GREEN MARKETING STRATEGY AND MARKETING PERFORMANCE: THE MEDIATING EFFECT OF BRAND IMAGE AMONG THE TELECOMMUNICATION INDUSTRY IN NIGER STATE, NIGERIA

Jagaba Shuaibu Tamu[1]
Department of Business Administration, Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria,

Abdullahi Yusuf Babandako, PhD[2]
Department of Business Administration, Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria

&

Abdullahi Masud, PhD[3]
Department of Business Administration, Ibrahim Badamasi Babangida University, Lapai, Niger State, Nigeria

Abstract
This article investigates the effect of green marketing strategy on marketing performance, specifically Customer Satisfaction (CS), with the mediating role of Brand Image, operationalized as Perceived Quality (PERQ), among telecommunication firms in Niger State, Nigeria. Employing a quantitative and descriptive research design, data were collected from a sample of 311 employees selected using a proportionate stratified and simple random technique from a population of 1,393 employees across four major telecom firms in Niger State. The data, gathered via a structured questionnaire utilizing a 5-point Likert Scale and analysed using a Structural Equation Model (SEM), revealed that while Green Distribution (GD) has a significant direct positive effect on CS ($\beta = 0.256$, $p = .001$), Green Product (GP) and Green Promotion (GPM) exert their influence primarily through PERQ. Specifically, PERQ was confirmed as a strong, significant mediator for both GP ($\beta_{indirect} = 0.111$, $p = .001$) and GPM ($\beta_{indirect} = 0.296$, $p = .000$), with GPM showing the strongest overall effect on PERQ ($\beta = 0.561$). Conversely, Green Pricing (GPr) demonstrated no significant influence on either PERQ or CS. The research work concludes that the effectiveness of green marketing in the telecom sector largely depends on enhancing customers' perception of quality. The study recommends that firms prioritize green distribution practices and strategic communication via promotion to build a favourable brand image.

Keywords: Green Product, Green Pricing, Green Promotion, Green Distribution, Customer Satisfaction, Perceived Quality

1.1 Introduction

Presently, businesses are changing their operations to cut waste and lessen their environmental impact. Governments are enforcing stricter rules, and consumers are placing a higher priority on eco-friendly products (Biswas & Roy, 2019). In response, companies are creating green and sustainable marketing plans that not only adhere to legal requirements but also appeal to ethical customers and set them apart from rivals. The practice of emphasizing products or services that are generally environmentally friendly or that have been created in an environmentally friendly manner is known as "green marketing strategy" (Alikor & Anele, 2022).

Green marketing strategy is a set of marketing techniques and ideas that assist a business in achieving its objectives, enhance customer service, and safeguard people and the environment (Mustapha, Dauda & Sani, 2024). According to Ejibe, Nwankwo, Nwankwo, Okoye, & Others (2024), businesses that use green marketing strategies have shown notable decreases in their carbon footprint, which improves their overall environmental performance. Reducing waste and increasing operating efficiency have been demonstrated by the use of sustainable sourcing and waste management methods (Xu, Liao, Lim, Fong, Wang, & Xu, 2024). An organization may attain sustained corporate profitability and higher market performance by including a green marketing strategy in its marketing plan (Al-Ahmed, Alshaketheep, Shajrawi, Mansour, Zraqat, Deeb & Hussien, 2025).

Marketing performance refers to a company's ability to successfully sell its goods in the marketplace (Wisnujati, Tirtayasa, Nasrul, Setiawati, Setiabudi, 2020). According to Tirtayasa and Rahmadana (2023), marketing performance is the company's attempt to identify and satisfy the demands and preferences of its customers. Spenser and Singh (2020) assert that marketing performance enables companies to deploy resources efficiently. Organizations may maximize their budget allocation by determining which marketing channels and tactics provide the best return on investment. This makes it possible to employ marketing resources more strategically and effectively by preventing resource waste on poor strategies. Additionally, according to Tuncer and Mutlu (2021), assessing marketing success yields important information for making strategic decisions. It makes it possible for companies to determine what is effective and what needs modification. Marketing performance and brand image are enhanced by green marketing strategies (Kushwaha, 2020).

Brand image refers to any phrase, logo, design, or other characteristic that, in the eyes of the customer, sets a company or its goods apart from those of its competitors (Anyadighibe, Ezekiel, Awara & Udey-Mgbado, 2023). A company's most precious asset is an excellent brand image. Customers have more faith in a company's dependability when it is well-known and trusted. A strong brand image will reassure customers and other interested parties about the entire spectrum of goods and activities

connected to a certain firm, which is why building a corporate brand is essential (Musa, 2018).

1.2 Statement of the Problem

A major obstacle to this ideal is the state of the telecommunications industry today. According to Oke, Soetan, and Ayedun (2023) and Onikoyi and Onikoyi (2013), telecommunications companies in Nigeria are facing reduced organizational performance, including financial losses and low patronage, which can be directly linked to a poor brand image. According to Akintonwa, Busari, Awodele, and Olayemi (2013), the public's ongoing concern about the health effects of radiation from telecom masts exacerbates this unfavorable perception. According to research, people who live close to these masts in Nigeria frequently report a variety of health problems, such as headaches, memory loss, and other symptoms, which makes people distrustful of and reluctant to cooperate with telecom companies (Akintonwa et al., 2013). This growing concern has fueled the need for a more sustainable business modelone that not only provides a service but also actively addresses its environmental and social impact through green initiatives.

Additionally, this study is new in that it examines the link between organizational performance and green marketing strategy using brand image as a mediating variable. Examples of studies that are limited to two variables are Mustapha, Dauda and Sani (2024); Atotileto, Odonye, Esther and Edmund (2024); and Ali, Khan, Haider and Rehman (2024). These studies include green marketing strategy and performance of SMEs; green marketing strategy and company performance; and green marketing strategy and long-term viability of SMEs. Furthermore, aside from "brand image," very few studies on the relationship between green marketing strategy and organizational performance included mediating or moderating variable(s). Examples of moderating/mediating variables in similar research by Al-Ahmed, Alshaketheep, Shajrawi, Mansour, Zraqat, Deeb and Hussien (2025), Shah (2022), and Martins (2022), which include Artificial Intelligence (AI), company image, and green buying behavior. The identified knowledge gaps have created fresh avenues for investigation and serve as inspiration for more research.

Lastly, to the best of the researcher's knowledge, no prior study has investigated how green marketing strategy affects marketing performance or how brand image functions as a mediator in the Niger State telecommunications industry. Therefore, this study examined the effect of green marketing strategy on marketing performance, the mediating effect of brand image among telecommunication industry in Niger State.

1.3 Objectives of the Study

The main objective of the study is to examine the effect of green marketing strategy on marketing performance, the mediating effect of brand image among the telecommunication industry in Niger State, Nigeria.

