

MSME Empowerment Strategies for Green Business Transformation and Sustainable Eco-Friendly Product Development

Rusmini Barinong*, Asnimar, Ramlah P

Universitas Teknologi AKBA Makassar, Kota Makassar, 90245, Indonesia

*Corresponding Author

Universitas Teknologi Akba Makassar, Jl. Perintis Kemerdekaan Km. 9, Kota Makassar, 902454, Indonesia.

Email: rosmini.barinong04@gmail.com

Received: April 05, 2026; **Revised:** May 10, 2026; **Accepted:** June 28, 2026

Abstract: The empowerment of Micro, Small, and Medium Enterprises (MSMEs) is one of the key strategies for achieving sustainable economic growth and improving public welfare. This study aims to formulate an MSME empowerment strategy that integrates green business practices, the development of environmentally friendly products based on local resources, and national development policy priorities through a SWOT-AHP approach to produce a more comprehensive strategic model in support of sustainable MSME competitiveness. This study was conducted in Makassar City, Maros Regency, and Gowa Regency. Data obtained through observation, documentation, in-depth interviews, and focus group discussions (FGDs) were analyzed using a combined SWOT-AHP method. The results indicate that the following strategies can be implemented: Development of Innovative Green Products Based on Local Resources (SO1), Strengthening the Identity of Environmentally Friendly Local Products as a Key Competitive Advantage (ST1), Improving Digital Literacy and Branding of Environmentally Friendly Products (WO3), Training and Mentoring in Green Business Practices by NGOs and Universities (WO1), and Utilizing Government Support and E-commerce for the Promotion of Green Products (SO2). This study makes a conceptual contribution through the development of a strategic model for MSME empowerment that integrates green entrepreneurship, product development based on local resources, national policy priorities (Asta Cita), and the SWOT-AHP approach as a framework for strategic decision-making aimed at achieving sustainable competitiveness for MSMEs.

Keywords: MSMEs, Green Business, SWOT-AHP

How to Cite: Barinong, R., Asnimar, A., & Ramlah P, R. P. (2026). MSME Empowerment Strategies for Green Business Transformation and Sustainable Eco-Friendly Product Development. *Journal of Economic Education and Entrepreneurship Studies*, 7(3), 368–382. <https://doi.org/10.62794/je3s.v7i3.341>

Copyright 2026 © The Author(s)

The work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International \(CC BY-SA 4.0\)](https://creativecommons.org/licenses/by-sa/4.0/)



INTRODUCTION

The empowerment of Micro, Small, and Medium Enterprises (MSMEs) is one of the central strategies for achieving sustainable economic growth and improving the well-being of the people in Indonesia. Empowerment is not limited to financial aspects but also encompasses management, which contributes to creating a more productive and sustainable business environment (Hanafi et al., 2024). Although various studies have addressed the empowerment of MSMEs, green innovation, and business capacity building, research that integrates these aspects with the utilization of local resources, the development of environmentally friendly products, and

national policy directions remains limited. Therefore, a strategic framework is needed that can link economic, environmental, institutional, and policy dimensions to support the sustainable transformation of MSMEs. In MSME empowerment, there is a need for qualified human resources and supportive regulations as systematic measures to accelerate MSME empowerment. These systematic measures include effective oversight that can support the economic development of MSMEs, thereby reducing inequality and poverty in society (Wahyuni et al., 2024). Successful SME transformation requires a multidimensional approach, including enhancing the competencies of HR within the groups involved in empowerment (Mualim et al., 2024). Management involves a series of activities carried out by individuals or groups to plan, organize, lead, and control resources in order to achieve specific goals (Muktamar et al., 2024). Therefore, in this study, MSME empowerment is viewed as a transformative process that not only enhances business capacity but also builds the capabilities of MSME actors to integrate green innovation, the utilization of local resources, digital marketing, institutional collaboration, and policy support into a sustainable local economic ecosystem. Consequently, the success of MSME transformation is determined not only by economic capabilities but also by the interconnectedness among actors, product innovation, environmental governance, and mutually reinforcing development policy support.

The empowerment of Micro, Small, and Medium Enterprises (MSMEs) in the context of implementing green business practices and environmentally friendly products is a crucial aspect of optimizing local economic sustainability. MSME empowerment strategies focus not only on improving economic well-being but also on integrating effective resource management and leveraging technology in the marketing of eco-friendly products. Competency development is largely determined by the extent to which it is shaped by key indicators, namely: knowledge, skills, expertise, and professional attitudes (Barinong et al., 2022). A comprehensively designed human resource management strategy ranging from workforce planning, training, and competency development to performance-based reward systems can significantly enhance operational efficiency and overall organizational productivity (Sudirman, Asnimar, et al., 2024). The overall strategy for managing MSMEs to improve the well-being of communities and MSMEs is determined by the interconnection between good management governance and the success of MSMEs in producing sustainable and environmentally friendly products (Handayani et al., 2024; Laia et al., 2024). A specific strategic analysis is needed that can be applied to environmentally friendly products to enhance local competitiveness at the regional level (Guntoro et al., 2024). Empowering Micro, Small, and Medium Enterprises (MSMEs) through the implementation of environmentally friendly business practices and products plays a crucial role in achieving sustainability amid growing environmental challenges. For MSMEs, the adoption of eco-friendly production practices can address pressing ecological issues while simultaneously meeting evolving market demands and competitive pressures. The adoption of green production can improve financial performance in the manufacturing sector by emphasizing the production of safe and sustainable goods, thereby driving MSMEs toward eco-friendly processes (Krishnan et al., 2024). This alignment with customer preferences underscores the need for SMEs to incorporate eco-friendly practices into their core business strategies. The relationship between green intellectual capital and business sustainability in SMEs has demonstrated that environmental knowledge within an organization is crucial for enhancing market opportunities (Fitri et al., 2022). Most MSMEs in Indonesia face difficulties due to a lack of human resource training in environmental management, underscoring the importance of equipping employees with relevant skills and knowledge (Tekala et al., 2024). This integrated approach contributes to

