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Building Visitor Loyalty through Green Marketing and Destination Image in Jakarta's Sustainable Urban Tourism

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ABSTRACT
This study examines how Green Marketing is associated with Visitor Loyalty in sustainable urban tourism by exploring how tourists interpret sustainability efforts through destination perceptions. Using survey data from 200 tourists who visited sustainable urban tourism sites in Jakarta within the past 12 months, the study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to test both mediation and moderation effects in the proposed model. The findings indicate that Green Marketing is positively associated with Destination Image, which in turn strongly relates to Visitor Loyalty. However, Green Marketing does not have a significant direct relationship with Visitor Loyalty, suggesting that its influence operates primarily through the development of destination perceptions rather than through direct promotional exposure. These results confirm the mediating role of Destination Image in the relationship between Green Marketing and Visitor Loyalty. In addition, Green Marketing moderates the relationship between Destination Image and Visitor Loyalty, indicating that the strength of this relationship varies depending on the level of Green Marketing. These findings are particularly relevant in the context of Jakarta's urban tourism development, where sustainability initiatives are increasingly promoted while visitor perceptions remain diverse and fragmented. The results suggest that in emerging urban destinations, the effectiveness of Green Marketing depends not only on promotional visibility but also on the credibility of sustainability meanings embedded in the destination experience. Accordingly, visitor loyalty is more likely to develop when sustainability initiatives are integrated into tangible experiences and a coherent destination identity rather than communicated solely through promotional green claims.

1. INTRODUCTION

The rapid growth of urban tourism is increasingly creating a structural contradiction between economic expansion and environmental sustainability (Sørensen & Grindsted, 2021). While cities rely on tourism to stimulate economic growth, strengthen city branding, and attract investment (Mariutti & Engracia Giraldi, 2021), the continuous increase in tourist activity simultaneously intensifies environmental degradation, traffic congestion, waste generation, and pressure on urban infrastructure (Baloch et al., 2023). This contradiction exposes a critical failure in contemporary urban tourism development (Bianchi & Milano, 2024). Destinations continue pursuing higher tourist arrivals, yet the environmental consequences of such growth risk eroding tourists' perceptions of the destination and weakening long-term Visitor Loyalty (Gössling & Higham, 2021).

This structural tension is particularly evident in Jakarta, Indonesia's largest metropolitan city and one of the country's primary tourism and business centers. Despite persistent environmental constraints, including air pollution, severe congestion, overcrowding, and tourism-generated waste, Jakarta continues to attract increasing numbers of domestic and international visitors (Wibawa, 2025). However, these ecological pressures threaten not only environmental sustainability but also tourists' overall experiences and evaluations of the destination. Over time, deteriorating environmental conditions may damage Destination Image and reduce tourists' willingness to revisit or recommend the city (Litta & Veronica, 2025). Nevertheless, the continued growth of tourist visits despite worsening environmental conditions reveals a paradox in urban tourism behavior.

This paradox reflects a deeper inconsistency between tourists' growing environmental awareness and their actual behavioral responses (Li et al., 2024). Although tourists are increasingly concerned about sustainability issues, such awareness does not necessarily translate into favorable Destination Image or sustained Visitor Loyalty (Nomleni, 2025). In response, many urban destinations have adopted sustainability-oriented strategies through Green Marketing initiatives, such as eco-friendly campaigns, environmental communication, and sustainability branding. This reveals a critical unresolved problem. Sustainability-oriented strategies are widely implemented, yet their ability to shape Destination Image and translate into Visitor Loyalty remains uncertain in environmentally

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constrained urban destinations. In other words, despite increasing investment in Green Marketing, insufficient understanding exists regarding how and under what conditions Green Marketing influences tourists' perceptions and loyalty behavior under conditions of environmental pressure (Ulimaz et al., 2025).

