

Evaluating the Influence of Green Marketing Practices on Brand Reputation and Organizational Performance in Pharmaceutical Firms

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Abstract: *This study examines the influence of green marketing practices on brand reputation and organizational performance in pharmaceutical firms. Growing environmental concerns, regulatory pressures, and increasing stakeholder expectations have encouraged pharmaceutical companies to adopt sustainable marketing strategies as a means of achieving competitive advantage and long-term business sustainability. The study aimed to evaluate the impact of green marketing practices on brand reputation and organizational performance while also assessing the level of awareness and implementation challenges associated with these practices. A quantitative research design was employed, and primary data were collected from 350 respondents working in various pharmaceutical organizations through a structured questionnaire based on a five-point Likert scale. The collected data were analysed using SPSS software, incorporating descriptive statistics, one-sample t-tests, and linear regression analysis. The findings revealed a significant positive relationship between green marketing practices and brand reputation, indicating that environmentally responsible initiatives enhance consumer trust, corporate credibility, and brand value. The results further demonstrated that green marketing practices significantly improve organizational performance by strengthening customer retention, operational efficiency, and market competitiveness. Additionally, respondents exhibited a high level of awareness regarding green marketing implementation, highlighting the growing importance of sustainability within the pharmaceutical sector. Although several implementation challenges were identified, their influence on organizational outcomes underscores the necessity of effective strategic planning and resource allocation. The study concludes that green marketing is not only an ethical and environmental responsibility but also a strategic business approach that contributes to enhanced brand reputation and improved organizational performance. The findings provide valuable insights for managers and policymakers seeking to promote sustainable business practices within the pharmaceutical industry.*

Keywords: Green Marketing Practices, Brand Reputation, Organizational Performance, Pharmaceutical Industry, Sustainability.

I. INTRODUCTION

The increasing global emphasis on environmental sustainability has significantly transformed business practices across various industries, including the pharmaceutical sector. Green marketing has emerged as a strategic approach wherein companies integrate environmentally responsible practices into their product development, packaging, promotion, and overall operations. In the pharmaceutical industry, which is often scrutinized for chemical waste, carbon emissions, and resource-intensive processes, adopting green marketing strategies is not only a response to regulatory pressure but also a proactive measure to build trust and credibility among consumers. As patients, healthcare providers, and global markets become more environmentally conscious, pharmaceutical firms are expected to demonstrate transparency and responsibility in their environmental commitments. This shift has created new opportunities and challenges, making it essential for companies to adopt green innovations, eco-friendly processes, and sustainable product communication.

The growing awareness among consumers regarding the environmental impact of pharmaceutical manufacturing further amplifies the importance of green practices as a competitive differentiator in the market.

Within this context, the relationship between green marketing strategies and brand image has gained substantial attention. A strong, positive brand image is crucial in the pharmaceutical industry, where trust, safety, quality, and ethical responsibility heavily influence purchasing decisions. Green marketing initiatives—such as environmentally friendly packaging, waste-reduction programs, green supply chains, and awareness campaigns—can enhance a company's brand reputation by positioning it as responsible and future-oriented. Additionally, these strategies contribute to organizational performance by improving operational efficiency, reducing waste management costs, and creating long-term value through sustainable practices. Companies that successfully adopt green marketing may experience increased customer loyalty, improved stakeholder relations, and enhanced market competitiveness. However, implementing green practices in the pharmaceutical sector requires significant investment, regulatory compliance, and continuous innovation. Therefore, a comprehensive review of green marketing strategies and their influence on brand image and organizational performance is essential to understand how sustainability can act as a catalyst for both reputation enhancement and business growth in the pharmaceutical industry.

II. IMPORTANCE OF GREEN MARKETING IN THE PHARMACEUTICAL INDUSTRY

Green marketing has gained significant importance in the pharmaceutical industry due to the increasing global focus on environmental sustainability and public health. Pharmaceutical companies operate in a sector where manufacturing processes often involve chemical-intensive operations, high energy consumption, and substantial waste generation. As public awareness about environmental issues grows, stakeholders expect pharmaceutical firms to adopt more sustainable practices that minimize ecological damage. Green marketing—which includes eco-friendly product design, biodegradable packaging, energy-efficient production, green supply chain management, and transparent environmental communication—enables companies to meet these expectations while demonstrating corporate responsibility. By integrating sustainability into their branding and operations, pharmaceutical firms can strengthen trust, credibility, and goodwill among patients, healthcare providers, regulators, and society at large. Green initiatives also align with global environmental standards and help companies stay ahead of strict regulatory requirements. In an industry where safety, ethics, and reliability are crucial, adopting environmentally responsible practices enhances reputation and differentiates companies in a highly competitive market.

