

Analysis of the Role of Environmentally Friendly Product Innovation and Green Marketing in Increasing the Competitiveness of the Textile Industry

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ABSTRACT

This study examines the impact of environmentally friendly product innovation and green marketing on the competitiveness of the textile industry. Using a quantitative approach, data were collected from 70 respondents representing key stakeholders in the textile sector. A structured questionnaire employing a Likert scale (1–5) was used to measure the variables, and SPSS version 26 was utilized for data analysis. The results reveal that both environmentally friendly product innovation and green marketing have significant positive effects on competitiveness, with a combined explanatory power of 68%. Environmentally friendly product innovation drives efficiency and differentiation, while green marketing enhances brand loyalty and consumer trust. The findings emphasize the synergistic potential of these strategies in achieving sustainable competitive advantages. This study provides actionable insights for textile companies to integrate sustainability into their core strategies and align with evolving market demands.

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1. INTRODUCTION

The increasing awareness of environmental sustainability has significantly influenced consumer preferences and business strategies worldwide. As industries adapt to this paradigm shift, the textile industry, known for its substantial environmental footprint, faces mounting pressure to adopt sustainable practices [1]. Consumers and regulatory bodies alike are

demanding environmentally friendly products and practices that mitigate ecological harm, creating a critical need for industries to innovate and integrate green strategies into their operations.

In this context, environmentally friendly product innovation and green marketing have emerged as pivotal strategies to enhance the competitiveness of the textile industry. Product innovation, focusing on the development of sustainable materials and

processes, allows companies to address environmental concerns while meeting consumer expectations for eco-friendly solutions [2], [3]. Simultaneously, green marketing emphasizes the promotion of these sustainable practices, enabling companies to build stronger connections with environmentally conscious consumers and achieve differentiation in a highly competitive market.

The textile industry's adoption of these strategies is not merely a response to market demand but also a proactive effort to align with global sustainability goals, such as those outlined in the United Nations Sustainable Development Goals (SDGs). By prioritizing innovation and sustainability, textile companies can reduce their ecological impact, enhance operational efficiency, and establish a competitive edge.

Despite the growing recognition of these strategies, there remains limited empirical research on their combined effect on industry competitiveness, particularly in developing economies where the textile sector plays a vital economic role. This study seeks to address this gap by analyzing the role of environmentally friendly product innovation and green marketing in increasing the competitiveness of the textile industry. The research aims to provide actionable insights into how sustainable practices can be leveraged as a source of competitive advantage.

2. LITERATURE REVIEW

2.1 *Environmentally Friendly Product Innovation*

Environmentally friendly product innovation involves developing products that minimize environmental impacts throughout their lifecycle, emphasizing resource efficiency, reduced waste, and the use of renewable or recycled materials. In the textile industry, this often includes adopting sustainable fabrics,

biodegradable dyes, and eco-efficient processes. Such innovation enhances organizational performance, as [4] argue it addresses ecological concerns while improving efficiency and creating new market opportunities. [5], [6] further highlight its role in building consumer trust and brand loyalty, essential for competitive advantage. While the resource-intensive textile sector increasingly adopts sustainable practices to meet consumer demand and regulatory standards, challenges such as high costs and technological adaptation require strategic planning and stakeholder support.

H1: Environmentally friendly product innovation has a positive and significant effect on the competitiveness of the textile industry.

2.2 *Green Marketing*

Green marketing promotes products or services based on their environmental benefits, integrating sustainability into branding, advertising, and customer engagement to appeal to eco-conscious consumers. [7] defines it as a comprehensive approach involving modifications to products, production processes, and promotional strategies to minimize environmental harm. In the textile industry, green marketing emphasizes the use of organic materials, ethical labor practices, and sustainable supply chains. [8] suggest that green marketing enhances consumer perceptions, brand reputation, and customer loyalty. However, its effectiveness relies on authenticity and verifiable

claims, as greenwashing risks eroding trust. By differentiating companies in saturated markets, green marketing provides a competitive advantage and fosters long-term relationships with sustainability-focused customers. Transparency, consumer education, and partnerships with environmental organizations further strengthen its credibility and impact.

