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AI-Based E-Tourism Marketing, Electronic Word of Mouth, and Destination Image in Shaping Sustainable Tourist Loyalty: Evidence from Rural Tourism in Indonesia

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Abstract: This study examines the role of artificial intelligence (AI)-based e-tourism marketing and electronic word of mouth (e-WOM) in shaping destination image and sustainable tourist loyalty in rural tourism. Using a quantitative approach with data collected from 290 respondents, this study applies Structural Equation Modeling (SEM-PLS) to analyze the relationships among variables. The findings reveal that AI-based e-tourism marketing and e-WOM significantly influence destination image, which in turn has a strong effect on sustainable tourist loyalty. In addition, both AI-based marketing and e-WOM directly affect loyalty, although their indirect effects through destination image are stronger. These results highlight the critical role of perception formation in digital tourism marketing. The study contributes to the literature by integrating technological, social, and perceptual dimensions into a unified framework and introducing sustainable tourist loyalty as a long-term outcome. Practically, the findings provide insights for tourism stakeholders in developing adaptive digital marketing strategies to enhance competitiveness and sustainability in rural tourism.

Keyword: AI Marketing, e-WOM, Destination Image, Sustainable Loyalty, Rural Tourism.

INTRODUCTION

The rapid transformation of the global tourism industry in the digital era has fundamentally altered how destinations are marketed and experienced. The integration of advanced technologies into tourism marketing has shifted traditional promotional strategies toward more dynamic, interactive, and personalized approaches. In particular, the emergence of artificial intelligence (AI) within electronic tourism (e-tourism) platforms enables destinations to engage potential tourists through tailored recommendations, real-time communication, and data-driven decision-making processes (Gretzel et al., 2015; Xiang et al., 2015). This transformation extends beyond

technological advancement to behavioral change, as tourists increasingly rely on digital information, online reviews, and virtual interactions when forming travel intentions and evaluating destination choices (Buhalis & Law, 2008a).

Tourism plays a strategic role in economic development in developing countries such as Indonesia, particularly in rural areas where it contributes to local income generation, employment, and community empowerment (World Tourism Organization UNWTO, 2023). Despite possessing unique natural and cultural assets, rural tourism destinations face persistent challenges, including limited marketing capabilities, low levels of digital literacy, and weak integration of modern promotional tools (Lane & Kastenholz, 2015). These constraints hinder their competitiveness in an increasingly digital tourism environment, highlighting the need for more adaptive and technology-driven marketing strategies.

Similar challenges have also been observed in several tourism regions across Indonesia. For example, while provinces such as Bali and Yogyakarta have achieved relatively advanced levels of digital tourism promotion, many rural tourism destinations within these regions still face difficulties in maintaining digital engagement, managing online reputation, and transforming digital interactions into sustainable tourist loyalty. Likewise, emerging tourism areas in West Java and South Sulawesi continue to experience gaps in digital capability, particularly regarding the adoption of AI-enabled marketing tools and the effective utilization of online tourist feedback. These conditions suggest that the digital marketing challenges examined in this study are not unique to Jambi Province but reflect broader issues confronting rural tourism development throughout Indonesia..

Within this context, electronic word of mouth (e-WOM) has emerged as a dominant source of information that shapes tourist perceptions and decision-making processes. Compared with traditional word-of-mouth communication, e-WOM offers broader reach, faster dissemination, and greater persistence, making it a critical determinant of tourist behavior (Filieri et al., 2019). At the same time, destination image remains a central construct in tourism research, representing tourists' overall cognitive and affective evaluations of a destination and serving as a key predictor of behavioral outcomes such as satisfaction, intention, and loyalty (Abubakar et al., 2017; Cheung & To, 2010; Hewagama et al., 2019). However, digital transformation has altered the process of image formation, as algorithm-driven content, personalized recommendations, and interactive experiences increasingly shape how destinations are perceived (Styvén et al., 2020).

