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THE INFLUENCE OF SMART TOURISM APPLICATIONS ON TOURISM DESTINATION IMAGE OF HO CHI MINH CITY

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SUMMARY OF TOURISM DOCTORAL DISSERTATION

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1. National library of Viet Nam
2. Library of School of Hospitality and Tourism – Hue University

PART I. INTRODUCTION

1. Rationale of the study

Amidst digital transformation, smart technologies (STTs) are fundamentally altering the organizational and operational paradigms of the tourism sector. The evolution of smart tourism (ST) has accelerated the integration of digital tools into destination management, service delivery, and the enhancement of tourist experiences (Gretzel et al., 2015). Currently, smart tourism applications (STAs) are extensively utilized across various stages of travel, including information seeking, itinerary planning, service reservations, online transactions, and the sharing of post-trip experiences.

In alignment with this trajectory, tourism destination image (TDI) is no longer exclusively constructed from physical attributes or conventional promotional efforts; rather, it is increasingly shaped by tourists' technological experiences throughout their journey (Stylidis et al., 2017). Digital platforms and smart applications can affect tourists' cognitive and affective evaluations of a destination, driven by the convenience, interactivity, and quality of the information provided.

While numerous studies have explored the role of STAs, the majority predominantly focus on behavioral intentions or technology adoption through the lens of the Technology Acceptance Model (TAM) (Davis, 1989). However, the underlying mechanisms through which STAs and their constituent elements influence TDI remain insufficiently analyzed, particularly within the context of urban destinations in developing nations.

In Ho Chi Minh City (HCMC), the transition towards a smart city framework and the digitalization of the tourism sector are gaining considerable momentum. As a major tourism hub in Vietnam, the city exhibits a relatively high degree of technological integration in its service and management

operations. Nevertheless, the actual effectiveness of these applications in enhancing tourist experiences and shaping TDI requires a more systematic investigation. Based on this practical context, examining the impact of STAs on the TDI of HCMC is deemed necessary from both theoretical and practical perspectives.

2. Research objectives

2.1. General objective

The primary objective of this study is to identify and measure the influence of STAs on TDI. Based on the empirical results, the dissertation proposes management implications aimed at enhancing the tourism destination image of HCMC.

2.2. Specific objectives

To achieve the general objective, the research focuses on the following three specific goals:

To identify the factors through which smart tourism applications influence the tourism destination image of HCMC and to develop a comprehensive research model.

To measure and empirically test the impact of smart tourism applications on the tourism destination image of HCMC.

To propose theoretical and practical management implications to improve the tourism destination image of HCMC.

3. Research questions

The dissertation seeks to address the following research questions:

Which factors constitute the measurement of smart tourism applications and tourism destination image, and do they demonstrate sufficient reliability and validity?

In what manner do smart tourism applications influence the tourism destination image of HCMC?

Based on the research findings, what theoretical and practical management implications should be proposed to enhance the tourism destination image of HCMC?

4. Subjects and scope of the research

The central subject of this research is the relationship between STAs and TDI, specifically examining the mediating role of CO and the moderating role of TP. The survey subjects include domestic and international tourists who visited HCMC and utilized smart tourism applications during their stay.

Regarding the scope of content, the study focuses on five categories of applications: smart information systems (SIS), smart sightseeing systems (SSS), smart transportation systems (STS), smart e-commerce and payment systems (SECS), and smart forecasting and scheduling systems (SFS). Spatially, the research is conducted in HCMC. The temporal scope involves primary data collection between August 2024 and December 2024.

5. Contributions of the dissertation

5.1. Theoretical contributions

Theoretically, the dissertation offers a preliminary integrated approach combining the TAM and the TDI framework within the context of smart tourism. Rather than focusing exclusively on technology adoption intentions as seen in many previous studies, this research examines STAs as a technological construct capable of influencing tourists' cognitive perceptions and destination evaluations. Furthermore, incorporating CO as a mediator and TP as a moderator may provide additional insights into the formation mechanisms of TDI in a digitized tourism environment.

