

Smart Tourism, Trust, and Perceived Value as Drivers of Tourist Loyalty: A Comparative Study of Indonesia and Vietnam

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Abstract

This paper will look at the effect of smart tourism, trust and perceived value on tourist loyalty in the ASEAN emerging markets of Indonesia and Vietnam. The study is based on the Stimulus-Organism-Response (S-O-R) theory, in which the smart tourism should be seen as the stimulus, trust and perceived value as the organism state, and loyalty of the tourists as the behavioural response. The survey involved 400 tourists (200 Indonesian and 200 Vietnamese respondents) and was quantitative and cross-sectional. The PLS-SEM was used to analyse data, assessing measurement model, structural model, mediation testing, MICOM, and PLS-MGA. The findings indicate the presence of strong positive impacts of smart tourism on trust, perceived value, and tourist loyalty. Trust has a strong impact on perceived value and tourist loyalty, whereas perceived value proves to be the most powerful direct predictor of tourist loyalty. Further mediation analysis confirms that trust and perceived value mediate the relationship between smart tourism and tourist loyalty, both in isolation and in a sequential manner. The multi-group analysis however shows that there is no significant difference in the structural relationships between Indonesia and Vietnam. These results indicate that smart tourism enhances tourist loyalty both directly as well as by way of relational and evaluative processes. The research adds to the existing literature on smart tourism by expanding the S-O-R theory to a comparative ASEAN context and providing applicable recommendations to destination stakeholders aiming to increase loyalty by using digitally enabled tourism measures.

Keywords: smart tourism, trust, perceived value, tourist loyalty, PLS-SEM

1. Introduction

Rapid digitalisation has fundamentally reshaped the global tourism industry by changing how destinations operate and how tourists search for, experience, and evaluate travel (Li et al., 2023; Stylos et al., 2024). Within this transformation, smart tourism has become increasingly central because digitally enabled systems improve convenience, expand information access, personalise experiences, and enhance service responsiveness (Li et al., 2023; Preko et al., 2022). At the same time, tourist loyalty has emerged as a strategically important outcome, as it underpins revisit intention, positive word-of-mouth, and long-term destination competitiveness (Satar et al., 2023; Tran et al., 2021). These developments are particularly salient in emerging ASEAN destinations such as Indonesia and Vietnam, where digital transformation is progressing alongside rising tourist demand and evolving visitor expectations (Kahraman & Cifçi, 2022; Üner et al., 2022).

Smart tourism has therefore become a key concept in destination management because it

integrates digital technologies, including mobile applications, real-time information systems, and data-driven services, into the tourism experience (Li et al., 2023; Stylos et al., 2024). This integration influences the entire tourism journey, from pre-visit information search to post-visit evaluation (Preko et al., 2022). In tourism marketing, loyalty is widely recognised as a core indicator of destination success because loyal tourists are more likely to revisit and recommend a destination to others (Satar et al., 2023; Shi et al., 2022). Importantly, recent studies suggest that loyalty in digitally mediated contexts is shaped not only by service performance, but also by tourists' trust and perceived value (Arica et al., 2023; Ekinici et al., 2022; Rasheed, 2023).

Despite growing attention to smart tourism, trust, perceived value, and loyalty, these constructs have largely been examined separately or within single-country contexts (Li et al., 2023; Yamagishi et al., 2023). Consequently, the integrated process through which smart tourism influences loyalty remains insufficiently understood. Comparative evidence from emerging ASEAN destinations, especially Indonesia and Vietnam, also remains limited (Tran et al., 2021; Üner et al., 2022).

This gap creates both conceptual and managerial concerns. Theoretically, the pathways linking smart tourism to loyalty through trust and perceived value remain underdeveloped (Li et al., 2023; Yamagishi et al., 2023). Managerially, many destinations continue to invest in digital tourism initiatives without clear evidence of how such investments translate into loyalty outcomes (Kahraman & Çifçi, 2022; Stylos et al., 2024).

Accordingly, this study examines how smart tourism influences trust, perceived value, and tourist loyalty, whether trust and perceived value mediate the smart tourism–loyalty relationship, and whether these structural relationships differ between Indonesia and Vietnam. By applying a comparative PLS-SEM design, the study extends understanding of smart tourism through relational and evaluative mechanisms, while also offering practical guidance for destination managers seeking to build stronger tourist trust, enhance perceived value, and foster loyalty in emerging ASEAN destinations (Ekinici et al., 2022; Kahraman & Çifçi, 2022; Preko et al., 2022; Stylos et al., 2024).

