


SMART TOURISM TECHNOLOGIES AND DESTINATION PERCEPTION: IMPLICATIONS FOR REVISIT INTENTIONS IN MOUNTAINOUS DESTINATIONS

Abstract

Fatima ANJUM, Ms. Graduate Assistant
Ghulam Ishaq Khan Institute of Engineering
Sciences and Technology, Topi, Swabi, KPK,
Pakistan
Department of Management Science and
Humanity
E-mail: fatima95sohail@gmail.com

 **Yousaf ALI**, Dr, Associate Professor
(Corresponding Author)
Fahad Bin Sultan university, Tabuk, Saudi Arabia
College of Business & Management
E-mail: yali@fbsu.edu.sa

Purpose - This study aims to investigate the impact of Smart Tourism Technologies (STT) on tourists' perceptions of a mountainous tourism destination, and how it influences their intention to revisit. Additionally, this research examines the role of destination trust and perceived risk in the relationship between perceived destination image and revisit intention.

Methodology - The data being utilized involved the accumulation of experience-based survey data from 200 respondents and experts, leading to the application of the partial least square structure equation modeling (PLS-SEM) approach.

Findings - The results showed that five out of six smart tourism technologies had a positive effect on perceived destination image, leading to increased trust and decreased risk perceptions towards the destination. The study found that trust strongly mediates the relationship between perceived destination image and intention to revisit, while perceived risk does not have a mediating effect.

Originality of the research - These findings offer significant insights for tourism authorities, local governments, and tourism enterprises to enhance the competitiveness and long-term sustainability of their destinations. This research is one of its kind that explored the relationship based on six different attributes of smart tourism technologies that are specifically related to Pakistan's mountainous tourism destinations.

Keywords: Smart Tourism, Destination Trust, Perceived Risk, ICTs, Developing Country

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INTRODUCTION

High-altitude tourism such as mountain tourism plays a significant role in boosting the economy of many regions, particularly in the countries or economies with prominent mountainous regions and landscapes such as Pakistan. Such a cleaner environment is sought after taking a break from the hectic life and the hustle and bustle of cities with polluted environments (McClanahan, 2024). Tourists and travelers can enjoy the serene environments and various activities such as skiing, ice skating, ice hockey, etc. Such an example can be considered in the case of Pakistan which is home to some of the highest snowy peaks in the world, i.e., K-2, Nanga Parbat, and the entire Karakorum Mountain ranges (Alam et al., 2024). Furthermore, the mountainous regions of Pakistan have seen a rise in mountain tourism, providing new opportunities for locals as the traditional industries like agriculture, mining, and forestry are on the decline and other economic prospects remain limited, this increasing interest in tourism can be termed as a viable source of income (Butt, 2023). Similarly, Pakistan is considered to be one of the prominent and attractive travel destinations among other developed and developing countries. The government of Pakistan has implemented various measures and strategies in the tourism sector that have been instrumental in elevating the country's status and there are ongoing plans to further optimize and maximize capital for future growth (Dawn, 2019). According to a reputable travel and lifestyle publication in the United States, Pakistan has been identified as one of the most coveted vacation spots for the year 2020 (Noor, 2019). It can be justified by the fact that Pakistan's diverse ethnicity and stunning natural landscapes provide it with a competitive edge over other tourist destinations with an array of attractions, ranging from religious sites to majestic mountains and sports activities. Pakistan offers a plethora of options for tourists seeking unforgettable experiences (Irfan & Ali, 2021). Pakistan, as a developing nation, is actively embracing progress and striving to integrate technology and innovation into various aspects of its society. Efforts are being made towards digitalizing the country's tourism infrastructure, leading to positive future development, and contributing to the overall GDP of Pakistan. (Abbasi, 2022). The tourism industry, like many others, has felt the profound influence of technology on various fronts, and tourist destinations have not been an exception in embracing smart technologies comparably, numerous tourist destinations have enthusiastically embraced the concept of "smart tourism" (Jeong & Shin, 2020).

Smart tourism technologies (STTs) comprise the integration of Information and Communication Technologies (ICTs) in tourist destinations to enhance services, support local companies, and improve tourist destinations (Tavitiyaman et al., 2021a). The utilization of technology in the tourism industry has the potential to improve tourists' experiences and boost tourism activities by providing valuable information and facilitating engagement, as well as fostering interactions among various stakeholders

such as tourism providers and tourists (Engelbrecht et al., 2019). Travel experience stands as a significant precursor to both contentment and future behavioral intentions and therefore, it is imperative to gain a comprehensive understanding of how visitors' utilization of Smart Tourism Technologies (STTs) at smart tourism destinations correlates with their overall perception of a destination image (Jeong & Shin, 2020). Similarly, Smart tourism technologies encompass a diverse range of elements, including the quality of websites, the availability of information, and ultimately, the nature of messages conveyed and these factors collectively shape how a specific destination is perceived (Tavitiyaman et al., 2021a). The current research utilizes the concept of STTs to assess the impact on Pakistan's mountainous tourism regions and destinations. From the standpoint of tourists, these characteristics can significantly influence how they perceive destination image and distinguish the smart destination. It can enable international mountain tourists to consult various information online and make proper bookings and plans to ensure that their experiences are smooth and effective.

An image is a visual depiction that impacts emotions and feelings, however, in the context of behavioral study, an image is considered more comprehensive, encompassing beliefs, knowledge, values, impressions, and emotions (Afshardoost & Eshaghi, 2020). Similarly, a major crisis in this sector can affect both the tourist decisions and the image formation of a tourist destination (Sabiote-Ortiz et al., 2024). Tourism destination image significantly influences decision-making processes in the tourism sector, emphasizing the need for destinations to cultivate a positive perception that facilitates tourist decision-making (Ashfaq et al., 2021). Post-visit images entail the primary visualizations obtained through personal experiences at the destination and this study is also centered around this concept. In such a scenario, the information available on websites, such as pricing, cultural sites, local attractions, and outdoor activities, can play a significant role in shaping the image of a destination. Tourists highly regard this destination-specific data they gather as it allows them to minimize uncertainties while preparing for a vacation in the upcoming future. Consequently, this leads to the development of trust or perception of risk towards tourist destinations. In this study, several different STTs such as the Pakistan Tourism Guide, online booking websites, and websites to explore mountainous tourism destinations will be studied that depict information related to tourism and specifically, mountain tourism in Pakistan.

The current research is based on the theory of "belief and risk" in sociology developed by (Luhmann, 1979; Luhmann, 2000). According to this theoretical framework, establishing familiarity is deemed crucial for cultivating trust. It can be connected with the fact that tourists gather a wide range of information about their preferred travel destination which includes details on transportation choices, the different types of accommodations available, the climate conditions, dining options as well as various attractions and points of interest (Tassiello & Tillotson, 2020). There are various factors contributing to trust, such as an individual's confidence in governmental institutions, media credibility, and their perception of fellow travelers. These elements have a direct impact on how they perceive fear levels, the severity of threats, and susceptibility to risks ultimately influencing their inclination towards avoiding certain travel experiences (Zheng et al., 2022). Similarly, the level of trust in a destination significantly influences a tourist's intention to revisit that particular place (Ameen et al., 2023). Furthermore, risk assessment plays a crucial role in the process of making travel decisions. In addition to natural hazards such as natural disasters and epidemic diseases, concerns about safety and security have also become significant factors for tourists' decision-making (Ali et al., 2018). Incidences of epidemic diseases like COVID-19 and natural disasters can heighten perceived risks and impede the arrival of international tourists (Nazir et al., 2021). Similarly, travelers also experience various types of risks, including physical, health, social, financial, satisfaction, psychological, time-related, political, and terrorism risks (Khan et al., 2019; Perpiña et al., 2019).