H2: Green marketing has a positive and significant effect on the competitiveness of the textile industry.

2.3 Competitiveness in the Textile Industry

Competitiveness reflects a firm's ability to sustain and grow its market position, encompassing factors like operational efficiency, product quality, brand reputation, and adaptability. In the textile industry, competitiveness is shaped by global trends, regulatory compliance, and rising consumer expectations for sustainability. [9] Competitive Advantage theory highlights differentiation and cost leadership as key to maintaining competitiveness.

Environmentally friendly product innovation and green marketing align with differentiation strategies, allowing firms to target niche markets and command premium pricing. Empirical evidence, such as [10] findings, shows that adopting green practices enhances financial and market performance by driving consumer demand and improving operational efficiency. For the highly competitive textile industry,

leveraging sustainability offers a means to address challenges like resource constraints and evolving regulations while gaining a market edge.

H3: Environmentally friendly product innovation and green marketing collectively contribute to enhancing the competitiveness of the textile industry.

2.4 Research Gap

While the benefits of environmentally friendly product innovation and green marketing are widely acknowledged, limited research exists on their combined impact on the competitiveness of the textile industry. Existing studies often focus on either innovation or marketing in isolation, neglecting the interconnectedness of these strategies. Additionally, most research is concentrated in developed economies, with limited insights into their application in developing countries, where resource constraints and market dynamics differ.

This study aims to fill these gaps by analyzing the role of environmentally friendly product innovation and green marketing in enhancing the competitiveness of the textile industry. By examining these variables in an integrated framework, this research contributes to a more comprehensive understanding of how sustainability can be leveraged as a competitive advantage in the textile sector.

3. METHODS

3.1 Research Design

This study employs a quantitative research design to examine the relationship between environmentally friendly product innovation, green marketing, and the competitiveness of the textile industry. A structured survey was used to collect data, enabling the measurement of the independent variables (environmentally friendly product innovation and green marketing) and the dependent variable (competitiveness). The quantitative approach was chosen to ensure objectivity and statistical reliability in analyzing the data.

3.2 Population and Sample

The population for this study includes professionals and decision-makers in the textile industry, such as managers, product developers, and marketing specialists. A non-probability purposive sampling technique was employed to select 70 respondents with relevant expertise in environmentally friendly practices and marketing strategies. This sample size was deemed suitable given the study's scope and resource constraints, with participants selected from various textile companies actively implementing sustainable practices to ensure diversity and representativeness. Data were gathered through a structured questionnaire designed for this research, using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) to measure respondents' perceptions. The questionnaire was pre-tested on a small sample to confirm clarity and relevance before full deployment.

3.3 Data Analysis Techniques

Data analysis was performed using SPSS version 26, a widely utilized statistical software for quantitative research. Several techniques were employed to ensure comprehensive analysis: descriptive statistics summarized demographic data and provided an overview of respondents' profiles; reliability and validity testing, using Cronbach's alpha, assessed the internal consistency of the questionnaire items; correlation analysis examined the strength and direction of relationships between

variables; and multiple linear regression analysis evaluated the impact of environmentally friendly product innovation and green marketing on competitiveness, determining the contribution of each independent variable to the dependent variable.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The demographic characteristics of the respondents revealed that the majority were middle-level managers (45%) and senior-level managers (30%), with 25% comprising product developers or marketing specialists. Most respondents had over five years of experience in the textile industry, providing valuable insights into sustainable practices. Descriptive statistics for the variables showed high mean scores, with environmentally friendly product innovation at 4.12, green marketing at 4.08, and competitiveness at 4.25, indicating strong agreement among respondents on the significance of these factors.

4.2 Reliability and Validity

The Cronbach's alpha values for all variables exceeded the acceptable threshold of 0.70, confirming internal consistency. Environmentally friendly product innovation had an alpha value of 0.833, green marketing 0.816, and competitiveness 0.850.

