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THE IMPACT OF PERCEIVED SMART TOURISM SERVICES ON TOURISTS' MEMORABLE EXPERIENCE AND REVISIT INTENTION IN CAN THO CITY, VIET NAM

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1. National library of Viet Nam
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PART I. INTRODUCTION

1. Research background

Amid the rapid growth of the digital economy and the Fourth Industrial Revolution, the tourism industry is undergoing significant shifts as smart tourism technologies are increasingly embedded across the tourist journey (Buhalis & Amaranggana, 2015; Neuhofer et al., 2015; Van Riel et al., 2019). Tourists now engage not only with traditional services but also with smart technologies for information search, planning, and transactions (Jeong & Shin, 2019; Sigala, 2018; Wang et al., 2016). These technologies foster personalized experiences and value co-creation between tourists and providers (Chuang, 2023; Huang & Lau, 2020; Jung et al., 2024; Passini & Affonso, 2018), thereby enhancing satisfaction, memorable experiences, and revisit intention (Neuhofer & Buhalis, 2021; Torabi et al., 2022).

Most existing studies focus on the supply side, highlighting the role of stakeholders in smart booking, mobility, accommodation, dining, shopping, and payment services (Bhaskar Naik et al., 2019; Cheng et al., 2025; Elshaer & Marzouk, 2024; Flavián et al., 2020b; Kim et al., 2020; Tavitiyaman et al., 2024). Conceptual frameworks also stress the importance of integrated ecosystems for enhancing co-creation (Chuang, 2023). However, there remains a lack of empirical insight into tourists' perceptions and interactions with smart tourism services (STS), especially in diverse technological contexts.

Research from the tourist's perspective is still limited, particularly regarding how STS perceptions influence experience and behavioral outcomes (Jeong & Shin, 2019; Torabi et al., 2022). This gap is more evident in rapidly developing destinations, where digital transformation is underway but understudied (Bhuiyan et al., 2022). In Vietnam, existing studies mostly emphasize technical or destination-level planning aspects, with minimal attention to user experience (Kieu Thuy Tien, 2024; Pham Thi Thuy Nguyet, 2024; Vu Huong Giang, 2022).

Can Tho City - a key Mekong Delta destination - is actively adopting digital tools such as mobile apps, smart payments, QR codes, and immersive technologies like VR/AR to enhance tourist experiences (People's Committee of Can Tho City, 2023; Cao Thi Sen et al., 2024a). Despite these efforts, challenges remain due to inconsistent technological readiness and acceptance (Eichelberger et al., 2020). Furthermore, no study to date has systematically explored how tourists perceive and interact with STSs in Can Tho, nor how these experiences affect satisfaction, memorability, and revisit intention (Ta Van Thanh et al., 2024).

Therefore, the dissertation titled *"The impact of perceived smart tourism services on tourists' memorable experience and revisit intetion in Can Tho City, Viet Nam"* is conducted with the aim of addressing the aforementioned research gaps.

2. Research objectives

The research objective of this thesis is to develop a theoretical framework on tourists' perceptions of smart tourism services (PSTSs) and their impacts on memorable experiences and revisit intentions, through an empirical case study in Can Tho City, Vietnam. To achieve the main objective, the thesis needs to address the following specific objectives:

The first research objective to develop a theoretical framework for tourists' perceptions of smart tourism services, including the conceptualization of its specific components. This involves analyzing the roles of smart tourism applications and smart tourism technologies in supporting and enhancing tourism services.

The second research objective to formulate research hypotheses, develop measurement scales, propose a research model, and validate both the measurement model and the structural model that illustrates the relationships between tourists' perceptions of smart tourism services and their memorable experiences, satisfaction, and revisit intention.

The third research objective to provide implications and recommendations for relevant stakeholders in order to develop smart tourism services that enhance tourists' revisit intention to Can Tho City.

Based on this, the dissertation seeks to address the following research questions:

Research question 1: How do tourists perceive smart tourism services (including smart sightseeing, smart accommodation, smart dining, smart shopping, smart transportation and smart payment services), and what roles do STAs and STTs play in the delivery of STSs?

Research question 2: How do the components of PSTSs influence tourists' memorable experiences and their intention to revisit?

Research question 3: What implications can be proposed for stakeholders to develop smart tourism services that positively influence tourists' memorable experiences and revisit intention?

3. Research subjects

Research subject: Tourists' perceptions of smart tourism services, the roles of smart tourism applications and smart tourism technologies in supporting smart tourism services, and the impact of perceived smart tourism service components on memorable experiences and revisit intention..

Research participants: The author targets and collects responses from domestic and international tourists who have traveled to Can Tho City and have used smart tourism applications (before/during/after the trip) or directly experienced smart tourism services during their trip.

4. Research scope

Content Scope

The dissertation adopts a tourist-centered approach to smart tourism services in Can Tho City. Specifically, the study focuses on analyzing the impact of tourists' perceptions of smart tourism services on their memorable experiences and revisit intention, within the real-world context of Can Tho City.

Time Horizon

Secondary data: Scientific articles from the Scopus and Web of Science (WoS) databases published between 2015 and 2025; secondary data related to Can Tho City analyzed for the period 2022–2024 to ensure the recency and relevance of the information.

Primary data: For the study on tourists' perceptions of smart tourism services, qualitative data were collected over a three-month period from January to March 2024. The Fuzzy Delphi method was conducted through three rounds of surveys and result synthesis from March to May 2024. Data on the impact of perceived smart tourism services on tourists' memorable experiences and revisit intention to Can Tho City were collected through tourist interviews from May 2024 to January 2025.