From a theoretical perspective, Green Marketing is expected to function as a sustainability signal that communicates a destination's environmental responsibility and enhances its competitiveness. Through sustainability-oriented messages and environmentally responsible practices, destinations attempt to influence tourists' cognitive and affective evaluations, which are reflected in Destination Image (Kafa & Berutu, 2025). A positive Destination Image is widely recognized as a key determinant of behavioral intentions, including revisit intention, recommendation intention, and long-term Visitor Loyalty. However, prior empirical findings remain inconsistent. While several studies report that Green Marketing positively influences tourists' attitudes and loyalty, others identify weak, indirect, or insignificant relationships. These inconsistencies indicate that the relationship between Green Marketing and Visitor Loyalty does not operate through a simple direct effect, but rather through more complex psychological and contextual mechanisms (Veronica & Tirtadidjaja, 2025).

One important mechanism that may explain this relationship is the mediating role of Destination Image. Sustainability-related signals communicated through Green Marketing are first interpreted by tourists and internalized into their perceptions and emotional evaluations before influencing loyalty outcomes. In this process, Destination Image functions as a psychological mechanism that translates sustainability-oriented signals into behavioral responses. At the same time, the effectiveness of Destination Image in generating Visitor Loyalty may depend on the credibility, consistency, and strength of Green Marketing itself. This suggests that Green Marketing may also function as a contextual condition that determines when and how Destination Image effectively translates into Visitor Loyalty. Despite these theoretical possibilities, the interaction between mediation and moderation mechanisms in sustainable urban tourism remains insufficiently explained (Zakiah et al., 2023).

Existing literature reveals several critical and unresolved gaps. First, previous studies have predominantly examined Green Marketing, Destination Image, and Visitor Loyalty in isolation or through simple linear relationships, limiting understanding of their integrated and interdependent effects. As a result, prior research has not adequately explained how Green Marketing simultaneously functions as both a sustainability signaling mechanism shaping Destination Image and a contextual condition influencing the formation of Visitor Loyalty. Second, empirical evidence regarding the mediating role of Destination Image remains inconsistent, indicating that the psychological mechanism linking Green Marketing and Visitor Loyalty is still theoretically underdeveloped. Third, prior studies have rarely examined whether Green Marketing strengthens or weakens the effectiveness of Destination Image in generating Visitor Loyalty, leaving the moderating mechanism largely unexplored. Fourth, most existing studies have been conducted in non-urban or developed-country contexts characterized by relatively stable environmental conditions (Qayyum et al., 2023). Consequently, existing findings may not accurately explain tourist behavior in densely populated urban destinations within developing countries, where ecological stress and environmental deterioration are more severe and complex. Therefore, limited understanding remains regarding how Green Marketing, Destination Image, and Visitor Loyalty interact in environmentally constrained megacities such as Jakarta (Pujangga & Suryono, 2023).

Taken together, these limitations reveal a critical gap. Existing research has not adequately explained how and under what conditions Green Marketing translates into Visitor Loyalty through Destination Image in environmentally constrained urban tourism contexts. Without addressing this gap, the effectiveness of sustainability-oriented marketing strategies in maintaining tourist loyalty in real-world urban destinations remains both theoretically and practically unclear.

Therefore, this study aims to develop and empirically test an integrated framework explaining the relationships among Green Marketing, Destination Image, and Visitor Loyalty in the context of sustainable urban tourism in Jakarta. Specifically, this study examines: (1) the effect of Green Marketing on Destination Image and Visitor Loyalty, (2) the effect of Destination Image on Visitor Loyalty, (3) the mediating role of Destination Image in the relationship between Green Marketing and Visitor Loyalty, and (4) the moderating role of Green Marketing in strengthening the relationship between Destination Image and Visitor Loyalty.

Based on the theoretical arguments and identified research gaps, this study proposes an integrated conceptual framework illustrating the relationships among Green Marketing, Destination Image, and Visitor Loyalty in sustainable urban tourism contexts.

