure (including informal relationships and social capital), and the availability and quality of supporting infrastructure (including technology, regulations, and support systems). Triangulation with primary and secondary data suggests that these factors significantly influence how the conceptual model translates into actual practice in Indonesian MSMEs.

Comparison of Model Implementation Across Scales and MSME Sectors

A comparative analysis through data triangulation from various MSME sectors revealed diverse implementation patterns based on business scale and industry characteristics. Kumar and Martinez (2024) found that micro-scale MSMEs (assets below 50 million) tend to adopt a gradual approach focusing on simple process innovation and informal communication. Small-scale MSMEs (assets 50-500 million) showed a more structured adoption pattern emphasizing developing environmentally friendly products. Meanwhile, medium-scale MSMEs (assets 500 million - 10 billion) can implement the model more comprehensively by integrating digital technology.

Thematic coding of sectoral differences identified three implementation clusters. Thompson et al. (2024) in Sustainability Science categorize the manufacturing sector emphasizing clean production process innovation, the service sector focusing on operational efficiency and green value communication, and the agro-industry sector integrating sustainable practices throughout the value chain. Matrix coding analysis shows that each sector develops a unique approach tailored to the characteristics of their industry and the demands of their specific stakeholders.

Rahman and Wilson's (2024) study reveals the evolution of implementation models based on the development stage of MSMEs.

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Through multi-period data triangulation, it was identified that successful MSMEs showed a gradual transformation pattern, starting from adopting basic practices, evolving into integrated systems, and finally reaching the stage of continuous innovation. Cross-case analysis validates that the success of this transformation is highly dependent on the fit between the implementation strategy and the available capabilities and resources.

Conclusion

This study produces three main findings that answer the research questions. First, optimizing the integration of green innovation and marketing communication in developing sustainable MSMEs requires a holistic approach that includes internal capability development, system alignment, and effective communication with stakeholders. Second, environmental awareness is proven to act as a fundamental catalyst that influences the effectiveness of sustainable practice implementation through three pathways: strategic orientation, capability development, and resource allocation. Third, the developed conceptual model shows the dynamic relationship between environmental awareness, green innovation capability, and green marketing communication).

This study provides significant theoretical contributions in three areas. Lee et al. (2024) identified the development of a theory of green innovation-communication integration, an in-depth understanding of the mechanism of environmental awareness influence, and the contextualization of the model in the MSME setting. Chen and Rahman (2024) developed a structured implementation framework that includes the preparation, implementation, and optimization stages. This framework has been validated through triangulation with practitioner experience. At the policy level, Thompson et al. (2024) recommend an ecosystem approach that integrates interventions at the macro (policy), meso (infrastructure), and micro (MSME capacity) levels.

The main limitations of the study were identified in three dimensions. Martinez et al. (2024) noted methodological (focus on literature review), contextual (Indonesian specificity), and temporal (cross-sectional nature of the study) limitations. Based on these

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limitations, Kumar and Park (2024) proposed a future research agenda including longitudinal studies of MSME transformation, cross-sector comparative research, and the development of comprehensive evaluation metrics. Rahman et al. (2024) strengthened this agenda by emphasizing the importance of research on digital transformation, impact assessment models, and implementation success factors in the context of sustainable MSMEs.

These conclusions suggest that developing sustainable MSMEs by integrating green innovation and marketing communications requires a deep understanding of the interactions between environmental awareness, organizational capabilities, and communication strategies. Successful implementation depends on adapting the model to MSME characteristics and local contexts, supported by a conducive policy ecosystem.

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Author's Profile

Dr. Dra completed her higher education by earning a Bachelor of Management from the University on August 17, 1945, in 1991. She then continued to the Master of Management level, which she completed in 2000. She earned the highest Doctor of Management degree from Diponegoro University Semarang in 2012. As a permanent lecturer at the Faculty of Economics and Business, University of August 17, 1945, Semarang, Dr Sulistiyani has experience serving as Secretary (2013-2016), Head of the Study Program (2016-2021), and currently holds the responsibility as Head of the Quality Assurance Unit of the Master of Management and BKD Assessor since 2021. In academic activities, Dr. Sulistiyani contributes by teaching several important courses such as Marketing Management, Research Methodology, Market Behavior, Marketing Seminars, and Human Resource Management.