2. Literature Review

2.1 Theoretical Foundation

This study is grounded in Stimulus–Organism–Response (S-O-R) theory, which explains how external environmental stimuli shape internal psychological states and, in turn, behavioural responses (Sann et al., 2023; Yamagishi et al., 2023). Originally developed by Mehrabian and Russell, the S-O-R framework has been widely adopted in tourism research to clarify how destination attributes and technology-mediated experiences influence tourist perceptions and subsequent behaviour. In the present study, Smart Tourism represents the stimulus, as tourists encounter digital applications, mobile platforms, and technology-enabled destination systems throughout their travel experience (Li et al., 2023). Trust and Perceived Value function as the organism, reflecting tourists' internal relational and evaluative responses to these smart tourism stimuli. Finally, Tourist Loyalty constitutes the response, expressed through revisit intention,

destination preference, and positive word-of-mouth (Preko et al., 2022; Satar et al., 2023; Tran et al., 2021).

2.2 Smart Tourism as a source of Trust, Perceived Value, and Tourist Loyalty

Smart tourism is the incorporation of the digital technologies in the services of a destination to enhance the level of information accessibility, customisation, interactivity, and coordination of services to minimise the uncertainty and increase the confidence of tourists in the reliability and quality of services available in a destination (Li et al., 2023; Stylos et al., 2024; Yang et al., 2023). Smart tourism can also enhance the perceived value of the destination experiences by making it easier, more efficient, transparent, and more experiential, thus boosting how the tourists evaluate the value of the destination experience against the time, effort, and cost incurred (Preko et al., 2022; Wu et al., 2023). Furthermore, the revisit intention, recommendation behaviour, and destination preference may directly be reinforced with digitally enriched and seamless tourism experiences, which makes smart tourism a relevant predictor of tourist loyalty (Satar et al., 2023; Tran et al., 2021).

H1: Smart tourism positively influences the trust of tourists.

H2: Smart tourism positively impacts on perceived value.

H3: Smart tourism positively influences the loyalty of tourists.

2.3 Trust as a source of Perceived Value and Tourist Loyalty

Trust is a key relational process in digitally mediated tourism, as it minimizes the perceived risk and uncertainty, thus allowing tourists to make more positive assessments of the benefits associated with destinations in relation to time, effort, and costs spent on it. By viewing the destination and the ICT-enabled services as trustful, safe, and transparent, tourists will tend to evaluate the entire experience as valuable (Nguyen et al., 2023; Shi et al., 2022; Wang et al., 2020). Long-term commitment is also based on trust which builds confidence in the destination to provide the same and value experiences. This trust generates the intention of revisiting, word-of-mouth, and destination choice, and trust thus is a direct precursor of the tourist loyalty (Al-Ansi et al., 2024; Rahman et al., 2020; Tran et al., 2021).

H4: Trust positively impacts on perceived value.

H5: There is a positive impact of trust on tourist loyalty.

2.4 Perceived Value and Tourist Loyalty

Perceived value is widely recognised as a strong antecedent of tourist loyalty because it reflects tourists' overall evaluation of the benefits received relative to the time, effort, and monetary costs incurred (Fu, 2023; Lv et al., 2020; Wang et al., 2020). When tourists perceive a destination as offering superior functional and experiential value, they are more likely to develop stronger preference, revisit intention, and positive word-of-mouth behaviour. Previous tourism studies consistently show that favourable value judgements enhance both attitudinal and behavioural loyalty across diverse destination contexts, including accommodation,

wellness, and heritage tourism (Al-Ansi et al., 2024; Tajeddini et al., 2022). Therefore, tourists who perceive higher value from their destination experience are expected to demonstrate stronger loyalty.

H6: There is a positive influence of perceived value on tourist loyalty.

2.5 Mediating effects of Trust and Perceived Value in Smart Tourism-Tourist Loyalty Relationship

It is also not likely that smart tourism will affect tourist loyalty via a direct channel only. Instead, it is likely to have an impact on behaviour via internal psychological and evaluation processes, as per Stimulus–Organism–Response theory where trust and perceived value acts as organism states that connect smart tourism experiences to behavioural response (Sann et al., 2023; Yamagishi et al., 2023). Trust can be a relationship mediator since the tourists have to build confidence in the reliability, safety, and authenticity of smart tourism systems before converting digital experiences into revisit intention and recommendation behaviour (Buhalis et al., 2020; Ekinici et al., 2022). Another important evaluative route is the perceived value, whereby tourists are more likely to be loyal as they rate the benefits of smart tourism to be worthwhile compared to the time, effort, and cost incurred (Fu, 2023; Wang et al., 2020). In addition, smart tourism can establish trust initially, which enhances the value of perception and finally loyalty.

H7: The relationship between smart tourism and tourist loyalty is mediated by trust.

H8: The relationship between smart tourism and tourist loyalty is mediated by the perceived value.

H9: Trust and perceived value have a sequential relationship with smart tourism in the determination of tourist loyalty.