The subsidiary objectives of this study include:

i. To evaluate the effect of green products on marketing performance among telecommunication industry in Niger State;
ii. To evaluate the effect of green pricing on marketing performance among telecommunication industry in Niger State;
iii. To evaluate the effect of green distribution on marketing performance among telecommunication industry in Niger State;
iv. To evaluate the effect of green promotion on marketing performance among telecommunication industry in Niger State;
v. To evaluate the effect of brand image on marketing performance among telecommunications industry in Niger State;
vi. To evaluate how brand image mediates the relationship between green product, green pricing, green distribution, green promotion, and marketing performance among telecommunication industry in Niger State;

2.0 Literature   Review

2.1 Concept of Green Marketing Strategy

Green marketing strategy, according to Mustapha, Dauda, and Sani (2024), is a set of marketing techniques and ideas that enhance customer service, assist a business in achieving its objectives, and safeguard people and the environment. A green marketing strategy is used to create and implement marketing campaigns that support environmentally friendly products, services, or behaviors. Green marketing strategy, according to Alzu'b and Kontor (2023), combines the business's financial performance with social and environmental benefits for customers, employees, and society at large.

Giwa-Amu (2022) defines green marketing strategy as promoting eco-friendly, phosphate-free, toxic-free food, recyclable packaging, reusable containers, ozone-friendly, and eco-friendly goods and services. Additionally, Nwankwo and Kanyangale (2023) described green marketing strategy as a crucial element for companies seeking to establish eco-efficiency in order to get better value with less energy and material input and fewer emissions.

2.1.1 Dimensions of Green Marketing Strategy

i. **Green Product**: Any physical or intangible item created solely to provide value by reducing any detrimental effects on ecological cycles is referred to as a "green product" (Nwankwo & Kanyangale, 2023). According to Ebhote and Izedonmi (2021), a green product is any product or service that is long-lasting, safe to consume, and free of health risks. Fresh, healthful, and highly organic green products should ideally have a beneficial impact on consumer purchasing behavior. Regular purchases will eventually lead to customer loyalty (Chinasa, 2023).

ii.   **Green Pricing:** Green pricing is a price strategy that ensures successful and efficient production while taking into consideration the host environment, its inhabitants, and the company's profitability (Nwankwo & Kanyangale, 2023). The price of the final product will always include the costly features of becoming green, such as installing new technology and equipment, training staff, covering outside fees, and converting waste into recyclable products (Mustapha, Dauda & Sani, 2024).

iii.   **Green Distribution:** The process of selecting routes in a way that reduces environmental impact is known as "green placement" or "green distribution" (Alabo & Anyasor, 2020).   Environmentally conscious businesses should also ensure that their distributors are aware of the detrimental consequences of their activities on the environment and put in place a green distribution plan to mitigate these effects, according to Singh and Kumar (2022). In order for customers to buy green products, they also need to make them readily available on the global market.

iv.   **Green Promotion:** Green promotion is the process of using promotional strategies like advertising, public relations, direct marketing, sales promotion, site promotions, marketing materials, videos, and product packaging to inform consumers about the environmentally friendly advantages of a company's product (Singh & Kumar, 2022). Thus, clever green marketers use a promotional mix and green marketing to enhance their environmental reputation (Alabo & Anyasor, 2020).

2.2 Concept of Brand Image

A brand image is any phrase, logo, design, or other characteristic that, in the perspective of consumers, sets a company or its goods apart from those of its competitors (Anyadighibe, Ezekiel, Awara & Udey-Mgbado, 2023).   Brand image, according to Huthasuhut, Lubis, and Utami (2022), is a consumer's collection of associations (perceptions) with a company, often organized into a meaning.

According to Kaemingk (2020), a company's brand image is the perception that customers have of it.   Consumer perceptions of a brand will change over time, giving rise to a variety of viewpoints. Satti (2022), defined brand image as a distinct collection of connections that affect how potential consumers perceive a product or service.

2.2.1 Elements of Brand Image

i.   **Brand Identity:** A brand's identity is "the ability of consumers to access all the information about different options that they carry in their minds, and use it as a reference to differentiate between all available brands and realize what suits them best; by generating the reasons for buying and repurchasing a specific brand," according to Wed and Manzar (2021), It serves as a company's visual identity, conveying its personality, principles, and goals while setting it apart from rivals (Meshram, 2023).

ii.   **Brand reputation:** The general opinions and impressions a customer has about a brand are referred to as its reputation. This covers their opinions of the goods or services in general as well as their encounters with customer service during and following a transaction (Anyadighibe, Ezekiel, Awara, & Udey-Mgbado, 2023). Customers who have a positive brand reputation are satisfied with their purchases and have faith in the company (Ateke, Onwujiariri & Nnennanya, 2015).

iii.   **Perceived Quality**: Perceived quality refers to consumers' subjective evaluation of a product or service's overall quality or excellence. In order to achieve a greater perceived value, consumers are more inclined to switch to a competitor's items if they think the quality is subpar (Kristiawati, 2020).

2.3 Concept of Marketing Performance

Marketing performance, according to Purohit and Sharma (2020), is the assessment and measurement of the efficacy and efficiency of marketing strategies and activities in accomplishing the goals and objectives of a corporate organization. Evaluating the effects of marketing initiatives on a range of key performance indicators (KPIs), including sales revenue, customer acquisition and retention, brand recognition, customer happiness, and return on investment (ROI), is known as marketing performance (Eko, Edim, Inyang, Neba & Abe, 2023).

Rahman and Faisal (2019) define marketing performance as the methodical and frequent assessment of the results of marketing strategies and tactics in relation to predefined goals and KPIs. This concept highlights the necessity of an organized method for evaluating marketing activities' outcomes in light of predetermined objectives. A company's ability to successfully sell its goods in the marketplace is measured by its marketing performance (Wisnujati, Tirtayasa, Nasrul, Setiawati, Setiabudi, 2020). According to Tirtayasa and Rahmadana (2023), marketing performance is the company's attempt to identify and satisfy the demands and preferences of its customers.

2.3.1 Dimensions of Marketing Performance

1. **Corporate Reputation**: Corporate reputation, according to Nwagu (2022), is a collective construct that represents the overall opinion of numerous stakeholders regarding a company's performance. Iwu-Egwuonwu (2011) states that once an organization gains recognition, it is evaluated on the basis of its behavior, social responsibility, corporate conduct, community involvement, and the quality of its goods and services. Stakeholders' perceptions of the company are shaped by this evaluation.

2. **Customer Satisfaction**: According to Hafni, Renaldo, Chandra, and Thaief (2020), customer satisfaction is defined as an individual's feelings of happiness or discontent after comparing the product's actual performance with its predicted performance. Customer satisfaction promotes a favorable opinion of the business, a desire to utilize its products and services once more, and a tendency to recommend it to others (Herman, 2022).

3. **Market Share**: Market share, which is the percentage of a market's total sales that each competitor's market share owns, is a statistic used to assess organizational performance (Hsu, 2022). Market share is one of the most important metrics for assessing a company's performance in comparison to its competitors, according to Khantimirov (2017). For every profit-making organization, the growth or decline of market share is a crucial concern. It indicates to a business how well its services are accepted and valued by the target market (Aigboje & Itai, 2023).