Human behavior frequently adapts in response to perceived risk, and this perception has a substantial influence on tourists' intention to revisit (Addo et al., 2020). Behavioral intention also serves as a reliable indicator of individuals' future actions. In the field of tourism research, researchers often examine tourist behavioral intention by considering factors such as consumers' willingness to visit or revisit destinations, their readiness to spend or repurchase products and services, and the feedback provided to service providers (Tavitiyaman et al., 2021a). Revisiting intention has been seen as an extension of satisfaction, rather than a trigger for the decision-making process to revisit. Moreover, satisfaction is considered more crucial for tourists' revisiting intentions than any other factors or activities. Revisitation intention pertains to an individual's inclination to return to the same setting or location and suggest it to others (Su et al., 2018). Tourist attractions can be considered a commodity within the tourism industry where the happy tourists are likely to repurchase or suggest the attraction to others, leading to potential revisits, development of trust, and positive word-of-mouth recommendations (Abdullah & Lui, 2018; Su et al., 2018).

The current research employs advanced technologies and smart digital decision-making to analyze contemporary tourism trends in developing countries, with a specific focus on the high-altitude regions. It can answer various questions that are integral to the adoption of smart technologies in the ever-growing field of digitalization in tourism especially in mountain tourism in the high-altitude regions. Similarly, it can focus on this concept in a developing country that lacks such proper facilities to ensure a stable and growing tourism sector within the country. The aim of the study is to work on exploring the strategies that can contribute towards improving the tourism behavior in the high-altitude regions. Furthermore, the study also contributes towards providing empirical evidence that can help broaden the knowledge and insights, especially in the under-searched regions by aiding the sustainable tourism development in the high-altitude regions of a developing country. Ultimately, the research can provide valuable insights into sustainable tourism development in high-altitude regions and it warrants that both local and international tourists benefit from the advancement in the technology and the digitalization in the tourism within the country. The approach adopted and the contribution to the literature make this an interesting study and also try to fill the research gap by covering various options that contribute towards sustainable tourism in a country that has meager resources.

Research Objective

This study aims to put forward and empirically examine a theoretical framework that predicts the inclination of tourists to revisit mountainous tourism destinations concerning perceived destination image. Image perception is measured in the context of the use of smart tourism technologies while also analyzing how tourists' development of trust and risk about a destination can influence this dynamic. To meet the study's objective in line with the motivation, this research adopts a Partial Least Square Structural Equation Modelling (PLS-SEM) approach. Two commonly used approaches are prevalent in structural equation modeling i.e., covariance-based SEM and partial least squares SEM. PLS has been proposed as a "causal-predictive" approach to structural equation modeling (Joreskog, 1982), with an emphasis on elucidating the variance in the dependent variables of the model (Chin et al., 2020). PLS-SEM, however, operates under the assumption that the concepts of interest can be represented as composites (Hwang et al., 2020). Estimating models in PLS-SEM requires combining the indicators of a measurement model linearly to create composite variables. These composite variables are considered thorough representations of the constructs and thus serve as reliable substitutes for the conceptual variables under investigation (Hair et al., 2019). Therefore, it proves to be a comprehensive approach to obtain the research objectives by examining a theoretical framework and ensuring sustainable high-altitude tourism about perceived destination image via the adoption of STTs.

Research Questions

The current research tries to find the answers to the following research questions:

1. How does the use of smart tourism technologies (STTs) by tourists during their visit to mountainous destinations impact their decision to return?
2. How does the use of STTs by tourists in mountainous destinations affect their perception of the destination's image and their decision to revisit?
3. How does the perceived image of a destination affect the trust and risk associated with a destination and influence the decision of tourists to revisit mountainous tourism destinations?
4. How strongly do destination-related trust and risk perception mediates the relationship between destination image and intention to revisit mountainous destinations?

1. LITERATURE REVIEW

1.1. STTs and Destination Image Perception

Tourism is one sector that has embraced technological innovation, leading to transformation and significant impacts on tourist behavior, and with the widespread use of smart devices in various activities, the tourism industry is expected to expand further (Novianti et al., 2022). Smart tourism encompasses elements such as technological devices, software systems, network infrastructure, communication tools for power accessibility (such as USB ports), privacy, and trust considerations. It also involves understanding traveler behavior in the industry, enterprise guidance in the tourism sector, and investments like Wi-Fi access or applications (Tavitiyaman et al., 2021a).

The current research presents a summary of the main characteristics that define the STTs utilized in this research. The six STTs used in this study are Google Maps, Pakistan Tourism Guide App, Airbnb, E-Tourism Recommendation, Information and Communication Technologies (ICTs), and Social Media Trip Advisors. Similarly, utilizing global positioning systems, electronic maps, and compasses allows for the collection of satellite-based information to provide precise geographic positions and directions to tourists, hikers, as well as boaters. All of these terms broadly explain the most commonly used app named "Google Maps" (Wang et al., 2016). The use of digital sources, such as tourism websites, has become more prevalent among tourists, seeking information, and engaging in communication regarding their travel plans. The features offered by these websites play a vital role in influencing their decision to visit a particular tourist destination. In Pakistan, various Apps are working to provide such information to tourists specifically focusing on mountainous tourism destinations and one of them is the "Pakistan Tourism Guide App" (Guide). The utilization of various technologies such as wireless networks, global locating systems, topographical information systems, and satellite navigation systems has been employed to effectively address the mobile reservation demands of tourists. For helping tourists with the online booking or reservations of hotels, restaurants, and cafes various famous websites provide such services as "Airbnb" (Wang et al., 2016). In Pakistan, Airbnb and websites like (booking.com) provide a platform to tourists for such facilities. Furthermore, the concept of "Information and Communication Technologies" refers to the deployment of complimentary wireless networks or Wi-Fi, quick response codes, and mobile applications at no cost (Tavitiyaman et al., 2021a). "E-tourism recommendation technologies" offer tourists valuable information and assistance in finding and choosing the attractions that align with their preferences (Wang et al., 2016) and in this context, few websites like (Tripadvisors.com) are providing such facilities in Pakistan. "Social media trip advisors" is a term generally used for online platforms like travel agencies, social influencers, and professional guides such as "mytrip.pk". Such platforms influence tourists and help them in the decision-making process to visit a tourist destination for the first time. Overall, Smart Tourism Technologies (STTs) cover a diverse array of applications that can enhance tourists' experiences while also generating added value. With their extensive reach, provision of useful information, increased flexibility, and decision-making support capabilities, STTs can facilitate a more streamlined and enjoyable travel experience for tourists (Sustacha et al., 2023). The accessibility of social media platforms has enabled virtually anyone to provide reviews, feedback, and opinions regarding their

experiences at a particular destination. These reviews assist other tourists in making comparative assessments of products, available services, and images about a destination (Qian et al., 2023). Employing smart tourism technologies constitutes a crucial factor in cultivating destination loyalty, and destination image, and enhancing tourist satisfaction. The current study defines STTs as the integration of information and communication technologies into diverse tourism activities in mountainous regions, aimed at enhancing tourists' travel experiences and image perception about these destinations.