2.6 International (Cross-country) Differences in the Structural Relationships between Indonesia and Vietnam

Despite the similarities between Indonesia and Vietnam as emerging ASEAN tourism destinations experiencing a rapid digital transformation, the two countries vary in the maturity of the digital infrastructure, governance of the tourism sector, expectations of the services, and tourism experience patterns (Bui et al., 2024; Kumar et al., 2023; Rodrigues et al., 2022). These contextual differences imply that the impacts of smart tourism might not take the same effect in both countries. The Tourism 5.0 orientation of Indonesia puts an emphasis on technology-enabled destination management, but the archipelagic nature of the country leads to uneven digital preparedness of destinations, whilst the tourism development of Vietnam shows a unique gubernatorial direction based on the coordinations between the state and market adoptions (Bui et al., 2024; Yağmur et al., 2023). These variations can affect the way tourists experience the concept of smart tourism, build trust, perceive value, and, finally, create loyalty (Sujood et al., 2022; Yang et al., 2023). Based on this, multi-group analysis will be required to find out whether the structural paths in the proposed model differ significantly between Indonesia and Vietnam.

H10a: Smart tourism has a dissimilar impact on trust in Indonesia and Vietnam.

H10b: Smart tourism does not have the same impact on the perceived value in Indonesia as in Vietnam.

H10c: The perceived value has no similar influences on tourist loyalty in Indonesia and Vietnam.

Figure 1. Smart Tourism is proposed to influence Trust, Perceived Value, and Tourist Loyalty directly. Trust further affects Perceived Value and Tourist Loyalty, while Perceived Value directly affects Tourist Loyalty. Notes: Indirect effects examined are H7 (ST→TRU→TL), H8 (ST→PV→TL), and H9 (ST→TRU→PV→TL). Cross-country differences are tested through MGA for H10a (ST→TRU), H10b (ST→PV), and H10c (PV→TL) between Indonesia and Vietnam.

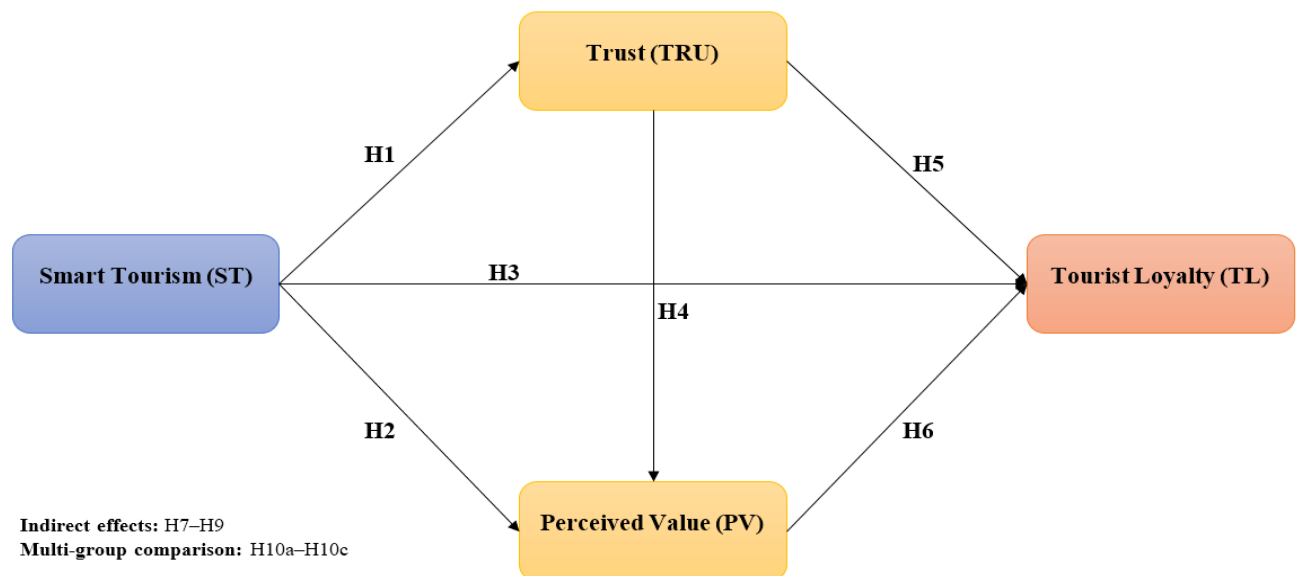


Figure 1. Conceptual Framework

3. Research Method

3.1 The research design and context will be discussed in section

The paper takes the form of a quantitative design and uses a cross-sectional survey design to test the structural relationships between smart tourism, trust, and perceived value and tourist loyalty within a destination context. A quantitative design is suitable as the research aims to test hypothesised relationships between latent constructs and compare their strengths across groups using PLS-SEM, which is best suited to research that is predictive and theory testing in tourism (Ekinici et al., 2022; Li et al., 2023). The paper is also planned as a comparative case study of Indonesia and Vietnam, two up-and-coming ASEAN destinations that undergo a rapid process of digital transformation, but have dissimilar paths of governance, digital ecosystem development, and the context of tourism services (Bui et al., 2024; Kumar et al., 2023). This comparative ASEAN design is thus warranted in that it facilitates identifying context-specific

mechanisms as opposed to the assumption that the impacts of smart tourism have identical effects across destination settings (Bui et al., 2024; Ekinici et al., 2022).