4.3 Correlation Analysis

The correlation analysis demonstrated significant positive relationships between the variables, with environmentally friendly product innovation showing a strong correlation with competitiveness ($r = 0.677, p < 0.01$) and green marketing exhibiting an even stronger correlation ($r = 0.720, p < 0.01$). These findings highlight a robust association between the independent variables and the dependent variable, emphasizing the critical role of sustainable practices in enhancing competitiveness within the textile industry.

4.4 Multiple Linear Regression Analysis

Regression analysis revealed that both environmentally friendly product innovation and green marketing significantly impact competitiveness. Environmentally friendly product innovation had a coefficient (β) of 0.415 ($t = 4.322$, $p = 0.000$), while green marketing had a coefficient (β) of 0.494 ($t = 5.215$, $p = 0.000$). The R^2 value of 0.683 indicates that 68.3% of the variance in competitiveness is explained by these two predictors, both of which demonstrated significant positive effects ($p < 0.01$), underscoring their critical role in enhancing the competitive position of the textile industry.

Discussion

The results confirm the critical role of environmentally friendly product innovation and green marketing in enhancing the competitiveness of the textile industry.

1. Impact of Environmentally Friendly Product Innovation

The positive relationship between environmentally friendly product innovation and competitiveness highlights the critical role of sustainability in product development. Innovations such as the use of recycled materials, energy-efficient production processes, and biodegradable dyes not only address environmental concerns but also align with consumer preferences for eco-friendly products, supporting [11]–[13] theory that environmental innovation enhances competitive advantage through improved efficiency and differentiation. However, challenges such as the high costs of adopting green technologies and limited access to sustainable raw materials remain significant barriers. Overcoming these challenges requires collaborative efforts among stakeholders, including government incentives and industry partnerships, to ensure broader adoption of sustainable practices.

2. Impact of Green Marketing

Green marketing emerged as a stronger predictor of competitiveness, indicating that effectively communicating a company's sustainability initiatives significantly enhances brand image, fosters customer loyalty, and attracts eco-conscious consumers. This finding aligns with [14] who highlight green marketing's role in building long-term consumer relationships. To maximize its impact, companies must prioritize transparency and authenticity in their claims, as the risk of greenwashing can undermine trust and competitiveness. Certifications and third-party audits are crucial for bolstering credibility and reinforcing consumer confidence in green marketing efforts.

3. Combined Effects on Competitiveness

The combined influence of environmentally friendly product innovation and green marketing highlights the synergistic potential of these strategies, where innovation addresses supply-side sustainability and marketing shapes demand by influencing consumer perceptions and behaviors. Together, they form a robust framework for achieving competitive advantage in a dynamic market environment. This study contributes to the literature by providing empirical evidence of the interconnectedness of these variables, reinforcing the resource-based view (RBV) theory, which emphasizes that unique capabilities, such as sustainable innovation and marketing expertise, are critical drivers of competitiveness.

Practical Implications

The findings offer several practical implications for the textile industry. Companies should prioritize investments in environmentally friendly technologies and processes to reduce their ecological footprint and align with consumer expectations for sustainability. Green marketing strategies must emphasize transparent communication, consumer education, and partnerships with

environmental organizations to build trust and credibility. Additionally, industry-wide collaborations and government support are essential to overcoming resource constraints and facilitating the adoption of sustainable practices, enabling the textile sector to effectively integrate sustainability into its operations and achieve long-term competitiveness.

Limitations and Future Research

This study has certain limitations, including its relatively small sample size and focus on a single industry. Future research could expand the sample size, explore other industries, and incorporate additional variables such as regulatory policies and consumer behavior to provide a more comprehensive understanding of sustainability in competitiveness.

5. CONCLUSION

This study underscores the pivotal role of environmentally friendly product

innovation and green marketing in enhancing the competitiveness of the textile industry. These strategies significantly contribute to market differentiation, customer loyalty, and operational efficiency. Product innovation addresses sustainability challenges through the adoption of innovative materials and processes, while green marketing effectively communicates these efforts, fostering stronger consumer connections. A holistic approach that integrates both innovation and marketing is essential to achieving sustainable competitive advantages. Textile companies are encouraged to invest in green technologies, maintain transparency in marketing, and collaborate with stakeholders to address resource and cost challenges. Future research should consider broader contexts, including different industries and regions, to validate and expand these findings. Aligning business practices with sustainability goals allows the textile industry to enhance its competitiveness while contributing to global environmental objectives.

