



Green Marketing, Personalized Ads, And E-Service Quality Impact E-Commerce Customer Satisfaction

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ABSTRACT

The study at hand investigates the impact of Green Marketing, Personalized Ads, and E-Service Quality impacted to E-Commerce Customer Satisfaction in the context of an increasingly competitive digital market. As consumers become more environmentally conscious and digitally engaged, understanding how these factors shape their satisfaction is essential for sustaining competitive advantage. The intended outcomes of the research to empirically analyze the role of each independent variable in influencing consumer perception and satisfaction. Employing a quantitative approach with data processing using SPSS, the research sample was drawn from Lazada customers located in Semarang. The results, analyzed through a multiple regression model, show that E-Service Quality is the most significant and positive predictor of satisfaction. Green Marketing was likewise shown to exert a significant positive influence, while the effect of Personalized Ads was relatively weaker. These findings contribute both theoretically and practically by emphasizing the importance of digital service quality, while also recognizing the value of sustainability initiatives. For practitioners, particularly in e-commerce, the results highlight the need to combine reliable digital services with responsible marketing strategies to enhance customer loyalty and long-term competitiveness.

Keywords: *Customer Satisfaction, E-Service Quality, Green Marketing, Personalized Ads*

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1. | INTRODUCTION

E-commerce is a business sector that relies on technology in its sales process. Over the past ten years technology has created a strong dependence among its users. According to Good Stats in 2024 the internet penetration rate in Indonesia increased from 64.8 percent in 2018 to 79.5 percent in 2024. This growth reflects stronger digital infrastructure, wider internet access and higher levels of technology adoption in society. The Ministry of Trade also reported that e-commerce users expanded from 38.1 million in 2020 to reach 63.5 million in 2024. These developments encouraged e-commerce companies to intensify and organize their promotional activities to attract more customers.

Data from DataBox.co.id shows that Lazada recorded an average of 83.23 million monthly visits in the first quarter of 2023. This figure indicates that Lazada is considered among the most preferred e-commerce platforms in Indonesia. The strong visit numbers reflect user trust and interest in Lazada's services products and shopping experience. This achievement also provides solid evidence of the company's ability to remain competitive in a crowded market where platforms such as Shopee Tokopedia and Blibli also work hard to capture customer attention. Lazada's success in maintaining high traffic is supported by effective digital marketing, the use of personalized ads that match user needs and consistent improvements in e-service quality to provide a simple, safe, and satisfying shopping experience.

Lazada has operated for 13 years and throughout that time the company has used many strategies including promotion advertising and service improvement. These efforts help Lazada remain stable and continue improving over time. Lazada's green marketing focuses on environmental care by reducing plastic use, promoting eco-friendly delivery systems, and supporting the sale of environmentally friendly products through the Lazada Eco-Friendly program. This approach helps raise buyer awareness about sustainability and strengthens Lazada's image as a platform that supports environmental responsibility. Lazada also uses personalized ads to show products that match each user's interests and shopping habits. In addition, Lazada maintains strong e-service quality by keeping the app easy to use by offering quick responses, protecting transaction security, and ensuring on-time delivery. The combination of relevant ads and reliable service helps users feel more comfortable, satisfied, and confident when shopping on Lazada.

Although green marketing strategies have been widely used by many companies and offer benefits in cultivating a strong brand identity and increasing consumer awareness of environmental concerns, this approach still has limitations. One of the most common problems is greenwashing, where companies claim that their products are environmentally friendly even though their production processes are not sustainable. This issue reduces consumer trust and weakens brand credibility in a competitive digital market. Green marketing also requires high costs because it involves technological innovation and sustainable materials. In the context of e-commerce such as Lazada, these challenges are greater because the company must maintain genuine environmental practices while ensuring customer convenience. If sustainability efforts are not supported by strong digital service quality and relevant advertising, the effectiveness of green marketing may decline and affect customer satisfaction.

A study by Mao & Wang in China (2018) found that production costs increase when companies adopt green manufacturing. This situation leads some companies, intentionally or not, to engage in greenwashing to meet the growing demand for eco-friendly products.

Greenwashing refers to the practice of presenting an environmentally friendly brand image even though the production process does not truly support sustainability. This phenomenon has become more common in the digital era. A study by the European Union and National Consumer Protection Agencies showed that about 42% of 344 ads or publications on e-commerce websites in Europe were suspected of greenwashing.