2.4 Review of Empirical Literature

Ali, Khan, Haider, and Rehman (2024) investigated how green marketing strategy affected consumer products businesses' market and environmental performance. The study attempts to determine the efficacy of green marketing strategy using a qualitative case study methodology that includes semistructured interviews with stakeholders and analysis of sustainability reports and customer feedback. These strategies include eco-labeling, eco-friendly packaging, sustainable product creation, and eco-focused advertising. Results show that green marketing has a major role in enhancing a business's environmental performance, as demonstrated by sustainable sourcing, waste management effectiveness, and a decrease in carbon footprint. Additionally, these strategies improve customer perception, brand loyalty, and sales growth, all of which have a beneficial impact on market performance. However, the firms in Pakistan's consumer products industry were the focus of this study. But by concentrating on the telecom sector in Niger State, Nigeria, our study closes this gap.

Eko, Edim, Inyang, Neba, and Abe (2023) looked at Nigerian financial technology businesses' marketing performance and green marketing strategies. It especially looked at how Fintech businesses' marketing effectiveness was affected by digital marketing, electronic banking, and green financial services. The research design used in the study was a cross-sectional survey. 318 Calabar customers of financial technology services provided primary data using a standardized questionnaire. Multiple linear regression was used to test the study's hypotheses, and descriptive statistics were used for data analysis and interpretation. The study's conclusions showed that digital marketing, electronic banking, and green financial services significantly improved the marketing effectiveness of Nigerian financial technology firms. Based on these results, the study suggested that in order to reduce their environmental impact and promote a shift away from traditional banking, FinTech companies should prioritize sustainable practices by continuously providing green financial services, encouraging paperless transactions, incorporating digital tools into marketing, and introducing electronic banking solutions. But this study concentrated on Calabar's fintech businesses. But by concentrating on the telecom sector in Niger State, Nigeria, our study closes this gap.

Al-Ahmed et al.'s study from 2025 examined how green marketing strategy affected a company's accounting performance, focusing on artificial intelligence's (AI) moderating

effect. Using a mixed-methods approach, the researchers combined a content analysis of marketing manager interviews with a survey of corporate annual reports. According to the study's findings, green marketing strategies greatly boost a business's financial and competitive performance, particularly when they are augmented with artificial intelligence. The results demonstrate how AI may be an effective tool for attaining sustainable growth and demonstrate how its use can help businesses obtain a competitive edge by moderating the link between green marketing and accounting performance. In order to improve their marketing tactics, the report advises businesses to put sustainability first and increase their AI investments.

Shah (2022) examined the mediating function of corporate image in the link between green marketing strategy and business performance in Kenya's construction industry. Using a Google Forms survey that was disseminated via social media, the researcher gathered 513 legitimate responses from senior management staff. The study discovered that both corporate image and green marketing strategy had a substantial and favorable impact on business performance using a partial least squares structural equation model (PLS-SEM). Additionally, it was discovered that the connection between green marketing and business success was significantly and favorably mediated by corporate image. In order to increase customer interest in making purchases and enhance overall business performance, the study's conclusion advised Kenyan construction enterprises to employ eco-friendly goods and materials.

2.5 Theoretical Framework

The Natural Resource-Based View (NRBV) Theory, which was created by Hart (1995) as an expansion of Barney's (1991) Resource-Based View (RBV) theory, serves as the theoretical basis for this study. In order to overcome the shortcomings of the RBV, which did not sufficiently take into account how a firm's operations might affect the environment, Hart developed the NRBV (Andersen, 2021). According to the NRBV framework, a company's competitive advantage stems from how it interacts with the environment.
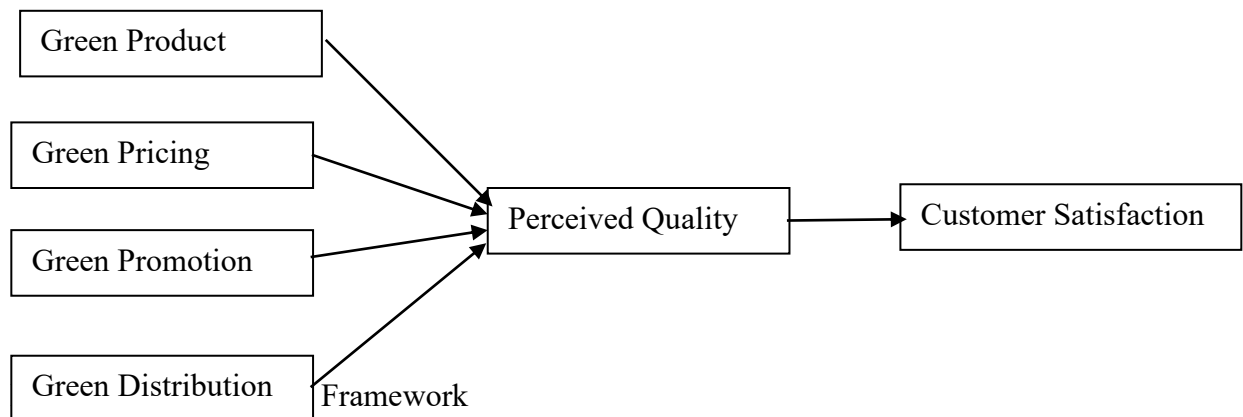
The three primary stages of strategic competency in the NRBV framework are sustainable development, product stewardship, and pollution avoidance. Hart (1995) asserts that pollution prevention entails businesses cutting emissions and waste to counteract environmental deterioration brought on by inefficient resource use (Jaini & Hussin, 2019). With the assistance of stakeholders and experts, product stewardship focuses on altering manufacturing methods to minimize environmental pollution, frequently by adding green aspects into product design (Fiksel, 1993). Lastly, the goal of sustainable development is to balance commercial operations with environmental considerations (Jaini & Hussin, 2019).

The NRBV offers the telecom sector a helpful platform for implementing a green marketing mix strategy. Telecommunications companies may stand out from the

competition, draw in eco-aware clients, and support broader sustainability objectives by utilizing their special natural resources and skills.

2.6   Conceptual Model

This study's conceptual model is designed to examine the relationship between the components of the Green Marketing Strategy (independent variables) and Marketing Performance (dependent variable), mediated by Brand Image (mediating variable). The independent variables are operationalized using the four key elements of the green marketing mix, specifically: Green Product (GP), Green Pricing (GPr), Green Distribution (GD), and Green Promotion (GPM). The dependent variable, Marketing Performance, is specifically measured by Customer Satisfaction (CS) in the context of the telecommunications industry. This framework posits that a firm's deliberate efforts to adopt environmentally conscious practices across its product offerings, pricing structures, distribution channels, and promotional messaging will influence its market outcomes, either directly or indirectly.

Framework

The central hypothesis guiding this model is the exploration of the mediating mechanism of Brand Image, measured by Perceived Quality (PERQ). The model suggests that while the four green marketing strategies may have a direct effect on Customer Satisfaction, their more significant and crucial influence is expected to be indirect. This indirect path argues that implementing and communicating green strategies first enhances the customer's Perceived Quality (PERQ) of the firm's services and brand. This improved perception of quality, acting as the brand image mediator, subsequently translates into higher Customer Satisfaction (CS). This mediating role is particularly relevant in the service sector, where quality perception often precedes and dictates overall satisfaction.

