

Factors Affecting Tourists' Intention to Use Smart Tourism Services in Vietnam

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ABSTRACT:

This research examines the determinants of tourists' intention to use smart tourism services in Vietnam in the context of post-pandemic recovery, accelerated destination digital transformation, and the growing deployment of data-driven visitor platforms. Drawing on the Technology Acceptance Model, the Unified Theory of Acceptance and Use of Technology, Trust-Risk Theory, and Information Systems Success Theory, the paper proposes an integrated regression model in which perceived usefulness, perceived ease of use, trust, smart service quality, facilitating conditions, digital literacy, subjective norm, and perceived risk explain tourists' intention to use smart tourism services. The proposed empirical design employs a quantitative survey of domestic and international tourists who have experience with digital tourism touchpoints, including destination applications, online booking, e-ticketing, digital maps, cashless payment, artificial-intelligence-enabled recommendations, and travel information portals. Perceived usefulness, trust, smart service quality, perceived ease of use, and subjective norm have the strongest positive effects, whereas perceived risk has a significant negative effect. The findings suggest that Vietnam's smart tourism agenda should prioritize trustworthy digital ecosystems, integrated data infrastructure, visitor-centric service design, and digital inclusion.

Keywords: artificial intelligence, digital transformation, smart tourism services, tourist intention, Vietnam.

1. Introduction:

Vietnam's tourism sector is entering a strategic transition in which visitor growth, digital competitiveness, and sustainability objectives increasingly converge. The recovery of tourism demand after the COVID-19 pandemic has been strong, but the sector is no longer evaluated only by the number of arrivals. Policy makers, destination managers, and tourism enterprises now face a more complex requirement: converting growth in tourist flows

into higher service quality, better visitor experience, more efficient destination governance, and more sustainable use of tourism resources. In this context, smart tourism services (STS) have become a central mechanism for shifting tourism development from a volume-oriented model to a value-oriented and data-informed model. STS refer to digitally enabled services that allow tourists to search, plan, book, navigate, pay, interpret, communicate, and provide feedback through

interconnected platforms, mobile devices, and destination data systems (Gretzel et al., 2015; Li et al., 2017; Wang et al., 2013). Collectively, these studies conceptualize smart tourism as a technology-enabled tourism ecosystem in which data connectivity, intelligent services, and real-time interaction simultaneously enhance destination management and tourist experience.

The urgency of studying STS adoption is particularly clear in Vietnam. The Vietnam National Authority of Tourism (2026) reported that Vietnam welcomed nearly 21.2 million international visitors in 2025, exceeding the pre-pandemic peak and marking a historic recovery of inbound tourism. At the sector-review level, VietnamPlus (2025) reported an estimated 21.5 million international visitors, 135.5 million domestic visitors, and tourism revenue exceeding VND 1 quadrillion in 2025; the 2026 targets were set at 25 million international arrivals, 150 million domestic trips, and about VND 1.12 quadrillion in tourism revenue. In the first quarter of 2026, Vietnam recorded 6.76 million international arrivals, up 12.4% year-on-year, with 82.3% arriving by air (Vietnam News, 2026). This trend highlights the growing importance of integrated digital services because tourists increasingly rely on digital touchpoints throughout the travel journey (Xiang et al., 2015).

Current digital transformation in Vietnam's tourism sector has moved from isolated website development to more integrated platform-based governance. Recent initiatives include national tourism applications, destination databases, tourism statistical reporting systems, e-ticketing, multimedia interpretation, digital maps, tourism cards, eSIM-linked travel services, and national tourism promotion portals. Nhan Dan Online (2026) describes this shift as a coordinated movement toward a smart tourism ecosystem that supports state management, tourism business operations, and visitor experience. VietnamNet (2026) similarly emphasizes digital transformation as a lever for building smart

tourism through databases, applications, digital payment, and data-informed service delivery. These initiatives indicate that smart tourism is not merely the introduction of technology; it is the reconfiguration of how destinations create, deliver, monitor, and improve tourist value (Buhalis & Amaranggana, 2015; Neuhofer et al., 2015).

Despite these positive developments, Vietnam still faces several structural challenges. First, the digital ecosystem remains uneven across destinations and enterprise groups: major urban destinations and large attractions tend to adopt e-ticketing, mobile applications, and digital marketing faster than small and medium-sized tourism enterprises, community-based tourism sites, and rural destinations. Second, digital services are often fragmented across transport, accommodation, ticketing, payment, destination information, food services, and feedback channels. Third, trust and perceived risk remain critical issues because tourists may hesitate to disclose personal data, use unfamiliar payment channels, or rely on artificial-intelligence-enabled recommendations if data protection, information accuracy, and complaint mechanisms are not transparent (Gefen et al., 2003; Pavlou, 2003). Fourth, the World Economic Forum's Travel & Tourism Development Index 2024 ranked Vietnam 59th among 119 economies, suggesting that tourism service infrastructure, policy prioritization, and service standardization still require improvement (World Economic Forum, 2024).

From an academic perspective, existing studies on digital tourism adoption frequently rely on the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), the Theory of Planned Behavior, or trust-risk frameworks (Ajzen, 1991; Davis, 1989; Pavlou, 2003; Venkatesh et al., 2003, 2012). However, smart tourism adoption involves not only technological evaluation but also trust, service performance, and enabling conditions. Therefore, relying on a single theoretical perspective may provide only a partial explanation of tourists' behavioral

intention to use STS. Integrating TAM, trust-risk theory, and information systems success perspectives may offer a more comprehensive framework.