Furthermore, Destination Image (DI) refers to the familiarity and emotions that tourists have toward the general impression of a particular destination (Fakeye & Crompton, 1991). The image of a destination plays a crucial role in drawing tourists, as it influences their perceptions and ultimately their decision to revisit. Various strategies, approaches, and communication platforms are necessary for this purpose (Godenzi, 2022). Scholars have dedicated significant attention to exploring the tourism image from a variety of viewpoints, with particular emphasis on understanding tourist perception (Li et al., 2023). Various scholarly studies have investigated the factors that impact tourists' perception of a destination image, such as their experiences, promotional tactics, and other elements like social media and popular culture. The influential impact of tourists' memories on destination image and the overall tourism experience is unveiled (Kim, 2018). According to (Suhartanto, 2018) the in-person tourism experience is crucial in determining how tourists see a place in general. As the significance of tourist experiences continues to increase and the demand for information technology in the hospitality and tourism industry rises, smart tourism destinations are proactively involving tourists to enhance travel experiences that hold greater meaning. In such cases, the extensive use of the Internet by tourists leads to more favorable experiences at their destination compared to those who use it less frequently (Lee et al., 2018). Furthermore, the tourism industry also leverages specialized information technology, including the IoT, ICTs, and cloud computing, to facilitate interactions between tourists, and enhance the quality of the visitor experience. This integrated approach is known as "smart tourism." Such innovative technological solutions can elevate a destination's positive reputation, boost passenger and referral traffic, and improve the quality of service provided by government authorities and tourism organizations (Afzal et al., 2024). There is limited research on the connection between smart tourism apps and destination perception, irrespective of cognitive and emotional assessments (Tavitiyaman et al., 2021b). Researchers have posited various theoretical perspectives regarding tourist destination image (TDI), including tourism gaze theory (Urry, 1990), mental imagery theory (Lippmann, 1989), and the cognition-emotion theory (Baloglu & McCleary, 1999). Cognition-emotion theory suggests that the self-perception image constructed by tourists to describe their travel experiences encompasses a composite of cognitive, emotional, and holistic components (Li et al., 2023). The inherent characteristics of the tourism sector provide every individual tourist with a customized and tailored experience based on their interactions and emotions towards smart tourism destinations using smart tourism technologies (Kim, 2018). In this way, the numerous attributes of tourism destinations having access to STTs contribute significantly to the creation of memorable experiences for tourists. The literature above demonstrates the significance of STT attributes in shaping the perceived image of a destination. Similarly, the STTs such as Pakistan Tourism Guide App, and Social Media Trip Advisors have not yet been investigated in terms of their impact on tourists' perception of a destination. Once tourists have had a memorable experience with the use of STTs, it will shape their overall impression of the specific destination (Sharma & Nayak, 2019). Due to the scarcity of relevant literature, this research aims to investigate new perspectives related to the effectiveness of STTs and tourists' perceptions of destination images. This study builds upon previous research discussed and formulates the following general hypothesis based on the identified connections.

H1: The utilization of Smart Tourism Technologies (STTs) can have a significant impact on the perceived image of tourist destinations positively.

1.2. Destination-Related Trust and Risk Perception

The establishment of trust between travelers and their selected destinations is widely acknowledged as a critical factor within the field of tourism. This factor plays a significant role in both encouraging travelers and effectively appealing people to various tourist destinations (Shin et al., 2022; Su et al., 2020; Zheng et al., 2022). According to academic researchers in the field of tourism, there has been a proposition that trust serves as an instrument for mitigating the intricacies of human conduct when faced with circumstances characterized by risk and uncertainty (Kim & Liu, 2022). Trust is a valuable strategy for mitigating the imminence of risk and uncertainty. The perception of different types of risks can be influenced by the level of trust that tourists have in destinations, as supported by research. Hence, tourists have the perception that a destination with a positive image is capable of offering trustworthy and dependable services, and experiences that entail reduced risk and convenience (Shin et al., 2022). In one of the research, trust was examined as an outcome of evaluating the image of a destination, incorporating both cognitive and affective components, as well as the reputation of the destination (Ha & Nguyen, 2023). Trust can be associated with the fact that when tourists exhibit faith in a destination's ability to provide the services it promises, they also demonstrate reliance on the safety measures implemented by that destination (Ameen et al., 2023). Another research showed that the involvement of local community members boosted tourists' confidence in the credibility of institutions, exerting a significant impact on both individual and collective preferences (Dragouni & Fouseki, 2018). Similarly, the level of perceived image that tourists possess about a destination has the potential to impact their perception of trust in said destination. Consequently, if tourists have a considerable perception of the image of a particular place, they will probably display higher levels of trust toward it. Lastly, the consumers' trust in a tourism destination is significantly associated with their intention to revisit that destination (Phan Tan, 2023). The tourist dimension encompasses tourists' perspectives on the attitudes and behaviors of other tourists they encounter during their travels. Additionally, trust develops through interactions between tourists sharing a positive perception of the destination image (Trius et al., 2023).

Theoretical underpinnings for the understanding of how tourists perceive and evaluate risk can be attributed to concepts such as the motivation theory of protection (Rogers, 1975) and the theory of information integration (Anderson, 1981). Previous studies have shown that the perception of risk greatly affects tourists' cautiousness in choosing destinations and reduces their willingness to embark on travel journeys (Chan & Gohary, 2023). Risk perception, as viewed through a behavioral lens, is influenced by both individualistic and situational factors, and in existing scholarly literature, this perception has been described in various ways (Ameen et al., 2023). Traveling comes with various risks like disappointing experiences that don't match the expenses, encountering unfriendly locals, communication difficulties, terrorism or political instability in the destination, crime victimization, contracting diseases like COVID-19, and facing natural disasters. These can lead to unexpected extra costs (Karl, 2018; Kim et al., 2022). Another study observed that perceived risks, including cultural, health, psychological, financial, and political risks, harm the image of a destination (Parrey et al., 2019). A study combined the behavior model by blending emotional and cognitive aspects of destination image and perceived risk into one concept, finding that both cognitive and emotional elements impact overall evaluations (Perpiña et al., 2021). Perceptions of risk before and after traveling significantly impact the perception of a destination's image (Xie et al., 2020). These potential risks can diminish tourists' inclination to visit unfamiliar destinations, particularly those they are venturing into for the first time or those destinations that tourists visited before and perceive a negative image of the destination and have less intention to revisit. The perception of tourism risk has been demonstrated to significantly influence tourist decision-making behavior. The image of a destination has a positive and significant influence on the decision to revisit, while the perception of risk also has a positive and significant effect on the decision to revisit tourism destinations (Susanti et al., 2023). Despite the destination's potential attractiveness and array of leisure options, tourists may decide to cancel their trip even after booking if they begin to view the location as risky (De Canio et al., 2023). Furthermore, travelers commonly read or search for online reviews on social media platforms, evidently to gain first-hand information from previous experiences and mitigate uncertainty in their journeys (Ha & Nguyen, 2023). Therefore, based on the aforementioned discussion, the current research puts forward the following hypothesis:

H2: Positively perceived destination image increases the level of trust in the destination.

H3: Positively perceived destination image decreases the level of risk toward the destination.

