



Analysis Of A Green Economy-Based Digital Marketing Model Using Porter's Five Forces Model On Micro, Small, And Medium Enterprises (Msmes) In Border Areas

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ABSTRACT

This study aims to describe how micro, small, and medium enterprises (MSMEs) can use Porter's Five Forces approach to utilize sustainable digital marketing and increase product competitiveness in an increasingly competitive market. This study employs a qualitative descriptive approach, obtaining data from literature reviews and interviews with five informants from four clusters: agriculture, the creative industry, services, and culinary. NVivo 15 was used for qualitative data processing, and qualitative data analysis was carried out through data reduction, presentation, and conclusion-drawing. The obtained data were then validated through a problem-based learning (PBL)-based focus group discussion (FGD) process with all informants. The results of this study present a community-based green economy digital model with three pillars: a green economy, improved digital marketing infrastructure, and educational programs and mentoring services for MSMEs within the scope of the green economy in border areas.

INTRODUCTION

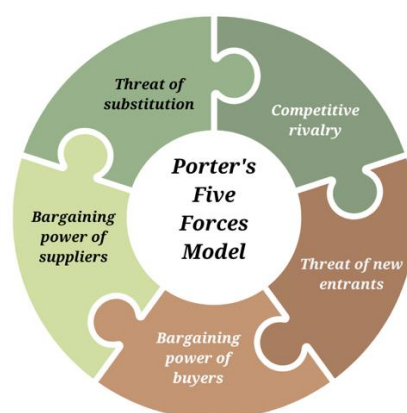
In the context of rapid globalization and digitalization, micro, small, and medium enterprises (MSMEs) play a crucial role in the Indonesian economy. They contribute approximately 60% to gross domestic product (GDP) and employ over 97% of the workforce, serving as the backbone of the national economy (Central Bureau of Statistics, 2023; Rizaty, 2022; Ubaidillah, 2023). However, MSMEs in border areas often face challenges such as limited access to markets, technology, and financing, hindering their growth and competitiveness (Sharma et al., 2023). Bengkayang Regency, located in West Kalimantan Province, is one such border area with geographical potential that MSMEs view as an opportunity. The following summarizes data on the scale of MSMEs in Bengkayang Regency, as reported in the West Kalimantan Province MSME Cooperative Development Report.

Digital transformation is expected to increase business competitiveness (Masa'deh et al., 2025), but many businesses still struggle to implement effective digital strategies (Manggu et al., 2024). According to a survey by the Boston Consulting Group, lack of access to financing, digital training, and government support are major obstacles for MSMEs in digitalization (Pelletier & Cloutier, 2019). On the other hand, the concept of a green economy is gaining attention worldwide, including in Indonesia. There, green economy principles focus on reducing environmental risks and resource scarcity while improving human well-being (Atlantika et al., 2023b).

Applying green economic principles to digital marketing can help MSMEs attract environmentally conscious consumers, improve their brand image, and foster customer loyalty (Shabbir et al., 2020). Porter's Five Forces Model can be used to analyze the competitiveness of MSMEs in frontier regions by considering five main forces affecting the industry: threat of new entrants, bargaining power of suppliers and buyers, threat of substitute products or services, and rivalry among entrepreneurs (Bajgorić et al., 2022). Analyzing these forces helps MSMEs identify key factors affecting their competitiveness and formulate marketing strategies to address these challenges (Manggu et al., 2024).

In recent years, there has been significant development in studies on digital marketing and the green economy, particularly in the context of MSMEs (Suhayati et al., 2024). Digital marketing is now a vital tool for MSMEs to increase their visibility and competitiveness in an increasingly competitive market (Susilo et al., 2022). Previous research indicates that implementing effective digital marketing strategies can strengthen customer interactions and expand market reach. This helps MSMEs adapt to changing market dynamics (Atlantika et al., 2025). Understanding market dynamics provides a clear picture of the marketing environment and is expected to lead to effective decision-making (Manggu et al., 2023). Furthermore, Porter's Five Forces Model is widely used to analyze competitiveness in various industries. Understanding the forces that influence market competition is essential for developing appropriate strategies (Adiwibowo, 2017). However, the application of this model in the context of MSMEs, particularly in border areas, remains limited. While several studies have examined factors influencing the success of MSMEs (Manggu & Beni, 2020), few have linked green economy-based digital marketing with a Porter's Five Forces analysis.