5. Contributions of Research

Theoretical Contribitions

First, this dissertation offers a new approach to smart tourism services by focusing on tourists' perceptions when using these services, rather than merely evaluating hardware and software attributes. The study develops a theoretical framework based on tourists' perceptions of technology-integrated smart tourism services, thereby refining the measurement scale of smart tourism services in Can Tho City, divided into six main service domains. The most significant contribution of the research is the development of the PSTSs scale with seven attributes and twenty-five observed variables, clearly reflecting the characteristics of smart tourism technologies in supporting traditional tourism services, including sightseeing, dining, shopping, mobility, and payment. The study clarifies the role of technologies such as mobile applications, virtual reality, and augmented reality in enhancing the travel experience, helping tourists save time and receive personalized services. In addition, collecting and analyzing data from tourists facilitates value co-creation between tourists and service providers, improves service quality, and strengthens the connection

between tourist communities and destinations. This is an important contribution to smart tourism theory, expanding the research scope and providing practical foundations for optimizing smart tourism services.

Second**,** this study contributes to tourism behavior theory by applying psychological theory (Stimulus–Organism–Response, SOR), modern marketing theory (Service-Dominant Logic, SDL), and the Technology Acceptance Model (TAM). The research model analyzes the impact of perceived smart tourism services on tourists' experiences and revisit intention, expanding understanding of tourism decision-making factors in the context of technological advancement. The study not only reinforces tourism behavior theory but also verifies the relationships between perceived smart services and factors such as satisfaction and revisit intention. Multigroup structural analysis identifies differences among tourist segments, thereby enhancing the depth of the research. The use of scientific analytical methods and combined techniques ensures high reliability and provides reference materials for future studies.

Practical Contributions

First, this study provides an analytical framework and a set of measurement criteria for assessing tourists' perceptions of smart tourism services in Can Tho City, serving as a reference for other localities in implementing smart tourism services. Relevant stakeholders, such as tourism authorities and businesses, can apply this framework to develop and manage services that meet tourist needs, optimize marketing strategies, and improve service quality, thereby advancing toward a smart and sustainable tourism environment.

Second, the study also proposes specific solutions for the management and delivery of smart tourism services, aimed at enhancing tourist experiences and increasing satisfaction, thus encouraging repeat visits. These solutions will support businesses and tourism authorities in developing strategies that align with the rapidly changing demands of tourists, contributing to the sustainable development of the tourism industry in Can Tho City through the application of smart technologies..

PART II. RESEARCH CONTENT
CHAPTER 1. THEORETICAL FOUNDATIONS OF TOURIST' PERCEPTIONS OF SMART TOURISM SERVICES, MEMORABLE EXPERIENCES, AND REVISIT INTENTION

1.1. *Theoretical foundations of perceived smart tourism services, memorable experiences, and tourists' revisit intention*

1.1.1. Related concept

1.1.1.1. Smart tourism services

Smart Tourism Services (STS) is an emerging concept developed from studies related to the smart ecosystem, with specific applications focused on tourism services or destinations (Xiang et al., 2021). The core service elements of smart tourism—including attraction services, transportation, accommodation, dining, and shopping—operate collaboratively to meet tourists' needs (Buhalis & Amaranggana, 2015b). According to Chuang (2023), the network of core tourism service providers consists of multiple parties such as attractions, transportation services, accommodations, dining, shopping, and payment services. Thus, STSs are implemented in the form of smart tourism applications or mobile websites that serve as software platforms enabling tourists to integrate service offerings within a unified smart environment. These platforms enhance user experience through access to relevant travel information such as route planning and real-time status updates (Choe et al., 2021).

1.1.1.2. Smart tourism technology

Smart Tourism Technology (STT) refers to information and communication technologies applied in tourism contexts that can create and deliver value to tourists by providing interactivity, co-creation, and personalization, thereby enhancing the travel experience (Neuhofer et al., 2015; Neuhofer & Buhalis, 2021). STTs encompass both physical devices (e.g., VR, AR, IoT devices) and core technological platforms (e.g., cloud computing, artificial intelligence [AI]) integrated into the tourism and hospitality industries (Boes et al., 2015). Technologies such as VR, AR, IoT, and 5G play crucial roles in collecting, processing, and transmitting data (Liberato et al., 2022). VR and AR are poised to revolutionize tourism by increasing the attractiveness of destinations (Gupta et al., 2024) and offering immersive virtual experiences (Tussyadiah, 2016; Tussyadiah et al., 2018). Smart hotel rooms powered by IoT deliver seamless guest experiences and extend social interaction into the digital realm (Lim et al., 2024). Mobile technology also plays a key role in shaping smart tourism (Dorcic et al., 2019). STTs employed by a destination to attract tourists include cloud computing, the Internet of Things (IoT), mobile applications,

and artificial intelligence (AI) (Wang et al., 2016).

1.1.1.3. Smart tourism application

Smart Tourism Application (STA) refers to the integration of information and communication technologies (ICTs) into tourism services and activities to enhance the tourist experience. These applications enable tourists to easily access destination-related information—from searching for details such as prices and attractions before the trip, to using services like navigation, online payments, and reservations during the trip (Gretzel et al., 2015b). The attributes of STAs include smart information systems (providing free Wi-Fi, QR codes, and mobile apps), smart tourism management (assisting tourists in planning their trips intelligently), smart sightseeing (featuring e-maps and electronic guides), e-commerce systems (including mobile payment and online booking), smart transportation (offering traffic updates and e-taxi services), and smart forecasting (helping tourists anticipate visitor flow and waiting times at attractions) (Tavitiyaman et al., 2021).