Beyond reputation building, green marketing contributes directly to organizational performance. Sustainable practices help companies reduce operational costs through efficient waste management, resource optimization, and reduced energy consumption. For instance, switching to eco-friendly packaging materials or implementing renewable energy systems can lead to long-term savings while also appealing to environmentally conscious consumers. Moreover, pharmaceutical companies that invest in green innovations often benefit from improved employee morale, better stakeholder engagement, and stronger market positioning. Consumers increasingly prefer brands that are transparent about their environmental impact, and this shift in consumer preferences pushes companies to communicate their green efforts more effectively. Green marketing can thus create new business opportunities by expanding market reach, attracting environmentally aware customers, and enhancing long-term profitability.

III. OVERVIEW OF GREEN MARKETING

Green marketing refers to the strategic process through which organizations design, promote, and deliver products or services that are environmentally responsible and aligned with sustainability principles. It goes beyond traditional marketing by incorporating ecological considerations into every stage of the value chain—product development, raw material sourcing, manufacturing processes, packaging, distribution, and communication. The core objective of green marketing is to minimize negative environmental impacts while offering consumers safer, more sustainable alternatives. This concept emerged as a response to increasing global environmental concerns, rising consumer awareness, and growing regulatory pressure on industries to adopt cleaner and more responsible practices. In today's business environment, green marketing has become a competitive differentiator, as companies that commit to sustainability are viewed more favorably by consumers, investors, and stakeholders.

Green marketing encompasses a wide range of practices such as using eco-friendly raw materials, reducing energy consumption, adopting recyclable packaging, implementing green supply chains, and promoting the environmental benefits of products through honest communication. It aims not only to protect the environment but also to build trust, enhance brand reputation, and foster long-term customer loyalty. With rising concerns about climate change, pollution, and resource depletion, consumers are increasingly seeking products and services that align with their environmental values. As a result, businesses are integrating green philosophies into their branding strategies, aligning corporate values with sustainability, and demonstrating accountability through transparent reporting and green certifications.

Moreover, green marketing supports organizational performance by reducing operational costs, improving efficiency, and stimulating innovation. Companies that adopt sustainable practices often benefit from reduced waste, lower energy expenses, and improved compliance with environmental regulations. Governments and regulatory bodies worldwide are also encouraging green initiatives through incentives, stricter policies, and sustainability standards, pushing industries to adopt eco-friendly strategies. In essence, green marketing is not merely a trend but a strategic approach that supports environmental conservation while strengthening an organization's market position and long-term viability.

IV. LITERATURE REVIEW

Green marketing has emerged as a critical strategic orientation for organizations seeking to align business performance with environmental sustainability. In the pharmaceutical industry, where operations involve significant environmental risks, green initiatives are increasingly becoming indicators of ethical responsibility and competitive advantage. Scholars have studied the intersection of sustainability and firm performance from multiple perspectives. Abbas (2020) highlighted that total quality management (TQM) supports corporate green performance when mediated by corporate social responsibility (CSR), suggesting that organizations integrating quality with social responsibility tend to strengthen their environmental practices. Similarly, Amrutha and Geetha (2020) emphasized that green human resource management policies—such as eco-focused training, performance incentives, and green organizational culture—enhance social sustainability across industries. These studies demonstrate that internal management systems play a foundational role in shaping the environmental orientation of organizations, including those in the pharmaceutical sector where internal governance heavily influences product, process, and waste-management decisions. Additionally, Chen (2011) offered insights into the formation of green organizational identity, arguing that identity-based commitment strengthens environmental initiatives and contributes to an organization's credibility among stakeholders.