3.2 Population, Sample and Data collection

The target population comprised tourists who had visited selected destinations in Indonesia and Vietnam and had used smart tourism-related services during their trip. A purposive sampling approach was adopted, requiring respondents to be at least 18 years old and familiar with digitally enabled destination services. Data were collected through a structured cross-sectional survey. The final sample consisted of 400 respondents, equally divided between Indonesia ($n = 200$) and Vietnam ($n = 200$), providing balanced group sizes for PLS-SEM and reliable cross-country comparison (Demir, 2025; Ringle et al., 2025; Tan, 2024).

3.3 Measurement of Variables

The operationalisation of all variables as reflective constructs was done using previously validated indicators that were adjusted to the context of smart tourism destinations. Smart Tourism was conceptualised as perceptions of digital enabled accessibility, personalisation, integration, usability and convenience of the destination, and measured using five items derived based on Li et al. (2023), Stylos et al. (2024) and Yang et al. (2023). Trust was the belief of tourists in the reliability, integrity, reputation, and responsiveness of systems and service providers at the destination and was measured using five items modified by Ekinici et al. (2022) and Hassan & Soliman (2021). Perceived Value represented general assessment of benefits in comparison to costs by tourists and was measured using five items modified by Jiang & Phoong (2024) and Lv et al. (2020). Tourist Loyalty was a revisit intention, recommendation, and destination preference, which was measured with five items inspired by Shi et al. (2022) and Tran et al. (2021). Everything used 7 point Likert scale in which 1 = strongly disagree; 2 = disagree; 3 = neither disagree/neither agree; 4-6 = agree; 7 = strongly agree. In the cases of the bilingual questionnaires, the instrument was translated, and reverse translated to guarantee the semantic equivalence.

3.4 Data Analysis Technique

Data were analysed using SmartPLS in accordance with recommended PLS-SEM procedures for predictive and comparative research. First, the measurement model was assessed through indicator loadings, internal consistency reliability, convergent validity, and discriminant validity. Second, the structural model was evaluated using collinearity diagnostics, path coefficients, coefficients of determination, effect sizes, and predictive relevance. The hypothesised indirect effects were then examined through bootstrapping-based mediation analysis, which is appropriate for estimating specific and sequential mediation paths in PLS-SEM (Hair et al., 2024). Because the study compares Indonesia and Vietnam, measurement invariance of composites (MICOM) was assessed before group comparison to ensure construct comparability across countries (Dai & Wang, 2024; Ringle et al., 2025). Finally, PLS-MGA was employed to test whether the structural relationships differed significantly between the two national samples (Tan, 2024).

3.5 Validity, Reliability and Ethical Considerations

A pilot test was undertaken before the main survey to ensure item clarity, linguistic precision, and contextual relevance. Reliability and validity were subsequently assessed in SmartPLS using indicator loadings, composite reliability, average variance extracted, and discriminant validity, following recommended PLS-SEM procedures (Dai & Wang, 2024; Hair et al., 2024). To minimise common method bias, the study applied procedural remedies, including concise wording, respondent anonymity, and psychological separation of constructs, and then used collinearity diagnostics as a statistical check (Hair et al., 2024; Kock et al., 2021). Ethical principles were observed throughout the research process. Participation was entirely voluntary, respondents were informed of the academic purpose of the study before completing the questionnaire, and no personally identifying information was collected. For bilingual instruments, translation and back-translation procedures were employed to ensure semantic equivalence.

4. Finding and Discussion

4.1 Respondent Profile

Table 1 presents the demographic and travel-related profile of the 400 respondents included in this study. The sample was evenly distributed between Indonesia and Vietnam, with 200 respondents from each country (50.0%), ensuring balanced representation for cross-country comparison. In terms of gender, female respondents (53.0%) slightly outnumbered male respondents (47.0%). The largest age group was 25–34 years (37.0%), followed by 18–24 years (24.0%), 35–44 years (22.0%), and 45 years and above (17.0%), indicating a predominantly young to middle-adult tourist sample. Most respondents held a Diploma/Bachelor's degree (61.0%), while 20.5% had a Master's degree or above. In terms of travel behaviour, 44.0% had travelled 2–3 times in the past 12 months, and the majority visited for leisure/holiday purposes (62.0%). Use of smart tourism services was mainly moderate (44.5%) or high (39.5%), indicating substantial exposure to digitally enabled tourism services.