Despite extensive research on e-tourism, e-WOM, and destination image, several important gaps remain. Prior studies tend to examine these constructs in isolation or treat digital marketing stimuli as static communication tools, thereby overlooking the dynamic and adaptive nature of AI-driven systems (Ge & Gretzel, 2018; R. Rather et al., 2021). Moreover, most studies focus on short-term behavioral outcomes such as visiting intention, while long-term constructs such as sustainable tourist loyalty encompassing repeat visits, advocacy, and continued support remain underexplored (R. A. Rather, 2021). The mediating mechanism through which digital stimuli influence tourist behavior, particularly the role of destination image as a cognitive–affective filter, also remains insufficiently examined, especially in rural tourism contexts characterized by resource constraints (Stylos et al., 2016).

To address these gaps, this study develops an integrated framework that examines the interplay among AI-based e-tourism marketing, electronic word of mouth, destination image, and sustainable tourist loyalty (Tasci & Gartner, 2007). Specifically, this study reconceptualizes AI-based e-tourism marketing as an adaptive algorithmic stimulus within the stimulus–organism–response (S-O-R) framework. The S-O-R framework explains how external environmental

stimuli influence individuals' internal cognitive and affective evaluations, which subsequently shape behavioral responses. In the context of this study, AI-based e-tourism marketing and e-WOM function as external stimuli, destination image represents the organism component reflecting tourists' internal evaluations, and sustainable tourist loyalty constitutes the behavioral response. This perspective shifts the traditional view of marketing stimuli from static communication tools to dynamic systems that continuously shape tourist perceptions (Prayag et al., 2019; Prayag & Ryan, 2012). Furthermore, this study introduces a perceptual construction mechanism by demonstrating that sustainable tourist loyalty is formed through destination image as a mediating cognitive–affective process rather than as a direct response to digital stimuli. By situating the analysis within rural tourism contexts, this study also highlights how digital transformation unfolds under structural constraints. In addition, by positioning sustainable tourist loyalty as a long-term relational outcome, this study extends tourism research beyond short-term behavioral intentions toward a sustainability-oriented perspective.

METHOD

This study adopts a quantitative research design to examine the relationships among AI-based e-tourism marketing, electronic word of mouth, destination image, and sustainable tourist loyalty. A quantitative approach is appropriate for testing causal relationships and validating the proposed conceptual model through statistical analysis.

The study was conducted in rural tourism destinations in Jambi Province, Indonesia, selected due to their emerging tourism potential and increasing adoption of digital marketing practices. The population consists of tourists who have accessed or interacted with tourism information through digital platforms. A total of 290 respondents were selected using purposive sampling, with criteria including individuals aged at least 17 years, having experience in accessing online tourism information, and having visited or expressed intention to visit rural tourism destinations.

Data were collected using a structured questionnaire distributed through online platforms. All measurement items were adapted from established studies (Ali et al., 2015; Dwivedi et al., 2009; R. Rather et al., 2021; Stylos et al., 2016) to ensure content validity. AI-based e-tourism marketing was measured through indicators of personalization, interactivity, informativeness, and responsiveness. Electronic word of mouth was assessed based on credibility, quality, and quantity of online reviews. Destination image was measured using cognitive and affective dimensions, while sustainable tourist loyalty was captured through revisit and recommendation intentions. All items were measured using a five-point Likert scale ranging from strongly disagree to strongly agree.

Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is suitable for predictive analysis and complex models involving mediation effects. The analysis followed a two-stage approach, including evaluation of the measurement model (outer loadings, AVE, composite reliability, and Cronbach's alpha) and structural model (path coefficients, R-square, f-square, and hypothesis testing using bootstrapping). The analysis is grounded in the stimulus-organism-response (S-O-R) framework, which explains how external stimuli influence internal evaluations and behavioral responses.

This study adhered to ethical research standards. All participants provided informed consent prior to data collection, and their anonymity and confidentiality were strictly maintained throughout the research process.