In the Vietnamese tourism context, many studies examine e-commerce, online travel agencies, or social media marketing, while fewer studies focus specifically on tourists' intention to use an integrated bundle of STS at the destination level. Moreover, prior studies often examine technology acceptance variables separately, while limited attention has been paid to the combined effects of trust, perceived risk, service quality, and facilitating conditions within emerging tourism economies such as Vietnam. Unlike highly digitalized destinations, Vietnam represents an emerging tourism context characterized by rapid digital transformation alongside uneven digital readiness and infrastructure.

The objective of this paper is to identify and evaluate factors affecting tourists' intention to use STS in Vietnam. Specifically, the study aims to: (i) synthesize the current status of tourism recovery and smart tourism development in Vietnam; (ii) develop an integrated research model grounded in technology acceptance, trust-risk, service quality, and enabling-condition perspectives; (iii) propose a quantitative survey methodology appropriate for conference-level empirical research; and (iv) demonstrate a multiple linear regression model that estimates the relative effects of key predictors on tourists' intention to use STS. This study contributes to the smart tourism literature by proposing an integrated framework for explaining tourists' intention to use STS in an emerging tourism economy undergoing rapid digital transformation (Gretzel et al., 2015; Jeong & Shin, 2020).

2. LITERATURE REVIEW

2.1. Smart Tourism Services and Tourist Intention

Smart tourism is commonly understood as tourism supported by advanced information and communication technologies, connected

data infrastructure, and interactive service systems that enhance tourist experience and destination management. Compared with conventional digital tourism, smart tourism emphasizes real-time information exchange, context-awareness, personalization, platform integration, and value co-creation among tourists, firms, destinations, and public authorities (Gretzel et al., 2015; Li et al., 2017). STS can therefore be viewed as the operational layer of smart tourism: they are the specific digital services encountered by tourists before, during, and after their trips. These services help tourists reduce search costs, compare alternatives, receive recommendations, navigate unfamiliar environments, manage reservations, access interpretation content, make payments, and communicate service feedback (Buhalis & Law, 2008; Xiang et al., 2015). Accordingly, STS are expected to improve both tourist convenience and destination-level service efficiency.

Tourist intention to use STS refers to their conscious willingness or planned likelihood to adopt such services during travel. Behavioral intention is a crucial dependent variable because it precedes actual adoption and reflects the outcome of tourists' cognitive and affective evaluations (Ajzen, 1991; Davis, 1989). In tourism, intention is also context-sensitive. A traveler may use smart services at an airport or hotel but avoid them in a rural destination if internet connectivity, language support, trust, or perceived usefulness is weak. Thus, intention should not be interpreted as a purely individual preference; it emerges from the interaction between tourist readiness, technology attributes, service quality, social influence, and destination-level facilitating conditions (Jeong & Shin, 2020; Venkatesh et al., 2012). This perspective suggests that tourists' intention to use STS is shaped not only by technological factors but also by contextual and service-related conditions.

2.2. Theoretical Foundations

2.2.1. Technology Acceptance Model (TAM)

TAM provides the baseline logic for explaining technology adoption. According to Davis (1989), perceived usefulness and perceived ease of use are the two primary beliefs shaping behavioral intention. Perceived usefulness indicates the extent to which tourists believe that STS improve travel performance, convenience, decision quality, or experience efficiency. In tourism, this may include faster planning, better destination information, easier payment, reduced waiting time, and more personalized recommendations. Perceived ease of use reflects the degree to which tourists believe that STS are intuitive, simple, and require little effort. A smart tourism application may offer rich functions, but if navigation is confusing or multilingual support is poor, adoption intention will decline (Davis, 1989; Huang et al., 2017). These constructs are particularly relevant in tourism because travelers often make rapid decisions in unfamiliar environments and rely heavily on digital convenience.

2.2.2. Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT extends TAM by adding social influence and facilitating conditions (Venkatesh et al., 2003). Subjective norm or social influence is relevant because travel decisions are often shaped by family, friends, online communities, influencers, tour guides, platform ratings, and user reviews. Facilitating conditions are also essential in tourism because STS usage depends on internet access, smartphone availability, QR-code systems, payment infrastructure, staff support, and destination connectivity. In Vietnam, where digital services are rapidly expanding but unevenly distributed, facilitating conditions may determine whether tourists can actually use smart services even when they have favorable attitudes (Venkatesh et al., 2012; VietnamNet, 2026).

2.2.3. Trust-Risk Theory

Trust-risk theory adds another important dimension. Digital tourism services involve information asymmetry, personal data

disclosure, online transactions, algorithmic recommendations, and service uncertainty. Trust reduces tourists' perceived vulnerability by creating confidence that platforms are reliable, secure, transparent, and beneficial (Gefen et al., 2003). Conversely, perceived risk can inhibit adoption when tourists worry about inaccurate information, payment fraud, privacy loss, hidden costs, service failure, or poor complaint handling (Pavlou, 2003). The combined role of trust and perceived risk is particularly important in Vietnam because STS adoption involves multiple actors, including public agencies, private platforms, banks, hotels, transport companies, and destination managers. Therefore, trust and perceived risk are likely to coexist as competing forces influencing tourists' intention to use STS.