The conceptual model thus proposes a total of eight direct relationships from the green marketing mix elements to the ultimate outcomes: four paths directly linking GP, GPr, GD, and GPM to CS, and four paths linking them to the mediator, PERQ. Furthermore, the model includes the critical path from PERQ to CS, and four specific indirect

(mediated) paths examining how GP, GPr, GD, and GPM influence CS *through* PERQ. This comprehensive structure allows for a detailed analysis of which specific green strategy is most effective, directly influencing satisfaction, or indirectly enhancing the essential component of brand image, which then drives customer satisfaction in the North-Central Nigerian telecommunications industry.

3.1 Methodology

This study employed a quantitative and descriptive research design. The quantitative research design helps to transform data into numerical form, which can be used for statistical analysis, while the descriptive research design is helpful in pre-regression testing and in reducing large amounts of data. The population of the study includes all the employees working with the telecommunications firms in Niger State, numbering 1393. A total of 311 employees were selected from the population using the Sloven sample size and is presented in Table 3.1 below:

Table3.1: Population and Sample Size

Telecommunications Firm	Population	Sample Size
MTN Nigeria	531	118
Airtel Nigeria	272	61
Globacom Nigeria	385	86
9Mobile Nigeria	205	46
Total	**1393**	**311**

Source: Human Resource Department of the above Telecommunications Company, 2025

The study selected the employees of the telecommunications industry using a proportionate stratified and simple random technique. The main information required for the study was gathered through questionnaires that were given by the researcher in the field. Four sections made up the questionnaire. Section A contains the respondents' biographical data, while Section B contains pertinent questions about the independent variables (green product, green price, green distribution, and green marketing). Section C contains pertinent questions on the dependent variable - marketing performance (market share). Furthermore, section D contains questions about the mediating variable -brand image (perceived quality). The research instrument was measured using 5-point Likert Scale. The independent variables include green marketing strategy, which was adapted from the work of Ala, Yahya, and Ayham (2023) while the independent variable is the marketing performance and is developed by the researchers. The mediating variable is the brand image, which was measured using perceived quality and was adapted from the

research work of Nyange & Mokaya (2019). Content and face validity were used for the study. The supervisor assessed and face-validated the questionnaire items to guarantee the validity of the research instrument. In order to ensure content validity, the researcher consulted experts on the established items in the instrument. The instrument was also verified by two experts.

The questionnaire data were coded and analyzed using SPSS Version 23. The researcher calculated the means, standard deviations, and correlations for all independent and dependent variables. Since the study includes a mediating variable, a Structural Equation Model (SEM) was used to test the hypotheses. The mediation analysis will follow the steps outlined by Baron and Kenny (1986).

$$CS = \alpha_1 + \beta_1 GMS_i + \varepsilon_1 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

$$PERQ = \alpha_2 + \beta_2 GMS_i + \varepsilon_2 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.....(2)$$

$$CS = \alpha_1 + \beta_3 GMS_i + \beta_4 PERQ + \varepsilon_3 \dots\dots\dots\dots\dots\dots\dots\dots.(3)$$
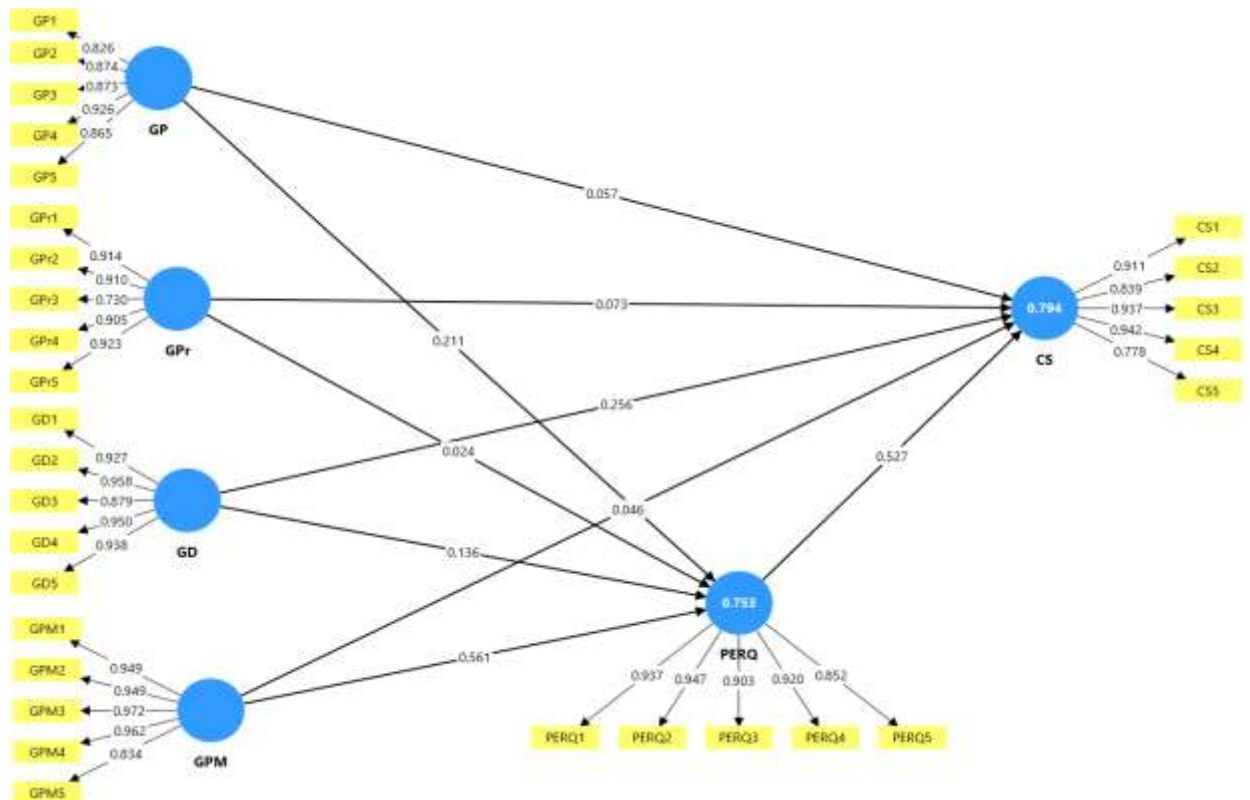
4.1   Data Analysis

Figure 4.1: Path Diagram

4.2   Model Fit Indices

After running the CFA, the study checked how the model fit the data. Table 1 shows the indices used to assess the study model fit.

Table 4.1   **Model Fit**

Fit Index	Saturated Model	Estimated Model
SRMR	0.069	0.069
d_ULS	2.230	2.230
d_G	2.742	2.742
Chi-square	3569.907	3569.907
NFI	0.750	0.750

The model fit results in Table 4.1 show that the measurement model meets acceptable standards and can be considered suitable for further analysis. The SRMR value of 0.069 for both the saturated and estimated models falls below the commonly accepted cutoff of 0.08, indicating that the difference between the observed and predicted correlations is minimal and the model fits the data reasonably well (Hair et al., 2017). The d_ULS and d_G values, which measure the discrepancy between the empirical and model-implied covariance matrices, are identical for both models, suggesting stable and consistent model estimation. Although the chi-square value of 3569.907 is relatively high, this is expected in studies with large samples and does not, on its own, invalidate the model. The NFI value of 0.750 indicates a fair fit (Dash & Paul, 2021). According to Ringle, Christian, Wende, Sven, & Jan-Michael (2022), NFI values range between 0 and 1, with values closer to 1 indicating a better fit.