In e-commerce, digital advertising becomes a challenge when companies struggle to create ads that are relevant and appealing to each user. The variety of design options and rapid shifts in trends make it difficult to determine which ads are the most effective. Limited feedback data also reduces the accuracy of advertising performance predictions. This is why personalized ads are important for Lazada because they allow ads to be adjusted to user preferences to increase attention, trust, and satisfaction in online shopping. There are several issues concerning e-service quality, such as delayed shipments, slow responses from customer service, and weak data security which often lead to user dissatisfaction. Inaccurate product information and system issues also worsen the shopping experience. These conditions show that inconsistent digital services can affect customer trust satisfactions and loyalty toward platforms like Lazada.

In Indonesia, public awareness of sustainability and environmentally friendly product use remains low, which makes it a significant challenge for Lazada to build sustainable marketing. Promotional content used by businesses also faces limitations because many Indonesian consumers prefer information delivered through voice or explanation rather than reading, which sometimes leads to miscommunication between businesses and customers. Green Marketing, according to Lin et al. (2025), highlights that green marketing strategies are increasingly important for attracting environmentally conscious consumers, yet research on its practical application in the e-commerce sector, especially in Southeast Asia, is still limited. E-service quality studies Lee et al. (2022) and Pasaribu et al. (2022) prove that electronic service quality affects customer satisfaction, trust, and loyalty, but they emphasize the need for further testing across different platforms and cultural contexts. Personalized ads have been found to enhance user experience, but there is limited research linking them directly to customer satisfaction in e-commerce when combined with green marketing and e-service quality.

Lin et al. (2025) state that green marketing increases customer trust and loyalty when companies consistently apply environmentally friendly practices and avoid greenwashing. This approach builds long term brand value. Ashiq & Hussain (2024) highlight that the effectiveness of e-services and customer trust online are essential for creating e-satisfaction and e-loyalty, especially in developing countries where trust in online transactions remains low. Lee et al. (2022) found that site design reliability and simplicity of use rank highest influential factors on customer satisfaction, showing that digital service quality is fundamental to e-commerce success. Pasaribu et al. (2022) add that service quality is a key determinant of satisfaction and trust, but not always a direct effect on loyalty, suggesting the need for mediating variables such as satisfaction or brand image.

Overall, there are still research opportunities to explore the relationship between green marketing personalized ads and e-service quality within a single comprehensive model. These topics are often studied separately, so research that examines their joint influence regarding customer satisfaction in e-commerce is needed, especially in Indonesia where the digital market continues to grow. It is also important to examine how consumer trust and views on

sustainability strengthen the relationship between environmentally friendly marketing personalized advertising and digital service quality in shaping customer satisfaction.

2. | LITERATURE REVIEW

This section not only summarizes relevant previous studies but also provides a critical evaluation and synthesis of existing research. The main goal is to identify research gaps, explain the relationships among variables, and strengthen the theoretical argument of research is designed to offer a profound and detailed insight into the essential aspects of this variable.

Green Marketing

The concept of Green Marketing has grown rapidly along with rising environmental awareness and consumer demand for sustainable business practices. According to Lin et al. (2025), consistent and authentic green marketing strategies can strengthen brand trust and brand allegiance, especially in the e-commerce sector which requires a high level of transparency. A study by Ashfaq et al. (2022) in the *Journal of Cleaner Production* found that environmentally conscious consumers tend to choose e-commerce platforms that show a real commitment to sustainability, such as using eco-friendly packaging or promoting digital tree-planting campaigns. Nguyen and Johnson (2021) in *Sustainability* also stated that sustainability values communicated through green marketing increase perceived value and customer satisfaction.

However, greenwashing remains a concern as explained by Wang et al. (2023), where companies claim to be environmentally friendly without real implementation. This practice reduces consumer trust and creates negative effects on brand loyalty. Therefore, the effectiveness of green marketing depends not only on communication messages but also on real evidence of a company's sustainability commitment.

Personalized Ads

Personalized advertising is a digital marketing strategy that uses user data to deliver relevant ads based on consumer preferences and behaviour. According to Gogoi and Yadav (2023) in *Computers in Human Behaviour*, personalized ads significantly enhance user experience because they create stronger relevance between the message and customer needs. This finding is supported by Lee and Cho (2021) in the *Journal of Interactive Marketing*, who state that personalized ads increase consumer engagement, brand attitude, and purchase intention.

