GREEN MARKETING: OPPORTUNITIES AND CHALLENGES FOR BUSINESSES IN THE DIGITAL ERA

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ABSTRACT

In the context of globalization and digital transformation, green marketing has become an inevitable trend, reflecting the combination of business objectives and environmental responsibility. This study focuses on analyzing the opportunities and challenges that businesses face when implementing green marketing strategies in the digital era. Prominent opportunities include enhancing brand image, attracting environmentally conscious customer segments and leveraging digital platforms to disseminate sustainable messages. However, businesses also encounter various challenges, ranging from high initial investment costs, pressures for information transparency, to the risk of "greenwashing" that can undermine consumer trust. The article emphasizes that to effectively capitalize on these opportunities, businesses need to develop well-structured green marketing strategies, integrate digital technologies and maintain transparency and creativity throughout implementation. The research findings contribute not only theoretically but also offer important practical implications for businesses aiming for sustainable development.

Keyword: Green marketing; digital era; sustainable development; consumer behavior; opportunities; challenges; greenwashing.

1. INTRODUCTION

In recent decades, issues such as climate change, resource scarcity and environmental pollution have become global challenges, requiring countries organizations and businesses to implement strategic changes aimed at sustainable development. Alongside this trend, modern consumers are increasingly concerned with environmentally friendly products and services that demonstrate social responsibility and provide long-term value to the community. This shift in awareness and consumer behavior has driven the formation and rapid development of green marketing, a marketing approach that not only targets profit but also places sustainability and environmental considerations at its core. The digital era presents significant opportunities for green marketing, as information technology, social media, big data, artificial intelligence (AI) and the Internet of Things (IoT) are increasingly applied across various fields. Businesses can leverage digital platforms to communicate green messages to the community more quickly, widely and effectively than ever before. Combining green marketing strategies with digital technology not only enhances competitive advantage and brand reputation but also fosters long-term engagement with young, environmentally conscious customer segments. However, alongside these opportunities, green marketing in the digital era also poses several challenges. Businesses face pressure to be transparent in demonstrating their green commitments, high investment costs for environmentally friendly products and the risk of losing consumer trust if accused of greenwashing, which is the practice of promoting false or exaggerated environmental claims. Moreover, in a digitalized environment where information spreads rapidly, any errors or shortcomings in green strategies can negatively impact brand image. Therefore, research on green marketing in the context of digital transformation is both necessary and highly relevant in practice. This article aims to systematically analyze the opportunities and challenges of green marketing for businesses in the digital era, thereby providing important managerial implications to help enterprises not only meet market demands but also contribute positively to sustainable development goals.

2. THEORETICAL BASIS

2.1. Concept of Green Marketing

Green marketing is understood as a set of marketing activities aimed at designing, producing, pricing, distributing and communicating products or services while considering environmental impacts and promoting sustainable development. According to Peattie and Crane (2005), green marketing is the process of integrating environmental factors into all marketing activities in order to satisfy customer needs while minimizing negative impacts on the ecosystem. Therefore, green marketing is not limited to merely portraying products as environmentally friendly, but also includes practical commitments in management, production, supply chains and social responsibility.

2.2. Theoretical Basis of Green Consumer Behavior

Green consumer behavior refers to the choice of products or services that are environmentally friendly and cause minimal harm to the ecosystem. Scholars argue that this behavior is influenced by three main factors: (i) environmental awareness, (ii) personal values and beliefs and (iii) trust in the information provided by businesses. In the context of the digital era, green consumer behavior has become increasingly prevalent, especially among young, tech-savvy customers who frequently use social media to seek and share information. This provides an important foundation for businesses to implement green marketing strategies.

2.3. Green Marketing in the Digital Era

The digital era offers numerous opportunities for green marketing to be more effective due to advances in technology and online communication channels. Digital technology allows businesses to collect and analyze big data to better understand green consumption trends, use artificial intelligence (AI) to personalize customer experiences and leverage social media to widely communicate green messages. At the same time, e-commerce and the sharing economy also help disseminate sustainable business models, enabling businesses to reach customers quickly and more efficiently.