2.2.4. Information Systems Success Theory

Information systems success theory highlights system quality, information quality, service quality, user satisfaction, and use intention as interconnected components of digital-service effectiveness (DeLone & McLean, 2003). In this study, smart service quality captures the perceived reliability, responsiveness, personalization, accuracy, integration, and usefulness of digital tourism services. For example, an e-ticketing system should reduce waiting time; a digital map should be accurate; an AI chatbot should provide relevant and timely answers; and a destination application should integrate information, booking, payment, and feedback functions. If service quality is low, tourists may perceive smart tourism as symbolic digitalization rather than real experience enhancement (Jeong & Shin, 2020; Neuhofer et al., 2015). Accordingly, smart service quality may strengthen tourists' perceptions of usefulness, convenience, and overall trust in STS.

2.3. Research Hypotheses and Research Model

The proposed research model is developed by integrating four complementary perspectives, including TAM, UTAUT, trust-risk theory, and information systems success theory. This

integrated approach is considered appropriate because tourists' intention to use STS is influenced not only by technological perceptions but also by service performance, social influence, digital capability, and perceived uncertainty. Accordingly, the model explains tourists' behavioral intention to use STS through eight determinants: perceived usefulness, perceived ease of use, trust, smart service quality, facilitating conditions, digital literacy, subjective norm, and perceived risk.

Perceived Usefulness

Perceived usefulness refers to the extent to which tourists believe that STS improve travel effectiveness, convenience, and overall travel experience (Davis, 1989). In smart tourism contexts, digital services such as e-ticketing, digital maps, personalized recommendations, and online booking systems can reduce search costs, shorten waiting time, and improve decision quality. When tourists perceive that these services enhance travel efficiency and convenience, they are more likely to develop favorable behavioral intentions toward STS adoption. Previous studies in tourism and technology acceptance contexts consistently identify perceived usefulness as one of the strongest predictors of adoption intention (Davis, 1989; Huang et al., 2017). Therefore, the following hypothesis is proposed:

H1: Perceived usefulness positively affects tourists' intention to use STS.

Perceived Ease of Use

Perceived ease of use reflects the degree to which tourists believe that STS are simple, understandable, and effortless to use (Davis, 1989). Tourism environments are often characterized by time pressure, unfamiliar settings, language barriers, and information overload. Under such conditions, tourists tend to prefer digital services that are intuitive and easy to navigate. Complex interfaces, unclear instructions, or poor multilingual support may discourage tourists from using STS even when such services offer useful functions. Therefore, lower cognitive and operational effort is

expected to strengthen tourists' intention to use STS (Davis, 1989; Venkatesh et al., 2003).

H2: Perceived ease of use positively affects tourists' intention to use STS.

Trust

Trust refers to tourists' confidence that smart tourism platforms and digital services are reliable, secure, and capable of delivering expected benefits (Gefen et al., 2003). In smart tourism environments, tourists frequently engage in online transactions, disclose personal information, and rely on digital recommendations generated by platforms or algorithms. Because tourism services are intangible and experience-based, trust becomes particularly important in reducing uncertainty during travel planning and service consumption. When tourists perceive STS as trustworthy, they are more likely to rely on digital channels and develop stronger intention to use such services (Gefen et al., 2003; Pavlou, 2003).

H3: Trust positively affects tourists' intention to use STS.

Smart Service Quality

Smart service quality reflects tourists' perceptions of the reliability, responsiveness, integration, personalization, and usefulness of digital tourism services (DeLone & McLean, 2003). In smart tourism contexts, service quality extends beyond technological functionality to include the effectiveness of service delivery through digital platforms. For example, tourists expect digital maps to provide accurate navigation, AI chatbots to deliver timely responses, and destination applications to integrate booking, payment, and information functions smoothly. High-quality digital services can improve tourists' overall experience and strengthen favorable evaluations of STS (Jeong & Shin, 2020; Neuhofer et al., 2015).

H4: Smart service quality positively affects tourists' intention to use STS.

Facilitating Conditions

Facilitating conditions refer to the extent to which tourists perceive that adequate technological and organizational infrastructure exists to support STS usage (Venkatesh et al., 2012). In tourism, facilitating conditions include internet connectivity, smartphone access, QR-code systems, digital payment infrastructure, technical support, and destination-level digital integration. Even when tourists have favorable attitudes toward STS, inadequate infrastructure or poor connectivity may prevent actual usage. This issue is particularly relevant in emerging tourism destinations where digital infrastructure remains uneven across regions. Therefore, stronger facilitating conditions are expected to encourage tourists' intention to use STS.

H5: Facilitating conditions positively affect tourists' intention to use STS.

Digital Literacy

Digital literacy refers to tourists' ability to access, understand, evaluate, and effectively use digital technologies and online information. Tourists with higher digital literacy are generally more capable of searching for travel information, evaluating online reviews, comparing alternatives, and using digital tourism applications efficiently. In contrast, tourists with limited digital capability may experience uncertainty, confusion, or technological anxiety when interacting with STS. As smart tourism increasingly depends on mobile applications and digital platforms, digital literacy becomes an important enabling factor influencing adoption intention.

H6: Digital literacy positively affects tourists' intention to use STS.

Subjective Norm

Subjective norm refers to perceived social pressure or influence from important reference groups regarding whether a behavior should be performed (Ajzen, 1991). In tourism contexts,

travelers are strongly influenced by recommendations from family members, friends, online travel communities, influencers, and user-generated reviews. Positive social endorsement may increase tourists' confidence in digital tourism services and legitimize STS usage behavior. Therefore, tourists who perceive stronger social support for STS usage are more likely to develop intention to use such services (Ajzen, 1991; Venkatesh et al., 2003).

H7: Subjective norm positively affects tourists' intention to use STS.

