

Comparative Bibliometric Analysis of Smart Tourism Destination Research in China and Abroad



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ABSTRACT

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This study presents a bibliometric comparison of smart tourism destination research in China and abroad from 2011 to 2025. Drawing on 1,398 publications from CNKI and the Web of Science, keyword co-occurrence, clustering, timeline mapping, and burst detection were employed. Results show a shared evolution from technology-driven applications toward governance-oriented paradigms, emphasizing visitor experience, destination transformation, and sustainability. Differences are evident: Chinese studies are largely policy-driven and practice-oriented, with emphasis on “smart scenic areas” and industrial upgrading, while international research prioritizes behavioral mechanisms, stakeholder governance, and theoretical innovation. Methodologically, the study demonstrates the value of bibliometrics for cross-contextual comparison; theoretically, it traces paradigm shifts from technology adoption to experience optimization; practically, it proposes an integrative framework linking macro-level policies with micro-level experiences. These findings provide insights for global dialogue and the sustainable development of smart tourism destinations.

1. INTRODUCTION

The emergence of smart tourism destinations reflects the combined influence of the information technology revolution and the imperative of sustainable development. Representing an advanced stage in the digital transformation of tourism, these destinations demonstrate the deep embedding of technologies such as the Internet of Things, big data and artificial intelligence. They also provide new pathways for industrial upgrading and governance innovation [1-3]. Research has increasingly emphasised service co-creation, competitiveness and sustainable transition [4].

In China, 'smart tourism' has developed rapidly since it was officially included in national strategies in 2010 as part of both smart city construction and the Internet+ agenda [5]. Unlike Western approaches, which emphasise market mechanisms and visitor participation, China emphasises top-down design and scenario-based applications, focusing on technology-enabled, refined management and industrial upgrading [6]. These differences highlight the convergences and divergences between Chinese and Western research trajectories.

Bibliometric studies have outlined preliminary knowledge structures, indicating that it is an interdisciplinary yet still exploratory field [7]. More recent reviews indicate a shift in focus from technology and applications to visitor experience,

sustainability and governance [8, 9]. Since 2011, Chinese research has expanded to include themes such as smart destinations, Internet+ tourism, knowledge management, and environmental governance. However, collaboration remains fragmented, and academic communities are immature [10].

Despite these advances, two gaps remain. Firstly, the majority of studies rely on data from before 2023, overlooking recent developments. Secondly, comparative analyses across cultural and institutional contexts are scarce, which limits our understanding of commonalities and divergences. Furthermore, many studies are descriptive only, lacking sufficient depth in their interpretation of keyword networks, clustering and burst terms.

To address these issues, this study integrates the latest Chinese and international literature, employing visual bibliometric methods to compare thematic evolution and research frontiers. The objectives are: (1) identifying core themes and knowledge structures in China and abroad, (2) tracing thematic dynamics through timeline and burst analyses, and (3) extracting underlying logics and paradigms for future research. This study is the first to offer a systematic China-International comparison of smart tourism destination research, revealing the dual logic of technological and sustainability transitions and proposing a framework for cross-cultural dialogue and integration.

2. MATERIALS AND METHODS

2.1 Data sources

The following section will address the issue of data sources.

Researchers retrieved international research literature from the Web of Science Core Collection on 25 July 2025 by employing subject retrieval, using the following search terms:

TS = ("smart tourism destination*" OR "smart destination*" OR ("smart tourism" AND "destination*") OR "smart tourism city*")

The resulting dataset comprises 568 records, with the earliest study published in 2013. Following the application of filters to remove non-relevant articles, reviews, and early access publications in English, 498 valid papers remained, including 101 authored by Chinese scholars. These 101 documents include the regions of Hong Kong, Macao and Taiwan of China.

Using the same search terms, a total of 1,342 papers were retrieved from CNKI. After excluding non-academic projects, 900 valid samples were retained. The earliest publication dates back to 2011. The construction of two datasets was undertaken: the initial one comprising 1,001 Chinese scholars' documents, and the second one including 397 documents from scholars based internationally. The CNKI papers were then translated into English using DeepL and subsequently proofread manually. Before translation, a reference list of commonly used academic terms in the field of smart tourism was developed.

2.2 Tools and techniques

A bibliometric analysis was conducted utilising CiteSpace 6.4 R² (Advanced). The following three functions were applied: keyword co-occurrence and clustering, timezone visualisation, and burst detection. These enabled the identification of research structures, thematic evolution, and frontier issues, providing a robust basis for China–International comparative analysis.

