AVE Trends in Intelligent Social Letters

Smart Tourism Technologies and Tourists' Revisit Intention: The Mediating Role of Visitor Happiness

Stanzin Padma[1,*], Dilara Bahtiyar[2], Larbi Safaa[3], Arusyak Ivanyan[4]

[1]Department of Economics, Eliezer Joldan Memorial College, Leh, Ladakh, India.
[2]Department of Hotel, Restaurant and Catering Services, Gaziantep University, Gaziantep, Turkey.
[3]Centre of Excellence Tourism and Hospitality Management School, Cadi Ayyad University, Marrakesh-Safi, Marrakech, Morocco.
[4]Department of International Relations, Northern University, Yerevan, Armenia.
padmastanzin123@gmail.com[1], dsari@gantep.edu.tr[2], l.safaa@uca.ac.ma[3], arusyakivanyan@gmail.com[4]

*Corresponding author

Abstract: With the improvement of the network infrastructure in Ladakh, the tourism sector in Ladakh is witnessing a paradigm shift with the increasing use of Smart Tourism Technologies (STT). These technologies provide tourists with greater access to information, personalised services, convenient digital interactions and improved security, but they also pose potential obstacles that may adversely affect the tourism experience. This paper examines the positive and negative aspects of STT and its impact on tourists' intention to revisit Ladakh. Researchers gathered data through a structured survey of 384 visitors and analysed them using IBM SPSS 27 and AMOS 24. Researchers examined the relationships among five dimensions of STT: informativeness, accessibility, personalisation, security risk and data inundation, using Structural Equation Modelling (SEM). The results show that STT significantly affects tourists' experiences and intention to revisit. Specifically, visitor satisfaction emerges as a key mediating mechanism through which smart tourism experiences influence tourists' intention to revisit. The findings also identify data inundation as a major concern, suggesting that the volume of digital information may negatively affect tourists' willingness to revisit. The study offers valuable implications for tourism stakeholders and policymakers in Ladakh seeking to develop visitor-centered smart tourism services with minimal technology-related challenges.

Keywords: AI Tourism; Ladakh Tourism; Revisit Intention; Ladakh AI Accessibility; Tourist Happiness; Personalization and AI; Network Infrastructure; Smart Tourism Technologies (STT); Structural Equation Modelling (SEM).

Cite as: S. Padma, D. Bahtiyar, L. Safaa, and A. Ivanyan, "Smart Tourism Technologies and Tourists' Revisit Intention: The Mediating Role of Visitor Happiness," *AVE Trends in Intelligent Social Letters*, vol. 3, no. 3, pp. 130–140, 2026.

Journal Homepage: https://avepubs.com/user/journals/details/ATISL

Received on: 29/05/2025, **Revised on:** 20/08/2025, **Accepted on:** 15/11/2025, **Published on:** 07/09/2026

DOI: https://doi.org/10.64091/ATISL.2026.000348

1. Introduction

Over the past ten years, technology has developed rapidly and become integral to everyday travel, transforming tourism [1]. This shift gave rise to the idea of "smart tourism," which relies on stakeholder networks, information-based intelligence, and technological infrastructure to deliver value to travellers, businesses, and destinations [2]. Smart tourism aims to improve the quality and efficiency of travel by using technology and real-time information intelligently [3]. However, despite ongoing development of digital tools, scholars still disagree on the definition of smart tourism and the tools that comprise it, especially with the rise of digital ecosystems, generative AI, and artificial intelligence [4]. As a result, traditional smart tourism has evolved into a more adaptable, sophisticated model known as Smart Tourism 2.0, characterized by seamless, technology-driven

Copyright © 2026 S. Padma *et al.,* licensed to AVE Trends Publishing Company. This is an open access article distributed under CC BY-NC-SA 4.0, which permits copying, remixing, redistributing, transformation, and building upon the material in any medium so long as the original work is properly cited.

travel experiences and more meaningful stakeholder engagement [5]. Smart Tourism Technologies (STTs) are at the heart of this change and have revolutionized how tourism is delivered worldwide [19]. Travel and hospitality firms use tools to enhance travellers' experiences and deliver services, including smart navigation, translation apps, personalised recommendation engines, chatbots, digital booking systems and streamlined payment options [6]. This gives travel providers a new way to personalize travel experiences by creating offers based on an individual's preferences, habits and needs [20]. STTs not only provide customized recommendations but also refine client interactions and service delivery to better meet their needs [18]. The STT ecosystem comprises numerous interrelated technologies that underpin these developments, including location-based services, mobile apps, artificial intelligence, big data analytics, cloud computing, the Internet of Things, virtual and augmented reality, intelligent recommendation engines, and more [7]. These technologies enable and enhance personal service, informed decision-making and the travel experience by collecting, processing and sharing information in real time [8].