operational sustainability and enhances companies' ability to effectively navigate complex market challenges. Strategic expansion and global expansion are key to enhancing competitiveness and business sustainability in international markets (Megawati et al., 2024). Green innovation has a positive impact on sustainable business performance, particularly in social and environmental aspects, even under adverse conditions such as the COVID-19 pandemic (Sisca & Wijaya, 2023). This reflects the resilience that MSMEs can build through innovative practices that meet consumer demands and environmental standards. Green innovation has been shown to significantly and positively impact business performance, particularly by improving operational efficiency and reducing costs (Sudirman, Kusuma, et al., 2024). Various studies support the assertion that companies implementing environmentally friendly measures can strengthen their market position and outperform competitors who fail to adapt (Arsawan et al., 2021; Baeshen et al., 2021). The impact of government support in facilitating eco-friendly initiatives is also significant; for example, financial incentives can empower small and medium-sized enterprises (SMEs) in the United States to adopt eco-friendly technologies, thereby enhancing their competitiveness in the global market (Ogunyemi & Ishola, 2024).

The adoption of eco-friendly business practices and the promotion of eco-friendly products are increasingly becoming critical components for businesses across various sectors. This shift toward sustainability responds to growing consumer awareness of environmental issues while capitalizing on the economic opportunities associated with eco-friendly products. Designing eco-friendly products and implementing sustainable business practices can enhance customer loyalty and attract new consumers, particularly in industries such as tourism and hospitality. The concept of Green Human Resource Management (Green HRM) has emerged as a key mechanism through which companies can promote sustainable practices internally while increasing employee engagement with environmental goals (Imtiaz et al., 2023). Differences in perceptions among consumer demographics require tailored marketing strategies. Research shows that different generational groups, particularly Millennials and Generation Z, are more likely to adopt environmentally oriented retail practices and prioritize sustainability in their purchasing behavior (Gilbert et al., 2022).

Previous research has generally addressed MSME empowerment, green innovation, or the development of environmentally friendly products separately. To date, there has been limited research that integrates green entrepreneurship, the utilization of local resources, and national policy priorities through the Asta Cita Program into a single strategic model. Furthermore, most studies have not combined SWOT analysis with AHP to produce measurable strategic priorities. Therefore, this study addresses this gap by developing a more comprehensive and practical strategic model for MSME empowerment.

This study offers distinct academic contributions compared to previous research in three main aspects. First, this study integrates the concept of MSME empowerment with green business transformation based on local resources into a single, interrelated conceptual framework, so that empowerment is understood not only as an enhancement of economic capacity but also as a process of building sustainable competitiveness through environmentally friendly product innovation. Second, this study develops a strategic prioritization model using an integrative SWOT-AHP approach so that various internal and external factors, opportunities, threats, and policies can be systematically prioritized to support the transformation of MSMEs toward a green economy. Third, this study directly links SME empowerment strategies to the implementation of the Asta Cita Program as the direction of national development policy, thereby generating strategic recommendations that are not only academically relevant but also applicable to local governments, business actors, and other stakeholders. Thus, this study not only provides an empirical contribution regarding the conditions of MSMEs in Makassar City, Maros Regency, and Gowa Regency, but also offers a conceptual contribution in the form of an integrative framework

linking MSME empowerment, green entrepreneurship, product innovation based on local resources, the local economic ecosystem, and national policy priorities. This framework is expected to serve as a reference for the development of sustainable MSME empowerment models in other regions with similar local economic characteristics.

This study makes a conceptual contribution by developing a strategic model for MSME empowerment that integrates green entrepreneurship, the utilization of local resources, and the policy direction of the Asta Cita Program within a single strategic framework. Furthermore, this study applies an integrative SWOT-AHP approach to systematically determine strategic priorities, thereby generating recommendations that not only have academic merit but are also relevant as a basis for formulating sustainable MSME empowerment policies.

METHOD

This study was conducted in Makassar City, Maros Regency, and Gowa Regency, South Sulawesi Province. The research locations were selected through purposive sampling because these three regions have experienced rapid MSME growth, supported by local resource potential, and are beginning to develop business practices oriented toward environmental sustainability. The study population consisted of all MSME operators in these three regions. The research sample was determined using purposive sampling, taking into account MSMEs that are actively operating, utilize local resources, and have the potential to develop environmentally friendly products. This study involved 15 MSME operators representing various business sectors, such as food and beverages, handicrafts, fashion, and processed products based on local resources. In addition to the SME operators, the study also involved 9 individuals, consisting of 1 representative from the Cooperative and SME Agency, 1 representative from the Industry and Trade Agency, 2 academics, 1 SME advisor, and 5 local community members serving as key informants.