The specific procedures and parameter settings are as follows:

Firstly, we imported the two databases into CiteSpace separately. At this stage, we utilized the built-in data cleaning module to eliminate duplicates and standardize fields, thereby

ensuring the stability of the network and the effectiveness of the analysis.

Secondly, in terms of time parameters, the analysis period is defined as from January 2011 to July 2025, using a one-year time slice to capture the annual variations of the research.

Third, regarding text sources, the selected fields included Title, Abstract, Author, and Keywords Plus. This maximized semantic coverage and improved the accuracy of keyword clustering. For the selection criteria, the top 50 nodes per slice were chosen based on citation or co-occurrence frequency, striking a balance between representativeness and map readability.

To further improve computational efficiency and enhance the coherence of the maps, path pruning algorithms (Pathfinder and Pruning Sliced Networks) were applied to filter out weak links and highlight the backbone structure of the networks.

3. RESULTS

3.1 Publication output analysis

In the period between 2011 and 2025, Chinese scholars produced 1,001 publications on the subject of smart tourism destinations, a figure that far exceeds the 397 publications authored internationally. This phenomenon is indicative of China's policy-driven research environment, which is shaped by national strategies and practical initiatives such as smart scenic spots and smart cities [11].

The trajectory of China's research output can be categorised into three phases: an exploratory stage (2011-2014) with gradual growth, a rapid expansion (2015-2018) peaking above 100 papers annually, and a decline-adjustment phase (2019-2025) with reduced volume but growing emphasis on quality [12].

Conversely, international research exhibited a divergent trajectory, commencing later with a comparatively limited output until 2014, subsequently entering a growth phase (2015-2019) that yielded 23 papers, followed by a rapid escalation (2020-2023) that reached its zenith in 2023, and finally a recent decline (2024-2025) indicative of consolidation (Figure 1) [13].

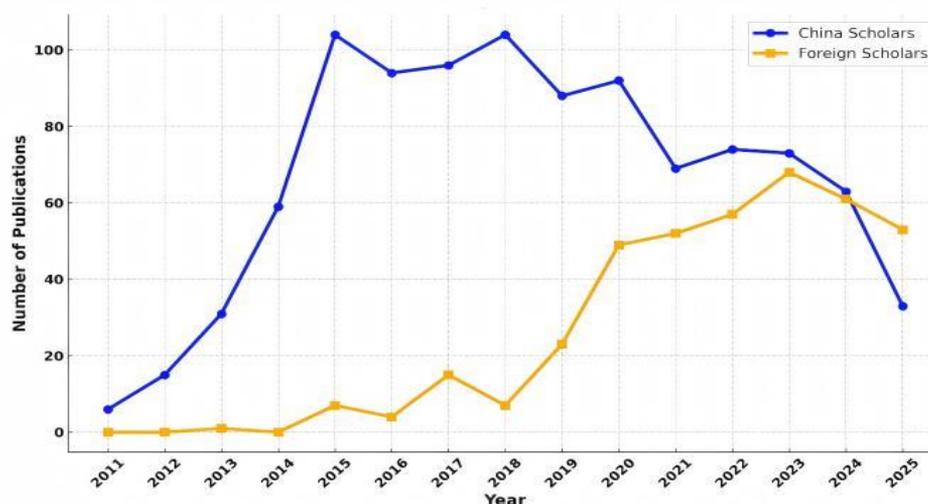


Figure 1. Publication trends of smart tourism destination research (2011-2025)

It is evident that China's involvement in the field commenced at an earlier stage, resulting in a higher level of production. In contrast, the international scholarship community initiated their contributions at a later point, yet their contributions reached a greater zenith in 2023. The two trends indicate a shared shift from quantitative expansion to qualitative refinement.

The publication count for 2025 is lower because the data were collected in July 2025; therefore, the last year reflects incomplete-year bias and should not be interpreted as a real decline.

3.2 Keyword co-occurrence analysis

3.2.1 High-frequency keywords and centrality

In Chinese research (Table 1), “smart tourism” is the most dominant keyword (446 occurrences, centrality = 0.90), followed by “smart scenic areas” (193, centrality = 0.50) and “smart cities” (68, centrality = 0.11). These terms reflect the strong emphasis on policy-driven practices such as smart scenic spots and urban smartification. The frequent use of “big data,” “tourism industry,” and “information technology” further illustrates the technological and industrial transformation orientation. At the same time, keywords such as “all-round tourism” and “internet plus” reveal the direct influence of national strategies, while “tourist satisfaction,” “tourist experience,” and “tourism destinations” indicate an increasing concern for micro-level visitor behaviors and experiences. Overall, Chinese scholarship demonstrates a multi-dimensional structure, combining macro-level policy and industry drivers with meso-level technological applications and micro-level visitor perspectives.