1.3. Intention to Revisit to Tourist Destinations

According to existing research in the field of tourism (Chang et al., 2022; Rivera et al., 2019), the behavior of travelers can be characterized as intricate and multifaceted. This complexity arises from a network of interrelated factors, such as observations, feelings, and decision-making processes that influence individuals' choices to visit unfamiliar destinations (Chang et al., 2022; Rivera et al., 2019). A tourist's intention to revisit a destination suggests their loyalty and commitment to that location (Wei et al., 2024). Previous scholars have researched the intention to revisit the tourism industry (Bahja & Hancer, 2021; Hassan & Soliman, 2021; Jian et al., 2021). Research suggests that the likelihood of returning is associated with the level of risk involved (Hu & Xu, 2021; Lu, 2021; Rather, 2021; Yu et al., 2021). Based on their personal experiences, individuals who travel can develop a sense of confidence in a particular destination. Hence, it can be inferred that the establishment of trust in a destination has the potential to diminish perceived risks and consequently enhance the probability of travelers' willingness to explore a novel location (Ameen et al., 2023). Electronic word-of-mouth (EWOM) has a positive influence on both consumers' intention to revisit a destination and their trust in that destination, while their trust in the destination also directly affects their revisit intention (Wei et al., 2024). One of the factors that can influence tourists' intention to revisit a destination is the satisfaction derived from their travel experience at the location (Peng, 2023). Travelers frequently have a preconceived notion of their destination when they embark on a trip. When the actual attributes of the destination align with this initial image, their overall impression after visiting is likely to be more positive. Importantly, throughout the stages of pre-visit, visitation, and post-visitation, the perception of a destination can shift from positive to negative or vice versa (Nazir et al., 2022). Researchers have recently embraced various theoretical perspectives to elucidate the causal connection between destination image and travel experience. A study employed the co-branding theory to uncover the correlation between farm image and experiential activities (Da Liang et al., 2020). Another study employed social exchange theory to investigate the impact of national image on the correlation between Airbnb encounters (Akarsu et al., 2020). The existing academic literature on tourism destination image is extensive, encompassing its conceptualization, measurement, influencing factors, and the mediating influence of destination image on tourists' intentions, behaviors, and satisfaction levels (Wang et al., 2023). The Theory of Planning Behavior posits that individuals with a favorable disposition toward a specific travel destination are more inclined to select that destination for their vacation (Ajzen, 1991). Additionally, tourists tend to gauge their perceived control over the resources and opportunities available at a destination. Thus, we propose that the interplay of trust in the destination and perceived risk can serve as a significant serial mediator, shaping the connection between one's perceived image of the destination and their intention to revisit. The image or reputation of a tourist destination is a crucial factor influencing tourists' intentions to return. Destinations with widely recognized and favorable images tend to be more appealing to tourists (Ngo Thi Xuan Nhi, 2023). Drawing upon prior research exploring the connections between perceived destination image, trust related to destination, and risk perceptions this study posits the subsequent hypotheses:

H4: A higher level of trust towards a destination increases the intention to revisit among tourists.

H5: A higher level of risk towards a destination decreases the intention to revisit among tourists.

H6: Positively perceived destination image increases the intention to revisit among tourists.

1.4. Research Gap

This research aims to provide theoretical advancements within the current scholarly discourse in two distinct manners. As far as our understanding goes, this study is the first one to prove the influence of STTs on perceived destination image and intention to return in the context of mountainous tourism in a developing country such as Pakistan. Secondly, this study is the first one to explore how destination-related trust and risk perception mediate the connection between destination image and plan to revisit similar destinations or high-altitude tourist regions. To investigate the influence of STTs on perceived destination image and intention to revisit, this study conducted a thorough analysis of existing academic literature on smart tourism tools and technologies, destination image, destination-related trust and risk, and revisit behavior. The findings were incorporated into an enhanced research model. Empirical testing of the research questions proposed was undertaken using contemporary tools and techniques concerning appropriate sources for validation. Such an implementation of the research and its thorough assessment of the factors involved forms the current study's research gap, leading toward its novelty and enabling it as a one-of-its-kind study.

2. RESEARCH METHODOLOGY

The research model is formulated, based on the research questions involved, that considers various factors into account to ensure the authenticity of the results and in this case, the potential connections between the variables that could impact a tourist's inclination to revisit are depicted in Figure 1. The suggested connections are derived from the scholarly materials analyzed in the preceding segment. The underlying model presupposes that the level of perception about the image of a destination is influenced by an individual's satisfaction with various attributes of smart tourism technologies. On the other hand, the degree of image perception has a direct impact on one's likelihood of revisiting (Tavitiyaman et al., 2021a). This tendency is further influenced by the trust developed in the destination based on prior experience and risks perceived during the visit to the tourist destination (Ameen et al., 2023).

The independent variable in the model is the "perceived image of destination" which is a multi-faceted variable and is established by six attributes of smart tourism technologies i.e., Google Maps, Pakistan Tourism Guide App, Airbnb, E-tourism Recommendation, ICTs, and Social Media Trip Advisors. The dependent variable in the model is the "intention to return to a destination". It is mainly influenced by one independent variable and the relation between both dependent and independent variables is mediated by two mediating variables which are: Destination Related Trust, and Risk Perceived. Similarly, the risk perception will be measured based on three items, i.e., 1) destination risk 2) physical risk, and 3) travel-related risk.

2.2. Data Collection

A survey was created containing questions that assess the demographic and research-related aspects and to ensure that our proposed hypothesis is not influenced by confounding factors, we included several control variables in this study. These variables include age, gender, level of education, monthly household income, frequency of travel, mode of transport used for travel, origin and destination points of last destination traveled, and year and month of last visit to mountainous tourism destination.

The self-observation method was used to formulate the STT questions. Respondents were required to evaluate their satisfaction level with the use of each attribute associated with STTs during their trip and provide an overall rating on a 5-point Likert scale (1 = poor, 5 = excellent) developed by (Wang et al., 2016). Destination image was measured on a 5-point satisfaction scale, ranging from (1 = very dissatisfied, 5 = very satisfied) and 5 items for it are adopted (Kim, 2018). Five trust-related items were modified for destination trust, based on the scale proposed by (Kim & Kim, 2020). Respondents were asked to rate the level of trust they built after their last or any previous visit to a mountainous tourism destination after experiencing the use of STTs, using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The components for perceived risk were identified as a reflective-formative second-order concept and encompassed three aspects namely, risk associated with the destination, physical risks, and travel-related risks. These dimensions were derived from the scale created by (Sharifpour et al., 2014). Respondents were asked to rate how they perceived risk after their last or any previous visit to a mountainous tourism destination or a region after experiencing the use of STTs, using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The two items for intention to revisit were adapted from (Hosany et al., 2020) and respondents were asked to rate their inclination to revisit a destination using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

In this particular study period, a cross-sectional approach was employed to examine and explore this phenomenon. The study's focus is on individuals who traveled to Pakistan's mountainous tourism destinations from 2005 to 2023. Data collection for this study involves a one-step process, utilizing a survey questionnaire. The design of the questionnaire is based on the specific decision criteria and alternative options being explored in this research. The questionnaires were disseminated to participants through all social media platforms who received detailed information regarding the study's objective, as well as the importance of maintaining confidentiality and voluntary participation. Data was gathered during one month, specifically from September 8th to October 8th in the year 2023.

A total of two hundred participants were included for further examination, meeting the necessary minimum sample size requirements for the analysis by PLS-SEM. PLS-SEM was employed to evaluate the research hypothesis due to its appropriateness for studies in the initial developmental or exploratory phase, enabling simultaneous handling of both reflective and formative indicators (Chin,

1998). PLS-SEM demonstrates superior performance compared to alternative methods in scenarios where the research objective is focused on prediction or exploration (Hair Jr et al., 2021). In academic contexts, structural equation modeling proves valuable in assessing intricate connections between latent variables, such as the impacts of mediation and moderation effects. Additionally, it serves to optimize the amount of variance that can be explained concurrently (Becker et al., 2023; Hair Jr et al., 2021).

Regarding the demographic characteristics of the participants as shown in Appendix Table A1, a majority consisted of females (51%) and slightly over half of respondents fell within the 18-25 age range (62.5%). Approximately more than one-fourth had a monthly income between Rs 1,50,000 or above (32.5%), held a bachelor’s degree (57%), and frequently embarked on three or more trips per year (29%). The most common mode of transport used to travel by respondents is a private car (59.5%) and most of the people traveling to mountainous areas were observed to have started their travel from the KPK region (48.5%). The last destination visited by the majority of respondents is found to be Galiyat (Nathiagali, Murree, Thandiani) (36%) in recent years 2020 – 2023 (83.5%). Most of the respondents preferred to travel in August (24.5%).