Data collection was conducted through field observations, in-depth interviews, documentation, and Focus Group Discussions (FGDs). Observations were conducted to identify the characteristics of MSMEs, production processes, the utilization of local resources, and the implementation of green business practices. In-depth interviews were conducted using a semi-structured approach with 15 key informants to gather information on the potential, constraints, opportunities, and strategies for the sustainable development of MSMEs. Next, an FGD was held involving 9 participants, consisting of 5 MSME representatives, 1 local government representative, 2 academics, and 1 practitioner, to validate the identified strategic factors and reach consensus on the SWOT factors used in the study. Documentation was carried out through the collection of secondary data in the form of government reports, policy documents, statistical data, and various relevant scientific literature.

The roles and functions of these informants are explained as follows:

1. MSME Operators: Serve as the primary informants, providing information on business conditions, the implementation of green business practices, the development of environmentally friendly products, operational challenges, empowerment needs, and strategies that have been or will be implemented in the transition to sustainable business practices.
2. Representatives from the Cooperative and SME Agency: Provide information on policies, empowerment programs, mentoring, financing, training, and government support for SME capacity building toward sustainable business practices.
3. Representatives from the Department of Industry and Trade: Explain policies related to industrial development, product standardization, certification, market access, product downstreaming, and strategies to enhance the competitiveness of environmentally friendly products at both the regional and national levels.
4. Academics: Provide scientific perspectives on the concept of green business, technological innovation, the development of environmentally friendly products, sustainability, and research-based recommendations to support the transformation of MSMEs.

5. MSME Advisors: Share practical experience regarding MSME mentoring, business development strategies, entrepreneurial capacity building, marketing, product innovation, and the implementation of effective green business practices.
6. Local community members: Provide insights on community acceptance of environmentally friendly products, the social and economic impacts of SME activities, changes in consumer behavior, and community support for sustainable business development.

The Strengths, Weaknesses, Opportunities, and Threats (SWOT) factors were derived through a process of triangulating the results of observations, interviews, documentation, and focus group discussions (FGDs). All the information obtained was then synthesized, categorized, and grouped into internal factors (strengths and weaknesses) and external factors (opportunities and threats). The results of this identification were then revalidated through focus group discussions (FGDs) to arrive at agreed-upon SWOT factors as the basis for developing alternative strategies for MSME empowerment. The data were analyzed using the SWOT-AHP (Analytical Hierarchy Process) integration method (Fan et al., 2023; Uğurlu, 2023). The SWOT analysis was used to identify the internal and external conditions of MSMEs in the implementation of green business practices and the development of environmentally friendly products to support the Asta Cita Program. Subsequently, the AHP method was used to determine the weight of each factor's importance and the priority of strategies through pairwise comparisons using Saaty's fundamental scale (1–9).

The AHP assessment was conducted by four experts (expert judgment), consisting of two academics, one MSME practitioner, and one government representative with experience in MSME empowerment and green business development. All assessments were processed using the AHP method to obtain priority weights at the criteria, factor, and strategic alternative levels. To ensure the reliability of the results, a Consistency Ratio (CR) test was performed on each pairwise comparison matrix. A matrix was deemed consistent if the CR value was ≤ 0.10 , in accordance with the criteria proposed by Saaty.

The stages of the research analysis include: (1) observation, interviews, documentation, and focus group discussions (FGDs); (2) identification and validation of SWOT factors; (3) development of a SWOT matrix; (4) determining factor weights using AHP through pairwise comparisons; (5) consistency testing (Consistency Ratio); and (6) prioritizing MSME empowerment strategies based on the integration of SWOT and AHP. SWOT factors were identified through thematic analysis of the results of observations, interviews, documentation, and FGDs. The data was first coded and then grouped into themes classified as Strengths, Weaknesses, Opportunities, and Threats. Subsequently, the identification results were validated through focus group discussions (FGDs) with MSME stakeholders, government officials, academics, and practitioners to reach a consensus on the strategic factors used as the basis for the SWOT-AHP analysis.