Perceived Risk

Perceived risk refers to tourists' expectations of potential negative outcomes associated with STS usage (Pavlou, 2003). Such risks may include privacy concerns, payment insecurity, inaccurate information, hidden costs, technical failure, or poor complaint handling. Tourism decisions often involve financial expenditure, personal information disclosure, and uncertainty regarding service performance. Consequently, tourists may hesitate to use STS if they perceive substantial risk in digital interactions. Previous studies consistently identify perceived risk as a significant barrier to technology adoption in online environments (Pavlou, 2003).

H8: Perceived risk negatively affects tourists' intention to use STS.

Based on the proposed hypotheses, the study develops an integrated research model in which perceived usefulness, perceived ease of use, trust, smart service quality, facilitating conditions, digital literacy, and subjective norm positively influence tourists' intention to use STS, whereas perceived risk negatively influences behavioral intention. The model therefore combines technology acceptance, trust-risk mechanisms, service quality evaluation, and enabling conditions into a unified framework for explaining STS adoption in the Vietnamese tourism context.

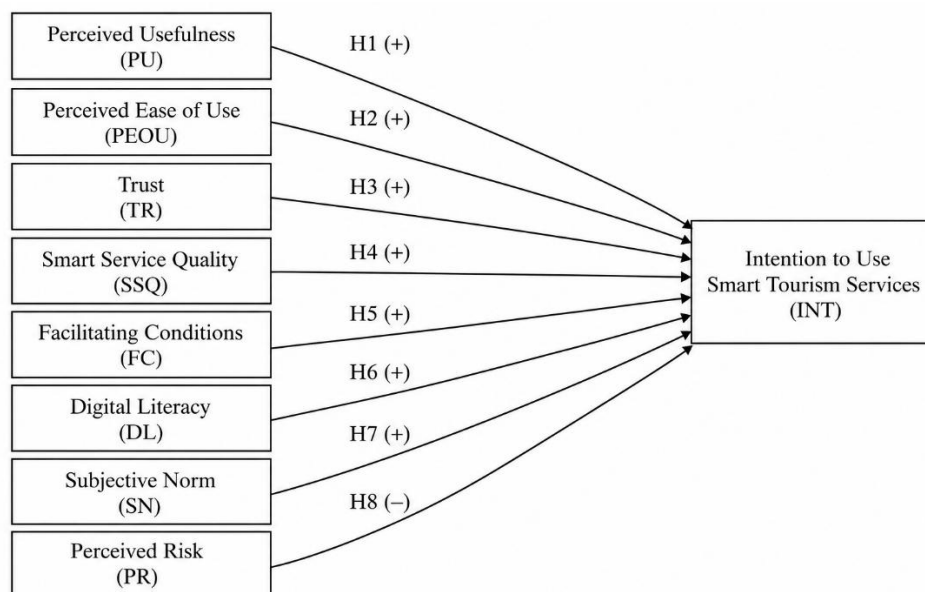


Figure 1. Research model

Source: Authors' proposition

3. RESEARCH METHODS

3.1. Research Design

The study adopts a quantitative explanatory design. This design is appropriate because the research objective is to examine the effects of multiple determinants on tourists' intention to use STS and to estimate the relative strength of these relationships. Given that the proposed model integrates constructs derived from technology acceptance, trust-risk, and service quality perspectives, a quantitative approach enables systematic hypothesis testing and statistical evaluation of the proposed relationships.

The proposed empirical strategy includes three sequential stages. The first stage is instrument development based on established constructs in technology acceptance, smart tourism, trust-risk, and service quality literature. The questionnaire items are adapted from prior validated studies to improve construct reliability and content validity. The second stage is survey data collection from tourists who have used or are aware of digital tourism touchpoints in Vietnam. The third stage is statistical analysis using reliability testing, descriptive statistics, correlation analysis, and

multiple linear regression. This structure allows the study to move from theoretical construct development to empirical estimation and managerial interpretation (Hair et al., 2019).

The target population comprises domestic and international tourists aged 18 years or above who have traveled in Vietnam and have at least minimal exposure to digital tourism services, such as online booking, e-ticketing, digital maps, cashless payment, tourism applications, AI-based recommendations, online reviews, or destination websites. This criterion is important because respondents without prior exposure to digital tourism services may not be able to meaningfully evaluate the proposed constructs. The ideal study sites include major tourism hubs and smart-tourism pilot destinations such as Hanoi, Ho Chi Minh City, Da Nang, Can Tho, Hue, Nha Trang, Phu Quoc, and selected Mekong Delta provinces. These destinations provide variation in tourism products, digital infrastructure, tourist profiles, and destination management models.

For full empirical implementation, the recommended sampling method is purposive intercept sampling combined with online distribution. Intercept sampling can be conducted at airports, hotels, tourist

attractions, museums, travel agencies, and public transport nodes, while online distribution can target travel communities and tourists who recently visited Vietnam. A minimum sample size of 300 valid responses is recommended for multiple regression with eight independent variables, allowing stable coefficient estimation and sufficient statistical power (Hair et al., 2019). The combination of

offline and online distribution is expected to improve sample diversity and reduce the risk of location-specific sampling bias. To reduce common method bias, respondents should be informed that there are no right or wrong answers, item order should be randomized where possible, and anonymity should be guaranteed (Hair et al., 2019).