5.2. Practical contributions

Practically, the research findings may serve as a valuable reference for destination management organizations, tourism enterprises, and technology developers in the process of establishing a smart tourism ecosystem in HCMC. The results

also offer perspectives on the roles of technological experience, information quality, and travel facilitation in enhancing positive tourist perceptions of the destination. Additionally, this study contributes to the empirical validation of the TAM and TDI conceptual frameworks within the context of an emerging destination like HCMC.

6. Structure of the dissertation

In addition to the introduction, conclusion, references, and appendices, the dissertation is organized into four main chapters:

Chapter 1: Establishes the theoretical foundations of ST, STAs, CO, and TDI, while providing a literature review to identify current research gaps.

Chapter 2: Describes the study area characteristics, research design, and methodology, including data collection and analysis procedures. This chapter also develops the proposed research model, measurement scales, and hypotheses.

Chapter 3: Reports the quantitative research results, including the evaluation of measurement scales, the measurement model, and the structural equation modeling (PLS-SEM) analysis.

Chapter 4: Focuses on discussing the research findings and proposing management implications, while addressing the study's limitations and suggesting directions for future research.

PART 2: CONTENT
CHAPTER 1: THEORETICAL FOUNDATIONS AND LITERATURE REVIEW

1.1. The concept of smart tourism

The concept of ST has evolved from the convergence of Information and Communication Technology (ICT) and the smart city paradigm. According to Gretzel et al. (2015), ST is viewed as a tourism ecosystem that leverages digital technologies to enhance connectivity, facilitate data exchange, and enrich tourist experiences. Within this framework, big data, the Internet of Things (IoT), artificial intelligence (AI), and digital platforms play pivotal roles in optimizing destination management and service delivery.

Furthermore, scholarship suggests that ST transcends mere technological application; it reflects a fundamental shift in the interaction patterns among tourists, businesses, and destination management organizations (Koo et al., 2016). From this perspective, technology serves as an enabler for personalized environments, real-time connectivity, and augmented user experiences. In the current landscape of digital transformation, ST is increasingly recognized as a vital strategic driver for enhancing destination competitiveness and service quality. Nonetheless, the efficacy of this transition depends significantly on the successful integration of technology with the actual experiential needs of tourists.

1.2. Smart tourism applications

STAs are defined as technological platforms or tools that support tourists throughout the processes of information searching, trip planning, navigation, service utilization, and experience sharing (Wang et al., 2016). These applications are primarily developed for mobile devices or online systems to provide real-time information and facilitate personalized travel experiences.

Extant literature categorizes STAs into various functional groups, including smart information systems, sightseeing

support systems, smart transportation systems, e-payment systems, and trip planning and forecasting systems (Gretzel et al., 2015). These applications contribute to enhancing convenience, connectivity, and tourist autonomy during the destination experience. Beyond the inherent benefits, the deployment of STAs also involves challenges related to technological accessibility, data synchronization, and user interface friendliness. These factors indicate that the technological experience can significantly influence tourists' subsequent perceptions and evaluations of a destination.

1.3. Tourism destination image

TDI is an extensively investigated concept within tourism literature. According to Echtner and Ritchie (1991), TDI reflects a composite of individual perceptions, emotions, and impressions regarding a specific destination. It is regarded as a critical factor influencing destination choice, tourist satisfaction, and revisit intentions.

Scholarship suggests that TDI consists of both cognitive and affective components (Baloglu & McCleary, 1999). Specifically, the cognitive component represents the knowledge and evaluation of destination attributes, whereas the affective component pertains to the emotions and psychological states evoked during the travel experience. In the context of smart tourism (ST), the formation process of TDI is undergoing significant transformation as technological experiences become more deeply integrated into the travel journey. Digital platforms, mobile applications, and smart support systems influence how tourists access information, interact with the destination, and formulate an overall evaluation of their travel experience.

1.4. Technology cognition and technology proficiency

CO reflects the degree of user understanding, receptivity, and evaluation concerning technology during its application. Davis (1989) identifies perceived usefulness and perceived

ease of use as pivotal factors influencing technology acceptance behavior. Within the smart tourism paradigm, CO may impact how tourists experience and evaluate digitally-mediated tourism services.