4.3   Reliability and Convergent Validity Test

The first measurement test evaluation carried out is the reliability and convergent validity test. For a construct to be considered reliable, the values of the construct's Cronbach's alpha (CA) and composite reliability (CR) should be > .7 threshold. The study used the Fornell and Larcker criterion to conduct a convergent validity test. For any construct to be considered to have achieved convergent validity, the construct factor loading and Average Variance Extracted (AVE) should be > .50, and the CR value should be > .70 (Fornell & Larcker, 1981).

Table 4.2.   Reliability and Convergent Validity Test

Construct	Cronbach's Alpha	Composite Reliability (ρa)	Average Variance Extracted (AVE)
CS	0.929	0.947	0.781
GD	0.961	0.970	0.866
GP	0.922	0.941	0.763
GPM	0.963	0.972	0.873
GPr	0.925	0.944	0.773
PERQ	0.949	0.961	0.833

The results in Table 4.2 clearly show that all constructs meet the accepted standards for reliability and convergent validity. As recommended by Nunnally and Bernstein (1994), Cronbach's alpha values above 0.70 indicate satisfactory internal consistency, and all constructs in the table exceed this benchmark, with values ranging from 0.922 for Green Product (GP) to 0.963 for Green Promotion (GPM). Composite reliability values also surpass the 0.70 threshold, confirming strong reliability across the constructs. Convergent validity was assessed following the Fornell and Larcker (1981) criterion, which requires factor loadings and AVE values above 0.50 and composite reliability above 0.70. All constructs recorded high AVE scores between 0.763 and 0.873, demonstrating that their indicators share substantial variance with their respective latent variables. Overall, consistent with the guidelines of Fornell and Larcker (1981) and Hair et al. (2019), the measurement model is both statistically sound and conceptually robust, providing confidence in the quality of the constructs used in the study.

4.4   Discriminant Validity – Fornell and Larcker Criteria

The Fornell and Larcker criteria require that the square root of the Average Variance Extracted (AVE) for each construct must be greater than its correlations with any other construct in the model. This ensures that the constructs share more variance with their own indicators than with other constructs, thus confirming discriminant validity. The results presented in Table 4.3 demonstrate that all study constructs meet this requirement, as the square roots of the AVE values for each construct are indeed greater than the corresponding inter-construct correlations. This indicates that each construct is distinct from the others, fulfilling the Fornell and Larcker criteria for discriminant validity and reinforcing the robustness of the measurement model.

Table 4.3			Fornell and Larcker Criterion			
Construct	**CS**	**GD**	**GP**	**GPM**	**GPr**	**PERQ**
CS	0.884					
GD	0.810	**0.931**				
GP	0.707	0.705	**0.873**			
GPM	0.812	0.860	0.724	**0.934**		
GPr	0.737	0.817	0.704	0.776	**0.879**	
PERQ	0.862	0.786	0.729	0.849	0.718	**0.913**

The Fornell and Larcker criterion in Table 4.3 demonstrates that the constructs in the study achieved acceptable discriminant validity in line with the guidelines proposed by Fornell and Larcker (1981). According to this criterion, the square root of the AVE for each construct (shown on the diagonal) should be higher than its correlations with other constructs in the same row and column. The diagonal values, such as 0.884 for Customer Satisfaction (CS), 0.931 for Green Distribution (GD), 0.873 for Green Product (GP), 0.934 for Green Promotion (GPM), 0.879 for Green Pricing (GPr), and 0.913 for Perceived Quality (PERQ) are all greater than the corresponding inter-construct correlations surrounding them. Although some correlations, such as those between CS and PERQ (0.862) and GPM and GD (0.860), are relatively high, the diagonal values remain higher, which satisfies the requirement for discriminant validity. Consistent with the recommendations of Fornell and Larcker (1981) and Hair et al. (2019), these results confirm that each construct is empirically distinct and measures a unique concept within the model.

4.5   Discriminant Validity – HTMT Criteria

The Heterotrait-Monotrait (HTMT) ratio is based on the assumption that the combined variances of all constructs in the model should not exceed their individual variances. To ensure adequate discriminant validity, the HTMT values must be below the threshold of 0.90. In Table 4.4, the HTMT values for all constructs in the study are below this threshold, indicating that the constructs are sufficiently distinct from one another. This adherence to the HTMT criterion confirms that the study possesses adequate discriminant validity, as suggested by Henseler et al. (2015). Consequently, the constructs in the study do not exhibit excessive overlap, reinforcing the reliability of the measurement model.

Table 4.4   **Discriminant Validity – HTMT Criterion**

Construct	CS	GD	GP	GPM	GPr	PERQ
CS						
GD	0.849					
GP	0.750	0.738				
GPM	0.852	0.893	0.755			
GPr	0.784	0.857	0.746	0.815		
PERQ	0.909	0.821	0.768	0.882	0.757	

The HTMT results in Table 4.4 provide additional evidence of discriminant validity in line with the recommendations of Henseler, Ringle, and Sarstedt (2015), who argue that HTMT values should generally be below 0.90 to confirm that constructs are sufficiently distinct from one another. All the HTMT ratios in the table fall within acceptable limits, with values ranging from 0.738 to 0.909. Although the association between Customer Satisfaction (CS) and Perceived Quality (PERQ) shows a relatively high HTMT value of 0.909, it still meets the maximum threshold suggested for conceptually related constructs. Similarly, the HTMT values between Green Promotion (GPM) and Green Distribution (GD) at 0.893, and between Green Pricing (GPr) and GD at 0.857, indicate strong relationships but remain within the acceptable boundary. Following the criteria outlined by Henseler et al. (2015) and supported by Hair et al. (2019), these HTMT values confirm that each construct maintains adequate discriminant validity, showing that they represent distinct but theoretically related concepts within the study's model.

4.6 EVALUATION OF STRUCTURAL (INNER) MODEL

4.7 Collinearity Problem

After conducting several tests on the measurement model, we proceeded to the first step of the structural model analysis. To ensure that the regression results were unbiased, we examined the potential issue of collinearity among the constructs. This was done using the Variance Inflation Factor (VIF), where a VIF value greater than 10 would indicate problematic collinearity.