Through this process, they have emerged as technological pillars of the modern tourism sector, contributing to efficiency, connectivity, personalisation and co-created experiences, while strengthening a tourist destination's competitive advantage in the digital economy [9]. In tourists' eyes, STT has significantly improved trip convenience, access to information and overall trip quality [10]. These tools typically boost satisfaction and happiness by reducing uncertainty and supporting better-informed decision-making. Previous studies also show that tourists' behavioral reactions to STT, especially revisit intention, relate to their STT experience, typically through satisfaction and happiness [21]. Understanding tourists' perceptions and experiences of STT thus matters for the industry's continued growth [11]. This relevance is particularly evident in newer tourist spots such as Ladakh, where increased internet connectivity has accelerated tourists' uptake of digital services [22]. Smart technology plays a significant role in the region's tourism industry, as tourists increasingly rely on it to find information, navigate and tailor their experience [12]. At the same time, concerns about data privacy, security and information overload have emerged as barriers to tourists' perceptions of technology-based services [17]. These are not only considerations of STT benefits; researchers should also consider the potential positive and negative outcomes of adoption [13]. Against this backdrop, this study explores the positive and negative impacts of Smart Tourism Technologies on visitors' happiness and revisit intention in Ladakh [23]. It examines the positive elements of STT, accessibility, Personalisation and informativeness and the negative elements of security risk and data overload [24]. It also examines whether visitor satisfaction mediates the relationship between these factors and return intentions [14]. This study contributes to the growing research on smart tourism and provides insights into the advantages and challenges of deploying STT in places with inadequate digital infrastructure [15].

2. Theoretical Framework

2.1. Applications of STTs in the Travel Industry

Technological advancements have significantly transformed the travel industry. Recent studies indicate that Smart Tourism Technologies (STTs) are increasingly reshaping tourism services through automation, personalization and intelligent decision-support systems. According to Bulchand-Gidumal et al. [14], STTs help travellers access more relevant information, improving decision-making and overall travel experiences. Jeong and Shin [15] also note that STTs give passengers access to more relevant information, which can improve their decision-making and travel experience. In the last couple of decades, a wide spectrum of information and communication technology has been utilised to improve the quality of service, to generate value and to enrich the tourist experience before, during and after their journey. Newer digital technologies now make advanced technical encounters and highly tailored experiences feasible. Recent systematic reviews have again shown that STT has become a crucial issue in tourism research and is gaining relevance in innovation, sustainable destination development and service enhancement [16].

STT provides tourism recommendations and services based on tourists' preferences, habits and travel needs. According to Samala et al. [20], intelligent digital services enable travel planning by providing automated, personalized and data-driven services. Using data on travellers' interests and habits, STT can generate highly personalized experiences. A recent study found that innovations such as chatbots, virtual assistants, recommendation tools, and generative AI apps can increase customer satisfaction, simplify decision-making, and improve service effectiveness. Another benefit is that businesses can sift through large volumes of customer information from STT to fine-tune marketing and support evidence-based managerial decisions. However, technology-based recommendation systems can recommend destinations, accommodations, activities and restaurants that better align with an individual, enhancing satisfaction and the overall visitor experience. Together, these show STTs' growing power to shape perceptions and interactions with places [25].

2.2. Influence of STTs on Visitors' Happiness and Satisfaction

STTs have created a new way for travellers to interact with destinations, and visitors' satisfaction and overall enjoyment have changed as a result. Recent investigations show that smart services can enhance the travel experience by improving information availability, convenience, and methods of personal engagement and active participation. In their study, Ku and Chen [16]

analysed how travel agencies have implemented more advanced and innovative offerings to improve client satisfaction. Results show greater improvements in client satisfaction, increasing the likelihood that clients will use that travel technology for future travel. Zhang et al. [27] outlined the importance of technological innovations in travel-related infrastructure and services and their effect on travel satisfaction and experience. Zheng and Wu [28] elaborate on the dimensions of experiential satisfaction and post-visit behavior in the context of travel, and post-visit satisfaction is the most significant variable in determining the intention to recommend the place [26].

Continuing research supports the beneficial role STT plays in tourists' experiences and well-being. Zheng and Wu [28] contend that smart tourism technology elevates tourists' quality of life and contributes to enjoyment and subjective well-being. Similarly, Sustacha et al. [23] identified informativeness and interaction as among the primary drivers of experience quality in smart tourism. Choi and Baek [3] found that more favorable perceptions of STT attributes increase tourists' travel satisfaction, and that this impact increases with digital competence. Ionescu and Sarbu [12] found that smart technology enhances convenience, improves access to information, and elevates service quality, which, in turn, increases satisfaction. According to Sigala et al. [21], new smart tourism technologies, such as conversational agents, intelligent recommendation systems, and generative AI services, create more engaging and personalized experiences that strengthen satisfaction and positive behaviors. Based on these studies, the main positive contributors of STT that affect tourists' satisfaction and happiness are identified as informativeness, accessibility, and personalization. The following theories are put forward in light of this:

- **Hypothesis H1:** Informativeness of STTs has a significant positive impact on visitors' happiness.
- **Null Hypothesis $H1_0$:** Informativeness of STTs has no significant positive impact on visitors' happiness.
- **Hypothesis H2:** Accessibility of STTs has a significant positive impact on visitors' happiness.
- **Null Hypothesis $H2_0$:** Accessibility of STTs has no significant positive impact on visitors' happiness.
- **Hypothesis H3:** Personalization of STTs has a significant positive impact on visitors' happiness.
- **Null Hypothesis $H3_0$:** Personalization of STTs has no significant positive impact on visitors' happiness.

2.3. Negative Implications of Smart Tourism Technologies

STTs have brought new issues alongside old criticisms of unintended side effects. As tourism services become more dependent on networked digital tools, privacy and data security concerns grow; moreover, more personal data is collected, and many new services are offered. Sustacha et al. [23] argue that smart technology security and privacy issues negatively influence the overall tourist experience. Recent research shows that the intensive use of tech-enabled services erodes victims' trust when their personal data is used illegally. The vast amount of on-demand information digital platforms offer is a second challenge. Although access to information is beneficial, it can overwhelm tourists. This overload makes it difficult for tourists to decide and can even take the pleasure out of travel. Studies show that distractions and difficulty processing travel-related content online are among the negative effects of information overload [27].