Mobile Application is a vital tool in smart tourism, assisting tourists in tasks ranging from searching for information on attractions, hotels, and restaurants to making payments and booking services online. These applications not only enhance service accessibility and convenience but also help personalize the travel experience—for example, by suggesting itineraries and activities tailored to individual preferences (Kennedy-Eden & Gretzel, 2024). Studies also show that the use of technologies such as mobile applications increases tourist satisfaction and encourages them to share their experiences on online platforms, thereby positively influencing destination image and revisit intention (Tavitiyaman et al., 2021).

1.1.2. Perceived Smart Tourism Services of tourists

Perceived value refers to how tourists evaluate the utility of smart tourism services, based on a comparison between the benefits received and what is offered. According to Zeithaml (1988), tourists' perceived value is their assessment of the functionality and effectiveness of smart tourism services, considering the service characteristics and the advantages or disadvantages it brings. This value is subjective and individual (Parasuraman et al., 1985), reflecting how tourists perceive the usefulness and ease of use of the service throughout the trip. Candra and Juliani (2018) also argue that perceived value is a customer's evaluation of a service based on its pros and cons, representing their satisfaction and trust in choosing that service.

In this study the concept "Perceived smart tourism services refer to tourists (PSTSs)" based on various attributes such as information

accessibility, interactivity, personalization, usefulness, ease of use, and co-creation during their engagement with tourism services integrated with smart tourism technologies throughout their travel journey, or through the use of mobile applications or websites of smart tourism services. The perceived attributes of smart tourism services vary depending on the specific services offered at the destination and the time at which they are experienced by tourists".

1.1.3. Memorable Experience

Memorable experience (ME) in smart tourism is defined by the positive interactions and emotions that tourists have at destinations, significantly influenced by the use of smart tourism technologies (STTs) and the unique attributes of those experiences (Jeong & Shin, 2019). STTs can enhance the memorability of travel experiences by enabling tourists to access relevant information about tourism activities or interact with available resources at the destination (Jeong & Shin, 2019). The key attributes of STTs allow smart tourism destinations to provide memorable experiences to tourists in various ways. First, STTs play a crucial role in helping tourists communicate and interact effectively with stakeholders in the tourism industry. The Internet of Things (IoT) offers network connectivity for everything, anytime, and anywhere through real-time interactions (Buhalis & Amaranggana, 2015b). Second, mobile communication technology enables tourists to easily access destination-related information (Wang et al., 2016), thereby enhancing their experience by providing relevant content such as city history through city guide apps and real-time traffic updates. In addition, co-created experiences within the perceived smart tourism service ecosystem play an essential role in forming tourists' memorable experiences (Aho, 2001).

1.1.4. Tourist satisfaction

This study approaches the concept of tourist satisfaction with smart tourism services as the feeling tourists have when they find the applications useful and enjoyable—resulting in positive, regret-free experiences (Nieves-Pavón et al., 2023). Moreover, many studies indicate that satisfaction is a fundamental determinant of behavioral intention (Adam, 2021; Kim et al., 2022). Satisfied tourists are more likely to revisit a destination, recommend it to others, and share their positive experiences—contributing to the reputation and attractiveness of the destination (Torabi et al., 2023; Zhang et al., 2022). Some research also shows that satisfaction plays a mediating role in the relationship between memorable experiences and revisit intention to a specific destination (Chen, 2020; Torabi et al., 2022).

1.1.5. Tourists' Revisit Intention

In this study, revisit intention toward destinations implementing smart

tourism services is examined from the perspective of Zhang et al. (2022). It is defined as tourists' desire to return to destinations where they have formed positive perceptions of smart tourism services, had memorable experiences, and felt satisfied—thus encouraging future visits and contributing to the sustainable development of the tourism industry. This intention comprises several key components: First, tourists express a willingness to reuse smart tourism services at destinations or in other tourism contexts. Second, they plan to revisit places where they previously experienced smart tourism services. Finally, the motivation driving their decision to return lies in their desire to use smart tourism services again.

1.2. Research Gaps

A review of the literature reveals several existing research gaps as follows:

1.2.1. Theoretical Gaps

First, there is a lack of a comprehensive theoretical framework on tourists' perceptions of smart tourism services (Perceived Smart Tourism Services – PSTSs), as previous studies have mainly focused on the application of technology in tourism services without thoroughly examining tourists' perceptions of the components that constitute smart tourism services. Therefore, the development and refinement of measurement scales for smart tourism services and PSTSs require in-depth research to build accurate theoretical models and measurement tools.

Second, prior research has not sufficiently analyzed the impact of perceived smart tourism services on memorable experiences and revisit intention, particularly considering the mediating role of satisfaction. Existing theoretical models such as the Technology Acceptance Model (TAM), Service-Dominant Logic (SDL), and Stimulus–Organism–Response (SOR) have not been fully applied in the context of smart tourism—especially in measuring and evaluating the factors that influence memorable experiences and revisit intention at smart tourism destinations.

Third, there has been no study that tests the measurement model and structural model of tourists' perceptions of smart tourism services in relation to memorable experiences and revisit intention.

Fourth, a behavioral intention gap exists regarding how tourists perceive smart tourism services across different tourist groups. A more nuanced understanding of how different groups perceive and experience smart tourism services is needed. This can be addressed by comparing and examining differences among tourist groups based on variables such as "age," "trip length," and "level of technology usage," in order to assess how these factors influence perceptions and behavior across various segments.