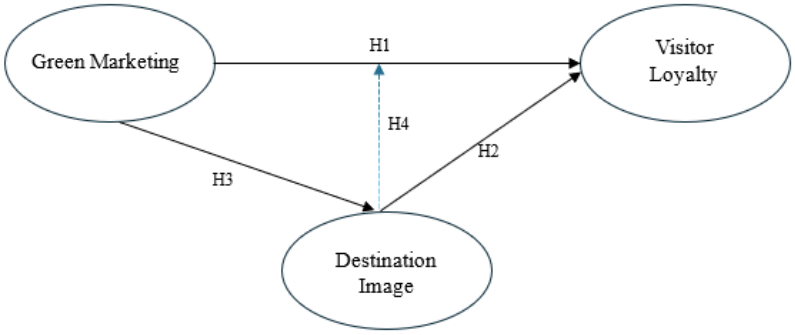

Figure 1. Research Framework
Source: Primary Data (2025)

The novelty of this study lies in a theoretical reconceptualization of how sustainability-oriented strategies operate in environmentally constrained urban tourism contexts. Unlike prior studies that predominantly conceptualize Green Marketing as a direct predictor of tourist behavior, this study reconceptualizes Green Marketing as a dual-function construct. It serves both as a sustainability signaling mechanism that shapes Destination Image and as a contextual condition that determines when and how such perceptions translate into Visitor Loyalty. By integrating both mediation and moderation within a single conceptual framework, this study moves beyond conventional linear models and provides a more comprehensive explanation of the psychological and contextual processes underlying tourist behavior. This reconceptualization advances existing theory by shifting the perspective from linear causality to a contingent and mechanism-based explanation of how sustainability-oriented strategies influence tourist behavior. Furthermore, this study contributes empirical evidence from a megacity in a developing country characterized by significant environmental pressures, thereby addressing the contextual limitations of prior research that has largely focused on non-urban or developed-country settings.

By addressing these theoretical and contextual gaps, this study contributes to the advancement of sustainable tourism and consumer behavior literature while also providing practical insights for urban destination managers in designing sustainability-oriented marketing strategies that are not only environmentally responsible but also effective in strengthening Destination Image and fostering long-term Visitor Loyalty in environmentally challenged urban destinations.

2. METHOD

This study employs an explanatory quantitative approach to examine the relationships between Green Marketing, Destination Image, and Visitor Loyalty using a cross-sectional survey design. Due to the absence of temporal sequencing and experimental control, the findings are interpreted as associative and predictive rather than causal. Although the model specifies directional relationships, these reflect theoretical assumptions rather than empirically established causation. Therefore, the results should not be construed as evidence of causality, and future longitudinal or experimental studies are required for causal inference (Wolniak & Santos, 2023).

The study was conducted at eight sustainable urban tourism destinations in Jakarta: Tebet Eco Park, Kota Tua, Taman Mini Indonesia Indah, Ancol, Gelora Bung Karno Complex, GBK Urban Forest, Ragunan Zoo, and Setu Babakan. These destinations are conceptualized as part of a single integrated urban tourism system within Jakarta, rather than as independent units of analysis, as they collectively represent the city's sustainable urban tourism landscape. These sites were purposively selected based on sustainability characteristics such as environmental management, green spaces, and cultural integration.

Although these destinations differ in physical form, size, and specific attractions, they are conceptually homogeneous in terms of their role as sustainable urban tourism spaces within Jakarta. The study does not aim to compare destinations individually, but to capture visitors' overall evaluations of sustainable urban tourism experiences across multiple representative sites. In this sense, the unit of analysis is not the destination, but the tourist's perception of green marketing, destination image, and loyalty within the broader Jakarta sustainable tourism context. This approach enhances external validity and allows the model to generalize across heterogeneous but conceptually related urban tourism settings. This approach is commonly applied in urban tourism research where heterogeneous attractions within one city are analyzed as part of an integrated destination system.

Data were collected using structured questionnaires administered on-site, with respondents reflecting on their most recent visit within the past 12 months. The population consists of individual tourists, both domestic (Indonesian residents) and international (non-Indonesian visitors), who visited at least one selected destination

within the past 12 months for leisure or recreational purposes (e.g., sightseeing, relaxation, cultural exploration). Visitors with non-tourism purposes (e.g., work, transit, formal events) were excluded. The unit of analysis is the individual tourist. Respondents were also classified as first-time or repeat visitors (more than once within 12 months), and visit frequency was included as a control variable (Amoako et al., 2022). Thus, the population is clearly defined as domestic and international leisure tourists, including both first-time and repeat visitors.