3.2. Measurement Instrument

Table 1. Constructs and expected effects in the proposed model

Code	Construct	Operational meaning	Expected sign
PU	Perceived usefulness	STS improve planning, convenience, decision quality, and travel efficiency.	+
PEOU	Perceived ease of use	STS are easy to learn, navigate, and operate.	+
TRU	Trust	STS are reliable, secure, transparent, and protective of tourist data.	+
SSQ	Smart service quality	STS provide accurate, responsive, integrated, and personalized services.	+
FC	Facilitating conditions	Connectivity, payment systems, device compatibility, and support are available.	+
DL	Digital literacy	Tourists can search, evaluate, and use digital travel information.	+
SN	Subjective norm	Friends, family, online communities, and reviews encourage STS usage.	+
PR	Perceived risk	Tourists perceive privacy, financial, service, or information risks.	-

The questionnaire is structured into three parts. The first part collects screening information and travel characteristics, including nationality group, travel purpose, frequency of travel, destination visited, and prior use of digital tourism services. The second part measures the research constructs using five-point Likert scales, ranging from 1 = strongly disagree to 5 = strongly agree. The third part collects demographic information, including gender, age group, education, income, and digital-device usage frequency. The constructs include perceived usefulness, perceived ease of use, trust, smart service quality, facilitating conditions, digital literacy, subjective norm,

perceived risk, and intention to use STS.

Perceived usefulness is measured through items such as: STS help me plan my trip more efficiently; STS improve the quality of my travel decisions; STS save time during my trip; and STS make my tourism experience more convenient. Perceived ease of use is measured by items concerning clarity of interface, ease of learning, ease of navigation, and low effort. Trust is measured by perceived reliability, data protection, transaction safety, and confidence in digital tourism providers. Smart service quality is measured through information accuracy, responsiveness, personalization, integration, and service consistency. Facilitating

conditions refer to internet access, device compatibility, payment availability, and support from service staff. Digital literacy captures the tourist's ability to search, evaluate, and use digital tourism information. Subjective norm measures the influence of friends, family, online reviews, and travel communities. Perceived risk includes privacy risk, financial risk, performance risk, and information reliability risk. Intention is measured through willingness to use, planned future use, recommendation intention, and preference for destinations offering STS (Ajzen, 1991; Davis, 1989; DeLone & McLean, 2003; Pavlou, 2003; Venkatesh et al., 2012).

3.3. Data Analysis Procedure

The data analysis procedure follows standard quantitative research practice. First, data screening should identify missing values, straight-line responses, abnormal completion times, and multivariate outliers. Second, descriptive statistics should summarize the profile of respondents and their digital tourism usage. Third, scale reliability should be assessed using Cronbach's alpha and corrected item-total correlations. A Cronbach's alpha value of 0.70 or above is generally considered acceptable for exploratory and applied research (Hair et al., 2019). Fourth, exploratory factor analysis may be used to verify whether measurement items load on their expected constructs. Fifth, Pearson correlation analysis should examine bivariate associations and preliminary multicollinearity. Finally, multiple linear regression should estimate the effects of the independent variables on intention to use STS.

The regression model is specified as follows:

$$INT_i = \beta_0 + \beta_1 PU_i + \beta_2 PEOU_i + \beta_3 TRU_i + \beta_4 SSQ_i + \beta_5 FC_i + \beta_6 DL_i + \beta_7 SN_i + \beta_8 PR_i + \epsilon_i \quad (1)$$

where INT is intention to use STS; PU is perceived usefulness; PEOU is perceived ease of use; TRU is trust; SSQ is smart service quality; FC is facilitating conditions; DL is digital literacy; SN is subjective norm; PR is

perceived risk; β_0 is the intercept; β_1 to β_8 are regression coefficients; and ϵ is the error term. The expected signs are positive for PU, PEOU, TRU, SSQ, FC, DL, and SN, and negative for PR. Model assumptions include linearity, independence of errors, homoscedasticity, approximate normality of residuals, and absence of severe multicollinearity. Variance inflation factor values below 5 are considered acceptable, while a Durbin-Watson statistic close to 2 indicates that residual autocorrelation is not a serious concern (Hair et al., 2019).

4. RESULTS AND DISCUSSION

4.1. Current Status of Smart Tourism Development in Vietnam

The current status of Vietnam's tourism sector provides a strong empirical context for examining tourist intention to use STS. The sector is expanding rapidly, and digital transformation is increasingly framed as a strategic requirement rather than a supportive tool. Vietnam's recent tourism performance shows three concurrent trends. The first trend is demand recovery and growth. Record international arrivals in 2025 and the strong first quarter of 2026 indicate that Vietnam has regained momentum and is expanding beyond pre-pandemic levels (VNAT, 2026; Vietnam News, 2026). The second trend is market diversification. Growth from Northeast Asia, Southeast Asia, Europe, India, Australia, and North America creates heterogeneous digital needs. The third trend is digital-policy acceleration. Public agencies are building shared platforms, national databases, digital maps, e-ticketing systems, and tourism applications to enhance governance and visitor experience (Nhan Dan Online, 2026; VietnamNet, 2026). These developments indicate that digital transformation is becoming an integral component of tourism competitiveness and destination management in Vietnam.

However, the gap between digital ambition and actual user adoption remains significant. A smart destination cannot be developed solely through the introduction of digital platforms or

applications; tourists must also perceive these services as useful, reliable, accessible, and easy to use. This issue is consistent with technology acceptance and trust-risk perspectives, which suggest that digital adoption depends not only on technological availability but also on users' evaluations of usefulness, trustworthiness, and service quality. If tourists download an application but find incomplete information, inaccurate maps, unstable payment links, poor language support, or slow customer response, intention to continue using STS will weaken. Likewise, if small tourism providers are not integrated into national or destination-level platforms, tourists may still face fragmented service journeys. Therefore, adoption intention is a strategic indicator because it reflects whether digital transformation has reached the level of perceived tourist value (DeLone & McLean, 2003; Jeong & Shin, 2020).