Services that focus more on the tourist than on the experience are not a panacea [28]. In fact, by focusing on what tourists see, they can narrow the travel experiences and options tourists encounter, eliminating spontaneity and authenticity. This is coupled with limited exploration options. This filtering technology impedes tourists' ability to understand what the destination offers. As a result, tourists are prevented from having a meaningful experience of the place. Therefore, given STT's security and data risks, its negative effects should be weighed against visitor satisfaction and the overall experience. So while STT can enhance the travel experience through informativeness, accessibility and personalization, security and data-related risks may undermine visitor happiness and blunt the effectiveness of technology-enabled tourism services. A balanced view of STT therefore needs to weigh both sides. This leads to the following hypotheses:

- **Hypothesis H4:** Security Risk associated with Smart Tourism Technologies negatively impacts visitors' happiness.
- **Null Hypothesis $H4_0$:** Security Risk associated with STTs has no significant negative impact on visitors' happiness.
- **Hypothesis H5:** Data Inundation associated with STTs negatively impacts visitors' happiness.
- **Null Hypothesis $H5_0$:** Data Inundation associated with Smart Tourism Technologies has no significant negative impact on visitors' happiness.

2.4. Impacts of STTs on Revisit Intention

Understanding the determinants of tourists' revisit intentions has become crucial in tourism studies, particularly as digitalization and technology shape travel experiences. Several studies examine how STTs affect behavioural intentions and memorable experiences. Jeong and Shin [15] examined the role of smart tourism technology use in tourism and revisit intention. Based on survey responses from tourists visiting smart tourism destinations in the US, they identified customization, interactivity, and informativeness as key determinants of travel experience, satisfaction, and revisiting. Pai et al. [19] also examined how STT

characteristics affect tourist behavior and found that accessibility was the most crucial characteristic of the tourist experience, while personalization was relatively less important. They found that positive STT experiences significantly influenced satisfaction, happiness, and return intention. Happiness was a major predictor of return intention. Ng et al. [18] proposed an integrated model of STT characteristics, in which informativeness, accessibility and personalization positively influenced tourist contentment, return and word of mouth.

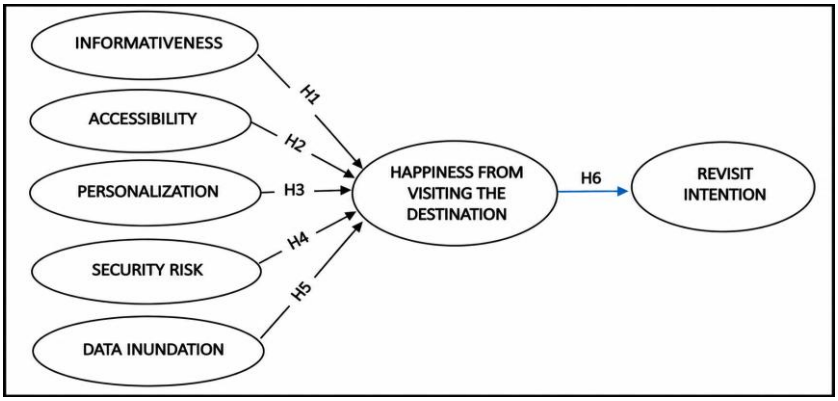

Figure 1: Hypothesised model

A newer study also confirms STT's influence on tourists' future travel behaviour. In their study, Torabi et al. [24] note that informativeness, accessibility, and interaction contribute to a tourist's memorable experience, which in turn drives satisfaction, positive word of mouth, and intentions to return to rural destinations. Newer studies also show that STT helps create memorable experiences, shape destination images, and foster positive behavioral intentions among visitors. According to Sigala [21], modern smart tourism technologies such as recommendation systems, conversational agents, and generative AI services help create more interesting, personalized experiences, increasing satisfaction and loyalty (Figure 1). Overall, it can be said that the benefits provided by STT, namely satisfaction, memorable experiences, and happiness, help to bring tourists back. Building on this literature, tourists who see Smart Tourism Technologies as informative, accessible and personalized are likely to feel happier and more satisfied during their trip, which should, in turn, increase their intention to return. This leads to the following hypothesis:

- **Hypothesis H6:** Visitors' happiness positively impacts revisit intention.
- **Null Hypothesis H6₀:** Visitors' happiness has no significant positive impact on revisit intention.

3. Methodology

3.1. Study Area

Ladakh, located in the Indian Himalayas, has a unique landscape, rich cultural heritage and a developing tourism industry.