Furthermore, TP represents the user's adaptability and competence when interacting with technology. Research indicates that variations in proficiency levels can result in divergent experiences and satisfaction levels despite the use of the same technological platform (Venkatesh et al., 2003). From a smart tourism research perspective, simultaneously examining the roles of CO and TP may contribute to a clearer understanding of the mechanisms through which STAs influence the tourism destination image.

1.5. Literature review and research gaps

A considerable body of literature has explored ST, STAs, and TDI. While several studies have examined the role of technology in enhancing tourist experiences, others have primarily focused on technology adoption behaviors using frameworks such as the TAM or the UTAUT (Venkatesh et al., 2003). Nevertheless, the majority of current research tends to view technology as a discrete support element for service utilization, leaving the relationship between STAs and TDI insufficiently analyzed. Furthermore, the mediating role of CO and the moderating role of TP within the ST context have received limited empirical attention, particularly in the urban tourism landscapes of developing nations such as HCMC, Vietnam.

Additionally, extant scholarship has primarily focused on developed nations or destinations with mature technological infrastructure. This indicates a significant research gap concerning the evaluation of smart tourism applications within the digital transformation context of Vietnam in general, and HCMC in particular. Addressing these identified gaps, this dissertation proposes a research model to examine the influence of STAs on the TDI of HCMC, incorporating the specific roles of CO and TP.

CHAPTER 2: RESEARCH DESIGN AND METHODOLOGY

2.1. Characteristics of the research area

HCMC serves as a major economic, cultural, and tourism hub in Vietnam, distinguished by its rapid digital transformation in the service and tourism sectors. As a key international gateway, HCMC attracts a significant volume of domestic and international tourists annually, supported by a synchronized infrastructure of transportation, accommodation, commerce, and services. Recently, HCMC has focused on a smart city development model, emphasizing digitalization in urban management and public services. In tourism, numerous technological solutions have been deployed, including online tourism platforms, digital maps, sightseeing support apps, cashless payments, and digital tourism databases. This transition has fostered a technology-enhanced environment, facilitating the growth of a smart tourism ecosystem. Beyond infrastructure advantages, HCMC's tourist population is highly diverse in terms of nationality, age, education, and technological access, leading to varied STA usage behaviors and destination evaluations.

HCMC was selected as the research site for several primary reasons. First, the city exhibits a clear implementation of STAs within the framework of Vietnam's tourism digitalization. Second, the high and diverse tourist traffic provides an ideal environment for data collection. Third, the smart city context allows for a more rigorous evaluation of the role of technology in shaping TDI.

2.2. Research process

The dissertation follows a two-stage research process: qualitative and quantitative. This process is designed based on existing literature regarding STAs and TDI to ensure logical consistency and alignment with the research goals.

The first stage, qualitative research, involved literature reviews, theoretical analysis, and expert consultations. These steps aimed to identify research gaps, construct the proposed research model, and refine measurement scales for the specific context of HCMC. Additionally, a bibliometric analysis was conducted to systematize research trends in smart tourism and tourism destination image.

Building upon the qualitative research results, a quantitative study was conducted to test the research model and the proposed hypotheses. Survey data were collected from domestic and international tourists who had visited HCMC and utilized STAs during their journey. A purposive convenience sampling method was employed to ensure suitability for practical field survey conditions. Data were gathered through questionnaires between August and December 2024. Following data screening and cleaning, the research data were processed using statistical analysis software and Partial Least Squares Structural Equation Modeling (PLS-SEM). This method was selected for its appropriateness in exploratory research and its capacity to simultaneously evaluate both the measurement and structural models (Hair et al., 2022).

The data analysis process involved several stages. First, the reliability of the scales was verified using Cronbach's Alpha and Composite Reliability. Subsequently, the convergent and discriminant validity of the scales were evaluated through outer loadings, Average Variance Extracted (AVE), and the Fornell-Larcker criterion. Following the assessment of the measurement model, structural model testing was performed to determine the magnitude of the relationships between the variables. Additionally, the bootstrapping technique was utilized to examine the statistical significance of the research hypotheses. Furthermore, the mediating role of technology cognition and the moderating role of technology proficiency were tested to clarify the influence mechanisms of smart

tourism applications on the tourism destination image of HCMC.