RESULT AND DISCUSSION

Sample Characteristics

Table 1 indicates that the respondents were predominantly female (54.1%), while male respondents accounted for 45.9%. In terms of age distribution, the 21–35 age group constituted the majority at 62.1%, representing a productive segment that is highly engaged in digital technology usage. Regarding educational background, most respondents held a bachelor's degree (45.5%), followed by high school/vocational school graduates (24.8%), diploma holders (20.0%), and postgraduate degree holders (9.7%).

From an occupational perspective, the sample was largely composed of students (32.4%) and private sector employees (26.2%), indicating the dominance of groups with high levels of digital activity. Furthermore, 53.8% of respondents reported frequently accessing tourism information online, while 72.8% had prior experience visiting rural tourism destinations. This composition suggests that the respondents possess direct exposure and relevance to the phenomenon under investigation, thereby supporting the validity of the data collected.

Table 1. Sample Characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Man	133	45.9
	Woman	157	54.1
Age	≤ 20 years	38	13.1
	21–35 years	180	62.1
	36–50 years	49	16.9
	> 50 years	23	7.9
Last education	High School/Vocational School	72	24.8
	Diploma	58	20.0
	Bachelor degree	132	45.5
	Postgraduate (S2/S3)	28	9.7
Work	Student	94	32.4
	Private employees	76	26.2
	ASN/PNS	41	14.1
	Businessman	52	17.9
	Other	27	9.3
Frequency of Access to Online Tourism Information	Rarely	36	12.4
	Sometimes	98	33.8
	Often	156	53.8
Village Tourism Visiting Experience	Ever	211	72.8
	Never	79	27.2

Source: SmartPLS 4 (2026)

Measurement Model Results

To ensure the robustness of the proposed model, the measurement model was first evaluated prior to testing the structural relationships. This evaluation aims to assess the reliability and validity of the constructs used in this study, including AI-based e-tourism marketing, electronic word of mouth, destination image, and sustainable tourist loyalty. The assessment focuses on key criteria such as indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The results of the measurement model evaluation are presented in Table 2, while the assessment of discriminant validity using the Fornell-Larcker criterion is shown in Table 3.

Table 2. Measurement Model

Variable	Indicator	Outer Loading	VIF	Cronbach's Alpha	Composite Reliability (Rho_A)	Composite Reliability (Rho_C)	Average Variance Extracted (AVE)
AI-Based E-Tourism Marketing	X1.1;X1.2;X1.3;	0,926;0,897;0,89	5,945;4,329;4,128;	0,964	0,965	0,970	0,801
	X1.4;X1.5;X1.6;	9;0,877;0,914;0,	3,689;4,810;3,158;				
	X1.7;X1.8	859;0,889;0,898	4,026;3,993				
Destination Image	Z1.1;Z1.2;Z1.3;	0,912;0,902;0,87	4,225;3,910;3,091;	0,951	0,952	0,961	0,804
	Z1.4;Z1.5;Z1.6	3;0,910;0,887;0,	4,041;3,358;3,603				
Electronic Word of Mouth	X2.1;X2.2;X2.3;	0,916;0,925;0,92	4,504;4,918;4,710;	0,961	0,961	0,969	0,838
	X2.4;X2.5;X2.6	2;0,884;0,916;0,	3,314;4,357;4,967				
		927					
Sustainable Tourist Loyalty	Y1.1;Y1.2;Y1.3;	0,909;0,898;0,90	3,794;3,425;3,566;	0,945	0,945	0,958	0,819
	Y1.4;Y1.5	0;0,911;0,908	3,807;3,673				

Source: SmartPLS 4 (2026)

The results presented in Table 2 demonstrate that all constructs meet the required criteria for validity and reliability. The outer loading values for all indicators exceed the recommended threshold of 0.70, ranging from 0.859 to 0.926, indicating strong indicator reliability and confirming that each item adequately represents its respective construct. In terms of internal consistency reliability, all variables show Cronbach's alpha values above 0.90, with AI-based e-tourism marketing (0.964), destination image (0.951), electronic word of mouth (0.961), and sustainable tourist loyalty (0.945). Similarly, composite reliability values (rho_a and rho_c) for all constructs exceed 0.90, confirming a high level of internal consistency across measurement items.

