

# Organizational Integration of Smart Tourism Public Services from Digital Governance in Hangzhou

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## Abstract

Driven by China's Digital China strategy, smart tourism has become a core engine for the high-quality development of China's tourism industry, so Hangzhou it is; while Hangzhou still faces severe challenges of fragmented service supply and supply-demand mismatch. Taking Hangzhou as a case, this paper constructs a three-dimensional analytical framework of digital regulation, digital integration and digital absorption based on organizational integration and digital governance theories. Drawing on an analysis of 300 valid questionnaires collected during the 2026 Spring Festival in four core cultural tourism districts of Hangzhou, the study identifies insufficient organizational integration as the core bottleneck hindering the city's smart tourism development. Targeted optimization paths are proposed accordingly, offering both theoretical insights and practical value for related research and urban practices.

## Keywords

Smart Tourism; Public Services; Organizational Integration; Digital Governance; Digital Government

## 1. INTRODUCTION

Amidst ongoing global digital transformation, the deep convergence of digital technologies and public services has emerged as a critical pathway for modernizing China's governance system and capabilities[1]. Guided by the Outline of the 15th Five-Year Plan (2025-2030), which promotes intelligent upgrades in tourism, the sector is now expected to achieve high-quality development through the integration of digital tools and tourism scenarios. Traditional public tourism services increasingly fail to meet the demand for whole-process, convenient, and personalized travel experience[2]. Therefore, the shift towards smart tourism, represents not merely a technological upgrade but a fundamental restructuring of public service governance and organizational models[3].

As a world-renowned tourist destination and a national pioneer in digital reform, Hangzhou boasts unique advantages for developing smart tourism. It is endowed with world-class cultural resources like the West Lake and the Grand Canal, complemented by two decades of development in the digital economy. The city has implemented a range of smart tourism initiatives, including one-stop service platforms and intelligent tourist attraction guide system[4]. However, field investigations reveal persistent challenges such as fragmented data sharing, redundant platform services, and poor service accessibility for vulnerable groups. These issues, as this paper argues, stem not from technical shortcomings but from deficiencies in organizational integration and governance frameworks[5].

Existing research has laid a solid foundation but still leaves three research gaps. First, most studies on smart tourism focus on technology application and platform development, while insufficient attention has been paid to the role of organizational integration in public service provision[6]. Second, although organizational integration theory has been adopted in some studies, its applicability and explanatory power in the operational context of urban tourism public services have not been fully tested[7]. Third, existing case studies tend to conduct general analyses of tourist cities, and in-depth localized empirical studies that combine the distinctive digital reform practices of pioneering digital cities such as Hangzhou remain inadequate. Such limitations restrict a clearer understanding of the practical paradox in Hangzhou: advanced digital infrastructure coexists with less-than-ideal tourist experience[8].

Addressing these gaps, this paper takes Hangzhou as a case study, employing documentary analysis and questionnaire surveys. It explores the practical dilemmas and formative mechanisms of smart tourism public services through the lens of organizational integration and proposes targeted optimization pathways. The study contributes in three ways:

Firstly, it integrates organizational integration theory into digital governance research, constructing a tripartite framework of "regulation-integration-absorption," thereby extending the theoretical scope of tourism public governance.

Meanwhile, based on first-hand survey data, it quantitatively verifies the impact of organizational integration on service efficacy, addressing the scarcity of localized empirical studies on China's leading tourist cities.

Lastly, it proposes context-specific recommendations aligned with Hangzhou's digital reform practices, offering practical insights for similar cities developing smart tourism.

## **2. Theories And Framework Construction of Smart Tourism Public Services**

### **A. Core Concepts and Theoretical Basis**

### 1). Smart Tourism Public Services

Smart tourism public services refer to the integrated delivery of public services for tourists, with the government, enterprises, and social organizations serving as the core providers. Leveraging digital technologies such as big data and artificial intelligence, they offer tourists comprehensive, end-to-end services, which including information inquiry, ticket booking, guided tours and complaint resolution[9]. Distinct from traditional models, these services emphasize intelligence, multi-stakeholder collaboration, and demand orientation. Their efficient operation fundamentally relies on cross-departmental organizational integration rather than isolated inputs from single entities[10].