REFERENCES

- [1] M. Naeem, N. Ahmad, S. Hussain, B. Nafees, and A. Hamid, "Impact of lean manufacturing on the operational performance: evidence from textile industry," *Humanit. Soc. Sci. Rev.*, vol. 9, no. 3, pp. 951–961, 2021.
- [2] H. Yudawisastra, J. Burhanudin, A. D. Samoedra, and M. Voda, "The effect of green products on sustainable tourism through green marketing in natural tourism destinations in Garut, West Java," *Int. J. Green Tour. Res. Appl.*, vol. 5, no. 1, pp. 45–51, 2023.
- [3] J. D. Santos, I. V. Pereira, and M. C. Passos, "The Concept of Sustainability Supported by Green Marketing in Digital Communication Applied to Textile Fashion," in *Promoting Organizational Performance Through 5G and Agile Marketing*, IGI Global, 2023, pp. 96–121.
- [4] M. E. Porter and M. R. Kramer, "Creating shared value: How to reinvent capitalism—And unleash a wave of innovation and growth," in *Managing sustainable business: An executive education case and textbook*, Springer, 2018, pp. 323–346.
- [5] F. Quoquab, N. Z. Mohamed Sodom, and J. Mohammad, "Driving customer loyalty in the Malaysian fast food industry," *J. Islam. Mark.*, vol. 11, no. 6, pp. 1367–1387, Jan. 2020, doi: 10.1108/JIMA-01-2019-0010.
- [6] S. Ling, C. Zheng, and D. Cho, "How Brand Knowledge Affects Purchase Intentions in Fresh Food E-Commerce Platforms: The Serial Mediation Effect of Perceived Value and Brand Trust," *Behavioral Sciences*, vol. 13, no. 8. 2023. doi: 10.3390/bs13080672.
- [7] P. Mancini, A. Marchini, and M. Simeone, "Which are the sustainable attributes affecting the real consumption behaviour? Consumer understanding and choices," *Br. Food J.*, vol. 119, no. 8, pp. 1839–1853, 2017, doi: 10.1108/BFJ-11-2016-0574.
- [8] G. Kumar and J. K. Nayak, "A meta-analysis of TPB model in predicting green energy behavior: The moderating role of cross-cultural factors," *J. Int. Consum. Mark.*, vol. 35, no. 2, pp. 147–165, 2023.
- [9] M. Porter, "E.(1980). Competitive strategy," *New York*, 1980.
- [10] E. H. Osolase, R. M. Rasdi, and Z. D. Mansor, "Developing awareness of green human resource development practices in the hotel industry," *Adv. Dev. Hum. Resour.*, vol. 25, no. 2, pp. 116–122, 2023.
- [11] C. Kantor, J. D. Eisenback, and M. Kantor, "Biosecurity risks to human food supply associated with plant-parasitic nematodes," *Front. Plant Sci.*, vol. 15, 2024, doi: 10.3389/fpls.2024.1404335.
- [12] R. Kumar *et al.*, "Impacts of plastic pollution on ecosystem services, sustainable development goals, and need to focus on circular economy and policy interventions," *Sustain.*, vol. 13, no. 17, pp. 1–40, 2021, doi: 10.3390/su13179963.

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- [13] K. Gupta, "Carbon Credits and Offsetting: Navigating Legal Frameworks, Innovative Solutions, and Controversies," *Int. J. Multidiscip. Res.*, vol. 6, no. 2, pp. 1–12, 2024, doi: 10.36948/ijfmr.2024.v06i02.17370.
- [14] N. M. A. N. Widhiarini and T. Pradiani, "Investigating the Impact of Green Marketing on Stay Decisions: The Mediating Role of Green Consumer Behavior," *Int. J. Soc. Sci. Bus.*, vol. 7, no. 2, pp. 435–447, 2023.