However, the effectiveness of personalized advertising has ethical limitations related to user privacy. Huang et al. (2020) found that concerns about personal data usage can reduce customer satisfaction even when the ads are relevant. Therefore, Jain et al. (2024) in *Electronic Commerce Research and Applications* emphasize the importance of transparency in data collection and user control over ad preferences to maintain a balance between personalization and privacy. A synthesis of these studies shows that ethical and relevant personalized advertising plays a key role in shaping a positive shopping experience in modern e-commerce.

Personalized Ads

Electronic service quality is a major factor in determining customer satisfaction on digital platforms. According to Lee, Park, and Lee (2022) in the *International Journal of Information Management*, four main dimensions shape e-service quality: system reliability, response speed, transaction security, and ease of navigation. A study by Pasaribu et al. (2022) on digital

consumers in Evidence from Indonesia indicated that electronic the quality of service plays a crucial role in affecting customers trust and satisfaction, which then produces higher loyalty. Ashiq and Hussain (2024) in Heliyon also confirmed that improvements in e-service quality strengthen customer trust in developing countries, especially in markets with growing digital literacy. On the other hand, Chinomona and Sandada (2023) highlight that strong e-service quality can reduce perceived risk and create a safe and comfortable shopping experience. Based on this synthesis, E-Service Quality not only increases customer satisfaction but also forms the foundation for maintaining loyalty and the reputation of e-commerce platforms.

Integration of Green Marketing, Personalized Ads, and E-Service Quality on Customer Satisfaction

The three main concepts Green Marketing, Personalized Ads, and E-Service Quality work together to strengthen Customer Satisfaction. Research by Kaur and Singh (2021) shows that e-commerce customers feel more satisfied when a platform provides fast and secure services while also integrating environmental sustainability into its marketing strategies. A study by Alalwan et al. (2023) in electronic markets found that the combination of digital personalization and sustainability values creates emotional attachment between customers and brands, which then increases long-term loyalty. Research by Ranjan et al. (2022) in sustainability demonstrates that the integration of digital technology into green marketing strategies strengthens perceived value and increases customer satisfaction when supported by consistent electronic service quality. Based on these findings, recent literature concludes that the synergy between green marketing personalized advertising and high-quality digital services forms an essential foundation for creating superior customer experiences in the e-commerce era.

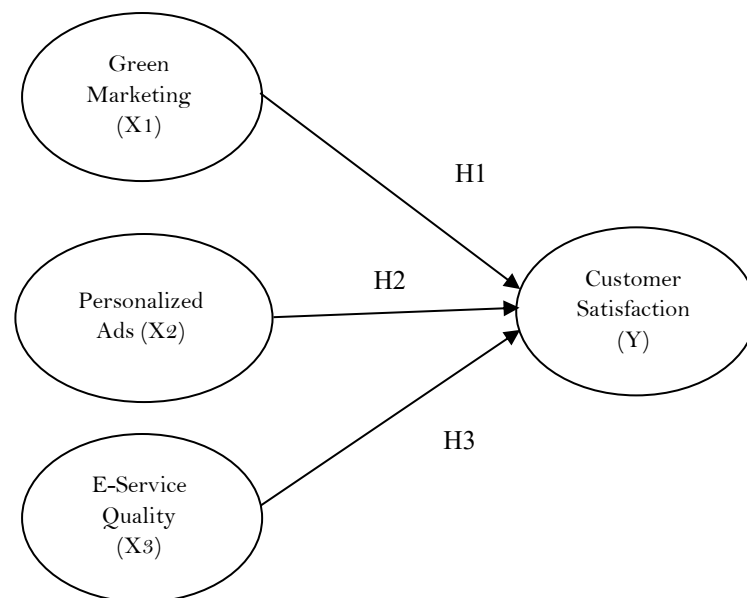


Figure 1. Research Framework

H1: Green Marketing have a significant effect on customer satisfaction.

H2: Personalized ads have a significant effect on customer satisfaction.

H3: E-service Quality have a significant effect on customer satisfaction.

The proposed model above illustrates the direct correlation between three aspects: Green Marketing, Personalized Ads, and E-Service Quality toward Customer Satisfaction. Each

independent variable is assumed to influence customer satisfaction simultaneously and helps companies identify key aspects of customer interaction. The model can be used to test how different marketing strategies and service quality shape customers' overall experience.