2.3. Research model and hypotheses

Based on the theoretical framework, the dissertation proposes a research model comprising the following key variables: STAs, CO, TP, and TDI. In this study, STAs are structured into five application groups: SIS, SSS, STS, SECS, and SFS. Consequently, the dissertation hypothesizes that the components of STAs exert a positive influence on CO and TDI. Concurrently, CO is expected to mediate the relationship between STAs and TDI. Additionally, TP is conceptualized as a moderating variable capable of influencing the effect of CO on TDI.

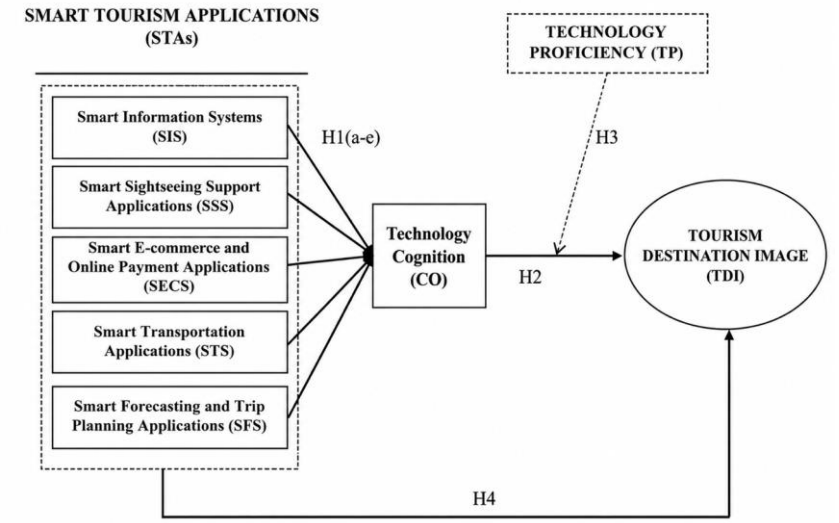

Figure 2.1: Proposed research model

(Source: Proposed by the author, 2025)

Research hypotheses were developed to empirically test the relationships between the variables within the proposed model.

2.4. Development of research scales

The research scales were adapted and refined from established studies pertaining to STAs, CO, TP, and TDI. The scale construction process aimed to ensure contextual relevance to HCMC and the specific characteristics of the target respondents. Observed variables were measured using a five-point Likert scale, ranging from “strongly disagree” to “strongly agree.” The measurement items focused on reflecting convenience, supportability, information quality, interactivity, and the overall technological experience of tourists when engaging with smart tourism applications.

CHAPTER 3: RESEARCH RESULTS

3.1. Preliminary research results

A preliminary study was conducted to evaluate the reliability and validity of the measurement scales before proceeding with the formal model analysis. The data processing workflow included data coding, cleaning, verification of analysis assumptions, and scale quality assessment using SmartPLS software.

The KMO and Bartlett's test results indicated that the data were suitable for factor analysis. All research scales met the reliability requirements, with Cronbach's Alpha and Composite Reliability (CR) coefficients exceeding the 0.70 threshold recommended by Hair et al. (2014). Furthermore, the Average Variance Extracted (AVE) for all constructs was greater than 0.50, confirming adequate convergent validity.

Additionally, discriminant validity was assessed using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. The results showed that all HTMT values were below the 0.90 threshold, suggesting that the research constructs are relatively distinct from one another.

3.2. Main research results

3.2.1. Characteristics of the survey sample

The formal research was conducted with a sample of domestic and international tourists who had visited HCMC and utilized STAs during their journey. Following the data cleaning process and the exclusion of invalid responses, the remaining data set was utilized for subsequent stages of analysis.