### 2). Organizational Integration Theory

Originating in political science, organizational integration theory is a holistic governance framework encompassing multiple dimensions. Its core objective is to align technical tools with organizational goals, break down traditional departmental silos, and address the issue of fragmented public service delivery[11]. In the context of digital governance for smart tourism, organizational integration primarily involves three interrelated dimensions: digital regulation, digital integration, and digital absorption[12].

Digital Regulation entails the establishment of unified rules, standards, and institutional norms for the supply of smart tourism public services. Its core function is to clarify the rights and responsibilities of various stakeholders under a common framework, providing an institutional guarantee for standardized service operation[13].

Digital Integration involves the collaborative alignment of data resources, organizational structures, and service processes across departments and stakeholders. It aims to dismantle data barriers, facilitate data sharing and process interoperability, and thereby enhance the collaborative efficiency of service delivery.

Digital Absorption focuses on the collection, analysis, and response to tourist needs and feedback. Its central purpose is to align service supply with demand, ensuring that public services more effectively address the genuine needs of tourists.

### 3). Digital Governance Theory

Digital governance refers to the embedding of digital technology by governments and public sectors into the entire governance process. This integration reshapes governance concepts, organizational structures, and service models to improve administrative efficiency and public service quality[14]. In the smart tourism context, it requires the government to transition from a sole manager to a multi-party coordinator, constructing a tourist-centered collaborative service system through organizational integration[15].

## **B. Research Framework and Hypotheses**

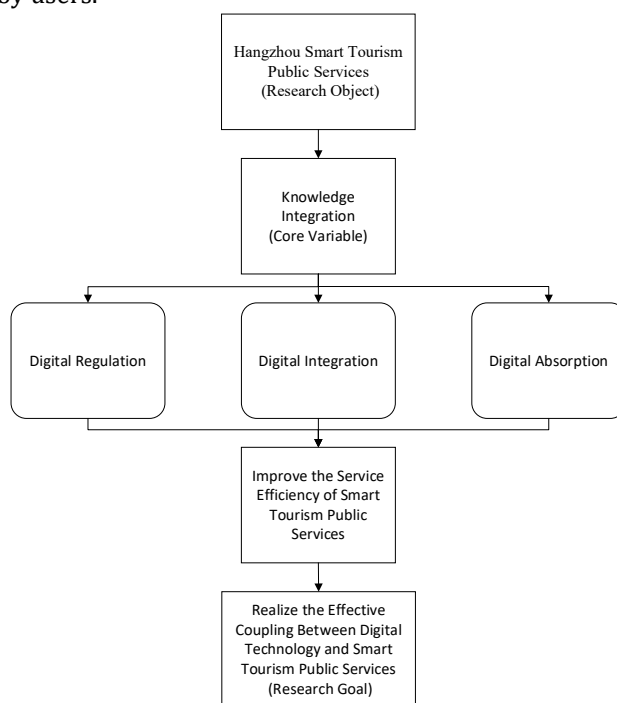
Building upon the theories above, this paper constructs a three-dimensional

analytical framework of "digital regulation–integration–absorption," as illustrated in Figure 1. These dimensions form a complete organizational integration chain with a clear logical sequence and dynamic closed-loop interaction:

Digital regulation serves as the institutional prerequisite, providing the normative foundation for cross-departmental collaboration and demand responsiveness by clarifying the rights, responsibilities, and operational standards of all stakeholders.

Digital integration acts as the core mechanism, translating institutional norms into tangible collaborative efficiency by breaking down data barriers, aligning service processes, and realizing resource sharing across departments and entities.

Digital absorption constitutes the final feedback loop, ensuring that gains in organizational integration translate into a service experience perceived and valued by users.