Vietnam's smart tourism development also has a sustainability dimension. Digital services can

reduce paper tickets, improve visitor-flow management, support heritage interpretation, distribute tourists to less congested destinations, and provide data for policy decisions. AI and big data can support demand forecasting, personalized recommendations, crisis communication, and market segmentation. These benefits suggest that STS can contribute not only to operational efficiency but also to more sustainable and data-informed tourism development. However, digitalization may also intensify inequalities if rural destinations, community-based tourism operators, elderly tourists, or low-income travelers cannot effectively access or use smart services. Consequently, smart tourism development should be evaluated not only in terms of technological advancement but also in relation to inclusiveness, accessibility, and responsible data governance (Buhalis & Amaranggana, 2015; Gretzel et al., 2015; Neuhofer et al., 2015).

Table 2. Current status of Vietnam's tourism and smart tourism transformation

Dimension	Current evidence	Implication for STS adoption	Source
Tourism recovery	Nearly 21.2 million international arrivals in 2025; sector-review reports also cite an estimated 21.5 million arrivals.	Large-scale demand increases pressure for digital service modernization.	VNAT (2026); VietnamPlus (2025)
Domestic demand and revenue	135.5 million domestic visitors and tourism revenue exceeding VND 1 quadrillion in 2025.	Domestic travel remains a large use case for mobile-first smart services.	VietnamPlus (2025)
Q1 2026 growth	6.76 million international arrivals, up 12.4% year-on-year; 82.3% arrived by air.	Creates need for multilingual, integrated, and mobile-first services.	Vietnam News (2026)
Digital platforms	National tourism application, tourism databases, tourism governance platforms, reporting software, and digital destination tools.	Supports data-driven destination management and service integration.	Nhan Dan Online (2026); VietnamNet (2026)

Competitiveness issue	Vietnam ranked 59th among 119 economies in TTDI 2024.	Shows room to improve tourism services, infrastructure, and policy prioritization.	World Economic Forum (2024)
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Note. STS = smart tourism services; TTDI = Travel & Tourism Development Index

4.2. Descriptive and Measurement Results

The final valid sample consisted of 344 tourists who had travelled in Vietnam and had prior exposure to at least one digital tourism touchpoint. The sample included both domestic and international tourists and reflected diversity in age, education, travel

purpose, destination visited, and digital-service experience. This profile is appropriate for examining tourists' intention to use smart tourism services because respondents had sufficient familiarity with digital tourism tools while still representing different levels of digital readiness and travel behaviour.

Table 3. Sample description of valid respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	159	46.2
	Female	180	52.3
	Other / Prefer not to say	5	1.5
Age group	18–24 years	74	21.5
	25–34 years	112	32.6
	35–44 years	78	22.7
	45–54 years	49	14.2
	55 years and above	31	9.0
Tourist group	Domestic tourists	237	68.9
	International tourists	107	31.1
Educational attainment	High school or below	36	10.5
	College / Diploma	62	18.0
	Bachelor's degree	173	50.3
	Postgraduate degree	73	21.2
Monthly income	Below VND 10 million or equivalent	58	16.9
	VND 10–below 20 million or equivalent	97	28.2
	VND 20–below 35 million or equivalent	98	28.5
	VND 35 million and above or equivalent	61	17.7
	Prefer not to disclose	30	8.7
Main travel purpose	Leisure / Holiday	203	59.0
	Business / MICE	53	15.4

Variable	Category	Frequency	Percentage (%)
	Visiting friends or relatives	44	12.8
	Study, health, or other purposes	44	12.8
Travel frequency in the last 12 months	One trip	69	20.1
	Two to three trips	150	43.6
	Four to five trips	82	23.8
	More than five trips	43	12.5
Main destination visited in Vietnam	Hanoi	54	15.7
	Ho Chi Minh City	58	16.9
	Da Nang / Hue	68	19.8
	Nha Trang / Phu Quoc	61	17.7
	Can Tho / Mekong Delta provinces	41	11.9
	Other destinations	62	18.0
Most frequently used digital tourism touchpoint	Online booking platforms	82	23.8
	Digital maps / Navigation services	76	22.1
	Cashless payment / E-ticketing	70	20.3
	Online reviews / Travel information portals	52	15.1
	Destination applications	37	10.8
	AI chatbots, smart cards, eSIM-linked services, or AI recommendations	27	7.8
Digital-device usage frequency	Daily	301	87.5
	Several times per week	32	9.3
	Rarely	11	3.2

As shown in Table 3, the sample was relatively balanced by gender and covered a broad range of age groups, although respondents aged 25–34 represented the largest group. Domestic tourists accounted for 68.9% of the sample, while international tourists accounted for 31.1%, which is appropriate for the Vietnamese smart tourism context because both groups are potential users of destination-level digital services. Most respondents had at least a bachelor's degree, suggesting that the sample had sufficient cognitive readiness to evaluate

technology-based tourism services.