Due to the absence of a formal sampling frame, a purposive non-probability sampling technique was applied. Inclusion criteria were: (1) leisure visit within the past 12 months, (2) age ≥17 years, and (3) voluntary participation. A minimum sample size of 80 was determined using the 10-times rule, which is commonly used as a minimum requirement in PLS-SEM studies, although a larger sample (n=200) was collected to improve robustness (Ntshangase & Ezeuduji, 2025).

Data were collected using a five-point Likert-scale questionnaire adapted from prior studies and contextualized for sustainable urban tourism. The measurement model is adapted and not fully established, supporting a prediction-oriented approach. Green Marketing, Destination Image, and Visitor Loyalty were measured using established indicators, and a pilot test (n=30) ensured clarity and reliability.

Data analysis was conducted using SmartPLS 4 with PLS-SEM. The choice of PLS-SEM is based on its alignment with the study's objectives and model characteristics. Specifically, the study aims to maximize the explained variance (R^2) of Visitor Loyalty and to examine relationships in a context where theory and measurement models are not yet fully established. In contrast to CB-SEM, which is primarily designed for theory confirmation and requires well-validated models and covariance structure, this study adopts a predictive and theory-extending approach (Z. X. Li et al., 2025). Additionally, PLS-SEM is more suitable for handling model complexity and field survey data where heterogeneity among respondents and contexts is expected. Therefore, PLS-SEM is considered more appropriate, whereas CB-SEM may lead to restrictive model assumptions in this exploratory context (Dash & Paul, 2021).

The measurement model was evaluated using outer loadings and Average Variance Extracted (≥0.50), Composite Reliability (≥0.70), and HTMT (<0.90). The structural model was assessed using R^2, effect size (f^2), and path coefficients, with significance tested via bootstrapping (5,000 resamples). All relationships are interpreted as predictive and associative rather than causal. Model fit was assessed using SRMR as a complementary indicator, without treating it as an absolute goodness-of-fit measure (Qureshi et al., 2025).

3. RESULT AND DISCUSSION

Based on the research data (n = 200), respondents were dominated by young tourists, particularly those aged 17–20 years, reflecting the primary visitor profile of sustainable urban tourism destinations in Jakarta. The most visited destinations within the last 12 months include Ancol, Gelora Bung Karno, and the Kota Tua area. The relatively frequent repeat visit patterns, along with the dominant role of social recommendations and digital media as primary sources of information, indicate the characteristics of urban tourists who are active, socially connected, and aligned with sustainability issues, which are the focus of this study.

Furthermore, prior to testing the structural relationships, the quality of the measurement model was evaluated to ensure that the indicators used possess adequate levels of validity and reliability in representing the latent constructs under investigation.

Table 1. Measurement Model Assessment

Construct	Indicator	Outer Loading	CR (ρc)	AVE
Destination Image	DI1	0.850	0.947	0.691
	DI2	0.876		
	DI3	0.815		
	DI4	0.729		
	DI5	0.810		
	DI6	0.802		
	DI7	0.892		
	DI8	0.865		
Green Marketing	GM1	0.852	0.956	0.730
	GM2	0.817		
	GM3	0.849		
	GM4	0.799		
	GM5	0.890		
	GM6	0.825		
	GM7	0.935		

	GM8	0.860		
Visitor Loyalty	VL1	0.868	0.951	0.736
	VL2	0.882		
	VL3	0.801		
	VL4	0.877		
	VL5	0.828		
	VL6	0.884		
	VL7	0.861		
Destination Image × Green Marketing	Interaction Construct	1.000	–	–

Source: Primary Data (2025)

The results of the measurement model evaluation indicate that all indicators within the constructs of Destination Image, Green Marketing, and Visitor Loyalty have outer loading values that meet or exceed the minimum threshold of 0.70, thus demonstrating adequate convergent validity. Several indicators with loading values slightly above the threshold were retained due to their strong theoretical relevance and the overall satisfactory level of construct reliability. This indicates that each indicator consistently represents the latent construct, with the proportion of variance explained by the construct being greater than the measurement error.