**Fig 1.** Theoretical Framework of This Study

These three dimensions interact synergistically and form a mutually reinforcing dynamic closed-loop to influence the effectiveness of smart tourism public services, ultimately achieving an effective coupling between digital technology and public service delivery[16]. Specifically, digital absorption collects real-time demand feedback and practical problems from tourists, which are systematically sorted and analyzed to provide targeted optimization suggestions for digital regulation—such as revising service standards or supplementing regulatory clauses for new service scenarios. Meanwhile, the optimized digital regulation system further guides and standardizes digital integration, promoting more efficient data sharing and process docking. In turn, enhanced digital integration provides technical support and

resource guarantee for more accurate demand collection and response in digital absorption, forming a continuous improvement cycle. Hangzhou has obvious technological and resource advantages, which can only be transformed into high-quality public services perceived by tourists after this sound organizational integration mechanism is established[17]. Based on this framework, the following research hypotheses are proposed:

*H1: Digital regulation has a significant positive impact on the effectiveness of smart tourism public services.*

*H2: Digital integration has a significant positive impact on the effectiveness of smart tourism public services.*

*H3: Digital absorption has a significant positive impact on the effectiveness of smart tourism public services.*

### **3. Research Methods and Data Sources**

#### **A. Research Methods**

This study adopts a mixed-methods design combining literature research and questionnaire survey. Literature research sorts relevant studies, defines core concepts and builds the research framework; questionnaire survey collects first-hand data of tourists' evaluation of Hangzhou's smart tourism public services to quantitatively verify research hypotheses.

#### **B. Data Sources**

The questionnaire was designed based on mature scales from top international journals, such as Li et al. (2023)[18], which was adapted to the scenario of Hangzhou's smart tourism public services. To ensure the validity and contextual appropriateness of the scale in the local context, the following localization adaptation process was conducted: First, the original English scale was translated into Chinese by two scholars proficient in both English and tourism management, and then back-translated into English by another independent scholar to verify semantic consistency and avoid translation bias. Second, three experts in the fields of smart tourism, public management, and digital governance were invited to evaluate the relevance, clarity, and contextual adaptability of each item, and 3 items with ambiguous expressions were revised (e.g., adjusting "digital service platform" to "Hangzhou smart tourism mini-programs and official platforms" to enhance specificity). Finally, a pilot survey was conducted with 50 tourists in Hangzhou's West Lake Scenic Area, and the scale was further refined according to the pilot feedback to ensure that the questions were easy to understand and in line with tourists' actual experience scenarios.

All items were measured by a 5-point Likert scale (1=strongly disagree, 5=strongly agree). Core variables are measured with corresponding targeted items. The questionnaire survey was conducted in 4 core cultural and tourism areas of Hangzhou during the 2026 Spring Festival tourism peak (Feb-Mar 2026). 400

questionnaires were distributed, with 300 valid responses collected. Reliability and validity tests confirm the questionnaire has high reliability (Cronbach's  $\alpha=0.87$ ) and is suitable for factor analysis (KMO=0.82, Bartlett sphericity test  $p<0.001$ ).

## 4. Results and Analysis

### A. Demographic Characteristics of Respondents

Table 1 presents the demographic profile of 300 valid respondents. The sample structure matches the actual composition of Hangzhou's tourists, ensuring good data representativeness and reliability.

**Table 1.** Demographic Characteristics of the Questionnaire Sample

Demographic Characteristics	Category	Sample Size	Percentage (%)
Gender	Male	144	48.0
	Female	156	52.0
Age	18-25	87	29.0
	26-35	102	34.0
	36-45	63	21.0
	above	48	16.0
Educational background	High school or below	33	11.0
	Bachelor's degree	225	75.0
	Master or above	42	14.0
Occupation	Students	72	24.0
	Employees	132	44.0
	Other	96	32.0
Purpose	Vacation	192	64.0
	Business	108	36.0

### B. Tourist Satisfaction Survey Results

Table 2 reports key findings from the tourist satisfaction survey. Notably, 65% of respondents perceive a significant mismatch between smart tourism services and their actual travel demands. Regarding complaint response and problem-solving, only 48% express satisfaction, while 52% remain neutral or dissatisfied. These findings directly reveal prominent practical dilemmas, including supply-demand imbalance, inadequate demand response, and low service satisfaction in Hangzhou's smart tourism public services.