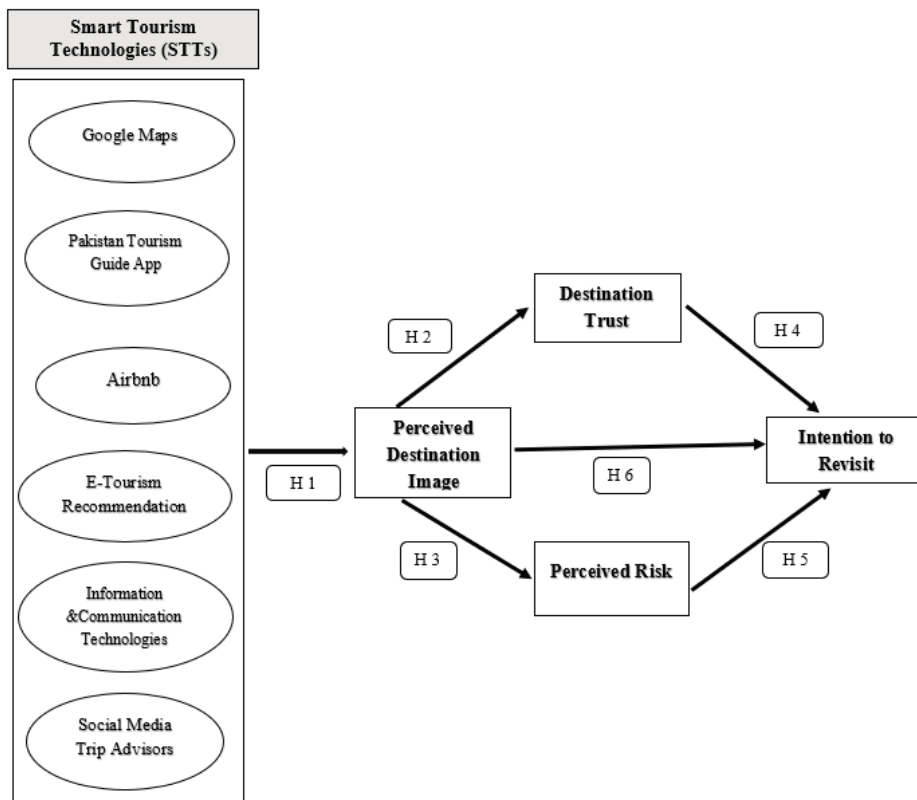
3. RESULTS

The model employed in the current research utilized the Structure Equation Modelling approach, conducted with the Smart PLS 4 software. This methodology facilitated exploring the connections between independent and dependent variables via a series of constructs, validating or dismissing the hypothesis. It is worth noting that Smart PLS can handle non-normal data, though it may impact bootstrapping. To ensure data normality, Skewness and Kurtosis analyses were carried out. The data distribution in this study falls within the normal range, with parameter values between -3 and +3. Here are the analysis findings:

3.1. Common Method Bias (CMB)

Common Method Bias poses a critical concern for establishing the validity of the relationship between variables. CMB can result from factors like shared measures, consistent themes, social desirability bias, agreement biases, and formatting of standard scales. To mitigate the potential influence of common method bias, steps were taken in this study to incorporate validity checks within the questionnaire survey. Additionally, respondents were given clear instructions and made aware of the study’s objective, creating an incentive for them to provide accurate responses. To enhance the validity of the assessment in this study, a different statistical evaluation was utilized to identify and mitigate any potential common method bias. This included the full collinearity test. To assess potential bias, a statistical analysis was conducted. To evaluate whether common methods introduce any bias, the complete factor values for VIF were computed using Smart PLS 4.

Figure 1: Research Model Source (Ameen et al., 2023; Tavitiyaman et al., 2021a)



The findings from the complete collinearity test indicated that the variance inflation factors ranged from 1.000 to 2.077, which is below the established threshold of 3.3 as indicated in Table 1. This suggests that there is no significant presence of common method bias in this study. In summary, both outcomes confirm that concerns regarding common method bias can be ruled out for this particular research project. This finding provides evidence that there is no bias resulting from the utilization of common approaches.

3.2. Measurement Model

To assess the measurement model's convergent validity, we analyzed all constructs in this study using factor loading, composite reliability (CR), and average variance extracted (AVE). The products' reliability has been confirmed by employing factor loading analysis. Factor loading represents measurement validity which pertains to the degree to which a survey question accurately represents the intended concept being measured. As all the items have a factor loading greater than the minimum 0.7 threshold as indicated in Table 2, none of them were excluded from further evaluation. Cronbach's alpha, a method commonly employed in validating the internal consistency reliability of models, also demonstrated values exceeding the minimum 0.7 threshold for all latent variables. This signifies that survey questions measuring the same concept or construct consistently yield reliable

Table 1: Common Method Bias (Collinearity Check) (Factor Level VIF)

Variables	ABnb	DT	ETR	GM	ICTs	ITR	PTGA	PDI	PR	SMTA
ABnb								1.722		
DT						2.015				
ETR								2.077		
GM								1.355		
ICTs								1.299		
ITR										
PTGA								1.651		
PDI		1.000				1.421			1.000	
PR						1.528				
SMTA								1.978		

Abbreviations 1: GM = Google Maps, PTGA = Pakistan Tourism Guide App, ABnb = Airbnb, ETR = E-Tourism Recommendation, ICTs = Information and Communication Technologies, SMTA = Social Media Trip Advisors, PDI = Perceived Destination Image, DT = Destination Trust, PR = Perceived Risk, ITR = Intention to Revisit

results. Moreover, researchers have employed composite reliability (CR) as a measure to assess internal consistency reliability. It has been established that this method is satisfactory for all latent variables in this study, as it adheres to the predetermined threshold of composite reliability > 0.70. The concept of average variance extracted (AVE) represents convergent validity which pertains to the degree of correlation between multiple survey questions that are designed to measure the same construct. According to the criteria with a minimum threshold value of 0.5, AVE values above this level indicate satisfactory reliability for all variables being studied. The values in Table 2 present the Factor Loading, Composite Reliability, Cronbach Alpha, and AVE measurements.

Next, the discriminant validity was assessed by employing the Heterotrait-Monotrait (HTMT) ratio correlation method as shown in Appendix Table A2. Discriminant validity refers to the ability of survey questions to measure distinct dimensions of a construct without duplicating the same information. HTMT compares correlations between constructs to correlations within the same construct. The HTMT value of less than 0.90 indicates that the constructs are distinct and not measuring the same thing. The outcomes of HTMT analysis indicated that all constructs exhibited values below the recommended threshold of 0.9, confirming their discriminant validity. The variability in the discriminant is evident from the data presented in Appendix Table A2, as indicated by a greater square root of Average Variance Extracted compared to the relationship between latent variables. Similarly, before executing the structural model, an assessment was conducted to ascertain the absence of any collinearity among the exogenous variables. The VIF values were scrutinized for this purpose. Considering that all variables investigated in this study exhibit a VIF below 3.3, it is justifiable to conclude that there are no issues regarding collinearity.

3.3. Structural Model

The study employed Smart PLS 4 to test the hypothesis and analyze the structural model and given the model's complexity and limited sample size, Partial Least Square Structural Equation Modelling was preferred over Covariance-Based Structural Equation Modeling. PLS-SEM was chosen for its enhanced statistical power. The bootstrapping method was used to determine the results of the structural model, with a sample size of 5000. Table 3 presents the beta coefficients and p-values for each hypothesis, with a threshold range of (-1< β <+1) and a maximum threshold of 0.05 respectively.