Table 1. Profile of respondents (N = 400)

Attribute	Category	Frequency (N)	Percentage (%)
Country	Indonesia	200	50.0
	Vietnam	200	50.0
Gender	Male	188	47.0
	Female	212	53.0
Age	18–24 years	96	24.0
	25–34 years	148	37.0
	35–44 years	88	22.0
	45 years and above	68	17.0
Educational level	Senior high school	74	18.5
	Diploma/Bachelor's degree	244	61.0
	Master's degree or above	82	20.5

Travel frequency in the last 12 months	1 time	102	25.5
	2–3 times	176	44.0
	4–5 times	78	19.5
	More than 5 times	44	11.0
Main purpose of visit	Leisure/holiday	248	62.0
	Business	54	13.5
	Visiting friends/relatives	42	10.5
	Cultural/other purposes	56	14.0
Use of smart tourism services during the visit	Low	64	16.0
	Moderate	178	44.5
	High	158	39.5

Source(s): Authors' own work.

4.2 Measurement Model Assessment

Table 2 presents the assessment of the external measurement model and shows that all four constructs satisfy the recommended criteria for reliability and convergent validity. All item loadings are strong, ranging from 0.788 to 0.874, indicating that each indicator contributes adequately to its respective construct. For Smart Tourism, the loadings range from 0.808 to 0.831, confirming that the five items consistently capture tourists' perceptions of destination digital capability. Trust also demonstrates acceptable indicator reliability, with loadings between 0.788 and 0.824. Similarly, Perceived Value records high loadings (0.838–0.854), while Tourist Loyalty shows the strongest item performance overall (0.829–0.874). Internal consistency is likewise satisfactory, as Cronbach's alpha values range from 0.864 to 0.903, and composite reliability values range from 0.865 to 0.904. In addition, the AVE values for all constructs (0.648–0.721) exceed 0.50, confirming adequate convergent validity for subsequent structural analysis.

Table 2. Analyses of the External Model

Construct / Item	Loadings	Alpha	CR	AVE
Smart Tourism (ST)		0.879	0.880	0.673
ST1. The destination provides easy access to real-time information about attractions, services, and facilities through digital platforms.	0.827			
ST2. The destination provides personalised tourism recommendations based on individual preferences and past behaviour.	0.831			
ST3. Tourists can book and manage multiple services through integrated digital platforms.	0.811			
ST4. Digital tourism platforms at the destination are user-friendly and easy to navigate.	0.808			

ST5. The destination's digital systems make the overall tourism experience more convenient and hassle-free.	0.826			
Trust (TRU)		0.864	0.865	0.648
TRU1. I trust that the destination's digital systems and mobile applications are reliable and function properly.	0.804			
TRU2. I believe service providers will deliver the services they promise.	0.806			
TRU3. I trust that the destination management operates with honesty and integrity.	0.788			
TRU4. I trust the destination's reputation based on its track record.	0.804			
TRU5. I trust that the destination will respond promptly to complaints or issues.	0.824			
Perceived Value (PV)		0.898	0.900	0.711
PV1. The benefits I receive from smart tourism justify the costs involved.	0.841			
PV2. Personalised services enhance the overall value of my destination experience.	0.842			
PV3. The experiential value I receive from smart tourism is worth the investment.	0.854			
PV4. Overall, smart tourism provides excellent value for my destination visit.	0.840			
PV5. Considering all benefits and costs, smart tourism is valuable to me.	0.838			
Tourist Loyalty (TL)		0.903	0.904	0.721
TL1. I intend to revisit this destination in the future.	0.829			
TL2. I would recommend this destination to my friends and family.	0.853			
TL3. This destination is my preferred choice for future tourism.	0.842			
TL4. I would choose this destination over other similar destinations.	0.874			
TL5. This destination is my first choice when planning a trip.	0.848			

Source: Author's Calculation Results.

Table 3 presents the discriminant validity results based on the Fornell–Larcker criterion. The findings indicate that all constructs are empirically distinct and represent separate conceptual domains within the proposed model. Specifically, the square roots of the AVE values on the diagonal are 0.843 for Perceived Value, 0.821 for Smart Tourism, and 0.805 for Trust, all of which exceed the corresponding inter-construct correlations. This pattern confirms that each

construct shares more variance with its own indicators than with other constructs in the model. In addition, the correlations among the constructs remain moderate, including those between Smart Tourism and Trust (0.568), Perceived Value and Trust (0.511), and Perceived Value and Smart Tourism (0.476). Overall, these results support satisfactory discriminant validity and confirm the adequacy of the measurement model.