1.2.2. Practical Gaps

From a practical perspective, researching the impact of perceived smart tourism services on tourists' revisit intention in Can Tho City presents several major challenges, primarily due to limited and inconsistent technological infrastructure. Although Can Tho City has great potential for developing smart tourism, tourism services in the city still lack in-depth studies on how technology can enhance tourists' experiences. Moreover, the roles of key stakeholders such as local government, tourism enterprises, and the community in building and implementing smart tourism services have not been fully explored. This has resulted in a lack of strategic development in smart tourism services that align with tourists' needs and expectations. Therefore, developing a specific measurement scale for smart tourism services in Can Tho City will serve as a foundation for practical research and help improve the quality of smart tourism services—thereby encouraging tourists' revisit intention and promoting the sustainable development of the tourism sector in the city.

1.3. Proposed Hypotheses and Research Model

Through the literature review and research history, the following theories were applied in this study: Service-Dominant Logic (SDL); the Stimulus-Organism-Response (S-O-R) model; and the Technology Acceptance Model (TAM). The hypotheses developed are as follows:

H_{1a}: Perceived usefulness has a positive effect on tourists' memorable experiences.

H_{1b}: Perceived ease of use has a positive effect on tourists' memorable experiences.

H_{1c}: Perceived co-creation has a positive effect on tourists' memorable experiences.

H_{1d}: Perceived interactivity has a positive effect on tourists' memorable experiences.

H_{1e}: Perceived accessibility has a positive effect on tourists' memorable experiences.

H_{1f}: Perceived informativeness has a positive effect on tourists' memorable experiences.

H_{1g}: Perceived personalization has a positive effect on tourists' memorable experiences.

H_2: Memorable experiences have a positive effect on tourists' satisfaction.

H_3: Memorable experiences have a positive effect on tourists' revisit intention.

H_4: Satisfaction has a positive effect on tourists' revisit intention.

H_5: Satisfaction mediates the relationship between memorable

experiences and revisit intention when using smart tourism services.

H_6: There are age-related differences in the relationships between perceived smart tourism services and memorable experiences, satisfaction, and revisit intention.

H_7: There are differences based on trip length in the relationships between perceived smart tourism services and memorable experiences, satisfaction, and revisit intention.

H_8: There are differences based on technology usage level in the relationships between perceived smart tourism services and memorable experiences, satisfaction, and revisit intention.

Based on the Stimulus–Organism–Response (S–O–R) theoretical framework and the literature review, the proposed research model analyzes how perceived smart tourism services (PSTSs) — serving as stimuli — affect memorable experiences and satisfaction (organism), and subsequently influence revisit intention (response) among tourists.

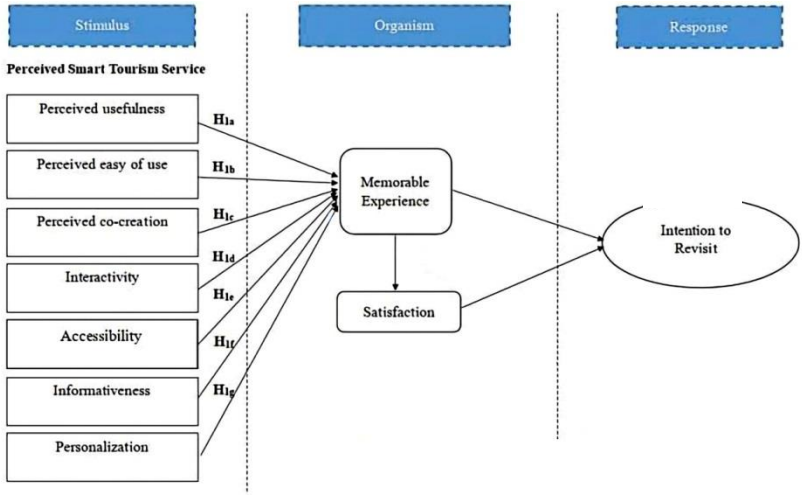

Figure 1. Proposed Model

Source: Author own work, 2025

Figure 1. Proposed research model

Source: Authors suggestion, 2025

CHAPTER 2. RESEARCH CONTEXT AND METHODOLOGY

2.1. Research context

This chapter begins by outlining the development of smart tourism in Vietnam within the context of technological globalization and the strong trend of digital transformation. Numerous national policies and strategies have been issued to promote the application of technology in tourism, such as Decision No. 3570/QĐ-BVHTTDL, Resolution No. 08-NQ/TW, and Decision No. 1671/QĐ-TTg. Major cities like Ho Chi Minh City, Da Nang, Hanoi, and Can Tho have launched various digital applications and platforms, including chatbots, mapping applications, automated narration systems, QR codes, and online booking and payment systems. However, the smart tourism sector still faces challenges in terms of technological infrastructure, human resources, and social consensus. Can Tho City possesses strong potential for river-based, ecological, and cultural tourism, along with a growing trend toward smart tourism development since 2021. Statistical data indicate positive growth in the local tourism sector, both in visitor numbers and revenue. The city has made significant investments in smart tourism services such as the CanThoTourism app, digital payment systems, smart booking/accommodation platforms, QR code menus, and smart transportation solutions.

2.2. Research Methodology

This dissertation adopts a mixed-methods approach, combining qualitative and quantitative methods. The research process was carried out in four main stages:

Stage 1 (Qualitative)**:** A literature review and in-depth interviews with 15 stakeholders (managers, business owners, technology experts) and 6 groups of tourists to explore smart tourism services and perceived smart tourism services.