3. | RESEARCH METHOD

The current research applies a quantitative technique employing numerical data that are statistically analysed to identify patterns and relationships among the examined variables. This approach is chosen because it provides objective and measurable results in explaining of the variables of this currently research. Data were gathered using questionnaires given to Lazada customers residing in Semarang City as the research respondents. The questionnaire was created with reference to indicators from each research variable and used a five-point likert scale to measure the degree to which respondents agreed with each statement. Quantitative research is appropriate for examining defined populations and samples, gathering data with structured instruments, and analysing the results statistically to evaluate hypotheses (Sugiyono, 2019).

The population consists of Semarang residents who are familiar with the Lazada e-commerce platform, and it is considered unlimited because the exact number of individuals who meet this criterion is unknown. This research uses a purposive sampling, involving 140 respondents aged 18–45 who have shopped on Lazada and have been exposed to its advertisements, products, services, or product developments. The sample serves as a portion of the population, deliberately chosen to reflect key characteristics that enable broader conclusions to be drawn (Sugiyono, 2019). Descriptive statistics are used in the data analysis to present respondent characteristics. Before conducting the analysis, Cronbach's Alpha is used to evaluate the validity and reliability of the questionnaire. The multiple regression analysis includes both the o assess the relationships among variables, the study applied f-tests, determination coefficients, multiple linear regression, and diagnostic tests such as validity, reliability, normality, multicollinearity, and heteroscedasticity make certain of the accuracy and reliability of the model.

4. | RESULTS

Based on the validity test results in Table 1, all indicators in variables X1, X2, X3, and Y are classified as valid. Each indicator shows an r-count value ranging from 0.84 to 0.89, which is higher than the r-table value of 0.75. This indicates that all items are able to measure their respective variables accurately. The indicators of variables X1, X2, and X3 also demonstrate good consistency, ensuring that the measured constructs are properly represented. The dependent variable Y shows similar results, with all indicators meeting the validity criteria. Therefore, the research instrument is considered appropriate for use in subsequent analysis stages.

Table 1. Validity Test Results

Variables	Indicators	R-count	R-table	Status
X1	X1.1	0.88	0.75	Valid
	X1.2	0.87	0.75	Valid
	X1.3	0.89	0.75	Valid
	X1.4	0.89	0.75	Valid
	X1.5	0.89	0.75	Valid

X2	X2.1	0.89	0.75	Valid
	X2.2	0.87	0.75	Valid
	X2.3	0.84	0.75	Valid
	X2.4	0.89	0.75	Valid
	X2.5	0.88	0.75	Valid
X3	X3.1	0.87	0.75	Valid
	X3.2	0.89	0.75	Valid
	X3.3	0.87	0.75	Valid
	X3.4	0.89	0.75	Valid
	X3.5	0.88	0.75	Valid
Y	Y1	0.89	0.75	Valid
	Y2	0.89	0.75	Valid
	Y3	0.89	0.75	Valid
	Y4	0.87	0.75	Valid
	Y5	0.89	0.75	Valid

Source: Processed Data SPSS 2025

The reliability test findings show in table 2 that all variables considered in the research are reliable with Cronbach's Alpha values >0.60 . Each variable demonstrates strong and consistent measurement so the instruments can be trusted, resulting in the variables being suitable for use in the analysis.

Table 2. Reliability Test Result

Variables	Cronbach's Alpha	Critical Value
Green Marketing	0.956	0.60
Personalized Ads	0.956	0.60
E-Service Quality	0.953	0.60
Customer Satisfaction	0.959	0.60

Source: Processed Data SPSS 2025

Table 3 on the residual data shows a Z figure of 0.559 with a significance level of 0.913. As the significance value exceeds 0.05, the residuals are considered to follow a normal distribution. This result is also supported by the small maximum difference between the residual distribution and the normal distribution, which is 0.047. The mean of the residuals is close to zero and the standard deviation of 196.57 indicates a reasonable spread of the residual values. The finding reveals that the normality assumption is fulfilled which enables further analysis.