A well-executed green marketing campaign ensures that all aspects related to the environment are addressed, from production processes to disposal activities that could harm both the environment and human health.

Businesses need to meet three main criteria: Reduce, which minimizes input materials; Reuse, which involves using containers multiple times; and Recycle, which allows products to be transformed into new items.

Figure 1. The 3R principle is considered a leading standard for green products

(Source: VINAUSEN, 2025)

2.4. Theoretical Basis of Opportunities in Green Marketing

From the perspective of sustainable economics, green marketing provides several important opportunities for businesses:

- Creating competitive advantage: Environmentally friendly products and services can differentiate a business and help it capture market share in a context where consumers prefer green options.

- Enhancing brand value: Implementing green marketing strategies helps businesses build a positive image associated with social responsibility and sustainable development.

- Attracting potential customers: Particularly the younger generations, such as Gen Z and Millennials, who are highly environmentally conscious and often support green brands.

- Leveraging digital technology: Online platforms and social media enable green

messages to be widely disseminated, optimizing costs and increasing impact.

2.5. Theoretical Basis of Challenges in Green Marketing

Alongside opportunities, green marketing also presents several challenges:

- High investment costs: Research, production, certification and promotion of green products often require substantial financial resources.

- Risk of greenwashing: Some businesses exploit the trend to promote a green image without making substantial changes, which undermines consumer trust.

- Pressure for information transparency: In the digital era, customers can quickly verify information. Businesses must ensure accuracy and publicly disclose data related to environmental impact and the supply chain.

- Strict legal and international standards: Many markets have implemented stringent regulations regarding eco-labels and green production processes, requiring businesses to continuously update and comply.

2.6. Related Models and Theoretical Frameworks

Several theoretical models are commonly used to analyze green marketing. Among them, the Green 4Ps Model, also known as the Green Marketing Mix, is widely recognized. This model includes four key components: Green Product, Green Price, Green Place and Green Promotion. Together, these elements provide a practical framework for businesses to design, implement and evaluate marketing strategies that are environmentally responsible while meeting consumer needs.

Figure 2. Green 4Ps Model

(Source: Nguyen Hai Ha, 2025)

The Theory of Planned Behavior (TPB) explains green consumer behavior based on individuals' attitudes, social norms and perceived behavioral control. The Value-Belief-Norm Theory (VBN) emphasizes the role of personal values and beliefs in shaping decisions related to green consumption. Additionally, the Triple Bottom Line (TBL) framework highlights the importance of balancing three key elements – economic, social and environmental – when developing business strategies. Together, these theories provide a comprehensive foundation for understanding green marketing and guiding sustainable business practices.

3. ANALYTICAL FRAMEWORK AND RESEARCH HYPOTHESES

3.1. Proposed Research Model

Based on a review of relevant literature and previous studies, the proposed research model aims to analyze the relationship between green marketing in the digital era and business performance, focusing on two main aspects: opportunities and challenges.

The factors included in the model are:

- Green Product (GP): The environmental friendliness, health safety and technological innovation incorporated in product design.

- Green Price (GPr): Pricing policies that reflect environmental commitment while remaining affordable for customers.

- Green Place (GPl): Distribution systems optimized for carbon reduction, prioritizing digital channels and sustainable supply chains.

- Green Promotion (GPrm): Transparent communication messages that convey green values through digital technology and social media.

- Digital Technology (DT): The role of digital tools such as Big Data, AI, Blockchain and social media in implementing green marketing strategies.

- Consumer Trust (CT): Customers' confidence in environmental

commitments, transparency and brand reputation.

- Business Performance (BP): Outcomes of green marketing reflected in competitive advantage, revenue, brand image and customer engagement.