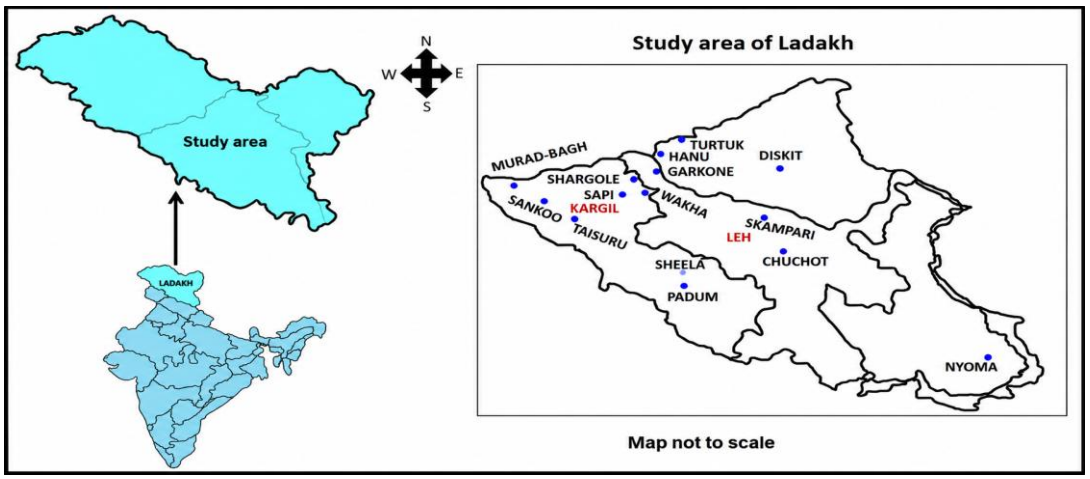

Figure 2: Study area

As of 27 April 2026, the area was divided into two administrative districts: Leh and Kargil. According to the Department of Tourism, Leh district accounted for about 86 percent of tourists in 2021-22, while Kargil contributed the remaining 14 percent. The district's tourism sector has grown rapidly over the past decade. It is now a major economic driver, creating numerous job opportunities. However, this rapid tourism growth also threatens Ladakh's fragile ecosystem and culture.

3.2. Research Model and Methodology

In total, 384 respondents were surveyed, and the sample size was deemed adequate for a tourist population of about 320,000 using the Krejcie and Morgan table for populations (Table 1). The researchers used convenience sampling and selected 384 tourists from Ladakh's main tourist sites, including Leh Market, Changspa, Diskit, Hunder, Kargil Market, and Skara. Data collection took place between June and November 2025. After the objectives of the study were made clear to the respondents, they voluntarily answered a seven-point Likert-scale questionnaire (Strongly Disagree – 1, Strongly Agree – 7). Researchers conducted a pilot study with 50 respondents from Leh city to determine the instrument's reliability. This yielded consistent Cronbach's alpha values for all latent variables, ranging from 0.872 to 0.967. Researchers developed seven latent constructs from the tourist's perspective: Informativeness (INF), Personalization (PRS), Accessibility (ACC), Risk (RSK), Data Inundation (DI), Happiness (HP), and Revisit Intention (RI). EFA, CFA, and SEM analyses were conducted in SPSS 27 and AMOS 24, respectively. The researchers reported the results of standard procedures for evaluating scale reliability, validity and model fit. Researchers adapted the measurement items from prior research. Researchers adopted the five Informativeness questions from Ng et al. [18], while the four Personalization questions, five Accessibility questions, and four Interactivity questions were adopted from Pai et al. [19]. Perceived Security Risk is assessed through five questions, with three questions from Wang et al. [17] and two questions from Zhang et al. [27]. In this paper, "Data Inundation" refers to the dark side of data overload related to STT adoption and includes issues such as information overload, distractions and reduced attention to non-personalized content. Four questions regarding Data Inundation are adopted from Grundner and Neuhofer [10]. These constructs formed the basis for testing the hypothesised model shown in Figure 1.

4. Results

4.1. Demographic Profile

The 384 respondents included 210 men and 174 women. Ten percent were under the age of twenty-two, twenty-nine percent were between the ages of thirty-six and sixty, seven percent were beyond sixty, and nearly fifty-three percent, the greatest percentage, were between the ages of twenty-three and thirty-five. In terms of marital status, 135 were single, and 249 were married. Almost 48 percent were educated up to the secondary level, 45 percent were college-educated or above, and 6 percent were primary-educated.

Table 1: Demographic profile of respondents

Gender	**Male**	**210**	**54.70**
	Female	174	45.30
	Total	384	100.00
Age	Under 22	40	10.4
	23 to 35	204	53.1
	36 to 60	113	29.4
	61 and above	27	7.0
	Total	384	100
Marital Status	Unmarried	135	35.2
	Married	249	64.8
	Total	384	100
Education Level	Primary	23	6.0
	Secondary	186	48.4
	College or Higher Level	175	45.6
	Total	384	100

4.2. Data Analysis

Assessing the measurement model began with a check of construct validity—how well each item captured its intended concept. EFA was run in SPSS 27 using Principal Component Analysis with Varimax rotation. One risk item (RSK3) loaded onto an

unrelated factor, and one revisit-intention item (RV2) cross-loaded with another factor; researchers dropped both from further analysis. Researchers set a minimum factor-loading cutoff of 0.50.