In addition, all constructs exhibit very good internal reliability, as reflected by composite reliability (ρc) values exceeding the recommended criteria. The average variance extracted (AVE) values for each construct are also above 0.50, confirming the constructs' ability to explain the variance of their respective indicators in a convergent manner. Therefore, the measurement model meets the validity and reliability criteria required for further structural analysis.

The interaction construct of Destination Image × Green Marketing as a moderating variable shows an outer loading value of 1.000, which is a technical characteristic of modeling interaction constructs in the PLS-SEM approach. This construct is not evaluated as a conventional reflective construct, but rather as an interaction product used to capture the moderating effect within the structural model, and thus does not have implications for the measurement quality of the main constructs.

The results of the measurement model evaluation provide a solid empirical foundation for testing causal relationships among constructs in the structural model and ensure that the interpretation of hypothesis testing results is based on valid and reliable measurement instruments.

Table 2. Discriminant Validity (HTMT)

Construct Pair	HTMT	Threshold	Decision
Destination Image - Green Marketing	0.882	< 0.90	Valid
Destination Image - Visitor Loyalty	0.866	< 0.90	Valid
Green Marketing - Visitor Loyalty	0.792	< 0.90	Valid
Destination Image × Green Marketing - Main Construct	0.379–0.572	< 0.90	Valid

Source: Primary Data (2025)

Discriminant validity in this study was evaluated using the heterotrait-monotrait ratio (HTMT), which is recommended as a more stringent approach within the PLS-SEM framework. The results show that all HTMT values among the main constructs are below the conservative threshold of 0.90, indicating adequate empirical distinction among the latent constructs in the model.

Although Destination Image and Green Marketing are conceptually related constructs, the HTMT value between them remains below the recommended threshold. This indicates that both constructs maintain sufficient empirical distinction and do not suggest conceptual overlap. Similarly, the HTMT values between Destination Image and Visitor Loyalty, as well as between Green Marketing and Visitor Loyalty, fall within acceptable ranges, confirming that each construct represents a distinct concept empirically.

The HTMT values between the interaction construct Destination Image × Green Marketing and the main latent constructs are relatively low. It should be emphasized that HTMT values for interaction constructs are not interpreted in the same way as those for primary reflective constructs, as the interaction construct is a product

specification used to capture moderation effects in the structural model. Therefore, low HTMT values for the interaction construct do not have implications for the discriminant validity of the main constructs.

The HTMT test results indicate that the measurement model meets the required discriminant validity criteria, allowing for valid interpretation of the relationships among constructs in the structural model without indications of substantial conceptual overlap.

The following table presents the results of the structural model analysis, including path coefficients, t-statistics, p-values, and hypothesis testing outcomes for each proposed relationship.

Table 3. Structural Model Results and Hypothesis Testing

Hypothesis	Structural Relationship	β (Path Coefficient)	t-statistic	p-value	Decision
H1	Green Marketing → Visitor Loyalty	0.212	1.879	0.060	Not supported
H2	Destination Image → Visitor Loyalty	0.697	6.484	< 0.001	Supported
H3	Green Marketing → Destination Image	0.845	29.977	< 0.001	Supported
H4	Destination Image × Green Marketing → Visitor Loyalty	0.055	2.712	0.007	Supported

Source: Primary Data (2025)

The direct effect of Green Marketing on Visitor Loyalty (H1) is positive but not statistically significant at the 5% level (β = 0.212; t = 1.879; p = 0.060). Although the relationship does not meet the conventional significance threshold, the positive coefficient indicates a tendency for Green Marketing to enhance Visitor Loyalty to some extent. However, the effect is relatively weak and does not reach statistical reliability as a direct predictor within the model. This finding suggests that Green Marketing does not directly translate into loyal visitor behavior in the absence of other explanatory mechanisms, particularly Destination Image as a mediating construct. The result therefore highlights the importance of indirect pathways in explaining the influence of Green Marketing on Visitor Loyalty.