Figure 1 Porter's Five Forces Model



The novelty of this research lies in the integration of digital marketing, green economy, and Porter's Five Forces analysis in the context of MSMEs in border areas. This research addresses market and technological limitations that hinder MSME competitiveness in the era of globalization and digitalization based on a green economy. The goal is to demonstrate how MSMEs can use sustainable digital marketing strategies, employing Porter's Five Forces

approach, to enhance product competitiveness in an increasingly competitive market. By adopting green economy principles, MSMEs can attract consumers and strengthen their market position (Atlantika et al., 2023a). This research is expected to provide relevant strategic recommendations for MSMEs to adapt to market dynamics and improve business sustainability by analyzing these five forces. Thus, this research contributes to both the development of theory and the practice of MSME development in border areas.

LITERATURE REVIEW

Digital Marketing Models

Digital marketing models have undergone rapid development alongside technological transformations and shift in consumer behavior in the digital era. Currently, these models integrate data-based approaches and technologies, such as artificial intelligence (AI) and big data, to improve personalization and targeting accuracy (Hicham et al., 2023). The RACE (Reach, Act, Convert, Engage) model is a popular framework that emphasizes the end-to-end process of reaching audiences and building long-term relationships with customers through integrated digital channels (Sestino et al., 2023). Additionally, the digital marketing mix model adapts the four Ps (product, price, promotion, and place) to the digital context, including social media, SEO, and e-commerce platforms. These adaptations significantly impact the effectiveness of marketing campaigns (Babatunde et al., 2022). Recent studies also demonstrate the importance of an omnichannel strategy combining online and offline channels to create a consistent and seamless customer experience (Salem & Alanadoly, 2024). Meanwhile, research on community-based marketing and social media confirms that active engagement in digital communities increases brand loyalty and customer lifetime value (Rocheffort & Ndlovu, 2024). Overall, digital marketing models prioritize flexibility and adaptability and use advanced technology to optimize the customer journey across various digital touchpoints.

Porter's Five Force Model

Porter's Five Forces Model is a crucial framework for business strategy analysis and assessing industry competitiveness. It identifies five key forces: the threat of new entrants, the bargaining power of suppliers and buyers, the threat of substitute products, and rivalry among existing competitors (Kohnová & Salajová, 2023). However, recent research emphasizes the need to adapt the model to address technological change and global market dynamics, particularly in the context of digitalization, as it increases competitive complexity (Sumba-Bustamante et al., 2024). Furthermore, applying the model to the MSME and digital business sectors demonstrates its effectiveness in helping businesses more strategically identify opportunities and threats (Naradda Gamage et al., 2020). Another study proposes integrating sustainability and innovation factors into a portfolio analysis of forces to strengthen competitive positions in the digital economy (Varadarajan, 2017). However, the model must continually be updated to reflect new factors in the rapidly changing business environment in order to remain relevant in formulating responsive and adaptive strategies (Öneren et al., 2017). Thus, Porter's Five Forces Model remains a vital tool for understanding and mapping the competitive structure and potential profits of contemporary industries.

METHODS

This research employed a qualitative method, obtaining data from observations, literature studies, questionnaires, and in-depth interviews with informants from four MSME clusters in the border area. The MSMEs were grouped into four clusters: agricultural, creative industries, services, and culinary. Respondents were selected using purposive sampling from each MSME cluster. The only criterion was that they be in Bengkayang Regency in West Kalimantan, an area

on the Indonesia-Malaysia border. After collecting the initial data, the next step was to confirm it through focus group discussions (FGDs) based on problem-based learning (PBL) (Agustin & Hidayat, 2024). The data were confirmed and validated in the focus group discussion (FGD) and processed using the QDA software NVivo 15. This method collected data on the problems faced by each MSME cluster so that the research results would align with the set objectives. PBL is a highly relevant approach for delving deeper into the challenges and opportunities that MSMEs face when implementing green economy-based digital marketing. The list of informants in this study is shown in Table 1 below:

Table 1. The informants

No	Informants	Informant Cluster
1	HL	Agriculture
2	RL	Creative Industry
3	HN	Culinary
4	VR	Service
5	VN	Agriculture

This research builds on the findings of previous studies that emphasized understanding, perceptions, and behavior regarding the green economy among MSMEs in border areas. Additionally, other studies have examined digital educational strategies to help MSMEs implement the green economy in these regions. In this context, digital marketing has become a crucial tool for MSMEs to increase their visibility and competitiveness in an increasingly competitive market (Manggu & Beni, 2023). Various sectors are increasingly adopting the green economy concept in response to existing environmental challenges. This research is novel in its integration of digital marketing, the green economy, and Porter's Five Forces analysis in the context of MSMEs in border areas.