The results presented in Table 3 regarding the direct relationship analysis demonstrate that Google Maps, as predicted in Hypothesis 1a (H1a), has a significant positive impact on the perceived destination image ($\beta=0.192$, $p\text{-value}=0.001<0.05$). This suggests that H1a is valid. The positive impact of STTs on the destination image is due to the various facilities they provide for tourists, making their experiences unforgettable. By navigating through the Google Maps app, tourists can easily reach their destinations, which is why it is widely used by tourists visiting mountainous tourism destinations in Pakistan. This study confirms that the use of Google Maps has a positive impact on the perceived destination image. On the other hand, Hypothesis 1b (H1b) suggests that the use of the Pakistan tourism guide app has an indirect correlation with the perceived destination image, as shown in Table 3 ($\beta= -0.026$, $p\text{-value}=0.655>0.05$). Therefore, H1b is considered invalid and rejected. This result supports the notion that such apps are not widely used by tourists as the majority of them are unaware of the apps that can help them travel to hidden places of their choice in mountainous areas. The failure of such apps to align with the overall positive perception of the destination is the reason behind their limited usage. To promote smart tourism, the development of smart tourism destinations should prioritize the preferences of tourists and the unique characteristics of each destination. For instance, for mountainous tourism destinations, applications like Pakistan Tourism Guide App can provide tourists with valuable information. However, tourists should be made aware of these apps through marketing campaigns and social media platforms to incorporate their use. This procedure will help Pakistan boost its tourism sector and move towards smart tourism.

Hypothesis 1c (H1c) postulates that there is a direct correlation between the use of Airbnb and the perception of destination image. The results in Table 3 indicate a strong relationship between Airbnb and destination image, which is supported by the statistically significant beta coefficient ($\beta=0.185$, $p=0.007<0.05$). This finding accurately mirrors the real-world scenario where applications like Airbnb allow tourists to find rental places in the area and choose from a variety of options to stay as paying guests.

The majority of tourists are aware of such applications, and as confirmed by the results of this study, they are increasingly using them in their travel journey to mountainous tourism destinations in Pakistan. Hypothesis 1d (H1d) suggests a direct correlation between the use of E-Tourism Recommendation websites and the perception of the destination image. This hypothesis is validated by the statistical values presented in Table 3 ($\beta=0.190$, $p=0.005<0.05$). The results strongly support the notion that tourists in mountainous tourism destinations use such technologies to enhance their travel experience. E-tourism recommendation is a general term used to describe websites like tripadvisors.com that provide tourists with recommendations on famous tourist spots, restaurants, hotels, motels, and other similar amenities.

Additionally, Hypothesis 1e (H1e) suggests that the utilization of Information and Communication Technologies (ICTs), such as free Wi-Fi, has a positive impact on perceived destination image. Statistical results ($\beta=0.228$, $p=0.000<0.05$), as shown in Table 3, support this claim. Access to the internet is crucial for travelers who require information during their journey. Fortunately, visitors to Pakistan's mountainous tourism destinations can easily connect to free Wi-Fi networks available in various public areas, including buses, hotel lobbies, and local shops, using their mobile devices. Hypothesis 1f (H1f) states that the use of advice from Social Media Advisors strongly influences perceived destination image. The statistical analysis presented in Table 3 reveals a significant correlation between the path, as demonstrated by the findings ($\beta=0.208$, $p=0.007<0.05$), thereby confirming H1f. Social media trip advisors refer to travel agencies and travel advisors who promote the scenic beauty of Pakistan on social media and arrange trips for people. This factor significantly helps Pakistani tourists select a destination based on the experiences of various people on social media, thereby creating a positive image of the destination after their visit.

Hypothesis 2 (H2) suggested that tourists' favorable perception of a destination is linked to an increased level of trust in that particular place. The results obtained ($\beta=0.539$, $p=0.000<0.05$) as shown in Table 3 confirmed the hypothesis, indicating that mountainous tourism destinations in Pakistan received tourists' trust. Tourists base their trust on the destination's ability to meet their expectations, provide satisfaction, and instill confidence. Additionally, they didn't encounter any disappointment with the destination. Hypothesis 3 (H3) states that when the destination image is seen more positively, the perception of travel risk decreases. The results obtained ($\beta= -0.254$, $p=0.003<0.05$) confirmed this hypothesis. Pakistan has made its tourism destinations smarter and increased safety protocols in such destinations. As a result, from travelers' perspectives, the risk situation in mountainous tourism destinations in Pakistan has decreased. Tourists felt safe during their travels to such destinations and encountered minimal risk in terms of destination-related, physical, and travel-related risks.

According to Hypothesis 4 (H4), trust in a destination has a significant positive impact on the intention to revisit. This correlation has been validated through the results obtained ($\beta=0.378$, $p=0.000<0.05$). Hypothesis 5 (H5) suggests that the higher the perceived risk, the lower the intention to revisit, and this has also been validated through the obtained results ($\beta= -0.223$, $p=0.005<0.05$). These results reflect the reality of the situation as Pakistan's mountainous areas are full of beautiful scenery, and when tourists develop trust and do not encounter risks in such places, they are naturally attracted to them. As a result, they intend to travel and see such natural landscapes more often for mental peace, recreation, and entertainment. Finally, Hypothesis 6 (H6) states that a positively perceived destination image increases the intention to revisit among tourists, and this seems to be true based on the statistical results ($\beta=0.208$, $p=0.000<0.05$). Based on the survey responses, Pakistani tourists have expressed their satisfaction with their experience using the five STTs during their visit to mountainous tourism destinations. Additionally, they perceive a positive image of these destinations which makes them more likely to revisit such places more frequently in the future. This shows that Pakistan is gearing towards smart tourism and plans to grow in this sector.

In addition, Table 3 illustrates the beta coefficient and p-values for the mediation effect, clarifying how mediating variables affected the relationship between perceived destination image and intention to revisit. According to the findings, the level of trust placed in a destination has a significant impact on the connection between the destination's image and the intention to revisit with a significant mediation effect ($\beta=0.204$, $p=0.000<0.05$). However, perceived risk had no mediation effect on the relationship between perceived destination image and intention to revisit ($\beta=0.056$, $p=0.058>0.05$). This implies that tourists associate the trust they develop towards a destination with its overall image. Conversely, they perceive risk independently regardless of the destination image, which does not influence their intention to revisit a destination based on what they perceive. Furthermore, the final results obtained are also depicted in Figure 2., which depicts the full representation of the model results, the values obtained for each hypothesis, and ensuring an accurate depiction of the acceptability or the rejection of the hypothesis.