Table 3. Normality Test

One-Sample Kolmogorov-Smirnov Test		
	Unstandardized Residual	
N	139	
Normal Parameters ab	Mean	.0000000
	Std. Deviation	196.570.441
Most Extreme Differences	Absolute	.047
	Positive	.039
	Negative	-.047
Kolmogorov-Smirnov Z	.559	
Asymp. Sig. (2-tailed)	.913	

a Test distribution is Normal

b Calculated from data

Source: Processed Data SPSS 2025

The multicollinearity test findings show that all independent variables are exhibiting no multicollinearity. All The tolerance values exceed 0.10, and all VIF values are under 10, indicating the relationships among the independent variables are not excessively strong. Thus, the regression model meets the assumption of no multicollinearity and can be used reliably.

Table 4. Multicollinearity Test Results

Model	Coefficients			t	Sig.	Collinearity
	Unstd.Coeff	Std.Coeff				
	B	Std. Error	Beta			
(Constant)	.297	.766	0.766		.387	.699
Green Marketing	.261	.091	0.91	.255	2.877	.005
Personalized Ads	.336	.092	0.92	.317	3.651	.000
E-Service Quality	.386	.095	0.95	.317	4.075	.000
a Dependent Variable: Customer Satisfaction (Y)						

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Source: Processed Data SPSS 2025

The predictive regression equation explains in table 5 how the dependent variable Y changes when X1, X2, and X3 increase. The constant value of 0.2684 shows that Y already has that starting value even when all independent variables are at zero. Each coefficient reflects how strongly an independent variable influences Y. The coefficient 0.2588 for X1 means that Y will increase by 0.2588 for every one-unit rise in X1. The coefficient 0.3416 for X2 shows that an increase of one unit in X2 will raise Y by 0.3416. The highest coefficient is 0.3842 for X3, making it the factor with the strongest impact on Y. Based on the results, the equation indicates that all three variables give a positive contribution to the increase in Y.

Table 5. Multiple Linear Regression Analysis Results

Model	Coefficients					Sig.	Collinearity Statistics	
	Unstd.Coeff	Std.Coeff	t	Beta	Tolerance		VIF	
	B	Std. Error						
(Constant)	.297	.766	0.766		.387	.699	.387	
Green Marketing	.261	.091	0.91	.255	2.877	.005	2.877	
Personalized Ads	.336	.092	0.92	.317	3.651	.000	3.651	
E-Service Quality	.386	.095	0.95	.317	4.075	.000	4.075	
a Dependent Variable: Customer Satisfaction (Y)								

a Dependent Variable: Customer Satisfaction (Y)

Source: Processed Data SPSS 2025

The F-test in table 6 was conducted to determine whether all independent variables concurrently show a significant influence on customer satisfaction. The analysis shows that the F significance value is 0.000, which is lower than 0.05. This indicates that Green Marketing, Personalized Ads, and E-Service Quality jointly exert a considerable influence on Customer Satisfaction. Since the significance measure is below 0.05, the predictive regression

model is considered significantly, confirming that the independent variables collectively exert an influence on the dependent variable.

Table 6. F-Test Results

Model	F	Sig.
Regression	-	0.000

Source: Processed Data SPSS 2025

Table 7 assesses independent variable was tested for its individual influence on customer satisfaction, and all exhibited significant p-values (< 0.05), meaning each variable individually affects customer satisfaction.

Table 7. T-Test Results

Variable	B	Std. Error	Beta	T	Sig.
Constant	0.297	0.766	-	0.766	-
Green Marketing (X1)	0.261	0.091	0.255	2.877	0.005
Personalized Ads (X2)	0.336	0.092	0.317	3.651	0.000
E-Service Quality (X3)	0.386	0.095	0.317	4.075	0.000

Source: Processed Data SPSS 2025

X1 (Green Marketing) significantly influences customer satisfaction ($p = 0.005$).

X2 (Personalized Ads) significantly influences customer satisfaction ($p = 0.000$).

X3 (E-Service Quality) significantly influences customer satisfaction ($p = 0.000$).

Thus, the alternative hypotheses (H1, H2, H3) are accepted.

The coefficient of determination explains the extent of variance in customer satisfaction can be accounted for the three independent variables.

From the processed data:

$$R^2 = 0.822$$

$$\text{Adjusted } R^2 = 0.818$$

Table 8. F-Test Results

Indicator	Value
R Square (R^2)	0.822
Adjusted R Square	0.818

Source: Processed Data SPSS 2025

The R^2 value of 0.822 provides evidence that 82.2% of the variance in customer satisfaction can be understood through Green Marketing, Personalized Ads, and E-Service Quality. The residual 17.8% is influenced by other variables not included in the model.