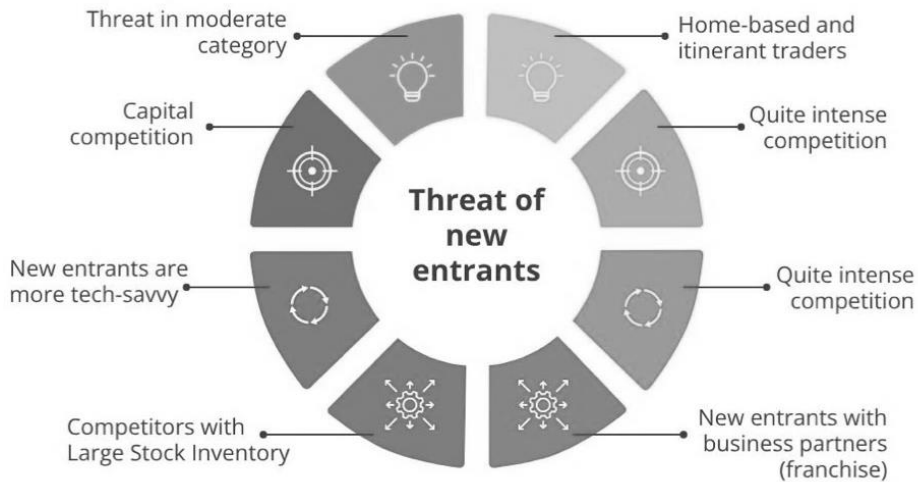
This study aims to fill a gap in the existing literature by describing how MSMEs can use sustainable digital marketing to become more competitive in an increasingly competitive market (Manggu & Beni, 2019). By adopting green economy principles, MSMEs can attract environmentally conscious consumers and strengthen their brand image and customer loyalty. The data used in this study were obtained from primary and secondary sources. Then, the data were validated through focus group discussions (FGDs) using a problem-based learning (PBL) approach.

RESULTS

The Threat Of New Entrants

The threat of new entrants to MSMEs in the industry is relatively low due to various significant barriers to entry. These barriers include high initial costs, strict regulations, and the complexity of developing distribution networks. Additionally, consumer loyalty to existing MSME brands limits new entrants' opportunities to gain meaningful market share. According to data analyzed using QDA, new entrants pose a threat due to technological developments, the emergence of new entrants who are more technologically savvy, businesses with moderate capital, and competitors from the home and mobile industries.

Figure 2. The Threat of New Entrants

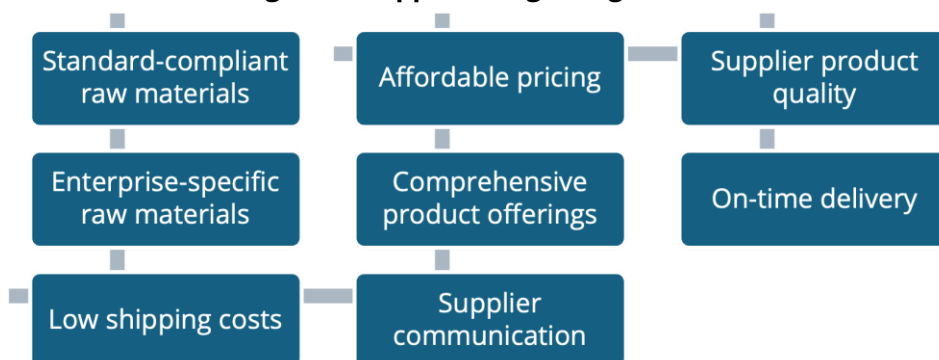


Source: Data Processed, 2025

Supplier Bargaining Power

Recent research by Zhu & Yu (2024) shows that high supplier concentration in some sectors gives suppliers significant power to determine prices and procurement terms. This directly impacts the buyer’s profit margins and is a critical factor influencing a company’s cost structure and competitiveness. Pangarkar and Prabhudesai (2024) also found that buyers’ dependence on suppliers of difficult-to-substitute products strengthens the suppliers’ bargaining power. This forces companies to implement supply source diversification strategies and foster long-term partnerships to mitigate the risks of supplier dominance. Therefore, proactive and strategic supplier relationship management is crucial for maintaining operational stability and competitiveness in an increasingly dynamic market. Figure 3 below shows the bargaining power of suppliers in MSMEs in border areas.