Stage 2 (Expert consultation)**:** Applying the Fuzzy Delphi method through three rounds of surveys with 35 experts, this study aimed to evaluate and refine the measurement items in the STS scale. Subsequently, input from 15 experts was consulted regarding the scales for Perceived Smart Tourism Services (PSTSs), Memorable Experiences (ME), Satisfaction (S), and Revisit Intention (RI).

Stage 3 (Preliminary survey)**:** A pilot test with 56 tourists to refine the questionnaire and perform preliminary validation using Cronbach's Alpha and Exploratory Factor Analysis (EFA)**.**

Stage 4 (Main survey)**:** Analysis of 409 valid questionnaires using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling

(SEM) to test the theoretical model and research hypotheses, and to assess the relationships between PSTSs, memorable experiences, and revisit intention.

Both secondary (reports, statistics, articles) and primary data (interviews, surveys) were analyzed using NVivo for qualitative and SPSS/AMOS for quantitative methods, ensuring scientific rigor and systematic execution.

CHAPTER 3. RESEARCH RESULTS AND DISCUSSION

3.1. Current perception of tourists regarding smart tourism services

Qualitative analysis from 15 in-depth interviews and 6 tourist focus groups indicates that tourists highly appreciate the convenience, modernity, and personalization that STSs provide. Six representative service domains were identified: sightseeing, accommodation, dining, transportation, shopping, and smart payment. Each type shows significant improvements over traditional services, particularly in terms of information accessibility, automation, interactivity, and cashless payments. However, tourists also pointed out certain limitations such as dependence on internet connectivity and difficulties faced by those unfamiliar with technology.

3.2. Exploration and development of the STSs and PSTSs scales

3.2.1. Stakeholder Interviews

Identifying 6 service domains and 26 observed items

Through 15 in-depth interviews with stakeholders including state management officials, travel and accommodation businesses, and tourism technology consulting and implementation companies, the study conducted code analysis and developed a keyword cloud to clarify the content of smart tourism services in Can Tho City. The results identified six key service domains: (1) smart attraction services, (2) smart accommodation services, (3) smart dining services, (4) smart transportation services, (5) smart shopping services, and (6) smart payment services. A total of 26 observed items were identified, reflecting technology-related factors, user experiences, and utilities in each type of service.

Compared to Chuang's (2023) study, noticeable differences in STS implementation were found due to the specific context of Vietnam—particularly in Can Tho. For instance, smart sightseeing services here mainly focus on support via digital maps, websites, and basic VR instead of advanced AR/VR applications like in other smart cities in the region. Regarding transportation, the popular modes are still motorbikes and ride-hailing services, rather than advanced public systems like metro or skytrains. Personalization in services is also relatively basic, not yet incorporating AI or big data like in developed countries.

3.2.2 Tourist Group Interviews

Exploring 7 Attributes of PSTSs

In addition to expert interviews, the study also conducted six focus group discussions with both domestic and international tourists who had previously used smart tourism services in Can Tho City. Through thematic

analysis, the researcher identified seven key perceived attributes frequently mentioned by tourists. These include: Perceived Usefulness, reflecting the ability to solve problems quickly, reduce risks, and save time; Perceived Ease of Use, expressed through simplicity, accessibility, and user-friendliness; Perceived Co-creation, allowing tourists to actively interact and personalize their experiences; Interactivity, enabled via chatbots, quick feedback, review sharing, and two-way connections; Informativeness, demonstrated by the completeness, accuracy, and timeliness of information; Personalization, offering itinerary suggestions, information, and services tailored to individual needs; and Accessibility, reflecting the prevalence, intuitive design, and ease of use of the applications.

These attributes relatively comprehensively reflect how tourists in Can Tho access and experience Smart Tourism Services while also helping to establish a foundation for developing a measurement model of Perceived Smart Tourism Services (PSTSs) that is suitable for the practical context.

3.2.3. Expert Consultation via Fuzzy Delphi Method

Validating the STS Scale

To ensure the scientific rigor and contextual relevance of the STS measurement scale, the study conducted three rounds of expert consultation using the Fuzzy Delphi method, involving 35 experts in tourism and technology. The initial scale consisted of 58 items (32 from Chuang's 2023 study and 26 from in-depth interviews). After applying a consensus threshold of ≥75%, the final result retained 25 observed items across 6 STS domains.

The Delphi process revealed that experts adjusted or eliminated items not suited to the Can Tho context, such as overly advanced or infeasible technologies (e.g., smart buses, robot receptionists, real-time feedback features at destinations). The finalized STS scale includes 6 main service domains, with each domain containing 3–5 measurement variables.

***3.2.4.* Consultation on the PSTSs Scale**

In the next step, the study conducted expert consultations on the Perceived Smart Tourism scale, comprising seven attributes identified in the previous phase. The consultation results were used to revise the content, removing items that were duplicated, unclear, or contextually irrelevant to Can Tho City. Specifically, two items—one related to "increased productivity" and another concerning "high interactivity"—were excluded for not meeting clarity and contextual relevance criteria.

After refinement, the final PSTSs scale included 25 observed items across 7 attributes: Usefulness (4 items) and Ease of Use (4 items) adapted from Davis (1989); Co-creation (5 items) from Verleye (2015);

Interactivity (3 items); Accessibility (3 items); Informativeness (3 items); and Personalization (3 items), all derived from Jeong and Shin (2019). In addition, Memorable Experience (4 items) was adapted from Jeong and Shin (2019), Satisfaction (5 items) from Nieves-Pavón et al. (2023), and Revisit Intention (4 items) from Zhang et al. (2022). This finalized scale was then used in the main survey and quantitatively analyzed through EFA, CFA, and SEM to assess reliability, convergent validity, and discriminant validity.