**Table 2.** Tourist Satisfaction Survey Results

Evaluation Indicators	Evaluation Results	Sample Size	Percentage (%)
Alignment	Mismatch	195	65
	Match	105	35
Satisfaction	Satisfied	144	48
	Dissatisfied	156	52

### C. Reliability and Convergent Validity Test

Table 3 summarizes the reliability and convergent validity test results. All Cronbach's  $\alpha$  values exceed 0.7, indicating satisfactory internal consistency. Composite reliability (CR) values are all above 0.8, and average variance extracted (AVE) values are

greater than 0.5, meeting the standard thresholds for empirical analysis. The results confirm that the measurement scales possess good reliability and convergent validity.

**Table 3.** Reliability and Validity Test Results

Variable	Cronbach's $\alpha$	CR	AVE
Digital Regulation	0.82	0.85	0.66
Digital Integration	0.84	0.87	0.69
Digital Absorption	0.85	0.88	0.70
Service Efficiency	0.83	0.86	0.67

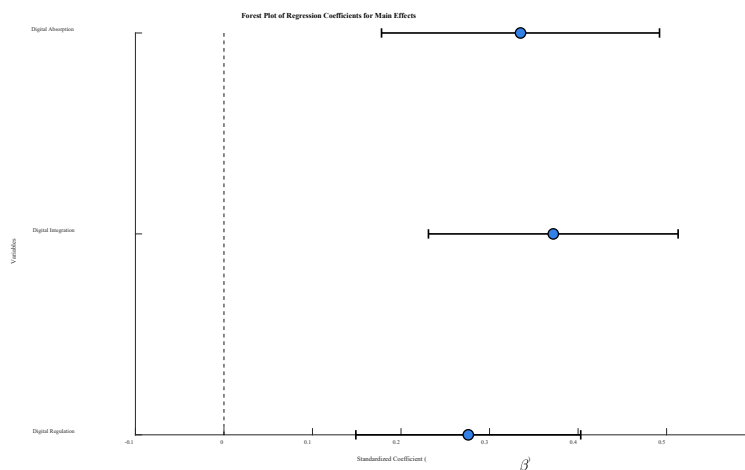
**D. Regression Analysis and Robustness Check**

Table 4 presents the multiple linear regression results for the main effects. Digital regulation, digital integration, and digital absorption all exert significant positive effects on smart tourism public service efficiency ( $p < 0.001$ ). Therefore, H1, H2, and H3 are all supported. The model achieves a good fit with  $R^2 = 0.624$  and  $F = 163.285$  ( $p < 0.001$ ), indicating that the three dimensions can explain 62.4% of the variance in service efficiency.

**Table 4.** Regression Results of Main Effects

Variable	$\beta$	t	p	Result
Digital Regulation	0.276	4.415	0.000	H1 Supported
Digital Integration	0.372	5.127	0.000	H2 Supported
Digital Absorption	0.335	4.588	0.000	H3 Supported

For a more intuitive illustration, plots the standardized regression coefficients and 95% confidence intervals, such as Figure 2. All confidence intervals lie entirely to the right of the zero line, verifying the statistical significance of all three variables. Among them, digital integration shows the strongest impact, which further confirms the robustness and stability of the regression results.



**Fig 2.** Forest Plot of Regression Coefficients for Main Effects

**5. Optimization Paths**

Based on the above data analysis, this paper proposes targeted optimization paths corresponding to the three-dimensional analytical framework of organizational integration, to comprehensively improve the organizational integration capacity and service quality of Hangzhou's smart tourism public services.