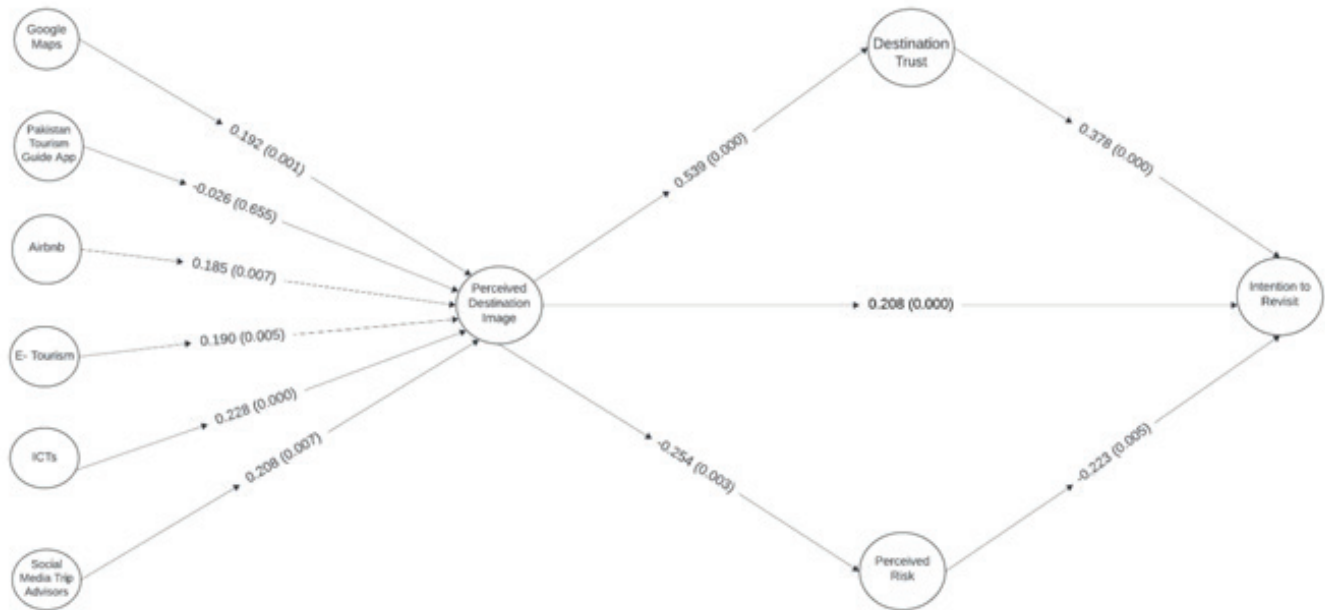
Table 2: Measurement Model Properties (Convergent Validity)

Measurement Items	Factor Loading	Cronbach's Alpha	Composite Reliability	AVE
Perceived Destination Image		0.886	0.916	0.686
DI 1: How satisfied were you with the quality of service of the destination having higher access to STTs?	0.854			
DI 2: How satisfied were you with the entertainment on the destination having higher access to STTs?	0.826			
DI 3: How satisfied were you with the quality and variety of accommodations on destinations having higher access to STTs?	0.824			
DI 4: How satisfied were you with the local transportation on destinations having higher access to STTs(Smart Tourism Technologies)?	0.776			
DI 5: How satisfied were you with the image of architecture/buildings at the destination having higher access to STTs?	0.859			
Destination Trust		0.893	0.926	0.757
T1: The destination met my expectations.	0.875			
T2: I feel confident about the destination.	0.895			
T3: The destination guarantees satisfaction.	0.898			
T4: I am disappointed with the destination.	0.810			
Perceived Risk		0.945	0.953	0.671
DR1: I had a disappointing experience.	0.847			
DR2: This trip was a waste of time.	0.865			
DR3: I got a bad value for money.	0.855			
DR4: My friends/family disapprove of this holiday.	0.836			
DR5: There was a cultural misunderstanding.	0.832			
DR6: Difficulties in communicating.	0.791			
PR1: Being involved with a terrorist act.	0.846			
PR2: Being a crime victim.	0.856			
TR1: Equipment, mechanical, or organizational risk.	0.742			
TR2: Becoming a victim of a natural disaster.	0.705			
Intention to Revisit		0.824	0.919	0.850
RI 1: I would like to revisit this destination in the near future.	0.934			
RI 2: I would more frequently visit this destination.	0.910			

Table 3: **Structural Model Results**

Path	β	T statistics	p - value	Hypothesis	Accepted/Rejected
Direct Effect					
Google Maps → Perceived Destination Image	0.192	3.177	0.001	H1a	Accepted
Pakistan Tourism Guide App → Perceived Destination Image	-0.026	0.447	0.655	H1b	Rejected
Airbnb → Perceived Destination Image	0.185	2.686	0.007	H1c	Accepted
E-tourism → Perceived Destination Image	0.190	2.791	0.005	H1d	Accepted
ICTs → Perceived Destination Image	0.228	3.986	0.000	H1e	Accepted
Social Media Advisors → Perceived Destination Image	0.208	2.689	0.007	H1f	Accepted
Perceived Destination Image → Destination Trust	0.539	7.589	0.000	H2	Accepted
Perceived Destination Image → Perceived Risk	-0.254	2.943	0.003	H3	Accepted
Destination Trust → Intention to Revisit	0.378	4.407	0.000	H4	Accepted
Perceived Risk → Intention to Revisit	-0.223	2.824	0.005	H5	Accepted
Perceived Destination Image → Intention to Revisit	0.208	3.529	0.000	H6	Accepted
Mediation Effect					
Perceived Destination Image → Destination Trust → Intention to Revisit	0.204	3.793	0.000		Accepted
Perceived Destination Image → Perceived Risk → Intention to Revisit	0.056	1.898	0.058		Rejected

Figure 2: Bootstrapping Model (Source: Own Work)



3.4. Discussion

Pakistan's picturesque mountainous tourism spots are being promoted as smart destinations, with the implementation of various smart tourism technologies to enhance the travel experiences of tourists. In fact, out of the six attributes associated with Smart Tourism Technologies, five, including Google Maps, Airbnb, E-Tourism Recommendation, Information and Communication Technologies, and Social Media Trip Advisors, have been found to have a positive impact on tourists' perception of Pakistan's mountainous tourism spots as desirable destinations. Our research has shown that there exists a serial mediation effect, where a positive perceived destination image leads to an increase in destination trust and a decrease in risk perceptions among travelers, ultimately enhancing their intention to revisit a destination. It is worth noting that a stronger sense of risk toward a destination leads to a decreased intention to revisit it. Interestingly, our study is the first to analyze the serial mediation effect of destination trust and perceived risk on the correlation between perceived destination image based on the use of smart tourism technologies and revisit intention.

This research has significant implications for destination marketing organizations. It is crucial to prioritize enhancing repeat travelers' trust in familiar destinations, especially those perceived as having higher risks. This can be achieved by providing them with comprehensive and relevant information about these destinations. Travel marketers must be aware of how repeat travelers' subjective understanding of a destination can impact their confidence in it, and consequently, how they perceive different types of risks. To enhance the overall tourist experience and increase trust levels, tourism providers are recommended to integrate advanced smart information systems, which should be regularly updated e.g., QR codes and complimentary Wi-Fi connectivity. Offering complimentary Wi-Fi services to clients and visitors can greatly enhance convenience and ease of travel. By complementing online payment systems and facilitating seamless access to relevant information, establishments such as hotels, restaurants, retail stores, and popular tourist destinations can offer a wider range of tourism-related amenities. The perception of the destination image remains an important determinant in influencing tourists' behavioral intentions. A smart destination should possess the capability to virtually deploy and facilitate tourism assets and points of interest for prospective tourists. Technology can be an effective means to disseminate information amongst visitors, potentially helping them in their future travel arrangements.

Furthermore, it is vital for a range of significant stakeholders, including government bodies and communities in a locality, to take part in the development of smart tourist destinations, in addition to the perspectives of tourists and tourism providers. Coordination among these diverse groups is necessary to create effective policies, acquire financial support, and allocate funds from both the public and private domains. Ongoing monitoring of the implementation of STTs is essential to safeguard a flowing and efficient shift toward making informed decisions in smart tourism marketing. Successful promotion of a smart tourist destination demands collaboration with various patrons in the tourism industry, including effective infrastructure, supportive policies, planning frameworks, and engagement from local communities. To achieve this, strategies must leverage existing values and resources inherent to smart destinations, promoting business and enhancing the desirability of these destinations.