3.3. Quantitative Analysis and Model Testing

3.3.1. Demographic and Technological Behavior Analysis of Surveyed Tourists

A total of 409 valid survey responses were used for quantitative analysis, including both domestic and international tourists who had traveled to Can Tho City and used smart tourism services. Regarding gender distribution, male respondents accounted for 53.5%, slightly higher than females (46.5%), reflecting a relatively balanced gender participation. In terms of residence, tourists from the Southern region accounted for the highest proportion (36.7%), followed by the Northern region (27.9%) and the Central region (14.9%); international tourists made up 20.5%

Notably, the majority of respondents (79.5%) reported regularly using technology during their travels, indicating a high level of access to digital applications and smart tourism services. This creates favorable conditions for surveying technology-related perceptions.

3.3.2. Scale Evaluation of Research Constructs

Cronbach's Alpha was calculated for each scale and all reached a high reliability level (≥ 0.6), indicating good internal consistency among measurement items. Exploratory Factor Analysis (EFA) was used to explore the underlying factor structure. All items loaded correctly onto their theoretical constructs with factor loadings ≥ 0.5, total variance explained reached 74.98%, KMO > 0.88, and the Bartlett's test was statistically significant.

3.3.3. Measurement Model Testing and Scale Reliability

Next, Confirmatory Factor Analysis (CFA) was conducted to validate the measurement model. The model fit indices met high standards: $\chi^2/df = 1.31$; CFI = 0.980; GFI = 0.914; TLI = 0.977; RMSEA = 0.028.

Convergent validity was confirmed as all CFA factor loadings were greater than 0.5; Composite Reliability (CR) ranged from 0.833 to 0.906, and Average Variance Extracted (AVE) values were all above 0.5.

Discriminant validity was also established, as the square roots of AVE values were greater than the correlations between construct

Thus, the entire measurement scale—comprising 7 PSTSs attributes, memorable experience (ME), satisfaction (S), and revisit intention (RI)—was confirmed to be reliable and theoretically sound.

3.3.4. Structural Model Testing and Hypothesis Verification

Structural Equation Modeling (SEM) analysis revealed:

All seven attributes of Perceived Smart Tourism Services including perceived usefulness, ease of use, co-creation, interactivity, informativeness, personalization, and accessibility—have a positive and statistically significant impact on memorable experience (ME). Among these, personalization ($\beta = 0.343$) and co-creation ($\beta = 0.205$) are the two most influential factors.

Memorable experience (ME) has a positive impact on both satisfaction (S) and revisit intention (RI), specifically: ME → S ($\beta = 0.194$; $p < 0.01$); ME → RI ($\beta = 0.700$; $p < 0.001$).

Satisfaction serves as a partial mediating variable in the relationship between memorable experience (ME) and revisit intention (RI) ($\beta = 0.022$; $p = 0.017$), indicating that ME not only has a direct impact on RI but also an indirect effect through satisfaction.

3.3.5. The moderating role of Technology usage

The multigroup analysis based on the level of technology usage revealed that: The group of frequent technology users considered *Perceived Usefulness (PU)* as the strongest influencing factor on *Memorable Experience (ME)*. In contrast, *Personalization* and *Co-creation* did not show significant effects in this group. On the other hand, the group that rarely uses technology placed greater emphasis on factors such as *Ease of Use*, *Co-creation*, *Accessibility*, and *Personalization*. This indicates that these travelers require more user-friendly, simple, and easily interactive technologies.

Effect of Age and Trip duration: Multigroup analysis by age (above and below 40 years old) showed no significant differences in the theoretical model across age groups (*P-value = 0.259*). Similarly, trip duration (longer or shorter than 3 days) did not produce significant differences in the relationships between variables (*P-value = 0.084*).

These results suggest that technology-related factors and perceptions of STSs are broadly applicable across different traveler groups and are not strongly influenced by age or trip length.

3.4. Discussion

Results from the study reveal that the perception of personalization has the strongest impact on ME, with a standardized coefficient of 0.343. This is because personalized information from STSs helps tourists receive

accurate recommendations, save time, and optimize their travel experience. STSs and their applications can identify user needs and preferences, providing tailored services and responses such as customized itineraries or suggestions for engaging activities. This enables tourists to participate in activities they genuinely enjoy, enhancing their comfort and satisfaction. This finding aligns with Jeong and Shin's (2019) research on the relationship between personalization and ME, although their study did not identify it as the most significant factor. The key difference lies in the context: while both studies highlight the role of STTs in creating memorable experiences, the current research focuses on how STTs are integrated into STSs for the tourist's entire journey (before, during, and after the trip), whereas Jeong and Shin's work emphasized the pre-trip planning phase and considered interactivity to be the primary factor.

Co-creation of experience also positively impacts ME ($\beta = 0.205$). This is a crucial element, as emphasized by the service-dominant logic theory of Vargo and Lusch (2004), which posits that co-creation is a key factor in smart tourism services. It allows tourists to move beyond simply consuming services and actively participate in shaping and sharing their experiences. The opportunity to gain new knowledge, improve technological skills, and provide feedback helps tourists feel more deeply involved in their trip. Furthermore, connecting with stakeholders and sharing experiences creates community value and enhances service quality for other tourists. This finding is a novel contribution to the understanding of tourists' perception of STSs and provides empirical support for Vargo and Lusch's (2004) service-dominant logic theory of co-creation.