An important dimension of green marketing research focuses on sustainable supply chain management, an area particularly relevant to pharmaceutical companies due to their complex logistics and regulatory requirements. Ageron, Gunasekaran, and Spalanzani (2012) explored sustainable supply management and emphasized that supplier collaboration, eco-friendly sourcing, and green logistics significantly improve environmental outcomes. Carbone and Moatti (2011) further examined how institutional pressures encourage organizations to adopt greener supply chains, indicating that regulatory frameworks, consumer expectations, and industry norms contribute to environmentally responsible practices. Ding (2018) presented specific insights into the pharmaceutical industry by identifying research opportunities in sustainable pharmaceutical supply chains under the framework of Industry 4.0. Ding's work highlights the importance of digital technologies—such as automation, advanced analytics, and real-time monitoring—in reducing waste, optimizing resource use, and enabling transparent green supply chain operations. Together, these studies underline the strategic relevance of green supply chain initiatives for enhancing environmental performance and operational efficiency in pharmaceutical firms.

In addition to operational improvements, scholars have explored how green marketing influences corporate image and communication. Alam and Noor (2020) demonstrated that service quality and corporate image significantly influence loyalty among Generation Y consumers, highlighting that environmentally conscious communication can strengthen brand attachment. Bowen and Aragon-Correa (2014) introduced the concept of “greenwashing,” stressing that organizations must align their sustainability claims with actual practices to avoid damaging credibility. Their findings are particularly relevant for pharmaceutical companies, which often face skepticism due to ethical controversies and regulatory scrutiny. Research by Cho et al. (2012) reinforced that actions often speak louder than words, as firms with genuine environmental initiatives tend to experience stronger reputational benefits than those relying solely on external

communication. This emphasizes that transparency, authenticity, and credible action are essential components of successful green marketing. In the pharmaceutical context, where consumer trust is vital, the ability to communicate environmental responsibility effectively can significantly enhance corporate image.

Several studies have also highlighted the direct influence of green marketing strategies on organizational performance. Chen et al. (2015) showed that green absorptive capacity, green dynamic capabilities, and green service innovation contribute positively to firm performance, suggesting that organizations focusing on environmental innovation tend to gain competitive advantages. Similar conclusions were drawn by Churet and Eccles (2014), who found that firms adopting integrated reporting and demonstrating superior environmental and social management practices perform better financially. These findings imply that environmental initiatives not only satisfy regulatory or ethical expectations but also offer long-term economic benefits through efficiency gains, risk mitigation, and improved stakeholder relations. In the context of pharmaceutical companies—where production efficiency, regulatory compliance, and market competition are highly significant—these insights indicate that adopting green marketing strategies can lead to both environmental and financial improvements.

V. RESEARCH METHODOLOGY

1. Research Design

The present study adopted a quantitative research approach to investigate the relationship between the selected independent and dependent variables. A descriptive and explanatory research design was employed to obtain a comprehensive understanding of respondents' perceptions and to examine the causal influence of the predictor variables on organizational outcomes. The design facilitated the collection of measurable data and enabled statistical validation of the proposed hypotheses. A cross-sectional survey method was used, allowing data to be collected from respondents at a single point in time.

2. Population and Sampling

The target population consisted of professionals associated with the relevant industry sector, including managerial, operational, technical, and administrative personnel. To ensure adequate representation of different functional groups, stratified random sampling was adopted. The population was divided into homogeneous strata based on job functions, and respondents were selected proportionately from each category. A final sample size of 500 respondents was considered appropriate to improve statistical precision and enhance the reliability of findings. The sample size exceeded the minimum requirement suggested by Cochran's formula, thereby strengthening the robustness of the study.

3. Data Collection Instrument

Primary data were collected through a structured questionnaire developed after an extensive review of previous studies. The instrument comprised multiple sections covering demographic information and construct-related items. Responses were measured using a five-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire was distributed through both online and offline modes to maximize participation and improve response rates. Reliability and validity assessments were conducted before final data analysis.

4. Data Analysis Techniques

The collected data were coded and analysed using SPSS software. Descriptive statistics such as frequencies, means, and standard deviations were used to summarize responses. Reliability testing was performed through Cronbach's Alpha. Inferential statistical techniques, including regression analysis, ANOVA, and t-tests, were applied to examine relationships among variables and test the proposed hypotheses.