Thus, the research model can be expressed as:

$$BP = \alpha_1.GP + \alpha_2.GPr + \alpha_3.GPl + \alpha_4.GPrm + \alpha_5.DT + \alpha_6.CT + \varepsilon$$

Notes:

- **BP:** Business Performance
- **GP:** Green Product
- **GPr:** Green Price
- **GPl:** Green Place
- **GPrm:** Green Promotion
- **DT:** Digital Technology
- **CT:** Consumer Trust
- $\alpha_1, \alpha_2, ..., \alpha_6$ **:** Estimated coefficients representing the impact of each factor
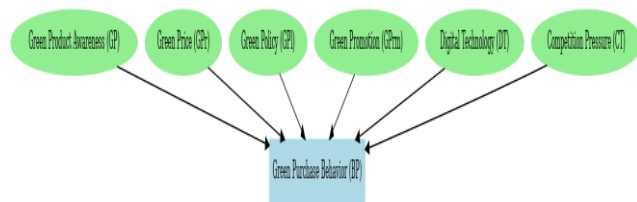- **ε:** Random error term

Figure 3. Proposed Research Model

3.2. Research Hypotheses

Based on the model, the research hypotheses are formulated as follows:

- H1: Green products positively influence business performance in the digital era.
- H2: Reasonable green pricing positively affects business performance.
- H3: Green distribution positively impacts business performance through optimized supply chains.
- H4: Green promotion via digital communication channels positively influences business performance and brand value.

- H5: Digital technology serves as a mediating factor, enhancing the impact of green marketing on business performance.
- H6: Consumer trust has a positive effect and serves as a key determinant of the success of green marketing strategies.

3.3. Relationship Between Opportunities and Challenges

Although green marketing presents numerous opportunities, challenges such as high costs, the risk of greenwashing and the demand for transparency also directly affect business performance. Therefore, the study proposes to test the following hypothesis:

H7: Challenges in implementing green marketing negatively affect business performance but can be mitigated through the application of digital technology and transparent management.

4. RESEARCH METHODOLOGY

This study was conducted using a mixed-methods approach, combining qualitative and quantitative research to ensure a comprehensive understanding of green marketing in the digital era. The qualitative research involved in-depth interviews with marketing experts, business managers and selected customers to explore the implementation of green marketing, as well as the opportunities and challenges it presents. The insights gained from the qualitative phase were used to refine measurement scales and develop the survey questionnaire. The quantitative research was carried out through surveys targeting businesses in Ho Chi Minh City, Vietnam.

The research focused on key elements of green marketing, including green products, green pricing, green distribution, green promotion, digital technology and customer trust and their impact on business performance. The survey participants included managers and employees responsible for marketing and sustainability within companies, as well as a group of customers who regularly consume green products and services. The study concentrated on Vietnamese enterprises in urban areas, reflecting the context of digital transformation.

For sampling, the study combined convenience sampling with stratified sampling to ensure diversity across industries and company sizes. According to Hair et al. (2010), the minimum

sample size should be five to ten times the number of observed variables. With a planned questionnaire containing 30 variables, the minimum sample size ranged from 150 to 300. The study aimed to collect approximately 350 valid responses to enhance reliability. The survey employed a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), with measurement items adapted from previous studies and adjusted to the Vietnamese context. The constructs included Green Product (GP) with five items, Green Price (GPr) with four items, Green Place (GPl) with four items, Green Promotion (GPrm) with five items, Digital Technology (DT) with five items, Customer Trust (CT) with four items and Business Performance (BP) with three to four items.

Data analysis involved descriptive statistics to summarize the characteristics of the sample by gender, age, industry and company size. Reliability of the scales was assessed using Cronbach's Alpha and item-total correlations. Exploratory factor analysis (EFA) was conducted to examine the factor structure and remove unsuitable items, followed by confirmatory factor analysis (CFA) to evaluate convergent and discriminant validity. Structural equation modeling (SEM) was then applied to test the research model and hypotheses H1 to H7.

The research process included a review of relevant literature, expert interviews to refine measurement scales, survey design, data collection from businesses and customers and subsequent data analysis using Cronbach's Alpha, EFA, CFA and SEM. Finally, the results were discussed to derive managerial implications and policy recommendations.