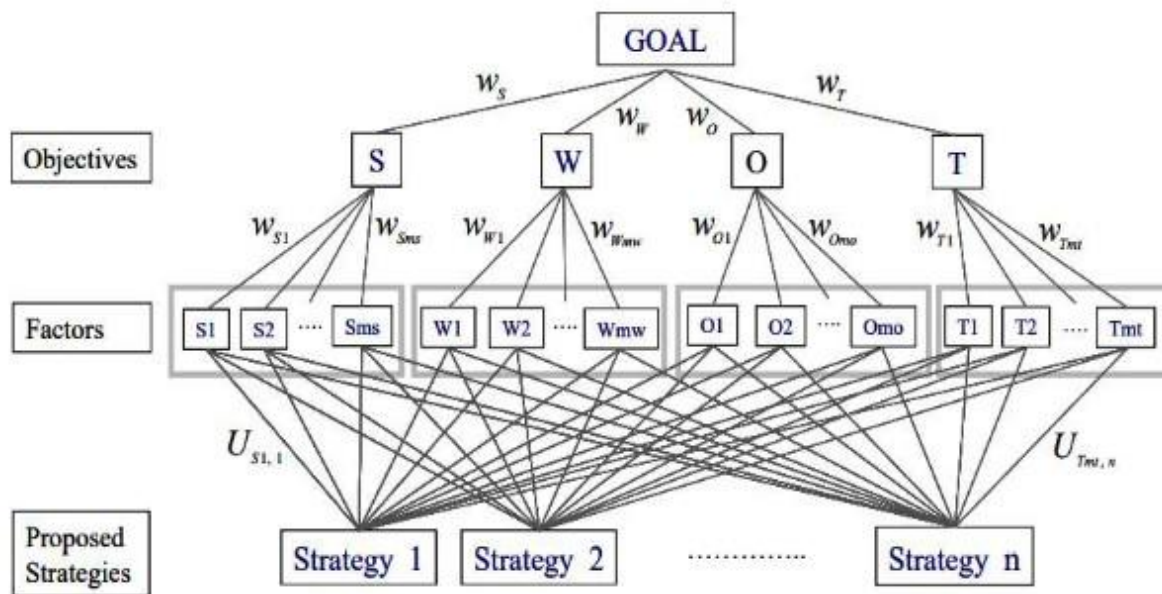


Figure 1. AHP-SWOT Hierarchy

RESULTS AND DISCUSSION

SWOT Analysis

The strategy for empowering micro, small, and medium-sized enterprises (MSMEs) in the implementation of green business practices and environmentally friendly products through SWOT analysis was carried out by grouping two strategic factors derived from the situation and conditions of MSMEs, namely 1) internal factors, consisting of strengths and weaknesses, and 2) external factors, consisting of opportunities and threats.

Research Results

This section describes how activities are carried out to achieve goals. Explain the indicators for achieving the objectives and the benchmarks used to state the success of the research activities that have been carried out. Articles can be strengthened by relevant documentation, or the main focus of the activity. Documentation can be in the form of images of the implementation or implementation process, images of product prototypes, tables, graphs, and so on. If there are subheadings in the results, write them in capitalized, lowercase letters in bold. As with other sections, no numbers, letters or bullets are given.

Tables and figures are part of the manuscript and are not separated from the body of the manuscript. Place tables and figures where they fit the narrative so they complete the narrative. Tables and figures are numbered sequentially according to the order in which they appear in the text. Tables and figures should be titled. The numbers are followed by the title of the table and the figure. After or before the images and tables are given 1 row of space, the table view can be seen in Table 1.

Table 1. Internal Factors

No	Strengths	Weaknesses
1	MSMEs' Close Ties to Local Communities	Lack of Knowledge About Green Business Practices
2	Flexible Business Scalability	Limited Access to Green Technology
3	Utilization of Local Resources	Insufficient Capital for Green Transformation
4	Potential for Innovation in Environmentally Friendly Products	Low Levels of Environmental Certification and Standards

5	Government Policy Support through Asta Cita	Limited Managerial and Human Resource Capacity
6	Participation in the Local Economic Ecosystem	Limited Digital Literacy and Green Product Marketing

Table 2. External Factors

No	Opportunities	Threats
1	Government Support for the Green Economy	Competition from Cheaper Conventional Products
2	Consumer Trends Toward Environmentally Friendly Products	Economic Uncertainty and Market Instability
3	Access to Green Financing and Private-Sector CSR	Lack of Consumer Awareness of the Value of Green Products
4	Partnerships with Educational Institutions and NGOs	Greenwashing by Large Companies
5	Advances in Digital Technology and E-commerce	Limitations of Environmental Support Infrastructure
6	Alignment with National Development Goals (Asta Cita)	Regulatory Requirements and International Standards

Internal factors consist of strengths and weaknesses, as presented in Table 1. Internally, MSMEs in Makassar City, Maros Regency, and Gowa Regency possess a number of strengths that serve as a crucial foundation for supporting the transition toward green business practices. First, the close ties between MSMEs and local communities are a strategic asset because they foster synergy between business operators and the surrounding community. This synergy strengthens the identity of products rooted in local wisdom, fosters consumer loyalty, and enhances social and economic sustainability. Additionally, community support expands the socio-economic network that facilitates marketing and innovation. Second, the flexible scalability of these businesses allows MSMEs to adapt to market dynamics and consumer needs. This flexibility facilitates the integration of green business practices into the supply and distribution chains, enabling businesses to grow sustainably.

Another notable strength is the utilization of local resources. Raw materials such as pandan fiber, rattan, agricultural products, and organic waste form the foundation of environmentally friendly production at relatively low costs. This not only reduces dependence on imported materials but also lowers the carbon footprint and opens up opportunities for highly competitive product innovation. In line with this, MSMEs in these three regions demonstrate innovation potential in developing green products, such as producing eco-friendly packaging made from organic waste and utilizing cocoa husks as raw materials for creative products. Research-based innovation in collaboration with universities adds value and enhances competitiveness in both national and international markets. Government policy support through the Asta Cita Program further strengthens the capacity of MSMEs through training, mentoring, licensing facilitation, and access to financing. This policy serves as a key catalyst for fostering an inclusive green business ecosystem. Furthermore, the participation of MSMEs in the local economic ecosystem through cooperatives, eco-friendly product festivals, and collaborations with educational institutions further strengthens their competitiveness. Thus, the internal strength of MSMEs lies not only in economic aspects but also in social and environmental sustainability.

However, MSMEs also face a number of weaknesses that could potentially hinder the sustainability of green businesses. A lack of knowledge about green business practices is a major obstacle. Most business owners still view environmentally friendly practices as complicated and expensive, so they are less motivated to adopt them. This challenge is further compounded by

limited access to green technology. A lack of information, infrastructure, and financing prevents MSMEs from utilizing clean production technologies or energy-efficient equipment. Additionally, the lack of capital for green transformation poses a significant barrier, as initial investments in environmentally friendly technologies, workforce training, and certification entail high costs.