Convergent validity is also well established, as reflected by the Average Variance Extracted (AVE) values, all of which are above the minimum threshold of 0.50. Specifically, AVE values range from 0.801 to 0.838, indicating that each construct explains more than 50% of the variance in its indicators. In addition, the Variance Inflation Factor (VIF) values for all indicators are below the critical threshold of 10, indicating the absence of multicollinearity issues. These results collectively confirm that the measurement model demonstrates excellent reliability and convergent validity.

Following this evaluation, the next step involves assessing discriminant validity to ensure that each construct is empirically distinct from the others. The results of this analysis are presented in Table 3.

Table 3. Discriminant Validity

Variable	AI-Based E-Tourism Marketing	Destination Image	Electronic Word of Mouth	Sustainable Tourist Loyalty
AI-Based E-Tourism Marketing				
Destination Image	0,516			
Electronic Word of Mouth	0,041	0,573		
Sustainable Tourist Loyalty	0,601	0,808	0,514	

Source: SmartPLS 4 (2026)

The results in Table 3 confirm that all constructs demonstrate adequate discriminant validity. The correlations between constructs are below the threshold value of 0.90, indicating

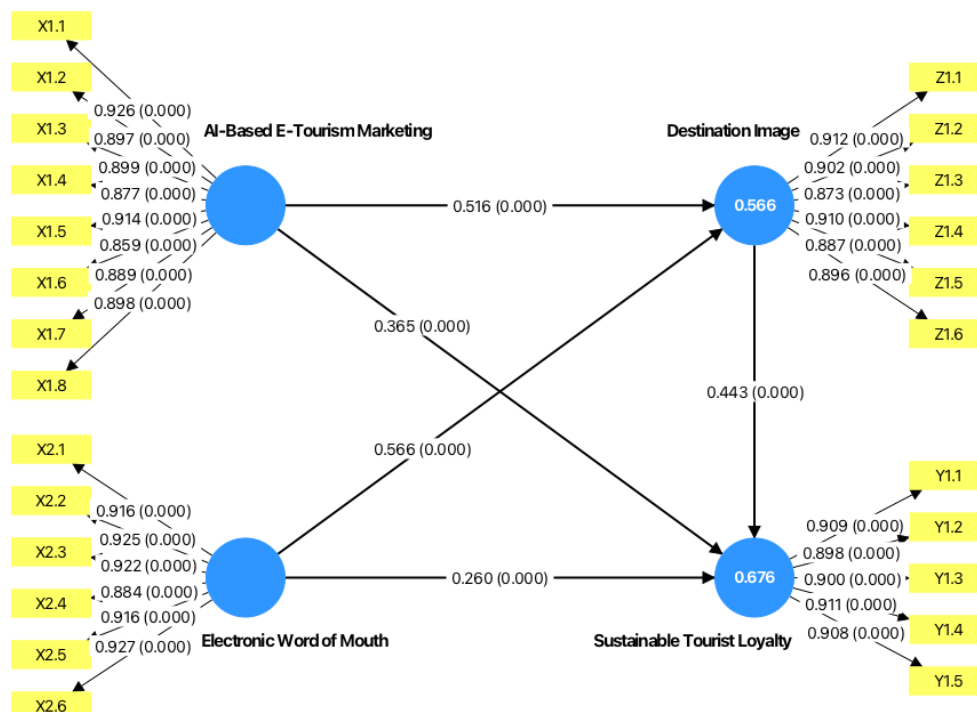
that each construct is statistically distinct and free from multicollinearity issues. The relationship between destination image and sustainable tourist loyalty shows the highest correlation value (0.808), reflecting a strong but acceptable association between the two constructs. Other relationships, such as between AI-based e-tourism marketing and destination image (0.516), and between electronic word of mouth and destination image (0.573), indicate moderate correlations that support the conceptual distinctiveness of each variable.