Table 3. Result of Discriminant Validity

Variable	Perceived Value (PV)	Smart Tourism (ST)	Trust (TRU)
Perceived Value (PV)	0,843		
Smart Tourism (ST)	0,476	0,821	
Tourist Loyalty (TL)	0,650	0,507	
Trust (TRU)	0,511	0,568	0,805

Source: Author's Calculation Results.

Table 4 reports the collinearity assessment of the measurement indicators and indicates that multicollinearity is not a concern in the model. The VIF values across all constructs range from 1.773 to 2.784, remaining well below the commonly accepted threshold of 5.0 and, more conservatively, below 3.3 in nearly all cases. For Smart Tourism, the VIF values range from 1.916 to 2.117, suggesting that the indicators capture related yet non-overlapping aspects of destination digital capability. A similar pattern is observed for Trust, with values between 1.773 and 2.025. Perceived Value records slightly higher but still acceptable values (2.211–2.343), while Tourist Loyalty ranges from 2.155 to 2.784, with the highest value found for TL4. Overall, these findings confirm that the indicators are sufficiently distinct and that collinearity is unlikely to bias the estimation of the structural relationships central to this study.

Table 4. Inner VIF Values (Structural Model Collinearity Assessment)

Construct	Indicator	VIF
Smart Tourism	ST1	2.086
	ST2	2.072
	ST3	1.974
	ST4	1.916
	ST5	2.117
Trust	TRU1	1.854
	TRU2	1.881
	TRU3	1.773
	TRU4	1.926
	TRU5	2.025
Perceived Value	PV1	2.222
	PV2	2.298
	PV3	2.343
	PV4	2.311

	PV5	2.211
	TL1	2.155
	TL2	2.450
	TL3	2.251
	TL4	2.784
	TL5	2.296

Source: Author's Calculation Results.

4.3 Structural Model Assessment

Table 5 presents the explanatory and predictive assessment of the structural model through f^2 , R^2 , and Q^2 values. The results show that Smart Tourism exerts a substantial effect on Trust ($f^2 = 0.477$), indicating that destination digital capability is a major source of tourists' confidence. Its effects on Perceived Value ($f^2 = 0.074$) and Tourist Loyalty ($f^2 = 0.036$) are weaker, although still meaningful. By contrast, Trust has a moderate effect on Perceived Value ($f^2 = 0.125$) and a smaller effect on Tourist Loyalty ($f^2 = 0.051$), whereas Perceived Value has the strongest direct effect on Tourist Loyalty ($f^2 = 0.294$). In terms of explanatory power, the model accounts for 32.1% of the variance in Trust, 30.9% in Perceived Value, and 49.5% in Tourist Loyalty. Moreover, all Q^2 values are positive, confirming satisfactory predictive relevance for the endogenous constructs.

Table 5. Coefficient of Effect Size (f^2), Determination (R^2) and Predictive Relevance (Q^2)

Variable	f^2			R^2	Q^2
	Perceived Value (PV)	Tourist Loyalty (TL)	Trust (TRU)		
Perceived Value (PV)		0,294		0,309	0,216
Smart Tourism (ST)	0,074	0,036	0,477		
Tourist Loyalty (TL)				0,495	0,354
Trust (TRU)	0,125	0,051		0,321	0,207

Source: Author's Calculation Results.

Figure 2 presents the structural model, and Table 6 reports the direct effects and hypothesis testing results. All hypothesised direct relationships are positive and significant, supporting H1–H6. Smart Tourism exerts the strongest direct effect on Trust ($\beta = 0.568$, $t = 17.313$, $p = 0.000$), followed by Perceived Value ($\beta = 0.273$, $t = 5.340$, $p = 0.000$) and Tourist Loyalty ($\beta = 0.170$, $t = 3.720$, $p = 0.000$). These findings suggest that digitally enabled destination services primarily strengthen tourists' confidence in destination systems and service reliability, while also directly enhancing perceived value and loyalty.