5. RESEARCH RESULTS

5.1. Description of the Survey Sample

The study surveyed 300 participants, including students and young employees in Ho Chi Minh who frequently engage with green marketing activities on digital platforms. The sample description results are as follows:

Table 1. Descriptive Information of the Survey Sample (n = 300)

Characteristics	Frequency (people)	Percentage (%)
Gender		
Male	126	42.0
Female	174	58.0
Age		
18 – 22 years	165	55.0
23 – 30 years	135	45.0
Monthly Income		
< 5 million VND	138	46.0
5 – 10 million VND	111	37.0
> 10 million VND	51	17.0

(Source: Compiled by the author from research results, 2025)

The results indicate that the majority of the sample are female (58%), aged 18–22 (55%) and have a monthly income below 5 million VND (46%), reflecting the characteristics of students and young workers.

5.2. Evaluation of Green Marketing Factor Scales

The scales for green marketing factors were assessed using Cronbach's Alpha reliability coefficient and Exploratory Factor Analysis (EFA). All scales met the requirements with Cronbach's Alpha > 0.7. The mean scores of the factors were calculated using a 5-point Likert scale.

Table 2. Mean Scores of Green Marketing Factors

Factor	Mean	Standard Deviation (SD)
Green Product	3.98	0.72
Green Price	3.56	0.81
Green Place	3.74	0.69
Green Promotion	4.02	0.65
Digital Technology	4.10	0.63
Consumer Trust	4.25	0.58

(Source: Compiled by the author from research results, 2025)

The highest mean scores were observed for Consumer Trust (4.25) and Digital Technology (4.10), indicating that young customers highly value information transparency and the application of technology in green marketing strategies.

5.3. Regression Analysis of Factors Affecting Business Performance

After testing the model suitability (KMO = 0.812, Sig. Bartlett's Test < 0.001), the study conducted multiple regression analysis.

Table 3. Regression Analysis Results

Factor	Mean	Standard Deviation (SD)
Green Product	3.98	0.72
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(Source: Compiled by the author from research results, 2025)

The adjusted R^2 = 0.65, indicating that the model explains 65% of the variance in business performance due to green marketing activities.

6. ANALYSIS AND DISCUSSION

The regression results indicate that consumer trust (β = 0.36) is the strongest factor affecting the effectiveness of green marketing activities. This aligns with both the Vietnamese and global context, where consumers are increasingly sensitive to environmental issues and information transparency. In particular, students and young people in Hanoi tend to thoroughly research products through online channels, including official websites, social media and community reviews before making a purchase decision. If businesses communicate without transparency or are found guilty of greenwashing, they are likely to lose customer trust. Therefore, consumer trust is regarded as a solid foundation for maintaining loyalty and promoting positive purchasing behavior.

Green product (β = 0.29) is also proven to play a significant role. Today's youth not only care about product functionality but also emphasize environmental factors, such as recycled packaging, eco-friendly materials or energy-saving capabilities. Choosing green products reflects not only personal needs but also social responsibility and the desire to identify as a global citizen. In practice, many fashion, cosmetic and beverage brands in Vietnam have succeeded by building brand images associated with sustainability, such as using paper straws, recycled packaging or organic ingredients.

Additionally, digital technology (β = 0.27) emerges as an important factor that helps green marketing reach the right target audience. Young generations are familiar with platforms such as TikTok, Facebook, Instagram and e-commerce sites like Shopee, Lazada and Tiki. The application of technology, including artificial intelligence (AI) for green product recommendations, augmented and virtual reality (AR/VR) for online product experiences or blockchain for supply chain transparency, enhances trust and attractiveness of green messages. This explains why brands that effectively leverage technology often achieve higher results in green marketing strategies.

