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The Influence of Brand Image, Product Innovation, and Green Marketing on Customer Loyalty Through Perception of Green Products

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Abstract: This study aims to analyze the effect of brand image, product innovation, and green marketing on customer loyalty through the perception of environmentally friendly products. This research was conducted at Horison Nindya Hotel Semarang with a quantitative approach. The data were analyzed using PLS-SEM technique through SmartPLS 4.0 software. The results showed that product innovation and green marketing had a significant effect on green product perceptions. Green product perception also has a significant effect on customer loyalty. In addition, brand image, product innovation, and green marketing have a significant effect on customer loyalty. However, brand image has no significant effect on green product perception. These findings provide theoretical implications in strengthening the application of green consumer behavior (Peattie & Crane, 2005; Ajzen, 2020).

Keyword: Brand Image, Product Innovation, Green Marketing, Green Product Perception, Customer Loyalty.

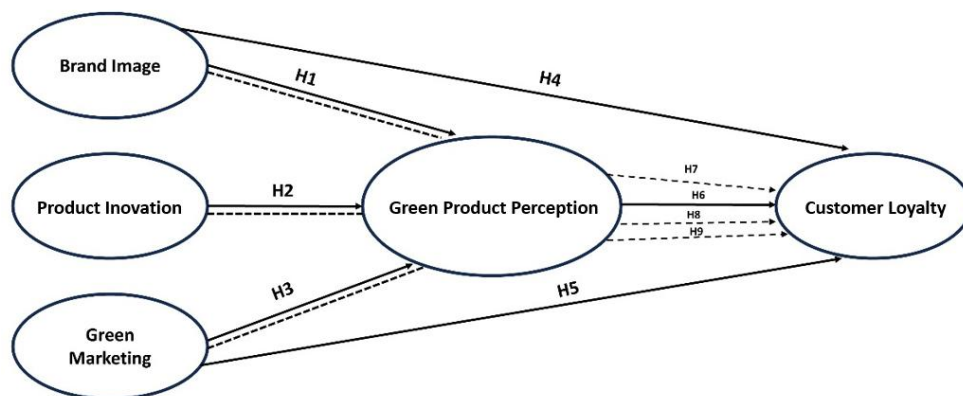
INTRODUCTION

In recent years, increased public awareness of environmental issues has encouraged many business sectors to adopt more sustainable and environmentally friendly practices. The hospitality industry, in particular, is under growing pressure to implement green initiatives as a way to reduce environmental impact while simultaneously attracting environmentally conscious customers. Hotels are now expected to go beyond basic service offerings by integrating environmental values into their operational and marketing strategies. One such example is Hotel Horison Nindya Semarang, which has implemented a variety of green-based approaches including eco-friendly branding, environmentally sensitive product innovations, and green marketing efforts aimed at increasing consumer awareness and engagement.

However, the implementation of these green initiatives does not automatically translate into stronger customer loyalty. Studies have shown that customer loyalty is often influenced not only by the actions taken by companies but also by how consumers perceive these efforts (Wu et al., 2022; Nekmahmud & Fekete-Farkas, 2020). The perception of green products acts as a psychological filter through which consumers evaluate the authenticity and value of a

company's environmental claims. In the hospitality sector, where service experience is intangible and emotional engagement plays a major role, consumer perceptions become even more critical. Therefore, understanding the link between a hotel's green practices and the perception of green products becomes essential in building long-term customer loyalty.

This study aims to examine the influence of brand image, product innovation, and green marketing on customer loyalty, mediated by the perception of green products. The research is grounded in recent theoretical frameworks, namely the Stimulus-Organism-Response (SOR) model, the Norm Activation Theory (NAT), and the Dynamic Capability View (DCV). These frameworks provide a comprehensive basis for understanding how external stimuli (such as green marketing), internal psychological processes (such as perceptions), and organizational capabilities contribute to shaping consumer loyalty. By integrating these perspectives, the study offers a deeper insight into how environmental strategies impact customer behavior in the context of green hospitality.



Source: Research Results
Figure 1. Conceptual Framework

Brand image, product innovation, and green marketing are posited as independent variables that shape consumers' perception of green products. Perception of green products acts as a mediating variable, which is believed to bridge the influence between external marketing activities and customer loyalty. The framework also explores whether each independent variable directly influences customer loyalty. Thus, the conceptual model emphasizes both direct and indirect pathways of influence.