Another weakness is the low level of certification and implementation of environmental standards. Without official certification, eco-friendly products struggle to compete in modern markets, especially on an international scale. The high cost and complexity of certification deter MSMEs from investing. Furthermore, limited managerial capacity and human resources (HR) hinder MSMEs' ability to integrate sustainability principles into business management. The lack of technical training and skilled labor limits opportunities for innovation and adaptation to environmental regulations. Finally, low digital literacy and limitations in marketing green products restrict market penetration. In fact, digital branding and promotion are key to reaching environmentally conscious consumers. These weaknesses underscore the need for systematic intervention by the government, educational institutions, NGOs, and the private sector to strengthen the capacity of MSMEs.

Discussion

External factors consist of opportunities and threats, as presented in Table 2. Externally, MSMEs have significant opportunities that can strengthen their transition to green business practices. Government support for the green economy through policies and incentives opens strategic opportunities for developing sustainable businesses. Local governments have provided training, access to financing, and market facilitation for green products, which encourages MSMEs to be more confident in their transformation. Another significant opportunity is the shift in consumer preferences toward environmentally friendly products. Public awareness particularly among the younger generation and urban communities is growing regarding sustainability, giving green products broad market prospects.

In addition, access to green financing and private-sector CSR support are key factors in fostering investment in clean technology and product innovation. CSR programs focused on training, technical assistance, and marketing provide direct benefits to MSMEs. Furthermore, partnerships with educational institutions and NGOs provide access to research, innovation, and technical assistance to enhance the quality of green products. Educational institutions provide a foundation of knowledge and technology, while NGOs serve as facilitators of empowerment and liaisons to the market. Moreover, advancements in digital technology and e-commerce present significant opportunities for MSMEs to expand their market reach beyond geographical boundaries. Digital platforms enable green products to be promoted effectively, increase production transparency, and strengthen branding. Finally, alignment with National Development Goals through the Asta Cita Program ensures that the development of green SMEs is in line with regional and national development directions, thereby guaranteeing the long-term sustainability of the program.

Nevertheless, MSMEs also face serious external threats. Competition from cheaper conventional products is a major challenge, as the local market remains price-sensitive. Green products, which are generally more expensive, struggle to compete without clear value differentiation. Furthermore, economic uncertainty and market instability caused by fluctuations in raw material prices, inflation, and global dynamics make MSMEs vulnerable to crises. This disrupts long-term planning and weakens commitment to sustainable investment.

Another threat is the low awareness among local consumers regarding the value of green products. Many consumers still prioritize functionality and price over environmental impact, so eco-friendly products have not yet gained full market support. Greenwashing practices by large corporations also add to the challenges, as companies with substantial capital are able to promote eco-friendly claims on a massive scale, even if they are not entirely accurate. This situation causes consumer confusion while also harming MSMEs that consistently adhere to green principles. Furthermore, limited environmental support infrastructure such as waste management facilities, recycling programs, and eco-friendly transportation hinders the comprehensive implementation of green business practices. Finally, increasingly stringent regulatory requirements and international standards place a burden on SMEs, as limitations in capital, technology, and managerial capacity make it difficult for them to meet export requirements.

Based on an analysis of internal and external factors, it can be concluded that MSMEs in Makassar, Maros, and Gowa have great potential to become the driving force behind an inclusive and sustainable green economic transformation. Their main strengths lie in their close ties to local communities, the utilization of local resources, their potential for innovation, and government policy support. Meanwhile, their fundamental weaknesses remain in limited capital, technology, certification, managerial capacity, and digital literacy. Externally, significant opportunities are available through affirmative policies, green consumer trends, financing, partnerships, and digitalization. However, the threats they face include price competition, market instability, low consumer awareness, greenwashing, infrastructure limitations, and global regulatory demands.

SWOT-AHP Integration

The first stage, the criteria comparison stage, involves comparing the general SWOT elements: strengths (S), weaknesses (W), opportunities (O), and threats (T). At this stage, all aspects are compared with one another to identify priority elements that require greater attention. The graph showing the results of the criteria comparison is presented in Figure 2.

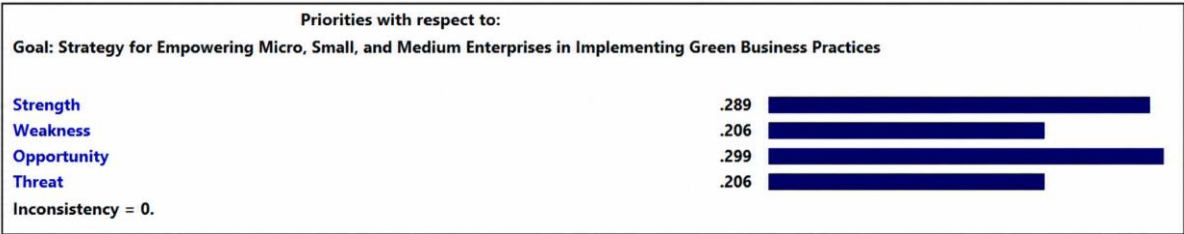


Figure 2. Comparison among SWOT criteria

In the criteria stage, the four main elements of SWOT are generally compared with one another. As shown in Figure 2, the highest criterion value is for strengths at 0.289, followed by weaknesses at 0.206, opportunities at 0.299, and threats, which have the lowest value at 0.206.

The second stage is the factor comparison stage. At this stage, each factor within the existing criteria is compared with one another. The results of these comparisons will produce a priority ranking of the factors to be considered. The results of the comparisons for each factor are presented in Figures 3–6.