Table 2: KMO, Bartlett's test, descriptive statistics, communalities and factor loadings

Kaiser-Meyer-Olkin Measure of Sampling Adequacy						**.867**
Bartlett's Test of Sphericity				Approx. Chi-Square		12287.750
				Df.		406
				Sig.		.000
Descriptive Statistics, Communalities of Statements and Factor Loadings						
	Communalities	**Mean**	**Std. Deviation**	**N**	**Factor Name**	**Factor Loading**
INF1	0.842	6.02	0.500	384	Informativeness	0.835
INF2	0.868	6.11	0.544	384		0.863
INF3	0.690	6.06	0.530	384		0.761
INF4	0.855	6.11	0.534	384		0.874
INF5	0.820	6.04	0.517	384		0.811
PRS1	0.937	5.30	0.552	384	Personalization	0.931
PRS2	0.716	5.18	0.531	384		0.748
PRS3	0.888	5.30	0.615	384		0.857
PRS4	0.946	5.30	0.614	384		0.899
ACC1	0.892	4.07	0.331	384	Accessibility	0.925
ACC2	0.612	4.13	0.409	384		0.708
ACC3	0.698	4.09	0.368	384		0.796
ACC4	0.867	4.08	0.341	384		0.911
ACC5	0.683	4.17	0.432	384		0.811
RSK1	0.897	2.01	0.327	384	Risk	0.902
RSK2	0.754	2.09	0.403	384		0.820
RSK4	0.820	2.04	0.359	384		0.862
RSK5	0.873	2.03	0.356	384		0.893
DI1	0.826	3.12	0.464	384	Data Inundation	0.823
DI2	0.810	3.11	0.515	384		0.826
DI3	0.789	3.14	0.519	384		0.826
DI4	0.872	3.13	0.481	384		0.879
HPP1	0.934	5.52	0.569	384	Happiness	0.931
HPP2	0.866	5.54	0.576	384		0.896
HPP3	0.851	5.55	0.611	384		0.880
HPP4	0.925	5.53	0.608	384		0.927
RV1	0.874	6.76	0.597	384	Revisit Intention	0.815
RV3	0.822	6.75	0.577	384		0.750
RV4	0.897	6.79	0.577	384		0.806

Researchers also checked communality, the share of variance in each item explained by the model, and it was above 0.60 across the board. Bartlett's Test of Sphericity assessed the overall strength of the correlation matrix, and results confirmed the data were suitable for factor analysis, with a significant Chi-square of 12287.750 ($p = 0.000$). The Kaiser-Meyer-Olkin measure was 0.867, well above the 0.8 threshold typically considered suitable for factor analysis. Using the eigenvalue criterion, seven latent constructs emerged, accounting for 83.188 percent of the total variance in the data. Table 2 lists the initial descriptive statistics and item-level communalities. Mean values are based on a seven-point Likert scale, where 1 is strongly disagree, and 7 is strongly agree.

EFA generated seven factors that were incorporated into the structural model. The first one is Informativeness (INFM) of STT applied in the tourism industry. The second one is about Accessibility (ACC) of STT and internet-based services during the journey in Ladakh. The third is Happiness (HPNS) of tourists during their visit, which is used as a dependent variable. The fourth (PRSZN) measures how personalized the information and recommendations tourists receive from STT are. The fifth, Security Risk (RISK), measures concerns tied to STT use while travelling, and the sixth, Data Inundation (DI), captures the strain of excessive information delivered through digital platforms and STT-enabled apps. The dependent variable is the 7th factor, Revisit Intentions (RI). All observed items had factor loadings above 0.70, indicating strong convergent validity and confirming that the items supported their respective constructs well.

4.3. Validity and Reliability

In this analysis, reliability, defined as the internal consistency of the independent constructs, is important and is usually assessed using Cronbach's alpha and composite reliability (CR). All alpha values in this model were above 0.8, which Cronbach (1951) considers excellent: below 0.6 is low, 0.6 to 0.8 is good, and above 0.8 is excellent. All constructs also had composite reliability values above 0.8, indicating good convergent validity; values above 0.6 are considered good. Researchers calculated the square root of the AVE for each construct to assess discriminant validity by comparing it with the corresponding value in the lower-left corner of the correlation matrix (Table 3), which should be greater than 0.5 and higher than the other values. Generally, an AVE greater than 0.50 is considered good convergent validity, as only more than half of the variance is explained by the construct.

Table 3: Validity and reliability

	Convergent Validity and Reliability					**Discriminant Validity**				
	Cronbach Alpha	**CR**	**AVE**	**MSV**	**Max. R (H)**	**RISK**	**INFM**	**ACC**	**PRSZN**	**DI**
RISK	0.928	0.881	0.64	0.378	0.955	**0.8**				
INFM	0.941	0.896	0.612	0.234	0.993	-0.098	**0.782**			
ACC	0.903	0.859	0.567	0.088	0.973	0.073	0.296	**0.753**		
PRSZN	0.946	0.893	0.66	0.234	0.966	-0.088	0.484	0.271	**0.813**	
DI	0.923	0.873	0.607	0.378	0.925	0.615	-0.217	-0.044	-0.245	**0.779**

All constructs demonstrated good convergent validity, except Data Inundation, which had an AVE of 0.49, just below the threshold. All factor loadings exceed 0.7, further strengthening the model's convergent validity and raising no meaningful concerns about reliability or validity.

4.4. Model fit indices

The fit indices in Table 4 indicate that the overall model fits acceptably.

Table 4: Model fit indices

Measure	**Estimate**	**Threshold**	**Interpretation**
CMIN	1061.616	--	--
DF	343.000	--	--
CMIN/DF	3.009	Between 1 and 3	Acceptable
CFI	0.941	>0.95	Acceptable
RMSEA	0.074	<0.06	Acceptable
GFI	0.89	≥ 0.9	Acceptable
TLI	0.930	≥ 0.9	Acceptable
IFI	0.942	≥ 0.9	Acceptable

**As per Ku and Chen [16], "Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria versus New Alternatives"*

4.5. Findings of Path Analysis

Table 5 lists the estimated SEM values, and Figure 2 shows them. Based on the results, researchers reject the null hypothesis $H1_0$ (informativeness has no significant positive effect on happiness) at the 1 percent level, supporting H1. Each item has a mean score just above 4. Thus, the Accessibility-Happiness correlation is genuine but weak in Ladakh.