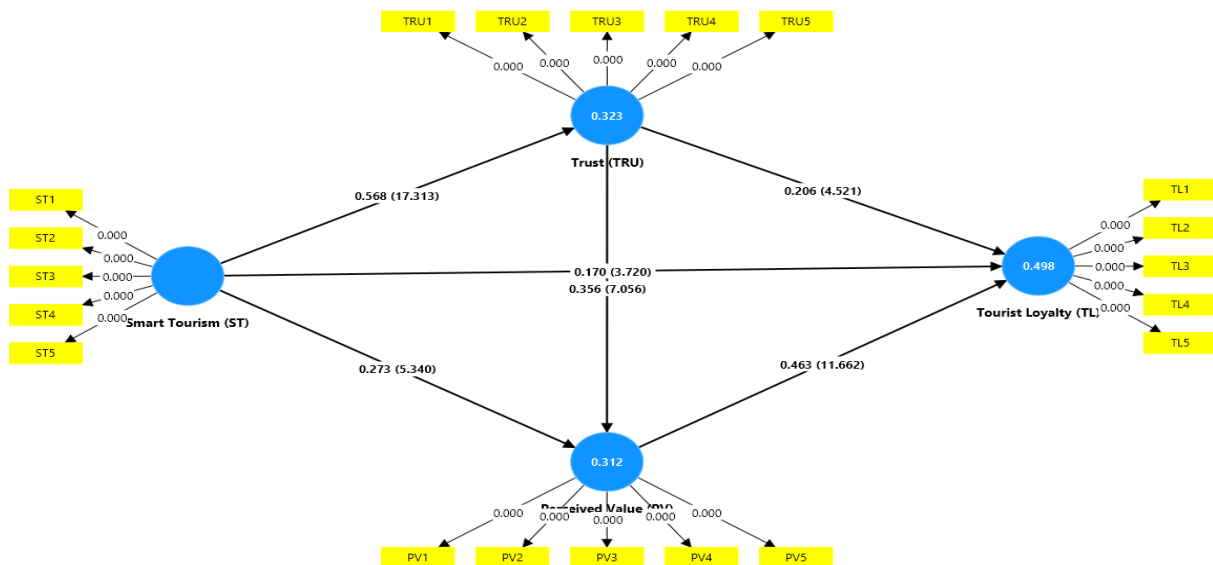


Figure 2. Results of the structural model

Table 6. Direct Effects and Hypothesis Testing Results

Hypothesis	Path	Path Coefficient (β)	t-value	p-value	95% CI	Decision
H1	Smart Tourism (ST) → Trust (TRU)	0.568	17.313	0.000	[0.503, 0.632]	Supported
H2	Smart Tourism (ST) → Perceived Value (PV)	0.273	5.340	0.000	[0.173, 0.376]	Supported
H3	Smart Tourism (ST) → Tourist Loyalty (TL)	0.170	3.720	0.000	[0.081, 0.261]	Supported
H4	Trust (TRU) → Perceived Value (PV)	0.356	7.056	0.000	[0.256, 0.458]	Supported
H5	Trust (TRU) → Tourist Loyalty (TL)	0.206	4.521	0.000	[0.116, 0.295]	Supported
H6	Perceived Value (PV) → Tourist Loyalty (TL)	0.463	11.662	0.000	[0.384, 0.540]	Supported

Source: Author's Calculation Results.

4.4 Mediation Analysis

Table 7 reports the mediation analysis and shows that all hypothesised indirect effects are positive and significant, thereby supporting H7–H9. Trust significantly mediates the relationship between Smart Tourism and Tourist Loyalty ($\beta = 0.117$, $t = 4.272$, $p = 0.000$). Perceived Value also acts as a significant mediator ($\beta = 0.127$, $t = 4.928$, $p = 0.000$). In addition, the sequential path through Trust and Perceived Value is significant ($\beta = 0.094$, $t = 5.617$, $p =$

0.000), confirming that smart tourism first builds trust, which then enhances value perceptions and ultimately strengthens tourist loyalty.

Table 7. Specific Indirect Effects and Mediation Testing Results

Hypothesis	Indirect Path	Indirect Effect (β)	t-value	p-value	95% CI	Decision
H7	Smart Tourism (ST) $\rightarrow$ Trust (TRU) $\rightarrow$ Tourist Loyalty (TL)	0.117	4.272	0.000	[0.064, 0.172]	Supported
H8	Smart Tourism (ST) $\rightarrow$ Perceived Value (PV) $\rightarrow$ Tourist Loyalty (TL)	0.127	4.928	0.000	[0.079, 0.179]	Supported
H9	Smart Tourism (ST) $\rightarrow$ Trust (TRU) $\rightarrow$ Perceived Value (PV) $\rightarrow$ Tourist Loyalty (TL)	0.094	5.617	0.000	[0.063, 0.129]	Supported

Source: Author's Calculation Results.

4.5 Measurement Invariance and Multi-Group Analysis

Table 8 presents the multi-group analysis comparing Indonesia and Vietnam. None of the proposed cross-country differences is statistically significant; therefore, H10a–H10c are not supported. The effects of Smart Tourism on Trust and Perceived Value, as well as the effect of Perceived Value on Tourist Loyalty, remain comparable across both countries. These findings indicate that the proposed structural relationships are stable and broadly consistent in the two national contexts, suggesting that the model demonstrates cross-country robustness.