Table 3.1: Summary of survey sample characteristics

Characteristic	Category	Frequency	Valid Percentage (%)
Gender	Male	229	50.9%
	Female	221	49.1%
Age Group	18-24	71	15.8%
	25-34	92	20.4%

	35-44	101	22.4%
	45-54	110	24.4%
	55 and above	76	16.9%
Education Level	High school or equivalent	106	23.6%
	Vocational/Junior college	114	25.3%
	Bachelor's degree	122	27.1%
	Post-graduate	108	24.0%
Region	Asia	125	27.8%
	Europe	92	20.4%
	Americas	84	18.7%
	Africa	70	15.6%
	Oceania	79	17.6%
Occupation	Office worker/Civil servant	156	34.7%
	Entrepreneur	81	18.0%
	Trading/Self-employed	93	20.7%
	Others	120	26.7%
Technological Experience	Low	74	16.4%
	Moderate	139	30.9%
	High	237	52.7%

(Source: Primary data analysis, 2025)

The descriptive statistics indicate a relatively diverse sample in terms of gender, age, educational attainment, and technological proficiency. A significant majority of respondents demonstrated a tendency to frequently utilize tourism information applications, online reservation platforms, and electronic payment systems during their destination experience.

3.2.2. Assessment of the measurement model

The measurement model was evaluated based on reliability, convergent validity, and discriminant validity. The results show that the outer loadings of the observed variables mostly exceeded the 0.708 threshold, reflecting an adequate contribution of the indicators to their respective latent constructs.

The Cronbach's Alpha and Composite Reliability (CR) coefficients for all research constructs surpassed the recommended threshold of 0.70, indicating robust internal consistency across the scales. Furthermore, the Average Variance Extracted (AVE) values were all greater than 0.50,

demonstrating that the observed variables sufficiently explain the variance of the research constructs. Additionally, collinearity diagnostics revealed that all Variance Inflation Factor (VIF) values were below 5, suggesting the absence of serious multicollinearity issues within the model.

3.2.3. Structural model testing

Upon confirming the adequacy of the measurement model, the structural model was tested using the PLS-SEM method. The results provide empirical support for the research hypotheses, identifying significant relationships between STAs, CO, and TDI. The various components of STAs were found to exert a positive influence on tourists' technology cognition (CO). This suggests that the convenience, information support, and interactivity provided by technological applications significantly affect how tourists perceive and evaluate their technological experiences at the destination.

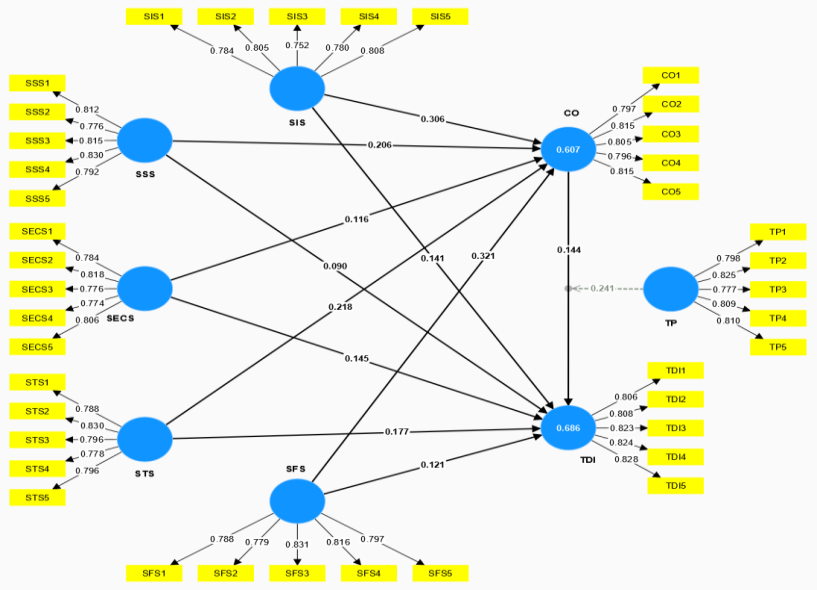

Figure 3.1: Structural Path Coefficient Analysis

(Source: Primary data analysis, 2025)

The results further confirm a positive relationship between CO and TDI, suggesting that technology cognition plays a pivotal role in the formation of TDI within the smart tourism context of HCMC. In addition to the indirect effect through CO, the research model also examines the direct impact of STAs on TDI to provide a more comprehensive reflection of technology's role in the destination experience.