#### **A. Improve the Digital Regulation System and Strengthen Institutional Guarantee**

First, formulate unified standards and norms for smart tourism public services in accordance with the \*Zhejiang Tourism Regulations[19]. Led by Hangzhou Municipal Bureau of Culture, Radio, Television and Tourism, jointly with relevant functional departments, issue unified management regulations for smart tourism services, clarify the responsibility division of each entity, and fundamentally solve the problems of fragmented service supply and inconsistent standards.

Second, establish a full-cycle normalized supervision system for smart tourism platforms. Use big data technology to realize real-time monitoring of platform service quality, information authenticity and data security, and build a credit evaluation and accountability system to protect tourists' legitimate rights and interests.

Finally, build a digital literacy training system for tourists and grassroots staff, provide on-site guidance for elderly tourists in core scenic spots, and carry out regular skills training for front-line staff to narrow the digital divide[20].

#### **B. Promote Cross-subject Digital Integration and Break Collaboration Barriers**

First, build a unified municipal-level smart tourism data middle platform based on Hangzhou City Brain. Led by the municipal data bureau and culture and tourism bureau, integrate data resources of relevant departments, scenic spots and cultural tourism enterprises, formulate unified data standards, realize real-time data sharing and reuse, break departmental data barriers, and improve the full-cycle data security protection mechanism[21].

Second, establish a normalized cross-departmental collaboration mechanism. Set up a municipal-level leading group for smart tourism construction, establish a regular cross-departmental collaboration meeting system, clarify the responsibility division of each department, and reduce collaboration costs.

Finally, integrate scattered smart tourism service platforms, build a unified one-stop service entrance for Hangzhou smart tourism, optimize the full-process service flow, and promote in-depth collaboration between the government, enterprises and scenic spots to avoid redundant construction.

#### **C. Build a Demand-oriented Digital Absorption Mechanism and Improve Service Adaptability**

First, establish a normalized tourist demand collection and analysis system. Expand demand collection channels through platform feedback, online surveys, on-site interviews and social media public opinion monitoring, use big data technology to build a demand analysis model, and pay special attention to the demand collection of vulnerable groups such as elderly tourists to ensure the inclusiveness of service

design[22].

Meanwhile, improve the closed-loop response mechanism for tourist demands. Establish a rapid response system for tourist complaints and suggestions, clarify the handling process, time limit and responsible entity, and form a complete closed loop from demand collection, analysis, response to service continuous improvement.

Finally, promote precise and personalized service supply. Launch diversified services such as personalized travel planning, multilingual intelligent navigation and aging-friendly barrier-free services according to demand analysis results, and provide simplified interfaces and offline auxiliary services for elderly tourists to narrow the digital divide.

## 6. Conclusion and Prospect

### A. Research Conclusions

Using China's digital governance benchmark Hangzhou as the case, this paper integrates digital governance and organizational integration theories to build a three-dimensional digital regulation-integration-absorption framework, and explores smart tourism public service dilemmas and optimization paths via 300 valid questionnaires from Hangzhou's core scenic spots.

The main conclusions are: 1) Hangzhou has built a complete smart tourism public service system, but still faces core development dilemmas rooted in insufficient organizational integration capacity of the supply system, rather than backward digital technology; 2) All three dimensions have significant positive effects on service efficiency ( $p < 0.001$ ), among which digital integration ( $\beta = 0.372$ ) is the core bottleneck, and the three interrelated factors jointly restrict the high-quality development of services; 3) The core of service optimization is to comprehensively enhance organizational integration capacity through targeted improvement of the three dimensions, which also provides practical reference for smart tourism construction in other Chinese tourist cities.

### B. Research Limitations and Future Prospects

Limitations of this study include: the Hangzhou-only sample limits the universality of conclusions for cities with weaker digital foundations; cross-sectional data cannot capture the long-term dynamic evolution of the organizational integration mechanism; and the heterogeneous impact of smart tourism services on digitally vulnerable tourist groups is not analyzed. Future research can carry out multi-city comparative studies to verify the framework's universality, use longitudinal data to explore dynamic evolution and causal relationships between variables, and conduct in-depth research on inclusive smart tourism services for digitally vulnerable groups to narrow the tourism digital divide.

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