Figure 3. Supplier Bargaining Power

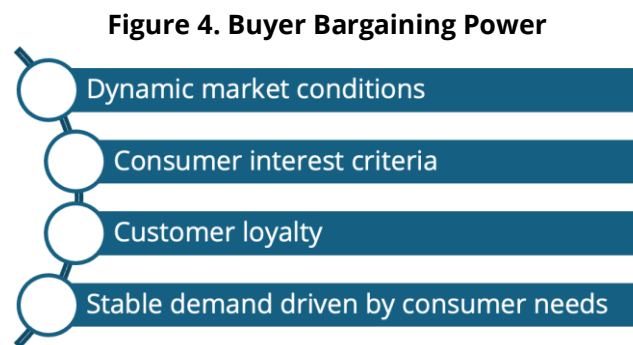


Source: Data Processed, 2025

Buyer bargaining power

Recent research emphasizes the importance of purchase volume and the level of information buyers possess in strengthening their bargaining position, which illustrates the crucial role of buyer bargaining power in influencing pricing strategies and product quality in an industry. For example, a study by Nguyen and Tran (2021) shows that buyers with high purchase volumes can pressure prices down and demand higher product quality, which can significantly impact supplier profitability. Additionally, Almeida et al. (2023) found that easy access to information and alternative suppliers via digital technology empowers buyers by enabling them

to swiftly and efficiently compare prices and quality. Therefore, to mitigate the impact of pressure from buyer bargaining power, companies must develop strategies to maintain buyer loyalty and increase product value.



Source: Data Processed, 2025

Threat Of Substitute Products Or Services

The threat of substitute products or services is a crucial factor influencing a company's competitiveness and strategy in facing market competition, as found in research by Misbahussururi & Hartini (2024) analyzing the fast food sector in Indonesia. They stated that the emergence of innovative substitute products and changes in consumer preferences pose risks that could reduce a company's market share. The traditional beverage industry demonstrates that easy access to substitute products through modern and digital distribution channels exacerbates this threat (Kusumandari et al., 2024). Therefore, companies need to prioritize consumer-oriented product innovation and effective differentiation strategies to maintain customer loyalty and market position. In this study, the threat of substitute products or services for MSMEs in border areas is limited to the presence of Freshmart for basic food businesses and franchises for food products. These businesses are perceived as more attractive to consumers and have greater financial resources than existing MSMEs.

Competition Among Existing Businesses

Azra's (2022) research on the retail sector in Indonesia reveals that competition among existing businesses is a crucial factor in determining the intensity of competition and business strategy within an industry. The study found that a high number of businesses and minimal product differentiation lead to intense price competition, sharply squeezing profit margins. Additionally, research in the Indonesian manufacturing industry highlights product innovation and increased operational efficiency as essential strategies for navigating fierce competition fueled by digitalization and expanded market access (Fitriana & Ali, 2025). Therefore, companies must continuously develop competitive advantages through innovation and improved service quality to maintain market share amid increasingly complex competition. Figure 5 below illustrates competition among businesses in border areas.



Source: Data Processed, 2025

Informants described digital-based competitor marketing as using social media platforms like Facebook, Instagram, and WhatsApp Business for digital marketing. Despite limited internet infrastructure in some border areas, social media platforms are considered close to consumers. These platforms are seen as close to consumers because they allow real-time, two-way interaction; highly personalized messages; and the formation of a sense of community within digital communities. Consumers can provide direct feedback, participate in brand conversations, and experience emotional engagement, which strengthens the bond between the brand and its audience (Eslami et al., 2022). Furthermore, digital marketing can implement environmentally friendly content to support environmental preservation and sustainability. A digital marketing system is expected to reach more potential consumers, making it more effective for introducing products and marketing them.

A Green Economy-Based Digital Marketing Model Using Porter's Five Forces Approach for MSMEs in Border Areas

Based on the findings, MSMEs in border areas described several issues regarding digital marketing. These issues include a lack of digital marketing literacy education, technological barriers related to internet infrastructure, limited funding to implement a green economy, a lack of knowledge about digital marketing algorithms, limited access to raw materials, and a lack of environmentally friendly training and facilities.