3.2.4. Testing the mediating role of technology cognition

The mediating role of technology cognition was examined using the bootstrapping technique in PLS-SEM. The findings indicate that CO serves as a mediator in the relationship between STAs and TDI. This implies that the influence of technological applications on destination image is channeled through the tourists' process of adopting and evaluating the technology.

Table 3.2: Assessment of indirect effects

Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P-values
SECS → CO → TDI	0.017	0.017	0.007	2.291	0.022
SFS → CO → TDI	0.046	0.046	0.015	3.108	0.002
SIS → CO → TDI	0.044	0.044	0.014	3.083	0.002
SSS → CO → TDI	0.030	0.030	0.010	2.892	0.004
STS → CO → TDI	0.031	0.031	0.011	2.902	0.004

Note:
Bootstrapping performed with 5,000 subsamples.
All indirect effects are statistically significant at $p < 0.05$.

(Source: Primary data analysis, 2025)

The results from the indirect effect analysis confirm that technology cognition (CO) significantly mediates the pathways between all five dimensions of smart tourism applications (SECS, SFS, SIS, SSS, and STS) and TDI. Specifically, the mediation effects of SFS and SIS were found to be the most substantial, as indicated by their higher path coefficients and highly significant p-values ($p = 0.002$). This empirical evidence suggests that the impact of smart applications on HCMC's

destination image is not merely direct but is substantially processed through the cognitive lens of the tourists' technological experience.

These findings reinforce the theoretical validity of concurrently applying the TAM and the TDI conceptual framework within the smart tourism context.

3.2.5. Testing the moderating role of technology proficiency

The study further examined the moderating effect of TP on the relationship between CO and TDI. The empirical results indicate that TP exerts a significant moderating influence, strengthening the impact of CO on TDI.

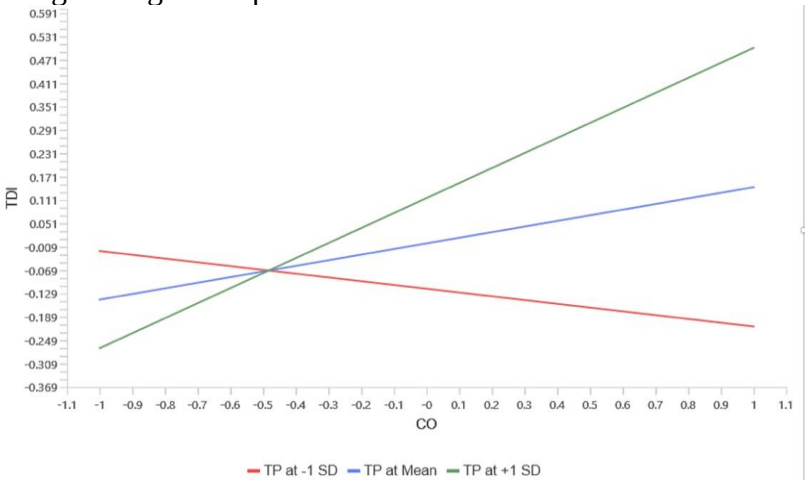

Figure 3.2: Interaction plot illustrating the moderating effect of TP on the TP x CO → TDI relationship, showing that higher technology proficiency amplifies the influence of technology cognition on tourism destination image.

(Source: Primary data analysis, 2025)

This suggests that tourists with a high level of technology proficiency are more likely to translate their technological experiences into positive destination evaluations compared to other groups. Furthermore, these findings reflect the critical role of individual characteristics in the digitized tourism landscape.

3.2.6. Assessment of model fit and predictive quality

The overall quality and fit of the research model were evaluated coefficient of determination, R^2, Q^2 và f^2 indices, in accordance with the guidelines proposed by Hair et al. (2014).