The hypotheses proposed in this study are as follows:

H1: Brand image has a significant influence on green product perception. H2: Product innovation has a significant influence on green product perception. H3: Green marketing has a significant influence on green product perception. H4: Green product perception has a significant influence on customer loyalty. H5: Brand image has a significant influence on customer loyalty. H6: Product innovation has a significant influence on customer loyalty. H7: Green marketing has a significant influence on customer loyalty. H8: Brand image influences customer loyalty through green product perception. H9: Green marketing influences customer loyalty through green product perception.

This model offers a holistic view of how sustainable marketing strategies influence customer loyalty through cognitive and psychological consumer mechanisms.

METHOD

This study employs a quantitative explanatory approach to investigate the influence of brand image, product innovation, and green marketing on customer loyalty, mediated by perceptions of green products. The research was conducted at Hotel Horison Nindya Semarang,

with the population consisting of repeater guests who had stayed at the hotel during the years 2023 to 2024. A probability sampling technique—specifically stratified random sampling—was applied to ensure proportionate representation from various guest origins, categorized by province. The sample size of 249 respondents was determined using the Slovin formula with a margin of error of 5%, aiming to achieve representative results while maintaining efficiency. This approach ensures that the study findings can be generalized to a broader population within the context of green hotel service consumers.

Data were collected through a structured questionnaire comprising multiple indicators adapted from previously validated studies related to each research variable. Respondents rated each item using a 5-point Likert scale, indicating their level of agreement with various statements. The data analysis process utilized Partial Least Squares Structural Equation Modeling (PLS-SEM) via the SmartPLS 4.0 software. The evaluation of the outer model included assessments of convergent validity, discriminant validity, and construct reliability. Meanwhile, the inner model analysis examined the strength of relationships among constructs using path coefficients, R² values, Q² values, and hypothesis testing with a two-tailed significance level of 5% ($\alpha = 0.05$) (Hair et al., 2021). This comprehensive methodological approach enables both the measurement and structural models to be tested effectively, providing robust empirical support for the study's hypotheses.

RESULTS AND DISCUSSION

Overview of The Research Object

This research was conducted at Horison Nindya Hotel Semarang using quantitative data obtained from distributing questionnaires to guests who had stayed at the hotel as many as 249 respondents. The following are details about the research location, namely Horison Nindya Hotel Semarang

Table 1. Horison Nindya Hotel Semarang General Data

Detail	Description
Hotel Name	Horison Nindya Hotel Semarang
Adress	JL. Brigjen S. Sudiarto No. 496, Pedurungan Lor, Semarang, Jawa Tengah
Year of Operation	16 Desember 2018
Manager	PT Nindya Karya dan PT Metropolitan Golden Management
Floor/Room	11 floor + mezzanine + basement/167 room
Facilites	Lobby, restaurant, spa, gym, pool, ballroom, meeting rooms, parking, 24-hour room service

Source: Research data

Outer Model Testing Result

Convergent Validity Testing Results

Table 2. Convergent Validity Result

Variable	Indicator	Outer Loading	Description
	X1.1	0,855	valid

Variable	Indicator	Outer Loading	Description
Brand Image	X1.2	0,802	valid
	X1.3	0,873	valid
	X1.4	0,822	valid
Product Inovation	X2.1	0,859	valid
	X2.2	0,822	valid
	X2.3	0,910	valid
	X2.4	0,880	valid
Green Marketing	X3.1	0,927	valid
	X3.2	0,935	valid
	X3.3	0,900	valid
	X3.4	0,863	valid
Customer Loyalty	Y1.1	0,831	valid
	Y1.2	0,804	valid
	Y1.3	0,819	valid
	Y1.4	0,851	valid
	Y1.5	0,797	valid
	Y1.6	0,784	valid
	Y1.7	0,716	valid
	Y1.8	0,806	valid
	Y1.9	0,719	valid
	Y1.10	0,033	Tidak valid
	Y1.11	0,736	valid
	Y1.12	0,802	valid
Green Product Perception	Z1.1	0,935	valid
	Z1.2	0,936	valid
	Z1.3	0,889	valid
	Z1.4	0,779	valid

Source: Output PLS, 2025

The results of the modified convergent validity test in table 2, it can be seen that all indicators have met convergent validity because they have a loading factor value above 0.70.