Furthermore, the relatively low correlation between AI-based e-tourism marketing and electronic word of mouth (0.041) suggests that both constructs represent different dimensions within the digital tourism marketing framework. This finding reinforces the separation between technology-driven marketing and socially driven information exchange in influencing tourist perceptions. Overall, the discriminant validity assessment confirms that all constructs are statistically distinct and measure different theoretical concepts, thereby strengthening the robustness of the measurement model.

Based on these findings, the measurement model is considered valid and reliable, providing a strong foundation for subsequent structural model analysis.

Structural Model Results

Following the confirmation of the measurement model, the next stage involves evaluating the structural model to test the hypothesized relationships among constructs. This analysis aims to assess the strength, direction, and significance of the relationships between AI-based e-tourism marketing, electronic word of mouth, destination image, and sustainable tourist loyalty. The structural model evaluation is conducted using path coefficients and bootstrapping procedures to determine statistical significance. The results of the structural path analysis are presented in Figure 1.



Source: SmartPLS 4 (2026)

Figure 1. Structural Path Analysis Results

As illustrated in Figure 2, the structural model shows that all proposed relationships are positive and statistically significant. Both AI-based e-tourism marketing and electronic word of mouth exhibit strong influences on destination image, indicating the important role of technological and social factors in shaping tourist perceptions. In addition, destination image appears as a central construct that connects digital marketing activities with sustainable tourist loyalty. While the figure provides a visual representation of the structural relationships, a more detailed explanation of the direct and indirect effects is presented in Table 4.

To provide a more comprehensive understanding of the relationships among variables, Table 4 presents the results of hypothesis testing, including direct and indirect effects. The evaluation focuses on path coefficients, t-statistics, and p-values to determine the significance of each relationship, as well as the mediating role of destination image in the proposed model.

Table 4. Direct Effect and Indirect Effect

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Remarks
AI-Based E-Tourism Marketing -> Destination Image	0,516	0,515	0,039	13,325	0,000	Sig
AI-Based E-Tourism Marketing -> Sustainable Tourist Loyalty	0,365	0,366	0,045	8,122	0,000	Sig
Destination Image -> Sustainable Tourist Loyalty	0,443	0,442	0,047	9,426	0,000	Sig
Electronic Word of Mouth -> Destination Image	0,566	0,566	0,036	15,885	0,000	Sig
Electronic Word of Mouth -> Sustainable Tourist Loyalty	0,260	0,260	0,046	5,689	0,000	Sig
AI-Based E-Tourism Marketing -> Destination Image -> Sustainable Tourist Loyalty	0,229	0,228	0,029	7,861	0,000	Sig
Electronic Word of Mouth -> Destination Image -> Sustainable Tourist Loyalty	0,251	0,250	0,031	8,091	0,000	Sig

Source: SmartPLS 4 (2026)

The results in Table 4 indicate that all hypothesized relationships are statistically significant at the 0.05 level. AI-based e-tourism marketing has a significant positive effect on destination image ($\beta = 0.516$; $t = 13.325$; $p < 0.001$) and sustainable tourist loyalty ($\beta = 0.365$; $t = 8.122$; $p < 0.001$). Similarly, electronic word of mouth significantly influences destination image ($\beta = 0.566$; $t = 15.885$; $p < 0.001$) and sustainable tourist loyalty ($\beta = 0.260$; $t = 5.689$; $p < 0.001$).

Destination image also shows a strong positive effect on sustainable tourist loyalty ($\beta = 0.443$; $t = 9.426$; $p < 0.001$), confirming its role as a key determinant of long-term tourist behavior. Furthermore, the mediation analysis reveals that destination image significantly mediates the relationships between AI-based e-tourism marketing and sustainable tourist loyalty ($\beta = 0.229$; $t = 7.861$; $p < 0.001$), as well as between electronic word of mouth and sustainable tourist loyalty ($\beta = 0.251$; $t = 8.091$; $p < 0.001$).