Table 3.3: Explanatory power and predictive capacity of the model

Construct and Indicators	R2 / RAdj2	Qpredict2	RMSEPLS	RMSELM	ΔRMSE
CO	**0.607/0.603**	**0.595**	**0.639**	-	-
CO1	-	0.365	0.736	0.761	-25
CO2	-	0.400	0.699	70.29	-30
CO3	-	0.367	0.721	0.750	-29
CO4	-	0.369	0.729	0.755	-26
CO5	-	0.423	0.690	0.718	-28
TDI	**0.686/0.681**	**0.628**	**0.612**	-	-
TDI1	-	0.415	0.689	0.713	-24
TDI2	-	0.404	0.698	0.732	-34
TDI3	-	0.435	0.705	0.729	-24
TDI4	-	0.429	0.683	0.703	-20
TDI5	-	0.416	0.706	0.730	-24

Notes:

- R^2 và Q^2predict (LV) are presented in the bold rows for each construct.
- Predictive capacity is determined according to the criteria established by Shmueli et al. (2019, 2022).

(Source: Primary data analysis results, 2025)

The analysis reveals that the endogenous variables within the model achieve an adequate level of explanatory power. The Q^2 values, being greater than zero, confirm that the model possesses satisfactory predictive relevance for the investigated constructs. Furthermore, the f^2 effect size values indicate that the exogenous variables exert varying degrees of influence on the endogenous variables in the model.

CHAPTER 4: DISCUSSION OF FINDINGS AND MANAGERIAL IMPLICATIONS

4.1. Discussion of research findings

The empirical results demonstrate that STAs exert a positive influence on tourists' technology cognition (CO) within the tourism context of HCMC. This indicates that technological platforms supporting information searching, itinerary planning, online transactions, and navigation contribute to enhancing the convenience and interactivity of the tourist experience at the destination. This finding is consistent with the scholarship of Gretzel et al. (2015) and Koo et al. (2016), which posits that digital technology is increasingly becoming an indispensable component of the smart tourism ecosystem.

Among the various dimensions of STAs, smart information systems and online booking and e-payment applications demonstrate a more pronounced impact on technology cognition. This suggests that rapid information accessibility, transactional convenience, and real-time travel assistance significantly influence how tourists evaluate their technological experiences at the destination. Such findings reflect the burgeoning demand for digital platform integration in contemporary travel behaviors.

Furthermore, the study confirms a positive relationship between technology cognition and the TDI. This implies that the technological experience transcends mere functional support; it actively shapes tourists' perceptions and impressions of the destination. When smart tourism applications are perceived as useful, user-friendly, and effective in facilitating the travel journey, tourists are more likely to form a favorable evaluation of HCMC. This finding aligns with the theoretical framework proposed by Davis (1989) regarding the role of technology cognition in determining user attitudes and responses.

Furthermore, the research confirms that CO serves as a mediator in the relationship between STAs and TDI. This indicates that the influence of technological applications on destination image does not occur entirely through a direct path; rather, it is transformed through the tourists' process of adopting and evaluating the technology. These results offer initial evidence that the technological experience can be regarded as an integral component of the overall destination experience in a digitized tourism environment.

Additionally, TP was found to have a significant moderating role in the relationship between CO and TDI. Specifically, tourists with high technology proficiency tend to evaluate their technological experiences and the destination image more favorably when using smart tourism applications. Conversely, for groups with lower technological access or competence, the impact of the technological experience on destination image tends to diminish. This finding suggests that the efficacy of a smart tourism ecosystem depends not only on the availability of technological infrastructure but also on the adaptability and technological readiness of the users.

4.2. Theoretical implications

From a theoretical perspective, this study contributes to expanding the conceptual approach to tourism destination image within the context of digital transformation. Rather than viewing TDI solely through tangible attributes or traditional marketing communications, the research demonstrates that technological experiences actively participate in the tourists' formation of cognitive perceptions and destination evaluations.

Furthermore, integrating the TAM with the conceptual framework of TDI provides an additional perspective on the role of technology cognition in smart tourism environments. The findings indicate that technology cognition does not merely influence usage behavior but also possesses the capacity to impact the overall evaluation of the destination.

Lastly, examining the moderating role of TP helps clarify the heterogeneity of smart tourism experiences among diverse tourist segments. This suggests that future research should continue to consider individual traits and technological capabilities as critical variables in the digitized tourism landscape.