Table 5: Results of path analysis

Path			**Standardised Regression Weights**	**Regression Weights**	**S.E.**	**C.R.**	**P**	**Hypothesis Results**
Happiness	<---	Infmormativeness	0.237	0.331	0.076	4.351	0.000	H1 is supported at the 1% significance level.

Happiness	<---	Accessibility	0.082	0.148	0.09	1.639	0.100	H2 is supported at the 10% significance level.
Happiness	<---	Personalization	0.156	0.146	0.045	3.263	0.001	H3 is supported at the 1% significance level.
Happiness	<---	Security Risk	0.073	0.125	0.105	1.197	0.231	H4 is not supported.
Happiness	<---	Data Inundation	-0.225	-0.304	0.086	-3.531	0.000	H5 is supported at the 1% significance level.
Revisit Intention	<---	Happiness	0.307	0.297	0.05	5.913	0.000	H6 is supported at the 1% significance level.

STT's informativeness is positively and significantly correlated with tourists' happiness from their visit to Ladakh, with a standardized regression weight of 0.237, making it one of the strongest single factors in determining tourists' happiness among all constructs tested. Likewise, hypothesis H3 is supported, as the null hypothesis $H3_0$ is rejected at the 1 per cent level, implying that customised and personalized STT services in Ladakh's tourism industry improve visitors' satisfaction. Hypothesis H2's null ($H2_0$) -- that accessibility has no significant positive effect on happiness -- is rejected only at the 10 percent level. This lower score may be because some tourist centres in Ladakh lie in remote rural areas where network connectivity is still poor. Thus, STT services are limited.

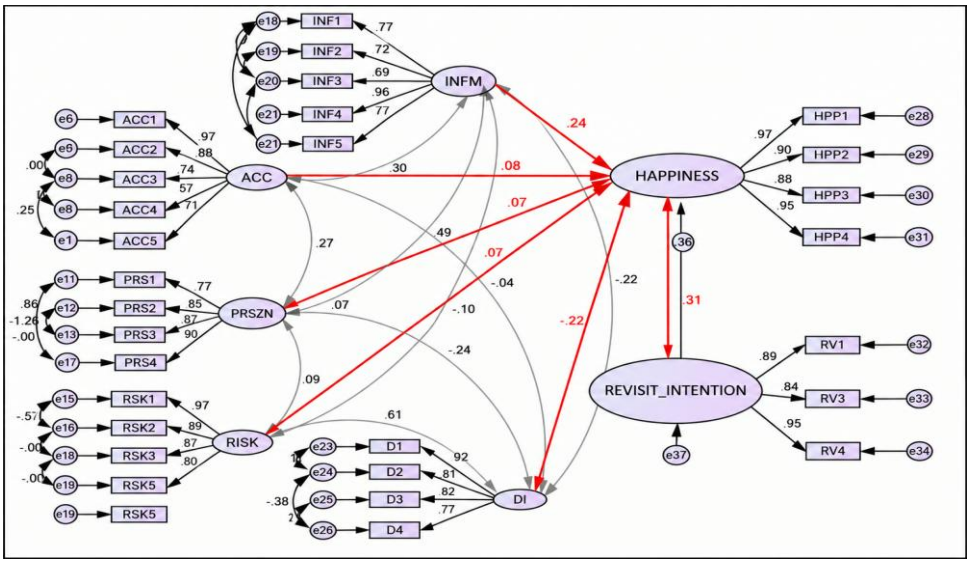

Figure 2: Structural equation model with Amos output

This is reflected in the item means in Table 2. For each of the five Accessibility items, many respondents selected "somewhat disagree," and H4 and H5 address STT's downsides—Security Risk and Data Inundation. For Data Inundation, researchers reject the null hypothesis at the 1 percent significance level. For Data Inundation, researchers reject $H5_0$ at the 1 percent significance level. However, there is no significant relationship between Security Risk and happiness, so researchers cannot reject $H4_0$. The standardized regression weight for the happiness variable ($H6_0$ —that happiness has no significant positive effect on revisit intention) is 0.307. Researchers reject it at the 1 percent level, meaning happier visitors are significantly more likely to intend to return to Ladakh. More broadly, STT's delightful aspects have raised visitor satisfaction. At the same time, the "accessibility" leg is relatively low, suggesting that internet connectivity and access to STT in remote areas still need improvement. On the other hand, Data Inundation does take some toll on happiness. Interestingly, there's no evidence that Security Risk irritates visitors or makes them unhappy. Happiness has a strong, positive impact on revisit intention.