These findings confirm that both direct and indirect effects are significant, indicating that the influence of digital marketing and social interaction on tourist loyalty operates both independently and through the formation of destination image. Overall, the structural model

demonstrates strong empirical support for the proposed hypotheses and provides a solid basis for further discussion.

Model Explanatory Power

In addition to evaluating the significance of the structural relationships, it is essential to assess the explanatory power of the model to determine how well the independent variables explain the variance of the endogenous constructs. This evaluation is conducted using the coefficient of determination (R^2) and effect size (f^2). The R^2 value indicates the predictive accuracy of the model, while the f^2 value assesses the relative impact of each exogenous variable on the endogenous constructs. The results of these evaluations are presented in Table 5 and Table 6.

Table 2. Coefficient of Determination (R^2)

Variable	R-square	R-square adjusted
Destination Image	0,566	0,563
Sustainable Tourist Loyalty	0,676	0,673

Source: SmartPLS 4 (2026)

The results presented in Table 5 indicate that the model demonstrates strong explanatory power. The R-square value for destination image is 0.566, suggesting that 56.6% of the variance in destination image is explained by AI-based e-tourism marketing and electronic word of mouth. This value can be categorized as moderate to substantial, indicating that the model has adequate predictive capability for this construct.

Furthermore, the R-square value for sustainable tourist loyalty is 0.676, which indicates that 67.6% of the variance in loyalty is explained by AI-based e-tourism marketing, electronic word of mouth, and destination image. This value reflects a strong level of explanatory power, demonstrating that the model is highly effective in predicting sustainable tourist loyalty. Overall, these findings confirm that the proposed model has substantial predictive relevance in explaining tourist behavior in the digital tourism context.

Table 3. Effect Size (f^2)

Variable	f-square
AI-Based E-Tourism Marketing -> Destination Image	0,613
AI-Based E-Tourism Marketing -> Sustainable Tourist Loyalty	0,254
Destination Image -> Sustainable Tourist Loyalty	0,263
Electronic Word of Mouth -> Destination Image	0,738
Electronic Word of Mouth -> Sustainable Tourist Loyalty	0,120

Source: SmartPLS 4 (2026)

The effect size results presented in Table 6 provide further insights into the relative importance of each predictor variable. Electronic word of mouth shows the strongest effect on destination image ($f^2 = 0.738$), indicating a large effect size and highlighting its dominant role in shaping tourists' perceptions. Similarly, AI-based e-tourism marketing also demonstrates a substantial effect on destination image ($f^2 = 0.613$), suggesting that both technological and social factors significantly contribute to perception formation.

In terms of sustainable tourist loyalty, destination image exhibits a moderate effect size ($f^2 = 0.263$), followed by AI-based e-tourism marketing ($f^2 = 0.254$), indicating that both variables play important roles in influencing long-term tourist behavior. Meanwhile, electronic word of

mouth shows a smaller but still meaningful effect ($f^2 = 0.120$), suggesting that its influence on loyalty is more indirect and partially mediated through destination image.

These findings confirm that while all variables contribute to the model, electronic word of mouth and AI-based e-tourism marketing have stronger effects on destination image, whereas destination image serves as a key driver of sustainable tourist loyalty. Overall, the effect size analysis reinforces the robustness of the model and highlights the complementary roles of technological, social, and perceptual factors in shaping tourist behavior.

Discussion

The findings demonstrate that digital transformation has fundamentally restructured the mechanisms through which tourists form perceptions, extending beyond mere changes in tourism marketing practices. The significant effect of AI-based e-tourism marketing on destination image ($\beta = 0.516$; $p < 0.001$) confirms that artificial intelligence operates as an adaptive stimulus capable of delivering real-time, data-driven personalization. Such characteristics surpass conventional static marketing approaches and signal a transition toward responsive and predictive marketing systems. Within the stimulus-organism-response (S-O-R) framework, this evidence expands the conceptualization of stimulus from a passive external trigger into a dynamic, algorithm-driven system that continuously adapts to user behavior (Mehrabian & Russell, 1974; Dwivedi et al., 2021). This transformation implies that digital stimuli actively shape tourists' cognitive structures through continuous interaction rather than merely initiating behavioral responses.