4.3. Managerial implications

Based on the research findings, the dissertation proposes several managerial implications for destination management organizations (DMOs), tourism enterprises, and technology developers involved in building the smart tourism ecosystem in HCMC.

First, tourism authorities should continue to promote a synchronized digital transformation process across technological infrastructure, tourism data, and smart service platforms. Establishing an open data ecosystem, integrating real-time information, and enhancing connectivity among stakeholders in the tourism value chain can significantly elevate the tourist experience and improve the destination's image.

Second, tourism enterprises must prioritize user experience (UX) in the design and operation of smart tourism applications. Since factors related to convenience, itinerary support, and information quality significantly influence technology cognition, application interfaces should be designed to be user-friendly, intuitive, and accessible to diverse user groups.

Third, improving technological accessibility for tourists is a critical issue in smart tourism development. Providing application tutorials, multilingual support, and optimizing user interfaces can help bridge the gap in technological proficiency among different visitor segments.

Finally, for technology developers, the study suggests that the development of STAs should aim for multi-functional integration rather than operating as isolated platforms. Linking

information across applications for transportation, accommodation, payments, and sightseeing support can facilitate a more seamless experience for tourists throughout their entire journey.

4.4. Limitations and directions for future research

Despite achieving its set objectives, this dissertation is subject to certain limitations. First, the study was conducted specifically within the tourism context of HCMC, which may limit the generalizability of the findings to other locations. Given that each destination possesses unique technological infrastructure, tourist behaviors, and levels of smart tourism development, the results should be interpreted within the specific context of the study area.

Second, the use of convenience sampling implies that the representativeness of the sample may be somewhat constrained. Furthermore, the relatively high proportion of international tourists in the sample, compared to the actual tourist structure of HCMC, may influence the degree to which the findings reflect the characteristics of the entire population.

Third, the research model primarily focuses on the roles of technology cognition and technology proficiency. However, the formation of TDI is a complex process that may be influenced by various other factors, such as cultural experiences, service quality, perceived safety, and tourists' emotional responses.

In light of these limitations, several directions for future research are suggested. Future studies could expand the survey scope to other regions to facilitate comparative analysis between different smart tourism destinations. Additionally, incorporating variables such as emotional experience, satisfaction, or revisit intention could further clarify the mechanisms through which technology influences tourist behavior and perception in a digitized tourism environment.

CONCLUSION

In the era of rapid digital transformation and ST development, investigating the role of technology in shaping the TDI has become increasingly essential from both theoretical and practical perspectives. By synthesizing existing research on ST, the TAM, and the TDI conceptual framework, this dissertation developed and tested a model examining the influence of STAs on the TDI of HCMC, through the lens of CO and TP.

The empirical results demonstrate that STAs exert a positive influence on tourists' technology cognition. Specifically, platforms providing information, online transaction support, and itinerary assistance were found to play a significant role in enhancing the user's technological experience. Concurrently, CO was identified as having a positive impact on TDI, reflecting that the technological experience actively contributes to the formation of tourists' perceptions and evaluations of a destination within a digitalized landscape.

Furthermore, the study confirms the mediating role of CO in the relationship between STAs and TDI. This suggests that the influence of technology on destination image is not merely direct but is also channeled through the tourists' internal processes of technology adoption and evaluation. Additionally, TP was found to moderate the research model, highlighting differences in destination experiences and evaluations among tourists with varying levels of technological expertise.

From a theoretical standpoint, this research contributes to broadening the conceptual approach to TDI in the ST context by integrating TAM into destination image scholarship. Considering the dual roles of CO and TP provides a more nuanced understanding of the mechanisms through which technology impacts destination experiences in a digital environment.

Practically, the findings serve as a valuable reference for destination management organizations, tourism enterprises, and technology developers in building a smart tourism ecosystem in

HCMC. The study underscores the vital role of technological experience, information accessibility, and the convenience of digital platforms in fostering positive tourist perceptions of a destination.

LIST OF THE AUTHOR'S PUBLISHED WORKS RELATED TO THE DISSERTATION

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