Table 4.5.   **Collinearity Test**

Predictor Construct → Dependent Construct	VIF

Predictor Construct → Dependent Construct	VIF
GD → CS	5.035
GD → PERQ	4.961
GP → CS	2.553
GP → PERQ	2.373
GPM → CS	5.688
GPM → PERQ	4.412
GPr → CS	3.432
GPr → PERQ	3.430
PERQ → CS	4.054

The collinearity assessment presented in Table 4.5 shows that all VIF values fall well below the critical threshold of 10, indicating that multicollinearity is not a concern in the structural model. As recommended by Hair et al. (2019), VIF values below 10 suggest that the predictor constructs do not excessively overlap and that each provides a distinct contribution to explaining the dependent variables. The VIF scores range from 2.373 for Green Product (GP) predicting Perceived Quality (PERQ) to 5.688 for Green Promotion (GPM) predicting Customer Satisfaction (CS). Although some values, such as GD → CS (5.035), GPM → CS (5.688), and PERQ → CS (4.054) appear relatively higher, they remain comfortably within acceptable limits and therefore do not distort the regression estimates. Consistent with the guidelines of Hair et al. (2019) and Kock (2015), the results confirm that collinearity does not pose a threat to the validity of the structural model, allowing the analysis to proceed with confidence.

4.8   Coefficient of determination R^2

The R-square (R^2) value indicates the extent to which the exogenous variables influence the endogenous variable in a model. It essentially measures the proportion of variance in the endogenous variable that is predictable from the exogenous variables. The interpretation of the R^2 value relies on specific cutoff thresholds, which serve as a rule of thumb. According to Chen, as cited in Fauzi (2022), an R^2 value of 0.19 is considered weak, 0.33 is considered moderate, and 0.67 is considered strong. These thresholds help in assessing the strength of the relationship between the constructs within the model, providing insight into how well the exogenous variables explain the variance in the

endogenous construct. A higher R^2 value signifies a greater explanatory power of the exogenous variables on the endogenous variable, indicating a more robust model.

Table 4.6	R-square value	
Dependent Construct	**R^2**	**Adjusted R^2**
CS	0.794	0.790
PERQ	0.753	0.750

The R-square results in Table 4.6 show that the model demonstrates strong explanatory power for both endogenous constructs. Following the guideline reported by Chen, as cited in Fauzi (2022), an R^2 value of 0.67 and above is considered strong. The R^2 value for Customer Satisfaction (CS) is 0.794, with an adjusted R^2 of 0.790, indicating that nearly 79 percent of the variation in CS is explained by the green marketing variables and the mediating construct. This reflects a very strong model in predicting customer satisfaction. Similarly, Perceived Quality (PERQ) recorded an R^2 of 0.753 and an adjusted R^2 of 0.750, which also exceeds the strong threshold, showing that the predictors explain about 75 percent of its variance. These values suggest that the exogenous variables collectively have a substantial influence on both CS and PERQ, confirming the robustness and predictive strength of the structural model.

4.9 Effect size f-square analysis

The effect size is a statistical procedure that assesses the significance of one or more exogenous constructs on an endogenous construct by recalculating the R^2 value. It quantifies the magnitude of the relationship between the latent variables, offering insights into how much an independent variable contributes to explaining the variance in a dependent variable. By doing so, the effect size helps determine the practical importance of the exogenous constructs in influencing the endogenous construct. This procedure is crucial for understanding not just whether relationships exist, but how substantial those relationships are, thereby providing a more nuanced view of the dynamics within the model.

Table 4.7	Effect size f^2
Structural Path	f^2
GD → CS	0.063
GD → PERQ	0.015
GP → CS	0.006
GP → PERQ	0.076
GPM → CS	0.002
GPM → PERQ	0.289
GPr → CS	0.008
GPr → PERQ	0.001
PERQ → CS	0.333

The effect size results in Table 4.7 help to clarify the practical influence of each predictor on its corresponding outcome using Cohen's (1988) guidelines, which classify f^2 values of 0.02 as small, 0.15 as medium, and 0.35 as large. Most of the predictors in this model demonstrate small effects, such as GD → CS (0.063), GP → CS (0.006), and GPr → CS (0.008), indicating that although these variables contribute to customer satisfaction, their individual impact is limited. A similar small effect is seen for GD → PERQ (0.015) and GPr → PERQ (0.001). Green Promotion shows an interesting pattern: its effect on customer satisfaction is negligible (0.002), yet it has a much stronger influence on perceived quality (0.289), aligning with what Cohen (1988) considers a medium-to-large effect. The strongest effect in the model is observed for PERQ → CS (0.333), reflecting a substantial contribution of perceived quality to customer satisfaction. Overall, the f^2 values indicate that while most green marketing elements exert modest individual effects, perceived quality plays a central and powerful role in shaping customer satisfaction within the telecommunication industry.

4.10   Predictive relevance Q^2 analysis

Hair, Hult, Ringle, Sarstedt, and Thiele (2017) explain that predictive relevance, measured by the Q^2 statistic, assesses how well the model can predict the endogenous variable.

Table 4.8		LV Prediction summary		
Dependent Construct		Q^2 **predict**	**RMSE**	**MAE**
PERQ	0.743	0.510	0.318	
CS	0.712	0.539	0.364	

The predictive relevance results in Table 4.8 show that the model has a strong capability to predict both endogenous constructs, consistent with the guideline by Hair et al. (2017) that a Q^2 value above zero indicates meaningful predictive relevance. Perceived Quality (PERQ) recorded a Q^2 value of 0.743, while Customer Satisfaction (CS) recorded 0.712, both of which reflect high predictive strength and demonstrate that the exogenous variables provide substantial information for forecasting these outcomes. The accompanying RMSE and MAE values further support this conclusion, as the relatively low error levels (RMSE of 0.510 and MAE of 0.318 for PERQ, and RMSE of 0.539 and MAE of 0.364 for CS) show that the model's predictions closely align with the observed data. Overall, these results confirm that the structural model is not only theoretically sound but also practically reliable in predicting key marketing performance indicators.

4.11   Bootstrapping Procedure:

To test the study hypotheses, a bootstrapping procedure with 5000 resamples was employed, providing a robust method for estimating the precision of the path coefficients. Table 4.9 and 4.10 present the results of the bootstrapping analysis, which are used to evaluate the significance of the hypothesized relationships. According to the decision rule, a variable is considered to have a significant effect if the t-statistic value is greater than 1.96 and the p-value is less than 0.05. These thresholds indicate that the effect is statistically significant at the 5% level, meaning that there is a high likelihood that the observed effects are not due to random chance. This approach ensures the reliability of the results and supports the validity of the hypotheses tested in the study.

4.12   Test of Hypothesis

This study hypotheses are test in tables 4.9 and 4.10.

Table 4.9   **Path coefficient estimate (Direct effect)**

Path	B (Original sample)	SE (Standard deviation)	t statistics	P - value
GD → CS	0.256	0.074	3.446	.001
GD → PERQ	0.136	0.084	1.611	.107
GP → CS	0.057	0.051	1.121	.262
GP → PERQ	0.211	0.058	3.660	.000
GPM → CS	0.046	0.078	0.596	.551
GPM → PERQ	0.561	0.073	7.703	.000
GP → CS	0.073	0.050	1.452	.147
GP → PERQ	0.024	0.052	0.456	.649
PERQ → CS	0.527	0.077	6.881	.000

GD → CS: The path from Green Distribution (GD) to Customer Satisfaction (CS) in Table 4.9 shows a significant positive effect, with a coefficient of 0.256 and a t-value of 3.446 (p = .001). This indicates that improvements in environmentally responsible distribution practices contribute meaningfully to higher customer satisfaction levels. Since the p-value is well below the 0.05 threshold, the result confirms that GD has a statistically significant influence on CS in the telecommunication industry.