The strong influence of electronic word of mouth (e-WOM) on destination image ($\beta = 0.566$; $p < 0.001$) reflects a structural shift in informational authority from institutional sources to decentralized digital social networks. Under conditions of information overload, tourists rely on social validation as a heuristic mechanism to simplify decision-making processes, which increases dependence on user-generated content. This finding reinforces prior arguments that e-WOM functions as a dominant driver of trust and perception formation in digital environments (Filieri et al., 2021). At the same time, the results reveal a critical structural tension between technological sophistication and social legitimacy: although AI enhances information delivery through personalization and efficiency, trust remains more strongly anchored in experiential, user-generated content. This condition indicates that the effectiveness of digital tourism marketing depends on the integration of algorithmic systems with socially constructed trust mechanisms rather than on technological advancement alone (Buhalis et al., 2020).

This argument is consistent with studies on trust in algorithmic and AI-mediated systems, which suggest that users evaluate digital recommendations not only based on technical efficiency and personalization but also through perceptions of transparency, credibility, and social validation (Gillespie, 2017; Sundar, 2020). Consequently, AI-driven tourism marketing becomes more persuasive when algorithmic recommendations are reinforced by authentic user experiences and trusted online communities.

The significant effect of destination image on sustainable tourist loyalty ($\beta = 0.443$; $p < 0.001$) indicates that loyalty emerges through an integrated cognitive and affective evaluation process rather than as an immediate reaction to marketing stimuli. Destination image functions as an internalization mechanism through which tourists develop emotional attachment and long-term commitment toward a destination. Consequently, loyalty extends beyond revisit intention to include advocacy behavior, positive recommendations, and sustained support for destination sustainability. This perspective advances the understanding of tourist loyalty from a short-term

behavioral outcome to a long-term relational construct aligned with customer engagement theory in tourism research (Raouf Ahmad Rather et al., 2022; Stylos et al., 2016).

The mediating role of destination image clarifies that the effects of AI-based e-tourism marketing (β indirect = 0.229; $p < 0.001$) and e-WOM (β indirect = 0.251; $p < 0.001$) on sustainable tourist loyalty operate through perceptual construction processes. This mechanism confirms that technological stimuli and social interactions do not directly generate loyalty but influence behavioral outcomes through tourists' internal cognitive and affective evaluations. Destination image therefore operates as a cognitive filter that determines how digital stimuli are interpreted and transformed into behavioral responses. Such a process reinforces the relevance of the S-O-R framework while providing a more nuanced explanation of how digital marketing influences long-term tourist behavior (KIM et al., 2020).

While the present findings are broadly consistent with previous tourism marketing research, several studies have reported different patterns regarding the role of digital marketing technologies. Some studies found that digital marketing tools exert stronger direct effects on behavioral intentions than on destination image formation, suggesting that tourists may respond primarily to convenience, accessibility, and information quality. In contrast, the present study demonstrates that destination image remains a central mechanism through which both AI-based e-tourism marketing and e-WOM influence sustainable tourist loyalty. This difference may be attributed to the rural tourism context, where emotional attachment, authenticity, and experiential value play a more prominent role than in highly commercialized destinations. Therefore, while the findings support the general direction of previous research, they also highlight the stronger mediating role of destination image in shaping long-term loyalty within rural tourism environments.

The primary theoretical contribution of this study lies in the simultaneous integration of technological (AI-based marketing), social (e-WOM), and perceptual (destination image) dimensions within a unified conceptual framework. Unlike prior studies that examine these constructs in isolation, the present findings demonstrate that their interaction produces a synergistic effect in shaping sustainable tourist loyalty. In addition, the study shifts the analytical focus from visiting intention toward sustainable tourist loyalty as a long-term outcome, thereby extending the scope of tourism marketing research into sustainability-oriented perspectives. This contribution not only confirms empirical relationships but also reconfigures the theoretical understanding of tourist behavior by emphasizing the interplay between digital technology, social influence, and perceptual evaluation (Gretzel et al., 2015).