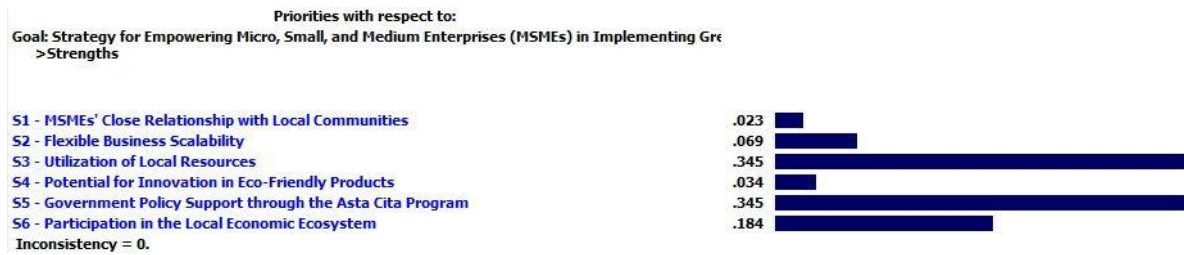


Figure 3. Comparison of Strength Factors

Figure 3 shows that the priorities among the strength factors, in descending order, are Utilization of Local Resources (0.345), Government Policy Support through Asta Cita (0.345), Participation in the Local Economic Ecosystem (0.184), Flexible Business Scalability (0.069), Potential for Innovation in Environmentally Friendly Products (0.034), and the Proximity of MSMEs to Local Communities (0.023). These findings indicate that strategies to strengthen MSMEs should maximize regulatory support and the utilization of local resources, accompanied by increased engagement in the local economic ecosystem.



Figure 4. Comparison of Weakness Factors

Figure 4 shows that the priorities among the weakness factors, in order, are Lack of Knowledge about Green Business Practices (0.081), Limited Access to Green Technology (0.048), Insufficient Capital for Green Transformation (0.194), Low Levels of Environmental Certification and Standards (0.258), Limited Managerial and Human Resource Capacity (0.323), and Limited Digital Literacy and Green Product Marketing (0.097).



Figure 5. Comparison of Probability Factors

Figure 5 shows that the priorities among opportunity factors, in order, are Government Support for the Green Economy (0.333), Consumer Preference for Environmentally Friendly Products (0.044) Access to Green Financing and Private-Sector CSR (0.111), Partnerships with Educational Institutions and NGOs (0.111), Advances in Digital Technology and E-commerce (0.222), and Alignment with National Development Goals (Asta Cita) (0.178).



Figure 6. Comparison of Risk Factors

Figure 6 shows that the priorities among threat factors, in order, are Competition from Cheaper Conventional Products (0.290), Economic Uncertainty and Market Stability (0.129), Lack of Consumer Awareness of the Value of Green Products (0.194), Greenwashing by Large Companies (0.032), Limitations of Environmental Support Infrastructure (0.323), and Regulatory Requirements and International Standards (0.032).

The final stage is the stage of comparing strategies. The results of this stage are shown in Figures 7 and 8



Figure 7. Comparison of Strategies

Figure 8 identifies five strategies considered priorities for the empowerment of micro, small, and medium-sized enterprises in the implementation of green business practices and eco-friendly products in support of the Asta Cita program: the development of innovative green products based on local resources (S01), Strengthening the Identity of Environmentally Friendly Local Products as a Key Competitive Advantage (ST1), Improving Digital Literacy and Branding of Environmentally Friendly Products (W03), Training and Mentoring on Green Business Practices by NGOs and Universities (W01), and Utilizing Government Support and E-commerce for the Promotion of Green Products (S02). The complete SWOT-AHP hierarchy is shown in Figure 8. The Inconsistency value is 0.10.



Figure 8. Strategy Priority Order

These two factors complement each other: local resources provide the foundation for eco-friendly product innovation, while government policies play a role in providing training, financing, certification, and market access. The combination of the two serves as the primary capital for addressing the internal weaknesses of MSMEs, particularly limitations in green technology, low managerial capacity, and weak digital literacy.

On the other hand, threats such as limited environmental support infrastructure and competition from cheaper conventional products indicate that the green transition cannot be achieved by SMEs alone. Collaboration is needed among local governments, universities, the private sector, financial institutions, and digital platforms to build an ecosystem that supports the adoption of green business practices. Thus, the SWOT-AHP results not only identify priority factors but also illustrate the relationships among these factors, serving as the foundation for developing an integrated and sustainable SME empowerment strategy.