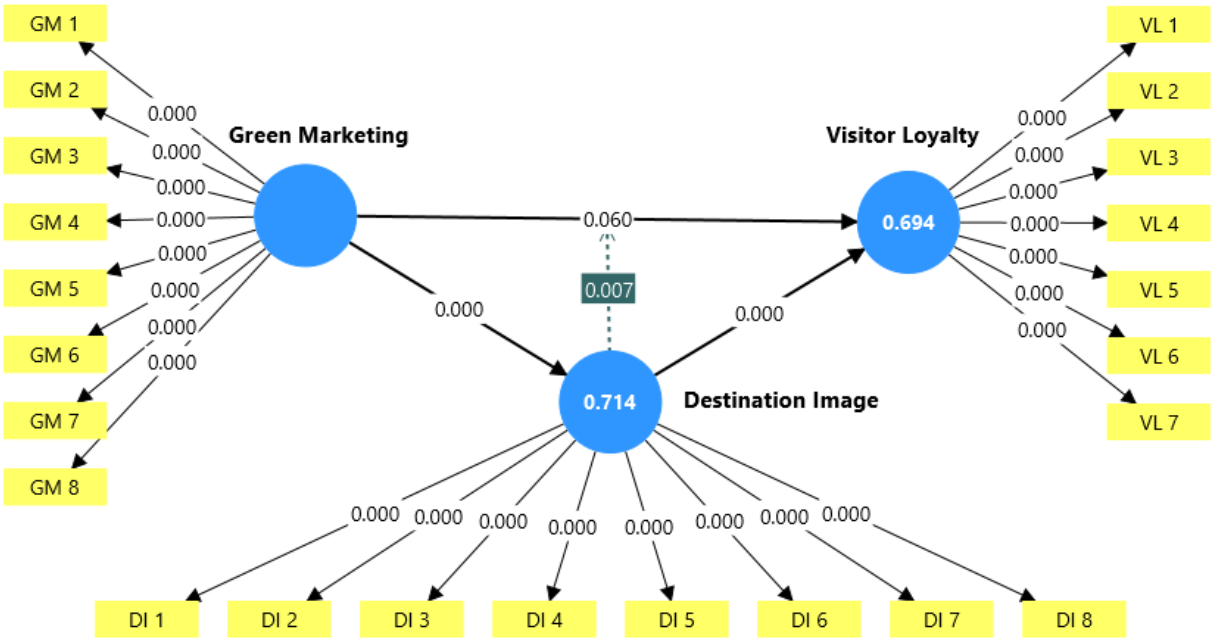

Figure 2. Structural model with standardized path coefficients
Source: Primary Data (2025)

The results of the structural model testing show that Destination Image has a positive and significant effect on Visitor Loyalty (β = 0.697; p < 0.001), indicating that positive perceptions of a destination are a key

determinant in shaping loyal behavioral tendencies. This finding confirms that Visitor Loyalty is more strongly built through perceptual mechanisms rather than direct promotional efforts, thus supporting Hypothesis 2.

Furthermore, Green Marketing is found to have a very strong and significant effect on Destination Image ($\beta = 0.845$; $p < 0.001$), supporting Hypothesis 3. This finding suggests that sustainable marketing practices primarily function as a mechanism for shaping destination perceptions rather than directly triggering loyal behavior. This pattern indicates that the influence of Green Marketing on Visitor Loyalty operates mainly through an indirect pathway via Destination Image, reflecting a dominant mediation logic rather than a direct effect. These results indicate that the relationship between Green Marketing and Visitor Loyalty is largely explained through Destination Image, rather than a direct causal pathway.

In contrast, the direct effect of Green Marketing on Visitor Loyalty is not significant at the conventional significance level ($\beta = 0.212$; $p = 0.060$), thus Hypothesis 1 is not supported. Although statistically non-significant, the positive coefficient suggests a weak tendency for Green Marketing to influence Visitor Loyalty. However, this effect is not sufficiently strong to be considered a reliable direct predictor within the model.

In addition, the results show that the interaction effect of Destination Image × Green Marketing on Visitor Loyalty is statistically significant ($\beta = 0.055$; $p = 0.007$), thus supporting Hypothesis 4. However, the magnitude of the path coefficient indicates that the moderating effect is relatively small. This suggests that the role of Green Marketing as a moderator functions more as a contextual strengthening factor rather than a primary driver altering the strength of the structural relationship. Therefore, the statistical significance of the moderating effect does not necessarily reflect a large practical impact.