From a practical standpoint, the findings indicate that destination managers must adopt integrated marketing strategies that combine technological innovation with social engagement mechanisms. The implementation of AI should prioritize adaptive recommendation systems based on behavioral data to enhance informational relevance and user experience. At the same time, marketing strategies must actively stimulate e-WOM through the creation of authentic tourism experiences and sustained post-visit engagement. An imbalance between these elements risks undermining marketing effectiveness, as technology without social legitimacy lacks credibility, while e-WOM without digital system support lacks scalability and consistency.

These findings reflect a broader structural transformation within the tourism industry, particularly in developing countries undergoing accelerated digitalization. The integration of AI and e-WOM fosters a participatory marketing ecosystem in which tourists function not only as information consumers but also as content producers. This dynamic aligns with Toffler's (1980) concept of the "prosumer," whereby individuals simultaneously consume and create value

through their interactions with digital platforms. Through reviews, ratings, photographs, videos, and other forms of user-generated content, tourists actively participate in shaping destination image and influencing the travel decisions of other potential visitors. Consequently, tourism marketing is no longer controlled solely by destination managers but is increasingly co-created through collective digital participation. Such dynamics extend the relevance of this study beyond the Indonesian context and contribute to broader discussions on digital tourism marketing, user-generated content, and sustainable destination competitiveness (Toffler, 1980; Buhalis & Law, 2008a; Law et al., 2009).

Several limitations must be acknowledged. The use of cross-sectional data restricts the ability to capture dynamic behavioral changes over time, while reliance on perceptual measures introduces the potential for subjective bias. Future research should incorporate longitudinal designs and behavioral data sources, such as digital trace data or actual visitation records, to strengthen causal inference and improve the generalizability of findings across different tourism contexts.

The study demonstrates that successful tourism marketing in the digital era depends not solely on technological adoption but on the capacity to integrate artificial intelligence with social dynamics and tourist perception. By positioning AI as an adaptive stimulus and e-WOM as a mechanism of social legitimacy, this study offers a comprehensive conceptual framework for understanding the formation of sustainable tourist loyalty.

CONCLUSIONS AND RECOMMENDATIONS

The study establishes that AI-based e-tourism marketing and electronic word of mouth exert a decisive influence on destination image and sustainable tourist loyalty. Destination image functions as a critical mediating mechanism that transforms digital marketing stimuli into long-term behavioral outcomes. The integration of technological, social, and perceptual dimensions provides a comprehensive explanation of tourist behavior in digitally mediated environments.

Theoretical contributions emerge through the extension of the stimulus-organism-response framework by positioning artificial intelligence as an adaptive and evolving stimulus, alongside the introduction of sustainable tourist loyalty as a long-term outcome variable. This perspective advances tourism marketing literature beyond short-term behavioral intentions and aligns it with sustainability-oriented research.

Practical implications emphasize the need for tourism stakeholders to integrate AI-driven personalization with strategies that stimulate credible and authentic e-WOM. Such integration enhances destination competitiveness and fosters long-term visitor engagement.

Future research should employ longitudinal designs to examine how destination image and sustainable tourist loyalty evolve over time following exposure to AI-based marketing initiatives. Researchers are also encouraged to incorporate objective behavioral data, such as actual visitation records derived from Google Maps reviews, online booking platforms, social media engagement metrics, or GPS-tracked travel behavior, rather than relying exclusively on self-reported intentions. In addition, comparative studies across different Indonesian regions or cross-country tourism contexts may provide deeper insights into how technological adoption, digital trust, and destination image interact in shaping sustainable tourist loyalty. Future studies may also explore the role of generative AI applications and intelligent tourism platforms in influencing tourist perceptions and post-visit engagement.

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