4.6. Discussion

As internet connectivity improves in Ladakh's Himalayan landscape, tourists increasingly turn to STT for a variety of travel-related services. The literature already identifies STT's growing importance in improving tourism through improved access to

information, personalization, navigation and service delivery. This study aimed to build on this by mapping the relationship between the positive and negative facets of STT (Informativeness, Personalization, Accessibility, Security Risk and Data Inundation) and tourists' satisfaction and revisit intention, using data collected from tourists in Ladakh. All analyses were conducted using EFA, CFA and SEM in SPSS 27 and AMOS 24. The measurement model showed low invalidity and unreliability. EFA results showed high communalities and factor loadings for all items. In both areas, informativeness was significantly and positively related to visitor happiness, and happiness, in turn, was strongly and positively related to revisit intention; this highlights the importance of positive experiences in fostering destination loyalty. The association between accessibility and happiness was weaker, suggesting that some areas in Ladakh have inadequate internet and network access. Improving digital infrastructure and network penetration in underserved areas could meaningfully boost visitor satisfaction, enrich the visitor experience and make technology-enabled services more widely available across the region.

5. Conclusion

However, the opposite was true for Data Inundation, which clearly reduced happiness. Tourists may feel inundated with information on digital platforms and STT apps, making their trip less enjoyable and, indirectly, less likely to return. Addressing this requires a combination of technology and policy interventions, including improved data governance, data minimization, better information quality management, and greater transparency about how visitor data is collected and used. Interestingly, researchers found no significant correlation between Security Risk and happiness, suggesting that, for tourists, STT-related security concerns do not significantly constrain their travel experience in Ladakh. In other words, visitors appear willing to accept privacy or security risks when using a technology-based service. Finally, the positive relationship between happiness and revisit intention (standardized weight of 0.307) further highlights the importance of visitors' emotional experience on their future behaviour. This implies that STT could indirectly affect revisit intention by increasing happiness through improved access to information, personalization and an enhanced travel experience. If implemented thoughtfully, STT could effectively enhance visitor experience, repeat visits and the sustainable development and competitiveness of Ladakh's tourism industry.

5.1. Practical Implications

The results indicate that STT has really potential to enhance the tourist experience in remote places such as Ladakh. As tourism services become increasingly digital, stakeholders should consider STT's strategic potential to improve service quality, enrich the visitor experience and strengthen destination competitiveness. Tourists clearly value timely, relevant and customized trip information, especially given the positive effects of informativeness and personalization on happiness. To better serve a wide range of visitors, tourism businesses should focus on opportunities enabled by STT tools: intelligent recommendation systems, digital travel assistants, individual information platforms and location-based services. This would increase customer satisfaction, happiness and brand loyalty towards the destination. The results also indicate a need to improve access to STTs in remote locations.

Accessibility contributes relatively little to happiness; therefore, Ladakh should strengthen digital infrastructure, especially internet connectivity and network penetration in less-served areas. Collaboration between governments and private providers is needed to increase broadband availability, improve mobile network reliability and support digital inclusion in tourist destinations. Improved access would enable tourists to fully use technology-enabled services and further enhance the overall quality of their tour. Meanwhile, the fact that data inundation negatively affects happiness highlights the need for user-centric digital services that provide relevant data without overwhelming visitors. Tourism stakeholders must develop user-friendly, streamlined websites that provide accurate, personalized and manageable information. Sound data governance, transparency in data use and responsible information management can further build visitors' trust and improve the technology-enabled travel experience.

Acknowledgement: The authors gratefully acknowledge Eliezer Joldan Memorial College, Gaziantep University, Cadi Ayyad University, and Northern University for their valuable academic support, guidance, research resources, and institutional assistance throughout this research.

Data Availability Statement: The data for this study are available upon request from the corresponding author.

Funding Statement: This manuscript and research paper were prepared without any financial support or funding.

Conflicts of Interest Statement: The authors have no conflicts of interest to declare. This work represents a new contribution by the authors, and all citations and references are appropriately included based on the information utilized.

Ethics and Consent Statement: This research adheres to ethical guidelines and obtains informed consent from all participants. Confidentiality measures were implemented to safeguard participant privacy.