Cross Loading

Table 3. Cross Loading Result

	Brand Image	Green Marketing	Product Inovation	Customer Loyalty	Green Product Perception
X1.1	0,855	0,633	0,684	0,676	0,630
X1.2	0,802	0,761	0,678	0,678	0,656
X1.3	0,873	0,653	0,682	0,703	0,620
X1.4	0,822	0,571	0,541	0,622	0,564
X2.1	0,690	0,753	0,859	0,726	0,722
X2.2	0,735	0,674	0,822	0,712	0,682
X2.3	0,649	0,834	0,910	0,770	0,825
X2.4	0,635	0,803	0,880	0,707	0,846
X3.1	0,733	0,927	0,812	0,744	0,792
X3.2	0,753	0,935	0,767	0,730	0,748
X3.3	0,712	0,900	0,781	0,733	0,770
X3.4	0,646	0,863	0,846	0,759	0,820
Y1.1	0,661	0,688	0,715	0,831	0,741

	Brand Image	Green Marketing	Product Inovation	Customer Loyalty	Green Product Perception
Y1.2	0,694	0,684	0,684	0,804	0,651
Y1.3	0,653	0,662	0,674	0,819	0,686
Y1.4	0,692	0,736	0,742	0,851	0,757
Y1.5	0,624	0,652	0,672	0,797	0,728
Y1.6	0,654	0,644	0,638	0,784	0,637
Y1.7	0,512	0,568	0,588	0,717	0,522
Y1.8	0,581	0,604	0,660	0,806	0,617
Y1.9	0,551	0,559	0,609	0,719	0,585
Y1.11	0,573	0,551	0,538	0,736	0,577
Y1.12	0,713	0,724	0,720	0,802	0,694
Z1.1	0,702	0,831	0,856	0,766	0,935
Z1.2	0,683	0,814	0,846	0,779	0,936
Z1.3	0,632	0,780	0,770	0,696	0,889
Z1.4	0,598	0,630	0,676	0,719	0,779

Source: Output PLS, 2025

Average Variance Extracted (AVE)

Table 4. AVE Result

Variable	AVE
Brand Image	0,703
Green Marketing	0,822
Inovasi Product	0,754
Loyalitas Pelanggan	0,622
Persepsi Green Product	0,787

Source: Output PLS, 2025

Fornell Lacker Criterium

Table 5. Fornell Lacker Criterium Result

Variable	Brand Image	Green Marketing	Product Inovation	Customer Loyalty	Green Product Perception
Brand Image	0,838				
Green Marketing	0,784	0,907			
Product Inovation	0,774	0,855	0,868		
Customer Loyalty	0,711	0,780	0,758	0,789	

Green Product Perception	0,739	0,865	0,853	0,745	0,887
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Source: Output PLS, 2025

Composite Reliability & Cronbach’s Alpha Testing Result

Table 6. Composite Reliability & Cronbach’s Alpha Result

Variabel	Cronbach Alpha’s	Composite Reliability	Description
Brand Image	0,859	0,904	Reliable
Green Marketing	0,927	0,949	Reliable
Product Inovation	0,891	0,924	Reliable
Customer Loyalty	0,939	0,948	Reliable
Green Product Perception	0,908	0,936	Reliable

Source: Output PLS, 2025

Inner Model Testing Result

R Square

Table 7. R Square Result

Variabel Endogen	R-square
Customer Loyalty	0,779
Green Product Perception	0,821

Source: Output PLS, 2025

Goodness of Fit Model

Testing Goodness of Fit The structural model in the inner model uses the predictive-relevance value (Q²). A Q-square value greater than 0 (zero) indicates that the model has a predictive relevance value. The R-square value of each endogenous variable in this study can be seen in the following calculation. The predictive relevance value is obtained by the formula:

$$Q^2 = 1 - (1 - R_1)(1 - R_p)$$

$$Q^2 = 1 - (1 - 0,779)(1 - 0,821)$$

$$Q^2 = 1 - (0,221)(0,179)$$

$$Q^2 = 0,9604$$

The results of the above calculations show that the predictive-relevance value is greater than 0 (zero). That means that 96.04% of Customer Loyalty and Green Product Perceptions (dependent variable) are explained by the independent variables used. Thus the model is said to be feasible to have a relevant predictive value.