Interactivity ($\beta = 0.181$, $P = 0.002$) positively influences ME, indicating a strong connection between users and STS applications through rapid questions, feedback, and reviews, which fosters deep user engagement. This result is consistent with Jeong and Shin's (2019) study, which found interactivity to be the most significant factor influencing a memorable tourism experience.

Perceived usefulness ($\beta = 0.171$, $P = 0.005$) also positively affects ME, demonstrating the STSs' ability to provide information and support that enhances the quality of a trip to Can Tho. Similarly, perceived ease of use ($\beta = 0.155$, $P = 0.005$) shows that user-friendly STS applications, which do not require expert assistance, are easy for tourists to access and use throughout their trip. These findings reinforce the extended Technology Acceptance Model (TAM) (Davis, 1989) in the context of smart tourism services and are consistent with research by Chi et al. (2024), Harsanto et al. (2023), Wang et al. (2021), and particularly Peong et al. (2023), who

integrated the TAM and Theory of Planned Behavior (TPB) models to better explain the adoption of smart tourism technologies and destination visits.

Perceived informativeness (β = 0.170, P = 0.036) positively impacts ME, suggesting that STSs providing accurate and useful information about attractions help tourists have a successful trip. This result aligns with studies by No and Kim (2015) and Jeong and Shin (2019), as the use of STSs at destinations allows tourists to enjoy their trip with a sense of freedom and independence, selectively engaging in unique and memorable activities to maximize their travel experience.

Perceived accessibility (β = 0.169, P = 0.021) also positively influences ME, reflecting the ease of downloading and using STS applications at various tourist spots in Can Tho. This attribute was not supported in Jeong and Shin's (2019) study due to the advanced technological infrastructure and high bandwidth of their selected destinations (advanced smart cities in the US). In contrast, the current study's finding is supported given the context of Can Tho and aligns with the results of No and Kim (2015) and Huang et al. (2017).

These attributes all play a vital role in enhancing tourist experience and satisfaction with smart tourism services in Can Tho. The independent variables of PSTSs explain 70.3% of the variance in ME (R2=0.703), while the impact of satisfaction (S) and ME on return intention (RI) is explained by 53.4% of the variance (R2=0.534).

The study also confirms that ME has a positive influence on both satisfaction and return intention, which is consistent with findings from Nieves-Pavón et al. (2023) and Zhang et al. (2022). Furthermore, satisfaction strongly impacts return intention, a result validated by Jeong and Shin (2020) and Torabi et al. (2022). Although the model explains a significant portion of the variance in ME and RI, other factors outside the model may also influence a tourist's return intention. This suggests that future research could consider additional external factors or personal characteristics to refine the theoretical model. Overall, this study provides insight into the role of perceived attributes of smart tourism services on the tourist experience, and clarifies the relationship between a memorable experience, satisfaction, and return intention.

Furthermore, the results confirm that a memorable tourism experience significantly influences a tourist's return intention, with satisfaction acting as a mediator in this relationship. This aligns with previous research by Kim (2018) and Stavrianea (2024), who also affirmed that ME is a crucial factor in shaping tourist behavior and directly influences their intention to

return to a destination. These studies show that engagement, hedonic elements, and local cultural factors create deep memories, which in turn increase tourist satisfaction (Rasoolimanesh et al., 2022). The findings are also consistent with Oliver (1980) and later studies like Hu and Shen (2021), which identify satisfaction as a key determinant of tourist behavior, especially concerning repeat visits. As satisfaction increases, tourists are more likely to return and share their positive experiences with others.

The study's results are also consistent with Hu and Xu (2021), confirming that satisfaction mediates the relationship between a memorable experience and return intention. This supports Hypothesis H5 that satisfaction mediates the relationship between ME and RI (p-value = 0.017 < 0.05, standardized coefficient = 0.022). This proves that satisfaction is not merely a simple emotional response but a critical factor connecting a travel experience with future tourist behavior. Additionally, Hypothesis H3, which states that ME has a direct impact on return intention, is also confirmed with a standardized coefficient of $\beta = 0.7$ and a p-value = 0.002 < 0.05. This reinforces the argument that factors within a memorable tourism experience have a strong influence on tourist behavioral intentions, even without the mediation of satisfaction. However, the mediating role of satisfaction remains a crucial element that strengthens this relationship. Thus, this study not only aligns with previous research but also provides empirical evidence for the vital role of satisfaction in linking memorable tourism experiences and return intention, especially in the context of smart tourism.

Regarding age, the multi-group structural analysis showed no significant difference between tourists over and under 40 years old in the relationship between the model's variables (P-value = 0.259). This does not support some previous studies, such as Heller (1993) and Kim (2019), which suggested that younger generations (like Gen Z and Millennials) are more technologically adept and easily adapt to smart tourism technologies, leading to more memorable experiences and increased return intention. The current study's result may be related to the uneven distribution of age groups in the sample, suggesting that age might not be a decisive factor in the context of smart tourism in Can Tho.

For trip duration, the results also showed no significant difference in the relationship between perceived smart tourism services and factors such as ME, satisfaction, and RI (P-value = 0.084). However, previous studies, such as Chrysafiadi et al. (2025) and Zhang (2025), have indicated that tourists on longer trips have more opportunities to experience a wider range of services and may therefore perceive greater value from smart tourism

services, leading to higher satisfaction and return intention.