Table 8. Multi-Group Analysis (MGA) Results for Indonesia and Vietnam

Hypothesis	Path	Indonesia (β)	Vietnam (β)	Difference (IDN – VNM)	95% Permutation CI	Decision
H10a	Smart Tourism (ST) $\rightarrow$ Trust (TRU)	0.573	0.563	0.009	[-0.125, 0.129]	Not supported
H10b	Smart Tourism (ST) $\rightarrow$ Perceived Value (PV)	0.261	0.290	-0.029	[-0.198, 0.199]	Not supported
H10c	Perceived Value (PV) $\rightarrow$ Tourist Loyalty (TL)	0.423	0.498	-0.075	[-0.157, 0.150]	Not supported

Source: Author's Calculation Results.

Table 9 presents the results of the Importance–Performance Map Analysis (IPMA) with Tourist Loyalty as the target construct, while Figure 3 visualises the relative positions of the predecessor constructs and their indicators. The findings show that Smart Tourism has the highest importance in explaining Tourist Loyalty (0.507), followed by Perceived Value (0.463) and Trust (0.371). This suggests that, although all three constructs contribute to loyalty formation, smart tourism is the most influential managerial lever for strengthening tourists' intention to revisit, recommend, and prefer the destination. By contrast, the performance scores are identical across the three constructs (50.125), indicating no clear performance advantage among them. Figure 3 confirms this pattern by showing similar performance levels but different importance levels. Accordingly, managerial priorities in both Indonesia and Vietnam should focus first on Smart Tourism, while also reinforcing Perceived Value and Trust.

Table 9. Importance–Performance Map Analysis (IPMA) Results for Tourist Loyalty

Predecessor Construct	Importance (Total Effect on Tourist Loyalty)	Performance
Smart Tourism (ST)	0.507	50.125
Perceived Value (PV)	0.463	50.125
Trust (TRU)	0.371	50.125

Source: Author's Calculation Results.

The results are a great indication of the usefulness of the Stimulus-Organism-Response (S-O-R) theory in modeling tourist loyalty in smart tourism environments. Following this opinion, Smart Tourism comes in as the stimulus, whereas Trust and Perceived Value serve as organism states, to convert digitally facilitated experiences with destinations into behavioural outcomes. The strong influence of smart tourism on trust, perceived value, and tourist loyalty suggests that the digital infrastructure does not impinge on the tourists as a technical feature but decodes it as an important service signal, which diminishes uncertainty, enhances convenience, and reinforces the attractiveness of the destination (Li et al., 2023; Sann et al., 2023; Stylos et al., 2024; Yang et al., 2023)

The findings also indicate that Perceived Value is the most significant direct predictor of Tourist Loyalty and Trust also has a significant influence both directly and indirectly. This implies that digital tourism projects are converged into favourable value judgements and relational confidence making them strategic. This interpretation is supported by the mediation results where both simple and sequential mediation paths are both important. In this way, smart tourism is more effective in fostering loyalty, which is not only direct, but first creates trust and then reinforces the beliefs of tourists to visit the destination as worthwhile in comparison to the time, effort and cost to visit the destination. This trend aligns with previous tourism studies that emphasize the importance of trust and value in influencing the revisit intention and the positive word-of-mouth (Ekinici et al., 2022; Fu, 2023; Preko et al., 2022; Tran et al., 2021; Wang et al., 2020).

Interestingly, there seems to be no significant differences between Indonesia and Vietnam in terms of MGA results. Despite the differences in the tourism governance, digital infrastructure,

and destination context of both countries, the structural mechanisms between the smart tourism, trust, perceived value, and loyalty seem to be consistent in both environments (Bui et al., 2024; Kumar et al., 2023; Rodrigues et al., 2022). The IPMA findings as a manager imply that Smart Tourism must be considered the most effective lever by destination stakeholders, but at the same time, strengthening the strategies to build trust and add value to increase the loyalty of tourists.

5. Conclusion

This study shows that smart tourism is a significant driver of trust, perceived value, and tourist loyalty in Indonesia and Vietnam. All direct effects are positive and significant, with perceived value emerging as the strongest direct predictor of tourist loyalty, while trust also demonstrates meaningful direct and indirect effects. The mediation results further confirm that smart tourism influences loyalty both directly and indirectly through trust, perceived value, and their sequential pathway. The study contributes to the smart tourism and destination loyalty literature by extending Stimulus–Organism–Response (S-O-R) theory, in which smart tourism serves as the stimulus, trust and perceived value function as organism states, and tourist loyalty represents the behavioural response (Sann et al., 2023; Yamagishi et al., 2023). It also provides comparative evidence from two emerging ASEAN destinations and shows that the structural relationships remain stable across both countries. Practically, destination stakeholders should prioritise digital initiatives that strengthen system reliability, convenience, and value perceptions.

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