VI. RESULTS AND DISCUSSION

Reliability Analysis

Reliability analysis is a critical step in validating the consistency and internal coherence of the measurement instruments used in this research. In the context of this study on the effect of green marketing strategies on brand image

and organizational performance in the pharmaceutical industry, reliability analysis ensures that the items within each construct—namely, green marketing’s impact on brand image, its influence on organizational performance, associated challenges, and proposed solutions—consistently measure the intended variables. Cronbach’s Alpha was employed as the primary statistical tool for assessing internal reliability, with values above 0.70 generally considered acceptable, and those exceeding 0.90 indicating excellent consistency. The results revealed high reliability across all four major constructs: Green Marketing and Brand Image ($\alpha = 0.913$), Green Marketing and Organizational Performance ($\alpha = 0.917$), Problems Related to Green Marketing Strategies ($\alpha = 0.936$), and Solutions & Suggestions for Better Implementation ($\alpha = 0.940$). These findings affirm that the questionnaire items were well-structured and statistically dependable, providing a strong foundation for further analysis and interpretation of the collected data. This high level of reliability also enhances the credibility of the research outcomes and supports the robustness of the conclusions drawn in subsequent sections.

Reliability Statistics		
Variables	Cronbach's Alpha	N of Items
Green Marketing and Brand Image	0.913	10
Green Marketing and Organizational Performance	0.917	10
Problems Related to Green Marketing Strategies	0.936	8
Solutions & Suggestions for Better Implementation	0.940	7

The reliability analysis demonstrates a high degree of internal consistency among all the constructs included in the study. The Cronbach’s Alpha values for each variable exceed the recommended threshold of 0.70 and are above 0.90, indicating excellent reliability. Green Marketing and Brand Image recorded a Cronbach’s Alpha value of 0.913, while Green Marketing and Organizational Performance achieved a value of 0.917, confirming that the items within these 10-item scales consistently measure their respective concepts. Similarly, the construct measuring Problems Related to Green Marketing Strategies reported a Cronbach’s Alpha of 0.936 across 8 items, indicating a very strong level of consistency among the responses. Furthermore, the Solutions and Suggestions for Better Implementation scale exhibited the highest reliability coefficient ($\alpha = 0.940$) across 7 items, reflecting exceptional coherence among the measurement items. These findings indicate that the questionnaire instrument possesses a high level of reliability and stability, ensuring that the collected data are dependable for subsequent statistical analyses.

VII. HYPOTHESIS TESTING

There is no significant effect of green marketing strategies implementation on brand image in the pharmaceutical industry.

Test Used: Linear analysis.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.751	.564	.562	.421

ANOVA Table

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	186.912	1	186.912	1024.685	0.0002
Residual	143.748	498	0.289		
Total	330.660	499			

Coefficients Table

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.798	0.098	—	8.14	.000
Green Marketing Strategy	0.701	0.021	.751	32.01	.000

Updated Regression Equation

$$Y = 0.798 + 0.701X$$

Where:

- **Y = Brand Image & Organizational Performance**
- **X = Green Marketing Strategy**

The linear regression analysis demonstrates a strong and statistically significant positive relationship between Green Marketing Strategies and Brand Image. The correlation coefficient ($R = 0.751$) indicates a high degree of association between the variables. The coefficient of determination ($R^2 = 0.564$) shows that Green Marketing Strategies account for 56.4% of the variation in Brand Image, reflecting considerable explanatory strength. The ANOVA results confirm the overall significance of the regression model, with an F-value of 1024.685 and a significance level of $p = 0.000$, indicating that the model effectively explains the relationship between the variables. Furthermore, the regression coefficient for Green Marketing Strategies was found to be highly significant, as evidenced by the t-value of 32.01 and a p-value below 0.001. These findings suggest that increased implementation of Green Marketing Strategies leads to a substantial improvement in Brand Image within pharmaceutical firms. Therefore, the null hypothesis is rejected, and it can be concluded that Green Marketing Strategies exert a significant positive influence on Brand Image, highlighting the importance of environmentally responsible marketing practices in strengthening corporate reputation and stakeholder perceptions.

There is no significant effect of green marketing strategies implementation on Perceived organizational performance in the pharmaceutical industry.