Green promotion (β = 0.24) highlights the importance of communication in shaping purchasing behavior. Well-designed, creative green marketing campaigns that resonate with young consumers can generate strong viral effects. For instance, many brands use storytelling to link their brand to environmental protection, combined with reputable KOLs and influencers to increase credibility. Additionally, community activities such as tree planting, plastic waste reduction campaigns or "Recycle for Rewards" programs are highly appreciated and encourage rapid purchase decisions.

On the other hand, challenges (β = -0.19) emphasize the potential barriers in implementing green marketing. First, production costs are high, as green materials and processes are often more expensive than conventional ones. Second, the risk of greenwashing exposes businesses to reputational risks. Third, transparency requirements and international certifications (e.g., ISO 14001, FSC, Fairtrade) make it difficult for many small and medium-sized enterprises to comply. These challenges not only affect short-term business performance but also reduce long-term trust if companies do not implement effective management strategies.

Overall, the study confirms that digital green marketing is not merely a promotional tool but a core strategy for businesses to position their brand and maintain competitive advantage in the digital era. To succeed, companies need to focus simultaneously on three aspects: (1) ensuring

authenticity and transparency of messages, (2) leveraging digital technology to optimize customer experience and (3) balancing cost and benefit to sustain long-term development.

7. CONCLUSION AND RECOMMENDATIONS

The research confirms that green marketing in the digital era is not only an inevitable trend but also plays a critical role in shaping consumer behavior, particularly among young urban customers in cities like Hanoi. Regression analysis shows that consumer trust has the strongest influence on business performance when implementing green marketing strategies. This indicates that transparency, brand credibility and authenticity are essential foundations for building long-term relationships with customers. When consumers, especially students and young people, perceive honesty and social responsibility from businesses, they are more likely to make purchase decisions and become loyal customers.

Furthermore, green products and green promotion are proven to have positive impacts. Modern consumers not only care about the functional value of products but also emphasize environmental aspects such as eco-friendly packaging, recyclability or production processes that minimize negative ecological impacts. Combining these factors with creative marketing campaigns, storytelling and collaboration with reputable KOLs and influencers helps strengthen green messages and make them more relatable and emotionally engaging for young consumers.

Another important finding is that digital technology has become a catalyst that enhances the effectiveness of green marketing. Online platforms like TikTok, Facebook, Instagram and e-commerce sites serve not only as information channels but also as spaces for direct interaction between businesses and customers. The application of AI for green product recommendations, AR/VR for product experiences or blockchain for supply chain transparency builds trust and excitement among consumers. As a result, companies that effectively leverage digital technology can gain a competitive advantage over their rivals.

However, the study also highlights that challenges in implementing green marketing persist and negatively impact business performance. The production cost of green products is often higher than conventional ones, creating significant pressure for businesses, especially SMEs. The risk of greenwashing, i.e., exaggerating or misrepresenting the environmental friendliness of products, is also a considerable barrier, as it can lead to loss of customer trust and media crises. Additionally, transparency requirements and international certifications (e.g., ISO 14001, FSC, Fairtrade) make compliance difficult for many companies. This underscores the need for a long-term strategy combining innovation, cost management and honest communication.

Based on these findings, it is recommended that companies aiming to succeed in green marketing focus on three aspects. First, enhance information transparency to build and reinforce consumer trust. Clearly disclosing the origin of materials, production processes and environmental certifications helps customers feel more confident in choosing products. Second, invest in genuinely green products rather than merely focusing on promotion. Products should meet both environmental and aesthetic standards, as young consumers are sensitive to trends. Third, leverage digital technology to expand reach and enhance customer experience, while creatively communicating green messages so they are not only viral but also emotionally engaging.

In summary, green marketing in the digital era presents both opportunities and significant challenges for businesses. This study not only clarifies the role of green marketing in shaping new consumer behaviors but also provides practical strategic recommendations for companies. However, the survey scope is limited to students in Hanoi. Future research could expand the target sample to different customer groups or compare across regions to gain a more comprehensive perspective. Additionally, including variables such as social value or subjective norms could further enrich the research model and provide a more complete assessment of green marketing impacts in the current context.

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