The results of the PBL-based focus group discussion (FGD) with all informants regarding the aforementioned problems revealed strategies for implementing digital marketing for MSMEs in border areas:

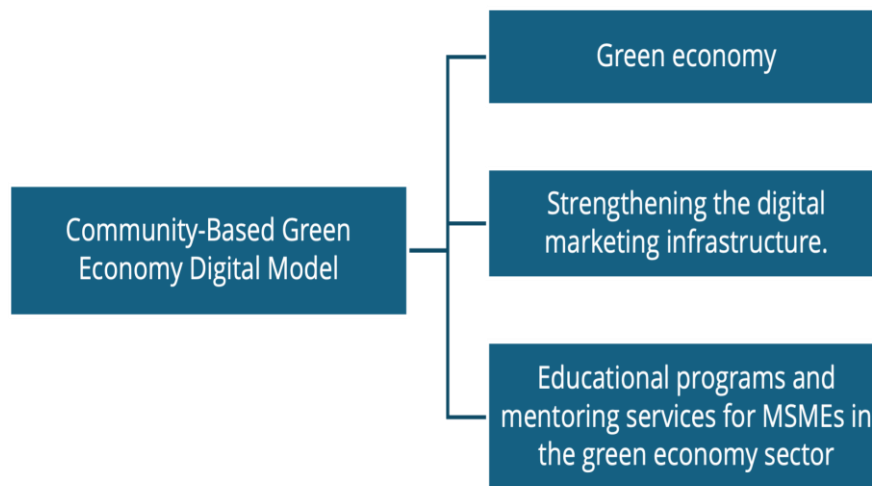
Table 2. Strategy to overcome digital marketing using Porter's Five Forces Model approach

No	Porter's Five Forces Model	Strategy
1	The threat of new entrants	<ul style="list-style-type: none"> Partnership with broadband service providers. Green microcredit schemes and government subsidies reduce financial barriers to implementing a green economy.
2	Supplier bargaining power	Building a sustainable local supplier network through agricultural cooperatives or raw material exchange programs within similar industries.
3	Buyer bargaining power	Digital storytelling through social media, "behind the scenes" videos of environmentally friendly production processes, and the use of eco-friendly labels to raise consumer awareness of environmentally friendly products.
4	Threat of substitute products or services	Cheaper non-green products can replace green products. Differentiation: Value-added innovations and bundled offerings that highlight environmental benefits.
5	Competition among existing businesses	Cross-cluster collaboration among MSMEs (co-branding, joint marketplace) and a shared digital platform that hosts a catalog of all green products, strengthens collective bargaining power to reduce competition.

Source: Data Processed, 2025

Based on the strategy formulated from the PBL-based FGD process, the green economy-based digital marketing model for MSME products in border areas is the application of a community-based green economy digital model.

Figure 6. Community-Based Green Economy Digital Model



Source: Data Processed, 2025

This is a community-based, green economy, digital model that integrates three main pillars. First, it is a green economy that is managed with low-carbon operations and can function independently in border areas without stable networks. Second, it provides digital infrastructure that offers high-speed internet connections (WiFi/5G) and hardware such as computers, tablets, and lightweight servers. It also provides digital platforms for e-commerce, marketing, and analytics. Third, it offers education and service programs that provide digital literacy training based on local wisdom, online marketing courses, and assistance in adopting environmentally friendly practices, such as using biodegradable packaging and managing waste, for MSMEs in border areas.

DISCUSSION

A community-based digital marketing model will encourage micro, small, and medium enterprises (MSMEs) in border areas to compete with other products by offering added value to consumers in these areas. This model's three pillars will foster a new culture within the MSME business environment, making them more aware of sustainable economic issues through digital innovation.

Digital innovation increases local business engagement, connectivity, and sustainable economic growth. Additionally, this model can address instability in digital infrastructure, limited connectivity, and a lack of human resources in border areas. Thus, this model expands the MSME market and accelerates the transition to a green economy without eliminating existing local wisdom.

CONCLUSION

Based on the results of the discussion, digital marketing in border areas is threatened by new competitors, supplier bargaining power, buyer bargaining power, substitute products or services, and competition among the existing businesses. MSMEs in border areas face several challenges, including a lack of education on applying digital marketing, technological barriers related to internet infrastructure, limited resources for a green economy, a lack of knowledge

about digital marketing algorithms, limited raw material supply, and a lack of environmentally friendly training and facilities. A strategy has been formulated to address these issues.

The green economy-based digital marketing model for MSMEs in border areas is a community-based model. The model focuses on three pillars: the green economy, digital infrastructure development, and educational programs and mentoring services for MSMEs within the green economy in border areas.

LIMITATION

One limitation of this research is that it does not describe the role of local governments in establishing sustainable economies for products marketed by MSMEs.

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