GD → PERQ: The relationship between Green Distribution (GD) and Perceived Quality (PERQ) is positive but not statistically significant, with a coefficient of 0.136, a t-value of 1.611, and a p-value of .107. Although the direction suggests that greener distribution could enhance customers' perceptions of quality, the evidence is not strong enough to establish a meaningful effect. This implies that distribution-related green initiatives alone may not significantly shape quality perceptions.

GP → CS: Green Product (GP) shows a small and non-significant effect on Customer Satisfaction (CS), with a coefficient of 0.057 and a t-value of 1.121 (p = .262). This suggests that customers do not directly associate green product features with satisfaction, or that such features are not yet strong enough differentiators within the telecommunication industry to influence satisfaction levels meaningfully.

GP → PERQ: The path from Green Product (GP) to Perceived Quality (PERQ) is significant, with a coefficient of 0.211, a t-value of 3.660, and a p-value of .000. This indicates that environmentally friendly product attributes positively shape how customers judge the quality of telecom services. The significance of this relationship shows that

green product initiatives are meaningful contributors to brand image through perceived quality.

GPM → CS: Green Promotion (GPM) has a negligible and non-significant effect on Customer Satisfaction (CS), with a coefficient of 0.046, a t-value of 0.596, and a p-value of .551. This means that promotional messages emphasizing environmental responsibility do not directly translate into higher customer satisfaction. Customers may view such messages as routine marketing content rather than factors influencing their satisfaction.

GPM → PERQ: The effect of Green Promotion (GPM) on Perceived Quality (PERQ) is strong and statistically significant, with a coefficient of 0.561, a t-value of 7.703, and a p-value of .000. This shows that green promotional strategies play an important role in shaping customers' perceptions of service quality. The strength of the effect suggests that effective green messaging can substantially enhance brand image.

GPr → CS: Green Pricing (GPr) shows a non-significant effect on Customer Satisfaction (CS), with a coefficient of 0.073, a t-value of 1.452, and a p-value of .147. Although the relationship is positive, it is not strong enough to assert that environmentally conscious pricing strategies meaningfully drive satisfaction. This indicates that customers may not view pricing policies as directly tied to their satisfaction.

GPr → PERQ: The path from Green Pricing (GPr) to Perceived Quality (PERQ) is also non-significant, with a coefficient of 0.024, a t-value of 0.456, and a p-value of .649. This suggests that green pricing initiatives do little to influence perceptions of quality. Customers may base their quality judgments more on service performance than on pricing structures.

PERQ → CS: Perceived Quality (PERQ) shows a strong and significant positive effect on Customer Satisfaction (CS), with a coefficient of 0.527, a t-value of 6.881, and a p-value of .000. This indicates that customers who perceive higher service quality are much more likely to report higher satisfaction. The strength and significance of this path underscore the central role of perceived quality as a key determinant of satisfaction in the telecommunication industry.

Table 4.10 Path coefficient estimate (Indirect effect)

Path	B (Original sample)	SE (Standard deviation)	t statistics	P - value
GD → PERQ → CS	0.072	0.045	1.599	.110
GP → PERQ → CS	0.111	0.035	3.197	.001
GPM → PERQ → CS	0.296	0.056	5.281	.000
GP → PERQ → CS	0.013	0.029	0.432	.666

GD → PERQ → CS: The indirect effect of Green Distribution (GD) on Customer Satisfaction (CS) through Perceived Quality (PERQ) in Table 4.10 is positive but not statistically significant, with a coefficient of 0.072, a t-value of 1.599, and a p-value of .110. Although the direction suggests that better green distribution practices could enhance satisfaction indirectly by improving perceived quality, the evidence is not strong enough to confirm a meaningful mediating effect.

GP → PERQ → CS: The mediation effect of Green Product (GP) on Customer Satisfaction (CS) through Perceived Quality (PERQ) is statistically significant, with a coefficient of 0.111 and a t-value of 3.197 (p = .001). This indicates that while GP may not directly influence customer satisfaction strongly, it contributes indirectly by improving perceived quality, which in turn raises satisfaction. This confirms that PERQ plays an important mediating role in the link between green product initiatives and customer satisfaction.

GPM → PERQ → CS: Green Promotion (GPM) shows a strong and significant indirect effect on Customer Satisfaction (CS) through Perceived Quality (PERQ), with a coefficient of 0.296, a t-value of 5.281, and a p-value of .000. This result highlights that green promotional activities contribute meaningfully to customer satisfaction, not directly, but by significantly boosting customers' perceptions of quality. PERQ therefore serves as a powerful mediator in this pathway.

GPr → PERQ → CS: The mediated effect of Green Pricing (GPr) on Customer Satisfaction (CS) through Perceived Quality (PERQ) is very small and statistically non-significant, with a coefficient of 0.013, a t-value of 0.432, and a p-value of .666. This indicates that green pricing does not significantly enhance perceived quality and therefore does not translate into higher customer satisfaction through this mediating channel.

4.13   Discussion of Findings

The path from Green Distribution (GD) to Customer Satisfaction (CS) is significantly positive (β =0.256, p=0.001$), indicating that environmentally responsible distribution practices, such as efficient logistics, reduced waste from physical service delivery, or optimized infrastructure deployment, directly contribute to higher customer satisfaction levels. This finding highlights that customers in the telecommunication sector recognize and appreciate tangible, earth-friendly practices in how the service is delivered. This result is particularly noteworthy as many studies, like those focusing on green promotion or product, find effects to be indirect; however, this direct link to satisfaction is supported by the overall literature (e.g., Ali et al., 2024; Eko et al., 2023), which generally confirms that green practices positively affect market outcomes.

The relationship between Green Distribution (GD) and Perceived Quality (PERQ) is positive but not statistically significant (β =0.136, p=0.107$). Although greener distribution practices suggest an enhancement in quality perception, the evidence is not strong enough to confirm a meaningful effect. This implies that while distribution efforts directly satisfy customers (as noted above), they do not strongly shape the overall judgment of service quality (PERQ), which is often more influenced by core service performance or branding. This finding contradicts the suggestion by Mustapha et al. (2024) that a green place (distribution) strategy strengthens brand reputation (a proxy for PERQ), indicating a sector-specific difference in how customers form quality judgments.

Green Product (GP) shows a small and non-significant effect on Customer Satisfaction (CS) (β =0.057, p=0.262$). This suggests that customers do not directly associate eco-friendly product features (e.g., sustainable device design, paperless billing features) with their overall service satisfaction, or that these features are not yet strong enough differentiators in the telecom industry to influence satisfaction directly. This finding contradicts the results of Mustapha et al. (2024), who concluded that a green product strategy *does* influence customer satisfaction in the SME context, reinforcing the notion that the perceived value of green product features may differ significantly between goods-based and service-based sectors like telecommunications.