Overall, the structural relationship pattern indicates that the role of Green Marketing in shaping Visitor Loyalty is primarily realized through the formation of Destination Image as the main mediating mechanism, with an additional moderating contribution that is significant but limited. This relationship structure is theoretically consistent and provides a clear empirical basis for discussing the strategic role of Green Marketing in the management of sustainable tourism destinations.

Table 4. Coefficient of Determination (R^2)

Endogenous Construct	R^2	Interpretation
Destination Image	0.714	Strong
Visitor Loyalty	0.694	Strong

Source: Primary Data (2025)

The coefficient of determination (R^2) values indicate that the structural model has strong explanatory power for the endogenous constructs under study. A total of 71.4% of the variance in Destination Image is explained by Green Marketing, highlighting the central role of sustainable marketing practices as a mechanism for shaping destination perceptions in the context of sustainable tourism.

The model also explains 69.4% of the variance in Visitor Loyalty through the influence of Destination Image, Green Marketing, and their interaction effect. This level of explained variance is considered substantial, given that Visitor Loyalty is a behavioral construct influenced by various external and situational factors. This finding extends theoretical understanding by demonstrating that perceptual mechanisms, particularly destination image, have strong explanatory power in mediating the influence of sustainable marketing strategies on loyal behavior.

Thus, the obtained R^2 values not only reflect the model's in-sample predictive strength but also affirm its conceptual contribution in explaining the formation of Visitor Loyalty through perceptual pathways and the sustainability context of the destination.

Table 5. Effect Size (f^2)

Structural Relationship	f^2	Effect Category	Substantive Meaning
Green Marketing → Destination Image	2.495	Very Large	Main determinant of Destination Image formation
Destination Image → Visitor Loyalty	0.390	Large	Key mechanism in forming loyalty
Green Marketing → Visitor Loyalty	0.042	Small	Limited direct effect
Destination Image × Green Marketing → Visitor Loyalty	0.024	Small	Conditionally reinforcing effect

Source: Primary Data (2025)

The effect size (f^2) analysis provides an overview of the relative contribution of each structural relationship to the variance of the endogenous constructs in the model. The results show that Green Marketing has a very large effect size on Destination Image ($f^2 = 2.495$), confirming the dominant role of sustainable marketing practices as the main determinant in shaping destination perceptions. However, this very large effect size should be interpreted with caution, considering the relatively simple structure of the model and the limited number of predictors for the endogenous construct. The magnitude of this f^2 value reflects the strong explanatory role of Green Marketing rather than redundancy or overlap among predictors in the model. This finding indicates that changes in the intensity of Green Marketing have a strong impact on how the destination is perceived by visitors.

Furthermore, Destination Image shows a large effect size on Visitor Loyalty ($f^2 = 0.390$), confirming that Visitor Loyalty is primarily formed through a relatively stable perceptual mechanism rather than short-term promotional stimuli alone. Thus, Destination Image functions as a key mechanism that transmits the influence of marketing strategies into behavioral responses.

In contrast, the direct effect of Green Marketing on Visitor Loyalty shows a small effect size ($f^2 = 0.042$). This finding indicates that the contribution of Green Marketing to loyalty is not direct and independent but operates through a more complex relational structure involving the formation of Destination Image.

In addition, the interaction effect of Destination Image × Green Marketing on Visitor Loyalty also shows a small effect size ($f^2 = 0.024$), yet it remains conditionally relevant. This indicates that Green Marketing acts as a strengthening factor that enhances the effectiveness of Destination Image in driving loyalty, although its additional contribution is relatively limited compared to the main effects.

The overall pattern of effect sizes confirms that Destination Image formation is the primary pathway in explaining Visitor Loyalty, while Green Marketing functions mainly as a perceptual determinant and a reinforcing factor within the structural relationship. These findings support the theoretical coherence of the model and provide a substantive basis for further discussion.