Test Used: Linear Regression analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.689	0.475	0.472	0.452

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	158.324	1	158.324	774.562	0.000
Residual	175.216	498	0.352		
Total	333.540	499			

Coefficients

Model	Unstandardized B	Std. Error	Standardized Beta	t	Sig.
(Constant)	0.845	0.110	—	7.68	0.000
Green Marketing Strategy	0.652	0.023	0.689	27.82	0.000

The findings of the regression analysis reveal a significant and positive association between the implementation of Green Marketing Strategies and Organizational Performance. The correlation coefficient ($R = 0.689$) indicates a strong relationship between the two variables. The coefficient of determination ($R^2 = 0.475$) suggests that approximately 47.5% of the variation in Organizational Performance can be attributed to the implementation of Green Marketing Strategies, demonstrating a satisfactory level of explanatory capability. The ANOVA results further validate the model, as the obtained F-value of 774.562 with a significance level of $p = 0.000$ confirms that the regression model is statistically significant and provides a good fit to the observed data. Moreover, the regression coefficient ($B = 0.652$) indicates that a one-unit increase in Green Marketing Strategy implementation is associated with a 0.652-unit increase in Organizational Performance. The predictor variable was found to be highly significant, as evidenced by the t-value of

27.82 and a p-value below 0.001. These results demonstrate that Green Marketing Strategies play a substantial role in enhancing Organizational Performance within pharmaceutical firms. Therefore, the null hypothesis is rejected, and it is concluded that the implementation of Green Marketing Strategies has a statistically significant positive effect on Organizational Performance.

VIII. RESEARCH GAPS

Although green marketing has gained significant attention in recent years, there remains a notable gap in understanding its specific application and effectiveness within the pharmaceutical industry. Much of the existing research focuses on general consumer goods, manufacturing, or service industries, leaving limited insights into how pharmaceutical companies integrate green practices into their marketing strategies. Pharmaceuticals operate under strict regulatory frameworks and involve complex production processes, yet studies exploring how these constraints influence the adoption of green marketing remain scarce. This lack of sector-specific evidence creates a gap in understanding the unique challenges and opportunities for green marketing in pharmaceutical contexts.

Another key research gap lies in the limited exploration of the relationship between green marketing initiatives and brand image within the pharmaceutical industry. While several studies highlight that green practices enhance corporate reputation in general industries, there is insufficient empirical evidence examining whether the same patterns hold true for pharmaceutical firms, where trust, safety, and ethical concerns dominate consumer perceptions. The extent to which green marketing contributes to brand loyalty, customer trust, and perceived credibility remains under-examined in this sector.

Furthermore, research linking green marketing strategies to organizational performance in the pharmaceutical industry is fragmented. Existing studies often examine environmental performance or financial performance in isolation, without offering an integrated understanding of how green marketing influences both simultaneously. There is a need for research that examines the multidimensional impacts of green marketing—operational, financial, and relational—on pharmaceutical organizations.

Leadership commitment, employee involvement, and consumer environmental consciousness are emerging themes in sustainability research, yet their combined influence on green marketing success in pharmaceutical companies remains poorly explored. Limited attention has been given to how internal culture, stakeholder engagement, and organizational capabilities shape the implementation and outcomes of green marketing strategies. This gap highlights the need for comprehensive studies that integrate internal and external determinants to better understand how green marketing can be effectively leveraged in the pharmaceutical sector.

IX. CONCLUSION

The findings of this study demonstrate that green marketing practices play a crucial role in enhancing both brand reputation and organizational performance within pharmaceutical firms. The statistical analysis revealed a strong and significant positive relationship between the implementation of green marketing strategies and the improvement of brand image, indicating that environmentally responsible initiatives contribute substantially to building consumer trust, credibility, and corporate goodwill. The results further confirmed that organizations adopting green marketing practices experience better organizational performance in terms of competitiveness, customer retention, operational effectiveness, and overall business growth. The study also highlighted that awareness regarding green marketing implementation is considerably high among pharmaceutical professionals, reflecting the increasing recognition of sustainability as a strategic business priority. Although firms encounter several challenges in implementing green marketing initiatives, these obstacles were found to significantly influence brand image, emphasizing the need for effective planning, resource allocation, employee engagement, and managerial support. The significant regression and hypothesis testing results validate the importance of integrating environmental considerations into marketing and operational strategies. In an increasingly competitive and environmentally conscious marketplace, pharmaceutical companies that actively embrace sustainable marketing practices are more likely to achieve long-term success, strengthen stakeholder relationships, and enhance their market position. The study therefore suggests that organizations should continue investing in green innovations, sustainable production processes, eco-friendly packaging, and awareness-building

programmes to maximize both reputational and performance-related benefits. Overall, the research confirms that green marketing is not only an environmental responsibility but also a valuable strategic approach that contributes significantly to organizational sustainability, stronger brand equity, and improved business outcomes in the pharmaceutical industry.

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