References

1. R. P. Bagozzi and Y. Yi, "The degree of intention formation as a moderator of the attitude-behavior relationship," *Social Psychology Quarterly*, vol. 52, no. 4, pp. 266–279, 1989.
2. D. Buhalis, T. Harwood, V. Bogicevic, G. Viglia, S. Beldona, and C. Hofacker, "Technological disruptions in services: Lessons from tourism and hospitality," *Journal of Service Management*, vol. 30, no. 4, pp. 484–506, 2019.
3. Y. Choi and J. Baek, "Effects of smart tourism technology attributes on trip satisfaction: The moderating role of digital literacy," *Korea MICE Tourism Society*, vol. 24, no. 4, pp. 7–26, 2024.
4. L. J. Cronbach, "Coefficient alpha and the internal structure of tests," *Psychometrika*, vol. 16, no. 3, pp. 297–334, 1951.
5. C. Fornell and D. F. Larcker, "Evaluating structural equation models with unobservable variables and measurement error," *Journal of Marketing Research*, vol. 18, no. 1, pp. 39–50, 1981.
6. A. M. Gadermann, M. Guhn, and B. D. Zumbo, "Estimating ordinal reliability for Likert-type and ordinal item response data: A conceptual, empirical and practical guide," *Practical Assessment, Research & Evaluation,* vol. 17, no. 3, pp. 1–13, 2012.
7. A. Galvão, F. Brito e Abreu, and J. J. de Melo, "Towards a consensual definition for smart tourism and smart tourism tools," in Smart Life and Smart Life Engineering, *Springer*, Cham, Switzerland, 2025.
8. U. Gretzel, M. Sigala, Z. Xiang, and C. Koo, "Smart tourism: Foundations and developments," *Electronic Markets*, vol. 25, no. 3, pp. 179–188, 2015.
9. C. Koo, S. Shin, U. Gretzel, and Z. Xiang, "AI-powered smart tourism 2.0: A 10-year retrospective and updated model," *Electronic Markets*, vol. 35, no. 1, pp. 1–17, 2025.
10. L. Grundner and B. Neuhofer, "The bright and dark sides of artificial intelligence: A futures perspective on tourist destination experiences," *Journal of Destination Marketing & Management*, vol. 19, no. 3, pp. 1–12, 2021.
11. G. Ilieva, T. Yankova, and S. Klisarova-Belcheva, "Effects of generative AI in tourism industry," *Information*, vol. 15, no. 11, pp. 1–22, 2024.
12. A. M. Ionescu and F. A. Sârbu, "Exploring the impact of smart technologies on the tourism industry," *Sustainability*, vol. 16, no. 8, pp. 1–23, 2024.
13. S. Ivanov and C. Webster, "Prelims," in Robots, Artificial Intelligence and Service Automation in Travel, Tourism and Hospitality, *Emerald Publishing Limited,* Bingley, United Kingdom, 2019.
14. J. Bulchand-Gidumal, E. W. Secin, P. O'Connor, and D. Buhalis, "Artificial intelligence's impact on hospitality and tourism marketing: Exploring key themes and addressing challenges," *Current Issues in Tourism*, vol. 27, no. 14, pp. 2345–2362, 2024.
15. M. Jeong and H. H. Shin, "Tourists' experiences with smart tourism technology at smart destinations and their behavior intentions," *Journal of Travel Research*, vol. 59, no. 8, pp. 1464–1477, 2020.
16. E. C. S. Ku and C. D. Chen, "Artificial intelligence innovation of tourism businesses: From satisfied tourists to continued service usage intention," *International Journal of Information Management*, vol. 76, no. 6, p. 102757, 2024.
17. S. Wang, Q. Wang, Q. Cui, and T. Lan, "Artificial intelligence in tourism: A systematic literature review and future research agenda," *Sustainability*, vol. 17, no. 20, pp. 1–25, 2025.
18. K. S. P. Ng, J. W. C. Wong, D. Xie, and J. Zhu, "From the attributes of smart tourism technologies to loyalty and WOM via user satisfaction: The moderating role of switching costs," *Kybernetes*, vol. 52, no. 8, pp. 2868–2885, 2023.
19. C. K. Pai, Y. Liu, S. Kang, and A. Dai, "The role of perceived smart tourism technology experience for tourist satisfaction, happiness and revisit intention," *Sustainability*, vol. 12, no. 16, pp. 1–14, 2020.
20. N. Samala, B. S. Katkam, R. S. Bellamkonda, and R. V. Rodriguez, "Impact of AI and robotics in the tourism sector: A critical insight," *Journal of Tourism Futures*, vol. 8, no. 1, pp. 73–87, 2022.
21. M. Sigala, K. B. Ooi, G. W. H. Tan, E. C. X. Aw, D. Buhalis, T. H. Cham, M. M. Chen, Y. K. Dwivedi, U. Gretzel, A. Inversini, T. Jung, R. Law, and I. H. Ye, "Understanding the impact of ChatGPT on tourism and hospitality: Trends, prospects and research agenda," *Journal of Hospitality and Tourism Management*, vol. 60, no. 9, pp. 384–390, 2024.
22. D. P. Stergiou and A. Nella, "ChatGPT and tourist decision-making: An accessibility–diagnosticity theory perspective," *International Journal of Tourism Research*, vol. 26, no. 5, pp. 1–15, 2024.
23. I. Sustacha, J. F. Baños-Pino, and E. Del Valle, "The role of technology in enhancing the tourism experience in smart destinations: A meta-analysis," *Journal of Destination Marketing & Management*, vol. 30, no. 12, pp. 1–12, 2023.
24. Z. A. Torabi, M. Pourtaheri, C. M. Hall, A. Sharifi, and F. Javid, "Smart tourism technologies, revisit intention and word-of-mouth in emerging and smart rural destinations," *Sustainability*, vol. 15, no. 14, pp. 1–21, 2023.
25. I. Tussyadiah, "A review of research into automation in tourism: Launching the Annals of Tourism Research Curated Collection on Artificial Intelligence and Robotics in Tourism," *Annals of Tourism Research*, vol. 81, no. 3, p. 102883, 2020.

26. G. Yılmaz and A. Şahin-Yilmaz, "An overview of chatbots in tourism and hospitality using bibliometric and thematic content analysis," *Worldwide Hospitality and Tourism Themes*, vol. 16, no. 2, pp. 232–247, 2024.
27. Y. Zhang, M. Sotiriadis, and S. Shen, "Investigating the impact of smart tourism technologies on tourists' experiences," *Sustainability*, vol. 14, no. 5, pp. 1–21, 2022.
28. Y. Zheng and Y. Wu, "An investigation of how perceived smart tourism technologies affect tourists' well-being in marine tourism," *PLoS ONE*, vol. 18, no. 8, pp. 1–19, 2023.

Publisher's Note: *The publisher remains impartial concerning jurisdictional claims in published maps and institutional affiliations. Responsibility for the content rests entirely with the authors and does not necessarily reflect the publisher's perspectives.*