Table 6. Model Fit (SRMR)

Index	Saturated Model	Estimated Model	Criteria	Conclusion
SRMR	0.079	0.083	< 0.08–0.10	The model is suitable

Source: Primary Data (2025)

Model fit was evaluated using the standardized root mean square residual (SRMR) as an indicator of global model fit within the PLS-SEM framework. The SRMR value of the estimated model falls within the recommended range, indicating that the discrepancy between the observed covariance matrix and the model-implied covariance matrix is low and acceptable.

Beyond merely meeting minimum statistical criteria, this SRMR result confirms that the proposed structural relationships are consistent with the empirical data patterns. Combined with the evidence of valid and reliable measurement models as well as consistently supported structural relationships, the SRMR value strengthens the argument that the proposed model is both conceptually and empirically adequate for explaining the mechanism of Visitor Loyalty formation. Therefore, there is no indication that model restructuring is necessary, and the interpretation of the causal relationships can be conducted with a high level of confidence.

4. CONCLUSION

This study provides empirical evidence that Visitor Loyalty in sustainable urban tourism is primarily associated with perceptual mechanisms rather than direct sustainability marketing effects. Within the predictive and associative framework of this study, Destination Image emerges as the most influential determinant of Visitor Loyalty ($\beta = 0.697$; $p < 0.001$; $f^2 = 0.390$), while Green Marketing does not exhibit a statistically significant direct relationship with Visitor Loyalty ($\beta = 0.212$; $p = 0.060$; $f^2 = 0.042$). These findings indicate that sustainability communication alone is insufficient to directly explain loyal behavioral outcomes in urban tourism contexts.

Green Marketing demonstrates a very strong association with Destination Image ($\beta = 0.845$; $p < 0.001$; $f^2 = 2.495$), positioning it as a dominant antecedent in shaping tourists' perceptual evaluations of the destination. This result suggests that sustainability-oriented marketing primarily functions as a perceptual signaling mechanism that influences how tourists cognitively and affectively construct Destination Image.

In turn, Destination Image exhibits a strong association with Visitor Loyalty ($\beta = 0.697$; $p < 0.001$), indicating that loyalty formation is largely embedded within perceptual evaluation processes. Accordingly, the influence of Green Marketing on Visitor Loyalty is mainly transmitted indirectly through Destination Image, rather than through a direct pathway. This pattern supports a mediation-dominant mechanism in explaining tourist behavioral responses in sustainable urban tourism contexts.

The moderating effect of Green Marketing on the relationship between Destination Image and Visitor Loyalty is statistically significant but substantively small ($\beta = 0.055$; $p = 0.007$; $f^2 = 0.024$). This indicates that Green Marketing provides only a limited contextual strengthening effect in enhancing the ability of Destination Image to translate into Visitor Loyalty. Therefore, its moderating role should be interpreted as marginal in practical terms.

Overall, the model demonstrates strong explanatory power, with R^2 values of 0.714 for Destination Image and 0.694 for Visitor Loyalty, indicating substantial predictive relevance of the proposed framework. The SRMR value (0.083) further indicates an acceptable level of model fit, suggesting that the proposed structural relationships adequately represent the observed data patterns.

From a theoretical perspective, these findings extend Green Marketing and sustainable tourism literature by demonstrating that the relationship between sustainability communication and behavioral outcomes is not direct but is primarily mediated through perceptual mechanisms. This study therefore refines conventional assumptions in Green Marketing research by positioning Destination Image as a central mediating construct that translates sustainability signals into behavioral loyalty outcomes. Furthermore, by integrating both mediation and moderation effects within a single structural model, this study provides a more nuanced explanation of how sustainability-oriented marketing operates in environmentally constrained urban tourism settings.

From a practical perspective, the results indicate that destination managers should prioritize strengthening the formation of Destination Image through credible and substantive sustainability practices, rather than relying on promotional communication alone. While Green Marketing plays a critical role in shaping perceptions, its direct influence on loyalty is limited without the support of strong destination image formation mechanisms.

The cross-sectional design of this study limits causal inference, and the single-city context (Jakarta) restricts generalizability. Future research is encouraged to employ longitudinal or multi-destination comparative designs to further validate the stability of the mediation-dominant mechanism identified in this study.

5. CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

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