Based on the results:

This equation illustrates that all independent variables contribute positively to customer satisfaction.

Table 9. Summary of Results

Hypothesis	Description	Result
H1	Green Marketing → Customer Satisfaction	Supported
H2	Personalized Ads → Customer Satisfaction	Supported
H3	E-Service Quality → Customer Satisfaction	Supported
F-test	All variables → Customer Satisfaction	
Significant		
R^2	Explained Variance	82.2%

Source: Processed Data SPSS 2025

Table 8 shows that all research hypotheses are supported. Green Marketing, Personalized Ads, and E-Service Quality each have a positive influence on Customer Satisfaction. The F-test further confirms that these three variables jointly exert a significant effect. The R^2 value of 82.2% indicates that most in the differences in customer satisfaction is justified by these variables, with the remainder portion is determined by external factors beyond the model. In conclusion, the findings highlight that sustainable marketing, personalized advertising, and strong digital service quality play an important role in shaping customer satisfaction.

5. | DISCUSSION

The findings of this study emphasize the substantial impact of Green Marketing, Personalized Advertisements, and E-Service Quality on customer satisfaction. The F-test results demonstrate that the three variables collectively contribute to shaping customer satisfaction, indicating that customers evaluate brands holistically based on environmental responsibility, personalization efforts, and digital service performance. This aligns with recent findings showing that sustainable business practices, tailored communication, and service quality are strategically interlinked in influencing consumer behaviour (Han & Hyun, 2018; Wang et al., 2021).

The t-test further reveals that each variable exerts a positive and significant impact on customer satisfaction. Green Marketing's influence supports previous research suggesting that environmentally responsible initiatives strengthen brand credibility and consumer trust, which ultimately enhances satisfaction (Kim et al., 2020; Yadav & Pathak, 2017). Personalized Advertisements also significantly affect satisfaction, consistent with recent studies showing that consumers perceive personalized ads as more relevant and engaging, increasing their emotional connection and satisfaction with the brand (Liu & Mattila, 2017; Bleier et al., 2019). Likewise, E-Service Quality's strong impact supports established theories that digital responsiveness, reliability, and usability remain crucial determinants of perceived value and satisfaction (Al dweeri et al., 2019; Amin, 2022).

The determination coefficient $R^2 = 0.822$ indicates that 82.2% of the variance in customer satisfaction can be explained by the three independent variables. Such a strong explanatory power reinforces the argument that modern consumers expect brands to integrate sustainability, personalization, and digital service quality as part of their overall value proposition. These findings not only confirm but also extend previous research by demonstrating the combined effects of these three variables within a single predictive model.

Overall, the results and their broader implications suggest that companies aiming to enhance customer satisfaction should adopt a multi-dimensional approach that integrates environmentally conscious branding, personalized advertising strategies, and high-quality digital service systems. The conclusions drawn in this study logically follow from the empirical evidence and align with contemporary marketing and consumer behaviour literature

6. | CONCLUSION

The study confirms that the measurement instruments used are valid and reliable, and the regression model meets all required assumptions. The results of the normality and multicollinearity tests show that the data are appropriate for further analysis, ensuring that the

findings can be interpreted with confidence. This provides a strong foundation for evaluating the effects of Green Marketing, Personalized Ads, and E-Service Quality on customer satisfaction. Results from the F-test demonstrate that the three the combined effect of the independent variables significantly impacts customer satisfaction. The t-test further demonstrates that each variable Green Marketing, Personalized Ads, and E-Service Quality individually play a role in improving customer satisfaction. Among the three, E-Service Quality exerts the greatest influence, followed by Personalized Ads and Green Marketing, indicating that customers respond most strongly to reliable and efficient digital services.

The determination coefficient $R^2 = 0.822$ confirm that 82.2% of the variation in customer satisfaction is justified by the three variables. This shows that customer satisfaction is shaped by the combined effects of sustainability-oriented marketing, personalized advertising strategies, and high-quality digital services. Overall, the findings suggest that companies seeking to enhance customer satisfaction should integrate these three elements to deliver a more meaningful and satisfying customer experience.

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The authors declare that there is no conflict of interest.

Ethical Approval and Originality Statement

Ethical approval was obtained for this study. The manuscript represents original work and has not been previously published, nor is it under consideration by another journal.

Data Disclosure Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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