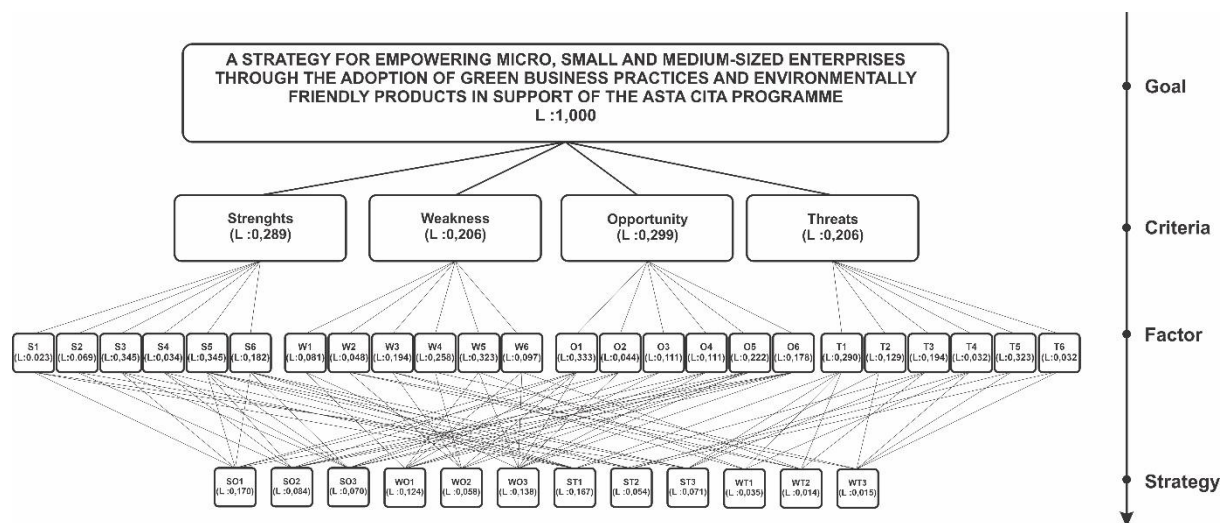


Figure 9. SWOT-AHP Hierarchy Chart

The priority strategies derived through the integration of SWOT and AHP represent a synthesis of the strategic positions in the SWOT matrix and the weighting of importance using AHP, such that each strategy is selected based on its ability to leverage the internal and external factors with the highest weights. The Strategy for Developing Innovative Green Products Based on Local Resources (SO1) ranks as the top priority because it combines the key strength of utilizing local resources and support from the Asta Cita policy with the opportunity presented by increasing government support for the green economy and the growing market for environmentally friendly products. The Strategy for Strengthening the Identity of Environmentally Friendly Local Products as a Key Competitive Advantage (ST1) is prioritized next because it leverages internal strengths to address the threats posed by cheaper conventional products, low consumer awareness, and greenwashing practices that can undermine market trust. Furthermore, “Improving Digital Literacy and Branding of Environmentally Friendly Products” (WO3) and “Training and Mentoring on Green Business Practices by NGOs and Universities” (WO1) are WO-type strategies designed to address the key weaknesses of MSMEs—particularly limitations in managerial capacity, digital literacy, and knowledge of green business, by leveraging opportunities such as advancements in digital technology, partnerships with universities and NGOs, and government support. Meanwhile, “Utilizing Government Support and E-commerce for Green Product Promotion” (SO2) reinforces the implementation of the previous strategies by optimizing internal strengths and external opportunities to expand market access. These five strategies are prioritized because they simultaneously have higher AHP weights compared to other strategic alternatives and are capable of addressing the most dominant SWOT factors; thus, they are deemed more urgent and more feasible to implement as the initial stages of MSME transformation toward sustainable green business practices.

The five priority strategies identified through the integration of SWOT and AHP are not standalone but form interrelated implementation phases. The initial stage focuses on training and mentoring in green business practices provided by universities, local governments, and NGOs to enhance human resource capacity, understanding of environmentally friendly production, and the readiness of MSMEs to meet certification standards. The next stage is directed toward the development of green products based on local resources as an effort to increase added value, improve resource efficiency, and achieve product differentiation.

Once product quality has improved, the strategy continues by strengthening the product's eco-friendly identity through certification, packaging improvements, and the development of credible environmental claims to ensure the product's competitiveness in the market. Next, digital literacy and branding were strengthened through the use of digital media and e-commerce platforms, thereby expanding the marketing reach. In the final stage, government support through policies, financing, incentives, and partnerships became a key factor in expanding the sustainable implementation of the strategy.

The successful implementation of the strategy requires complementary roles among stakeholders. Local governments play a role in providing regulations, incentives, and facilitating certification; universities and NGOs provide training, mentoring, and technology transfer; MSME associations strengthen business networks and collaboration among business actors; while e-commerce platforms support expanded market access and the promotion of green products. Synergy among these actors is expected to enhance the competitiveness of MSMEs, accelerate the transition to green business practices, and support sustainable regional economic development.

The implications of this study suggest that the green transformation of MSMEs requires a phased approach that integrates capacity building for business owners, the development of products based on local resources, the strengthening of product identity, the digitization of marketing, and government policy support. Thus, the resulting strategies serve not only as recommendations for MSME owners but also as a guide for local governments, universities, NGOs, and the private sector in building a sustainable green entrepreneurship ecosystem.

CONCLUSIONS

This study produced a strategic model for MSME empowerment that integrates green business practices, the development of environmentally friendly products based on local resources, and national development policy directions through the SWOT-AHP approach. The model identifies the development of green products based on local resources, the strengthening of the identity of environmentally friendly products, the improvement of digital literacy and branding, training and mentoring, as well as the optimization of government support and e-commerce platforms as complementary priority strategies for sustainably enhancing the competitiveness of MSMEs. These findings provide a conceptual contribution in the form of a strategic framework that links economic, environmental, institutional, and policy aspects in the transformation of MSMEs toward green business. However, the findings of this study are contextual, reflecting the characteristics of MSMEs in Makassar City, Maros Regency, and Gowa Regency, and are based on the identification of SWOT factors and expert assessments using the AHP method. Therefore, future research should validate the resulting strategic model through implementation across various sectors and regions, accompanied by longitudinal evaluations to test the effectiveness, consistency, and sustainability of its impact on enhancing the competitiveness of MSMEs.