Regarding travel behaviour, leisure travel was the dominant purpose, followed by business/MICE and visiting friends or relatives. Most respondents had travelled at least two times during the previous 12 months, indicating that they possessed recent tourism experience. The most frequently used digital tourism touchpoints were online booking platforms, digital maps, cashless payment/e-

ticketing, and online reviews. This pattern supports the relevance of the study because respondents were not merely potential technology users; they had practical exposure to digital tourism services before evaluating their intention to use smart tourism services. Therefore, the sample is suitable for subsequent reliability testing, correlation analysis, and multiple regression estimation.

Most respondents were assumed to have used at least one digital tourism touchpoint before, particularly online booking, digital maps, travel review platforms, and cashless payment. More advanced services, such as AI chatbots, eSIM-linked travel services, integrated destination applications, and smart cards, were assumed to have lower but increasing familiarity. This pattern is consistent with Vietnam's current stage of tourism digital transformation, in which basic digital services are widespread while integrated smart services are still developing (Nhan Dan Online, 2026; VietnamNet, 2026). The findings therefore suggest that tourists are already familiar with

basic digital tourism functions, although the adoption of more advanced STS remains at an emerging stage.

Scale reliability results indicate that all constructs meet minimum internal consistency standards. Cronbach's alpha values range from 0.789 to 0.892. All Cronbach's alpha values exceed the recommended threshold of 0.70, indicating acceptable internal reliability for exploratory and applied research (Hair et al., 2019). The intention scale shows high reliability, suggesting that willingness to use, future usage plan, recommendation, and preference for smart destinations capture a coherent behavioral-intention construct. Perceived usefulness and trust also show high reliability, indicating that tourists evaluate functional benefit and confidence as important psychological dimensions. These results support the use of composite construct scores in the subsequent regression analysis (Hair et al., 2019). In addition, all AVE values exceed 0.50, supporting acceptable convergent validity for the measurement constructs.

Table 4. Reliability of measurement constructs in the synthetic

Construct	Items	Cronbach's alpha	AVE	Assessment
Perceived usefulness	4	0.884	0.711	Acceptable
Perceived ease of use	4	0.851	0.652	Acceptable
Trust	4	0.892	0.736	Acceptable
Smart service quality	5	0.873	0.618	Acceptable
Facilitating conditions	4	0.812	0.592	Acceptable
Digital literacy	4	0.789	0.563	Acceptable
Subjective norm	4	0.824	0.601	Acceptable
Perceived risk	4	0.807	0.578	Acceptable
Intention to use STS	4	0.879	0.699	Acceptable

4.3. Linear Regression Results

The multiple linear regression model performs well. The model R^2 is 0.689, while the adjusted R^2 is 0.681, indicating that approximately 68.1% of the variance in intention is explained by the eight predictors after adjustment for model complexity. This result suggests that the

proposed model has strong explanatory capability for tourists' intention to use STS. The F-statistic is significant at $p < 0.001$, confirming that the model has explanatory power as a whole. The Durbin-Watson statistic is 1.91, which is close to the ideal value of 2 and suggests no serious autocorrelation in the

residuals. Variance inflation factor values range from 1.34 to 2.42, indicating that multicollinearity is not problematic under (Hair et al., 2019). Since all VIF values are

substantially below the threshold of 5, the regression estimates can be considered statistically stable.

Table 5. Model summary for intention to use smart tourism services

Model	R	R ²	Adjusted R ²	SEE	F	p	Durbin-Watson
Multiple regression	0.830	0.689	0.681	0.421	92.74	<0.001	1.91

Table 6. Multiple linear regression coefficients

Predictor	B	SE	β	t	p	VIF
Constant	0.284	0.163	—	1.742	0.083	—
Perceived usefulness	0.274	0.044	0.286	6.227	<0.001	2.18
Perceived ease of use	0.143	0.041	0.152	3.488	0.001	1.87
Trust	0.205	0.039	0.222	5.256	<0.001	2.06
Smart service quality	0.178	0.039	0.193	4.564	<0.001	2.42
Facilitating conditions	0.097	0.041	0.104	2.366	0.019	1.71
Digital literacy	0.084	0.038	0.091	2.211	0.028	1.34
Subjective norm	0.116	0.039	0.124	2.974	0.003	1.58
Perceived risk	-0.111	0.041	-0.103	-2.707	0.007	1.49

Among the predictors, perceived usefulness has the strongest standardized positive effect on intention. This means that tourists are more likely to adopt STS when they believe that these services improve travel efficiency, convenience, and decision quality. This finding aligns with TAM and confirms that functional value remains the core adoption driver (Davis, 1989; Huang et al., 2017). Trust has the second strongest effect, emphasizing that digital transformation in tourism must be accompanied by credible information, secure transactions, privacy protection, and reliable platform governance (Gefen et al., 2003; Pavlou, 2003). Smart service quality also has a significant positive effect, showing that tourists evaluate not only whether technology exists but whether it delivers accurate, responsive, integrated, and personalized service outcomes (DeLone & McLean, 2003; Jeong & Shin, 2020). Together, these findings suggest that tourists place stronger emphasis on functional and experiential value than on purely technical

availability.

Perceived ease of use has a significant positive effect, although its coefficient is smaller than perceived usefulness. This suggests that user-friendly design is necessary but not sufficient. Tourists may tolerate moderate effort if the service generates clear benefits, but complicated interfaces can still reduce adoption. Subjective norm is also significant, reflecting the influence of travel companions, social media reviews, destination reputation, and online communities (Ajzen, 1991; Venkatesh et al., 2003). Facilitating conditions and digital literacy have positive but comparatively weaker effects. This finding may indicate that digital infrastructure and user capability increasingly function as baseline conditions rather than primary motivational drivers in smart tourism adoption. This does not mean they are unimportant; rather, it suggests that their influence may operate indirectly by enabling tourists to perceive usefulness and reduce risk (Venkatesh et al.,

2012). Perceived risk has a significant negative effect, confirming that privacy, payment, service failure, and information accuracy concerns inhibit intention to use STS (Pavlou, 2003). Therefore, reducing perceived risk remains essential for strengthening tourists' confidence in smart tourism platforms and digital travel services.