Finally, concerning the level of technology use, the multi-group structural analysis revealed a significant difference between frequent and infrequent technology users (P-value = 0.001). Frequent technology users have a more positive perception of smart tourism services, which is consistent with the TAM (Davis, 1989) where perceived usefulness and ease of use directly influence consumer attitudes and behavior. Specifically, the frequent user group showed that usefulness had a clear impact on ME, and this experience strongly influenced return intention (β = 0.498, P-value < 0.001). Conversely, the infrequent user group showed that ease of use, co-creation, informativeness, accessibility, and personalization influenced ME, which in turn influenced satisfaction and return intention. This result is consistent with research by Iori et al. (2023) and Khoshroo and Soltani (2025), which emphasize that familiarity with technology helps tourists maximize their experience in a smart tourism environment.

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CHAPTER 4. IMPLICATIONS AND RECOMMENDATIONS TO ENHANCE PERCEIVED SMART TOURISM SERVICES, MEMORABLE EXPERIENCES, AND REVISIT INTENTIONS TO CAN THO CITY

4.1. Theoretical and Practical Foundations for Proposed Implications

Grounded in the SDL, TAM, and S-O-R frameworks, this study developed a conceptual model and measurement scale for PSTSs, encompassing seven attributes: perceived usefulness, ease of use, co-creation, interactivity, accessibility, informativeness, and personalization. These attributes were found to have a positive influence on tourists' memorable experiences, satisfaction, and revisit intentions — with personalization and co-creation having the strongest impacts. Moreover, the study revealed that the level of technology usage significantly moderates tourists' perceptions and behaviors, whereas age and trip duration do not produce notable differences. These findings provide a solid foundation for designing contextually appropriate strategies for smart tourism development, especially in emerging urban destinations like Can Tho City.

Effectively implement national policies on digital transformation, sustainable tourism development, and cultural preservation, such as Resolution 08-NQ/TW, initiatives related to Cai Rang Floating Market, and plans for tourism workforce training. Develop an integrated STS ecosystem by upgrading digital portals and smart tourism applications, while expanding transportation routes and air connectivity for tourism. Accelerate digital transformation in the tourism sector by promoting public–private partnerships, building comprehensive tourism databases, implementing destination management tools, and expanding digital review and evaluation platforms.

4.2. Enhance the Smart Tourism Service Experience

The city government should develop smart tourism applications, such as Canthotourism to collect and analyze tourist data. This will allow for personalized recommendations for destinations, dining, and activities. Concurrently, the government must establish clear privacy policies to protect personal data, ensuring tourists have control over their information.

Local authorities and tourism businesses need to collaborate to create a smart tourism environment where technology and local culture intersect. Developing mobile apps like "Canthotourism" will not only provide comprehensive service information but also enable tourists to plan trips and explore attractions using advanced technologies like Augmented Reality

(AR). These apps will empower tourists to contribute feedback and share their experiences, fostering a co-created tourism experience. Additionally, building a linked value chain among service providers—including hotels, restaurants, boats, and attractions—is crucial for optimizing tourist experiences and establishing a sustainable tourism ecosystem. The local government should proactively support digital transformation for businesses and build collaborative frameworks for sustainable smart tourism.

Tourism apps should integrate interactive features such as Q&A sections, service reviews, and customer support chatbots.

Usefulness & Informativeness: Ensure tourism information is comprehensive, accurate, and regularly updated. Integrate useful features like ticket booking, directions, and electronic payments.

Accessibility & Ease of Use: Promote the app widely, ensure it is compatible across various devices, and design an intuitive, user-friendly interface with multilingual support.

4.3. Foster Tourist Revisit Intentions for Can Tho

Service Improvement: Upgrade smart services for attractions, transportation, accommodation, and shopping by using technologies like Virtual Reality (VR), AR, 3D maps, and electronic payments.

Memorable Experiences: Organize cultural and culinary tours, as well as interactive activities, to create lasting memories for tourists.

Effective Promotion: Encourage tourists to share their reviews and photos on social media to build the destination's reputation.

Loyalty Programs: Implement loyalty programs with discounts and special offers to encourage repeat visits.

Cross-Stakeholder Collaboration: Enhance coordination among the government, tourism businesses, and technology companies to develop a cohesive and sustainable tourism ecosystem.

PART III – CONCLUSION

This dissertation expands the theoretical framework of smart tourism from a service perspective, moving beyond the traditional focus on technology hardware and software. It examines tourists' perceptions of smart tourism services, contributing a new, valuable measurement tool. This tool consists of a seven-factor scale to gauge tourist perceptions: co-creation, personalization, accessibility, informativeness, interactivity, usefulness, and ease of use.

By integrating psychological (SOR), marketing (SDL), and technology acceptance (TAM) theories, the dissertation proposes a comprehensive model that explains how smart tourism service perceptions influence a tourist's memorable experience, satisfaction, and revisit intention.

Contributions and Practical Implications

The study provides an analytical framework and a set of measurement criteria for smart tourism services in Can Tho, offering a practical tool for other destinations with similar levels of digital transformation. It offers specific, actionable recommendations to help businesses and management agencies develop smart tourism services. The goal is to increase tourist satisfaction and boost revisit intentions, effectively meeting the rapidly changing needs of modern travelers in a tech-driven world.

Limitations and Future Research

This research has several limitations. It doesn't consider individual psychological or demographic characteristics like gender, personality, or privacy concerns. The non-probability sampling method may limit the generalizability of the findings. The study also didn't include tourists who haven't used smart tourism services and didn't fully integrate the roles of smart governance, communities, and businesses. The cross-sectional design prevents an analysis of the long-term effects of these services. Finally, the study didn't explore potential negative impacts, such as privacy concerns or over-reliance on technology.

Future research should expand the geographical scope, adopt a longitudinal design, and analyze the role of various factors within the complete smart tourism ecosystem to enhance generalizability and practical application.

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