REFERENCES

- Arsawan, I. W. E., Koval, V., Duginets, G., Kalinin, O., & Korostova, I. (2021). The impact of green innovation on environmental performance of SMEs in an emerging economy. *E3S Web of Conferences*, 255, 01012. <https://doi.org/10.1051/e3sconf/202125501012>
- Baeshen, Y., Soomro, Y. A., & Bhutto, M. Y. (2021). Determinants of green innovation to achieve sustainable business performance: Evidence from SMEs. *Frontiers in Psychology*, 12, 767968. <https://doi.org/10.3389/fpsyg.2021.767968>
- Barinong, R., Semmaila, B., & Serang, S. (2022). Pengaruh kompetensi dan motivasi terhadap kinerja pegawai pada Kantor Cabang BRI Panakkukang Makassar. *SEIKO: Journal of Management & Business*, 5(2), 116–136.
- Fan, P., Zhu, Y., Ye, Z., Zhang, G., Gu, S., Shen, Q., Meshram, S. G., & Alvandi, E. (2023). Identification and prioritization of tourism development strategies using SWOT, QSPM, and AHP: A case study of Changbai Mountain in China. *Sustainability*, 15(6), 4962. <https://doi.org/10.3390/su15064962>
- Fitri, A., Diamastuti, E., Romadhon, F., & Maharani, H. (2022). The effect of green intellectual capital on SMEs' business sustainability. *Jurnal Bisnis dan Manajemen*, 9(1), 55–64.
- Gilbert, G., Tuazon, E. G., Ventura, D. P., & Etrata Jr, A. E. (2022). Generational comparison: The influence of eco-centric retail business practices on Generation Y and Generation Z's purchase intention in the Philippines. *Millennium Journal of Humanities and Social Sciences*.
- Guntoro, G., Wibisono, M. A. A., Rahmawati, A., Ali, H. A., & Saputra, S. T. (2024). Pemberdayaan UMKM dan peran wanita melalui digitalisasi pemasaran. *Blantika: Multidisciplinary Journal*, 2(3), 306–310.
- Hanafi, H., Sitorus, S., Wibowo, S., Akromah, P., & Pramudya, D. (2024). Strategi pemberdayaan UMKM untuk meningkatkan kesejahteraan keluarga. *Blantika: Multidisciplinary Journal*, 2(3), 330–335. <https://doi.org/10.57096/blantika.v2i3.113>
- Handayani, W., Ekantiana, E., Sari, P. S., Hapsari, G., & Narni, N. (2024). Optimalisasi kesejahteraan keluarga melalui pemberdayaan UMKM. *Blantika: Multidisciplinary Journal*, 2(3), 336–341.
- Imtiaz, U., Dilawar, B., & Cheema, S. (2023). Assessing the influence of green HR strategies on company sustainability. *Pakistan Social Sciences Review*, 7(4), 280–285.
- Krishnan, V., Jayabalan, N., Prebakarran, P. N., Pentang, J. T., & Zedan, L. (2024). Unlocking profitability: Green production adoption and SME performance. *Journal of Ecohumanism*, 3(8), 4363–4380. <https://doi.org/10.62794/jeh.v3i8.4363>
- Laia, E., Puspitasari, L., Winaktu, H., Nurjannah, N., & Syahrudin, A. A. (2024). Peningkatan kesejahteraan keluarga melalui pemberdayaan UMKM. *Blantika: Multidisciplinary Journal*, 2(3), 342–347.
- Megawati, I. A. P., Wahyudin, D. Y., Rusmini, Utomo, B., & Mutmainnah, I. (2024). *Strategi manajemen: Membangun keunggulan bersaing*. Yayasan Putra Adi Dharma.
- Mualim, W., Pratama, B., Juwita, T., Nuh, M., & Fazira, I. (2024). Pemberdayaan transformasi UMKM. *Blantika: Multidisciplinary Journal*, 2(3), 299–305. <https://doi.org/10.57096/blantika.v2i3.106>
- Muktamar, A., Mutmainnah, I., Ramadani, E. F., Rusmini, & Arlini, L. (2024). *Prinsip-prinsip manajemen*. Yayasan Putra Adi Dharma.

- Ogunyemi, F. M., & Ishola, A. O. (2024). Global competitiveness and environmental sustainability for SMEs. *International Journal of Management and Entrepreneurship Research*, 6(11).
- Sisca, S., & Wijaya, A. (2023). The role of green innovation in MSMEs during COVID-19. *International Journal of Science, Technology & Management*, 4(1), 228–232. <https://doi.org/10.46729/ijstm.v4i1.750>
- Sudirman, A., Asnimar, & Rusmini. (2024). *Manajemen sumber daya manusia*. Pena Persada.
- Sudirman, A., Kusuma, R. C. S. D., Halim, F., & Sembiring, L. D. (2024). Green competitive advantage mediation in SMEs. *International Journal of Business, Law, and Education*, 5(2), 2617–2627.
- Tekala, K., Baradarani, S., Alzubi, A., & Berberoğlu, A. (2024). Green entrepreneurship for sustainability. *Sustainability*, 16(13), 5291. <https://doi.org/10.3390/su16135291>
- Uğurlu, H. (2023). Application of combined SWOT and AHP (A'WOT). *Turkish Journal of Maritime and Marine Sciences*, 9(2), 129–147. <https://doi.org/10.5505/trjmms.2023.27552>
- Wahyuni, S., Hidayati, K., Qotrunnisa, R., & Meisyaroh, E. (2024). Analisa program pemberdayaan UMKM. *Ekoma: Jurnal Ekonomi Manajemen Akuntansi*, 4(1), 2429–2436. <https://doi.org/10.56799/ekoma.v4i1.6089>