Hypothesis

Table 8. Hypothesis Testing Results

	<i>Original Sample</i>	<i>Standard Deviation</i>	<i>T-Statistics</i>	<i>P Values</i>	Description
Brand Image → Green Product Perception	0,040	0,047	0,856	0,196	No Effect
Product Inovation → Green Product Perception	0,564	0,083	6,784	0,000	Significant Effect
Green Marketing → Green Product Perception	0,334	0,085	3,931	0,000	Significant Effect
Brand Image → Customer Loyalty	0,345	0,060	5,739	0,000	Significant Effect
Green Marketing → Customer Loyalty	0,187	0,090	2,085	0,019	Significant Effect
Green Product Perception → Customer Loyalty	0,418	0,079	5,259	0,000	Significant Effect
Mediation					
Brand Image → Green Product Perception → Customer Loyalty	0,017	0,020	0,815	0,207	Unmediated
Product Inovation → Green Product Perception → Customer Loyalty	0,236	0,056	4,213	0,000	Partial Mediation
Green Marketing → Green Product Perception → Customer Loyalty	0,140	0,047	3,002	0,001	Partial Mediation

Source: Output PLS, 2025

Discussion of Research Results

Brand Image → Green Product Perception

The effect of brand image on green product perception was found to be statistically insignificant. Despite a positive coefficient, the T-statistic and p-value indicated no significant

relationship. This contrasts with previous studies such as Lie & Silintonga (2024) and Krishnan & Nusraningrum (2024), which emphasized the influence of brand image on perceived value and green loyalty. The divergence may be due to differences in consumer characteristics or contextual factors

Product Innovation → Green Product Perception

Product innovation demonstrated a strong and significant positive effect on green product perception. This is consistent with prior studies (Jalu et al., 2023; Fitriyani et al., 2025) affirming the role of eco-innovation in shaping consumer evaluations of green value and satisfaction.

Green Marketing → Green Product Perception

The study confirmed a significant positive relationship between green marketing and green product perception. This supports findings by Krishnan et al. (2024) and Mohammadi et al. (2023), highlighting the communicative and persuasive function of green marketing in building consumer perception.

Green Product Perception → Customer Loyalty

Green product perception had a strong and significant influence on customer loyalty. This aligns with previous research emphasizing perception as a cognitive bridge to sustainable loyalty (Fitriyani et al., 2025; Nofiasari et al., 2023).

Brand Image → Customer Loyalty

A direct positive and significant effect was found between brand image and customer loyalty. This confirms prior studies asserting that a strong, positive image contributes directly to customer retention (Krishnan & Nusraningrum, 2024; Arasyi & Kusumawati, 2023).

Green Marketing → Customer Loyalty

The study demonstrated that green marketing has a positive and significant effect on customer loyalty. These findings are consistent with previous literature showing that green marketing strategies foster long-term consumer commitment (Lestari et al., 2024; Paramaswary Aslam et al., 2023).

Brand Image → Customer Loyalty (via Green Product Perception)

The mediating role of green product perception in the relationship between brand image and customer loyalty was found to be statistically insignificant. This suggests that while brand image may influence loyalty directly, it may not necessarily do so through green perception.

Product Innovation → Customer Loyalty (via Green Product Perception)

Green product perception partially mediated the relationship between product innovation and customer loyalty. This confirms the view that innovation must be accompanied by positive consumer evaluation to influence loyalty behavior (Morea et al., 2023).

Green Marketing → Customer Loyalty (via Green Product Perception)

The study confirmed that green product perception partially mediates the effect of green marketing on customer loyalty. This highlights the importance of shaping consumer perceptions as an intermediate outcome in sustainable marketing strategies (Flacandji et al., 2023; Putri & Ratnawati, 2024).

CONCLUSION

This study concludes that brand image, product innovation, and green marketing play a significant role in shaping customer perceptions of green products, which in turn affect customer loyalty. The perception of green products acts as a mediating variable that strengthens the indirect relationship between environmental strategies and customer loyalty. These findings provide strong support for businesses in the hospitality sector to not only adopt green initiatives but also ensure that such efforts are communicated effectively and perceived positively by consumers.

The theoretical contribution of this research lies in the integration of the Stimulus-Organism-Response (SOR), Norm Activation Theory (NAT), and Dynamic Capability View

(DCV), which together offer a comprehensive explanation of green consumer behavior. From a managerial perspective, the results offer practical implications for developing marketing strategies that align with customers' values and sustainability concerns.

Key takeaways from this study include:

1) Brand image and green marketing significantly influence customer loyalty indirectly through green product perception. 2) Green product perception plays a crucial mediating role, bridging the gap between marketing efforts and behavioral outcomes. 3) Product innovation, while important for green perception, does not directly influence customer loyalty, indicating that innovation alone is insufficient without strong consumer perception. 4) Green strategies should be holistic, encompassing both environmental action and strategic communication. 5) Businesses should pay attention to how green initiatives are perceived, not just how they are implemented.

Future research can expand on this study by including other psychological constructs such as green trust, environmental concern, or perceived consumer effectiveness. Additionally, similar research could be applied to different industries to explore whether these relationships hold across various business contexts.

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