3.4.1. Theoretical Implications

The study provides a comprehensive assessment regarding the implementation of the Smart Tourism Technologies (STTs) and their impact on the tourists' decisions to revisit mountainous destinations. In this regard, the study also helps to provide theoretical aspects that can be further extended in future research applications. One of the theoretical implications of the current study is the technological acceptance and its usage in tourism i.e., Technology acceptance models. The findings of the research can be extended towards such models by including the factors related to destination choice and tourism leading towards the convenience and boosted access provided by the STTs. The study also helps towards the understanding of the behavioral intentions of the tourists and how they are shaped by the usage of the STTs, as they can translate the usage to the actual behavioral intentions in the case of tourism in a developing country. Furthermore, the study also contributes to the destination image theory by shaping image enrichment via the utilization of the STTs. It is possible because STTs provide real-time information and personalized recommendations that can contribute to positive tourists' perceptions. Similarly, another theoretical implication of the study is towards the implementation of the trust and risk theory in the case of tourism, through the utilization of the STTs that can enhance tourism through enhanced safety features and reliable information and also reduce the barriers to repeated visitation at the mountainous regions. Lastly, the research also contributes to the literature by providing a platform that can enrich consumer behavior and thus provide necessary theoretical implications for the stakeholders and the policymakers.

3.4.2. Practical Implications

The research covers wider aspects when it comes to the implementation of STTs to enhance tourism and establish sustainable mountainous tourism in the case of a developing country. The practical research implication of the current research is to provide insights into the effective use of PLS-SEM for analyzing and evaluating the tourism patterns in high-altitude regions, which can guide future research and policymaking in Pakistan and similar contexts. Secondly, the study plays a greater role in the enhancement of the tourist experience by considering improved visitor satisfaction. The STTs can be leveraged by the stakeholders to offer recommendations and personalized services to the visitors to enable them to come back again and again. It can also help towards the improved interactive experiences for the visitors to make it more informative and engaging for the tourists who are planning a visit to those regions. Furthermore, the study also contributes to the overall marketing and image management of the tourist destination by implementing the latest technological uses that can appeal to tech-oriented tourists and event planners. Such positive experiences automatically lead to image building by enabling higher reach on social media. Lastly, the study helps to provide enough solutions to the stakeholders and enables them to carry out various steps to ensure sustainable tourism development in the mountainous regions, proving to be a one-roof solution and a one-of-its-kind study.

CONCLUSION

The primary aim of this research is to comprehensively integrate the fundamental aspects of smart tourism technologies (STTs) with the analytical framework of partial least squares structural equation modeling (PLS-SEM). The study seeks to elucidate the pivotal role of perceived destination image as a mediator in assessing the effectiveness of various attributes of smart tourism technologies while also examining their influence on the behavioral intention of tourists to revisit the destination.

While prior research has examined the influence of STT attributes on perceived destination image and intentional behavior mediated by travelers' information-seeking behavior, this study ventures into uncharted territory by scrutinizing the relationship between six distinct STT attributes pertinent to mountainous tourism destinations in Pakistan. Moreover, it investigates the mediating role of destination trust and risk in this relationship, offering novel insights that deviate from established findings. The study highlights the significance of integrating diverse STTs, such as Google Maps, Airbnb, e-tourism recommendations, information and communication technologies, and social media trip advisors, in enhancing tourists' perceptions of a destination and fostering their inclination to revisit. By leveraging these technologies, destinations can augment their unique geographical features and attractions, thereby bolstering their overall image and appeal. For instance, a mountainous tourist destination could leverage smart travel attractions like hotels, dining establishments, and theme parks in conjunction with STTs to accentuate its distinct offerings. The positive perception of a destination engendered through such initiatives prompts tourists to advocate for it through positive feedback, recommendations, and word-of-mouth promotion, thereby amplifying its allure and visibility. Furthermore, the study adopts a distinctive approach by evaluating tourists' post-experience engagement with STTs at smart tourism destinations, diverging from conventional methods that primarily focus on pre-departure satisfaction with travel plans. By analyzing actual experiences and subsequent recall, the study provides a comprehensive understanding of STT utilization in enhancing tourist experiences. Drawing on sociological theories of trust and risk, the analysis underscores the pivotal role of destination trust in reinforcing the link between perceived destination image and revisiting intentions. It elucidates how a positive perception of a destination cultivates trust among travelers, thereby fostering future revisits, while a heightened perceived risk can deter revisit intentions. In essence, this study enriches the theoretical underpinnings of destination management and tourism marketing by unraveling the intricate interplay between STTs, perceived destination image, destination trust, and revisit intentions. Its findings offer valuable insights for destination stakeholders seeking to leverage STTs to cultivate positive tourist experiences and foster destination loyalty.

Limitations and Future Work

Although this research has made substantial contributions, it is important to acknowledge several limitations that should be considered by future researchers in their studies. First, the sample size of 200 respondents was considered due to time constraints but it can be increased in future studies. Secondly, the data was collected from an online survey of general tourists belonging to the 18 – 70 age group having different occupations but, in the future, more specific groups related to the tourism industry for example, travel agencies, tour operators, travel stakeholders, and foreign tourists as well can be targeted. Furthermore, the research was carried out in a developing nation, specifically Pakistan. It is important to consider that this factor could restrict its generalizability and relevance to other contexts. This study only focused on mountainous tourism in Pakistan whereas future researchers can focus on various dimensions of tourism for example city tourism, sports tourism, religious tourism, etc. Thirdly, this study solely assessed the six smart tourism technologies and future work can be carried out considering various other STTs specifically related to the study area. This study used the cross-sectional approach and to establish a more robust understanding of the causal relationship, future research endeavors could consider utilizing longitudinal or experimental methodologies. This research investigated individuals who had previously experienced a smart destination. Subsequent studies have the potential to investigate alternative factors that influence visits to future smart tourism destinations. Another area for further study is examining the impact of smart tourism on various suppliers' performance, such as hotels, restaurants, and theme parks.

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7. APPENDIX

Table A1: Demographic Profile of Respondents

Category	Frequency (n=200)	Percentage
Gender		
Male	98	49%
Female	102	51%
Age of Respondents		
18 - 25 years old	125	62.5%
25 - 45 years old	66	33%
45 - 60 years old	7	3.5%
60 - 70 years old	2	1%
Level of Education		
High school or below	7	3.5%
College or vocational training	11	5.5%
Bachelor's degree	114	57%
Master's degree or above	64	32%
Ph.D.	1	0.5%
Mbbs	3	1.5%
Household Monthly Income		
Rs 50,000 or less	40	20%
Rs 50,000 - Rs 1,00000	55	27.5%
Rs 1,00000 - Rs 1,50,000	40	20%
Rs 1,50,000 or above	65	32.5%
Frequency of Travel		
Once a year	42	21%
Twice a year	47	23.5%
Three or more times a year	58	29%
Rarely	53	26.5%
Mode of Transport		
Private Car	119	59.5%
Rental Car	14	7%
Public Transport by Land (Bus, Coaster & others)	62	31%
Public Transport by Air	5	2.5%

Table A2: Discriminant Validity (Heterotrait-Monotrait ratio (HTMT) – Matrix)

Variables	ABnb	DT	ETR	GM	ICTs	ITR	PTGA	PDI	PR	SMTA
ABnb										
DT	0.255									
ETR	0.600	0.378								
GM	0.411	0.332	0.344							
ICTs	0.304	0.484	0.350	0.287						
ITR	0.234	0.719	0.362	0.347	0.295					
PTGA	0.435	0.363	0.521	0.423	0.304	0.274				
PDI	0.568	0.599	0.594	0.496	0.523	0.539	0.444			
PR	0.100	0.625	0.171	0.290	0.182	0.546	0.125	0.265		
SMTA	0.469	0.582	0.607	0.381	0.455	0.428	0.540	0.609	0.244	