The path from Green Product (GP) to Perceived Quality (PERQ) is significant and positive (β =0.211, p=0.000$), indicating that environmentally friendly product attributes positively influence how customers judge the quality of telecom services. This suggests that green product initiatives are meaningful contributors to a positive brand image and quality perception. This aligns well with the findings of Ali et al. (2024), which showed that green marketing enhances consumer perception, and supports the general conclusion that product sustainability is an important signaling mechanism for overall quality in a brand's offerings.

Green Promotion (GPM) has a negligible and non-significant effect on Customer Satisfaction (CS) (β =0.046, p=0.551$). This finding suggests that promotional messages emphasizing environmental responsibility (e.g., campaigns about carbon neutrality) do

not directly translate into higher customer satisfaction; customers may view such messaging as routine marketing rather than a direct factor influencing their satisfaction. This result is contrary to the findings of Atotileto et al. (2024), who found a significant positive effect of green promotion on performance in the cement sector, highlighting a significant contrast in the direct impact of promotional strategies across different Nigerian industries.

The effect of Green Promotion (GPM) on Perceived Quality (PERQ) is strong and statistically significant (β =0.561, p=0.000$), indicating that green promotional strategies play a powerful role in shaping customers' perceptions of service quality. The strength of this effect suggests that effective communication of green initiatives can substantially enhance the brand image and perception of competence. This strongly supports the results of Shah (2022) and Ali et al. (2024), both of which emphasized the critical role of corporate image and consumer perception in translating green efforts into positive business outcomes.

Green Pricing (GPr) shows a non-significant effect on Customer Satisfaction (CS) (β =0.073, p=0.147$). Although the relationship is positive, it is not strong enough to assert that environmentally conscious pricing strategies (e.g., premium pricing for 'greener' bundles or discounts for eco-friendly payment methods) meaningfully drive satisfaction. This suggests that customers may not view pricing policies, particularly those related to environmental consciousness, as directly tied to their overall satisfaction with the telecom service.

The path from Green Pricing (GPr) to Perceived Quality (PERQ) is also non-significant (β =0.024, p=0.649$). This indicates that green pricing initiatives do little to influence customers' perceptions of quality, implying that quality judgments are based more on core service performance and reliability than on the environmental aspect of pricing structures. This finding, combined with the non-significant direct effect on CS, suggests that Green Pricing is the least impactful element of the green marketing mix studied in the Nigerian telecom sector.

Perceived Quality (PERQ) shows a strong and significant positive effect on Customer Satisfaction (CS) (β =0.527, p=0.000$), underscoring the central role of quality perception as a key determinant of satisfaction in the telecommunication industry. Customers who perceive the service to be of high quality are much more likely to report higher satisfaction. This result aligns perfectly with established marketing theory and provides the context for the indirect effects: a strong perception of quality is the essential bridge to customer satisfaction for any service provider.

The indirect effect of Green Distribution (GD) on Customer Satisfaction (CS) through Perceived Quality (PERQ) is positive but not statistically significant (β =0.072, p=0.110$). This finding confirms the conclusions from the direct paths, suggesting that while GD has a direct, tangible effect on CS, it is not a significant driver of satisfaction through the *cognitive judgment* of quality. In essence, customers are satisfied with the

efficient green distribution *experience* but do not necessarily translate that into a higher perception of *overall quality*.

The mediation effect of Green Product (GP) on Customer Satisfaction (CS) through Perceived Quality (PERQ) is statistically significant (β =0.111, p=0.001$). This is a crucial finding, indicating that while Green Product features may not directly satisfy customers, they enhance satisfaction *indirectly* by improving their Perceived Quality, which in turn drives satisfaction. This confirms that PERQ acts as an important mediator for the Green Product strategy, supporting the general conclusion in the literature (e.g., Martins, 2022) that the benefits of green initiatives are often channelled through an intermediate perception/behavioural mechanism.

Green Promotion (GPM) shows a strong and significant indirect effect on Customer Satisfaction (CS) through Perceived Quality (PERQ) (β =0.296, p=0.000$). This result emphatically highlights that green promotional activities contribute meaningfully to customer satisfaction, not directly, but by significantly boosting customers' Perceived Quality. Perceived Quality therefore serves as a powerful and essential mediator for green promotional strategies, confirming the importance of perception and image as a pathway to market success, a conclusion strongly supported by the findings of Shah (2022) regarding corporate image as a mediator.

The mediated effect of Green Pricing (GPr) on Customer Satisfaction (CS) through Perceived Quality (PERQ) is very small and statistically non-significant (β =0.013, p=0.666$). This indicates that green pricing does not significantly enhance perceived quality and therefore does not translate into higher customer satisfaction through this mediating channel. This reinforces the conclusion that pricing structures based on environmental concepts are generally ineffective in influencing both the quality perceptions and satisfaction levels of telecom customers in this context.

5.0   Conclusion

This article concludes that green marketing strategies significantly impact marketing performance (Customer Satisfaction, CS) in the Niger State, Nigerian telecommunications industry, primarily through the crucial mediating role of Brand Image (Perceived Quality, PERQ). Specifically, while Green Distribution (GD) is the only element with a significant direct positive effect on CS, Green Product (GP) and, most powerfully, Green Promotion (GPM) drive satisfaction indirectly by significantly enhancing Perceived Quality (PERQ), which is established as the strongest antecedent of CS. Conversely, Green Pricing (GPr) has no significant effect on either PERQ or CS. Therefore, to boost customer satisfaction and overall marketing performance, telecommunication firms should prioritize tangible green distribution practices and invest strategically in green product features and green promotion, recognizing that

communication and product attributes must first successfully improve the customer's perception of quality to achieve long-term satisfaction gains.

5.1   Recommendations

Based on the study's findings, telecommunication companies in Niger State, Nigeria, should strategically allocate resources to the green marketing mix elements that yield the strongest direct and indirect effects on customer satisfaction and brand image. Firms must prioritize Green Distribution (GD), as it provides the only significant direct boost to Customer Satisfaction (CS). This means continuing to invest in tangible, eco-friendly operational practices, such as optimizing network infrastructure efficiency, utilizing renewable energy for cell towers, and streamlining physical service delivery to minimize waste and environmental impact. Furthermore, since Perceived Quality (PERQ) is confirmed as the primary driver of satisfaction ($\beta = 0.527\$$), managers should recognize it as the critical link between strategy and performance. Therefore, green marketing efforts should be primarily designed and measured by their ability to positively enhance this perception.

To effectively leverage the powerful indirect pathways, the firms should strategically integrate Green Promotion (GPM) and Green Product (GP) initiatives to bolster Perceived Quality (PERQ). The study showed GPM as the strongest driver of PERQ ($\beta = 0.561\$$), confirming that the effective communication of a firm's green initiatives significantly shapes brand image. Managers should develop robust, transparent, and consistent campaigns (e.g., through digital channels to emphasize paperless operations) that highlight eco-friendly product features and environmental commitment, ensuring promotional messages are seen as genuine rather than routine marketing. Simultaneously, investment in Green Product (GP) features (e.g., sustainable devices, e-waste recycling programs, energy-efficient services) is crucial, as these features significantly improve PERQ and thus indirectly contribute to satisfaction.

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