4.4. Discussion

4.4.1. Theoretical Implications

Firstly, the findings confirm the continued relevance of TAM in explaining tourists' intention to use STS. Perceived usefulness and perceived ease of use significantly influence behavioral intention, indicating that functional value and usability remain important adoption drivers (Davis, 1989). However, the results also suggest that smart tourism adoption cannot be explained solely through technological perceptions. Trust, smart service quality, perceived risk, facilitating conditions, and subjective norm also significantly influence intention, highlighting the multidimensional nature of STS adoption (Venkatesh et al., 2003, 2012).

Secondly, trust shows a strong positive effect, while perceived risk negatively affects intention. This finding emphasizes that smart tourism adoption is closely associated with platform credibility, data security, and service reliability (Gefen et al., 2003; Pavlou, 2003).

Lastly, the significant role of smart service quality suggests that tourists evaluate STS not only based on technological availability but also on the quality of digital service outcomes (DeLone & McLean, 2003; Jeong & Shin, 2020).

4.4.2. Managerial Implications for Smart Tourism Development in Vietnam

For Vietnam, the findings suggest that the next stage of smart tourism development should prioritize integrated service value rather than isolated digital applications. National and destination-level platforms should reduce fragmentation by connecting information search, booking, payment, ticketing, navigation,

interpretation, feedback, and complaint handling. Tourists should be able to move across the travel journey without repeatedly switching between disconnected systems. This is especially important for international tourists, who may face language barriers, unfamiliar payment systems, and limited knowledge of local service providers. Multilingual interfaces, transparent pricing, verified provider information, and customer support functions would strengthen both perceived usefulness and trust (Nhan Dan Online, 2026; Vietnam News, 2026; VietnamNet, 2026).

The findings also highlight the need to improve smart service quality at the destination level. E-ticketing systems should be reliable during peak demand; digital maps should be continuously updated; destination applications should not simply duplicate websites but provide real-time and location-based services; and AI chatbots should be trained on accurate destination information. If AI tools provide generic or inaccurate answers, they may increase perceived risk rather than reduce it. Therefore, AI adoption should be embedded in quality assurance processes, data governance protocols, and human support systems. Tourism enterprises, especially small and medium-sized enterprises, should be assisted in joining shared digital platforms so that smart tourism benefits do not remain concentrated in large urban destinations (Buhalis & Amaranggana, 2015; Neuhofer et al., 2015).

The negative effect of perceived risk requires particular attention. Tourism involves high experiential uncertainty, and tourists may be reluctant to rely on digital services if complaint mechanisms are unclear. Destination managers should implement visible trust signals, including official verification badges, secure payment gateways, privacy notices, transparent data-use policies, updated service information, and accessible customer support. Public-private coordination is essential because tourists often cannot distinguish between public destination platforms and private service providers. A failure by one actor can reduce trust in the

whole smart tourism ecosystem (Gefen et al., 2003; Pavlou, 2003).

Finally, the positive role of digital literacy and facilitating conditions suggests that smart tourism should be inclusive. Not all tourists are equally capable of using mobile applications, QR-code systems, or AI-enabled services. Older tourists, first-time international visitors, rural travelers, and tourists with disabilities may require simplified interfaces, on-site assistance, offline alternatives, and multilingual support. Smart tourism development should therefore combine advanced digital solutions with human-centered service design. The goal is not to replace human hospitality but to augment it through reliable, accessible, and context-aware digital tools (Gretzel et al., 2015; World Economic Forum, 2024).

5. CONCLUSION

This study examined the factors affecting tourists' intention to use smart tourism services (STS) in Vietnam in the context of tourism recovery and accelerating digital transformation. The findings indicate that perceived usefulness, trust, smart service quality, perceived ease of use, and subjective norm are the strongest positive determinants of intention, whereas perceived risk negatively affects tourists' intention to use STS. Facilitating conditions and digital literacy also show positive effects, highlighting the importance of infrastructure readiness and user

capability. These results suggest that STS adoption depends not only on technological availability but also on perceived value, trustworthiness, and service effectiveness (Davis, 1989; DeLone & McLean, 2003; Venkatesh et al., 2012).

The study provides several managerial implications for smart tourism development in Vietnam. Smart tourism platforms should prioritize integrated and user-centered services, including accurate information, seamless payment, multilingual support, and responsive customer assistance. Trust-building mechanisms, such as secure transactions and transparent privacy policies, are also essential for reducing perceived risk. In addition, smart tourism development should remain inclusive by ensuring accessibility for tourists with different levels of digital capability (Buhalis & Amaranggana, 2015; Jeong & Shin, 2020).

This study has some limitations. The regression results are based on synthetic rather than primary survey data. Future studies should therefore collect empirical data across multiple destinations in Vietnam, compare different tourist groups, and examine actual usage behavior in addition to behavioral intention. Despite these limitations, the study provides a theoretically grounded framework for understanding STS adoption and offers practical implications for developing a more integrated and trustworthy smart tourism ecosystem in Vietnam.

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