Table 1. Top 20 keywords in Chinese research

Rank	Count	Centrality	Year	Keyword
1	446	0.90	2011	smart tourism
2	193	0.50	2011	smart scenic areas
3	68	0.11	2012	smart cities
4	47	0.14	2014	big data
5	32	0.11	2014	tourism industry
6	30	0.04	2011	information technology
7	29	0.05	2014	smart tourism cities
8	28	0.04	2016	all-round tourism
9	22	0.04	2012	development strategies
10	22	0.05	2014	tourism destinations
11	16	0.03	2017	tourist satisfaction
12	15	0.01	2011	internet of things
13	15	0.07	2012	tourist experience
14	13	0.05	2014	tourist attractions
15	13	0.02	2012	tourism informatization
16	10	0.01	2015	bibliometric analysis
17	10	0.01	2020	rural tourism
18	10	0.01	2019	service quality
19	9	0.02	2016	internet plus
20	9	0.03	2011	smart tourist attractions

International research (Table 2) shows a similar pattern, with “smart tourism” (166, centrality = 0.13) and “smart tourism destinations” (111, centrality = 0.09) as the leading themes. However, the surrounding terms highlight different emphases: “technology,” “experiences,” “management,” and “hospitality” underscore applications, user experience, and industry integration; “social media,” “internet,” and “co-

creation” stress interaction and value co-creation; while “sustainable tourism,” “information technology,” and “smart city” reflect a simultaneous concern with sustainability and urban governance. This distribution indicates a more multidisciplinary and user-oriented focus in the international literature.

Table 2. Top 20 keywords in international research

Rank	Count	Centrality	Year	Keyword
1	166	0.13	2013	smart tourism
2	111	0.09	2015	smart tourism destinations
3	86	0.00	2017	foundations
4	70	0.01	2015	technology
5	67	0.01	2017	experiences
6	66	0.04	2015	city
7	66	0.01	2016	destinations
8	54	0.10	2018	model
9	48	0.17	2015	management
10	38	0.09	2015	hospitality
11	36	0.05	2013	social media
12	36	0.00	2019	travel
13	34	0.04	2015	information
14	34	0.00	2020	satisfaction
15	32	0.03	2018	impact
16	29	0.17	2013	internet
17	29	0.12	2017	sustainable tourism
18	28	0.18	2016	information technology
19	27	0.15	2018	co creation
20	26	0.03	2017	smart city

In comparison, both Chinese and international studies underline the integration of technology and tourism. Yet Chinese research is more tightly connected with national policy discourse (e.g., “internet plus,” “all-round tourism”), whereas international research prioritizes theoretical frameworks, social interaction, and user-centric perspectives.

3.2.2 Comparison of keyword clustering results

The clustering analysis of Chinese research generated 11 clusters with a high silhouette value ($S = 0.9485$), indicating clear thematic boundaries (Figure 2). Four dominant themes emerge. First, clusters centered on “smart tourism” and “smart scenic area” underline their foundational role in shaping the knowledge structure. Second, clusters such as “tourist experience” and “tourism industry” demonstrate a shift from technology-focused studies toward industry development and demand-driven perspectives. Third, clusters including “smart cities,” “smart tourism cities,” “social media,” and “internet plus” reveal the strong influence of urban strategies and policy guidance. Fourth, clusters around “big data,” “information technology,” and “artificial intelligence” highlight the technological base and innovation dimension. Taken together, Chinese research clusters emphasize application scenarios and industrial development pathways, reflecting the dual logic of technological empowerment and policy orientation.

The clustering of international research also shows a clear network structure (Silhouette $S = 0.8788$), with strong internal consistency and differentiation (Figure 3). Several distinctive clusters are evident. “Cloud-centric IoT framework,” “technology risk,” “smart technology,” and “mobile device” underscore the centrality of ICT, risk governance, and smart tools in international scholarship. “Enhancing memorable experiences” and “traveler satisfaction” highlight the role of

user experience and satisfaction in value creation. The cluster “post-pandemic world” reflects the profound impact of COVID-19, emphasizing destination resilience and crisis governance. The presence of “scientometric review” indicates

that the field has entered a phase of systematic synthesis and disciplinary self-reflection. Finally, “smart cities” and “smart-tourism destination” illustrate the multi-level orientation of research, linking cities and destinations.

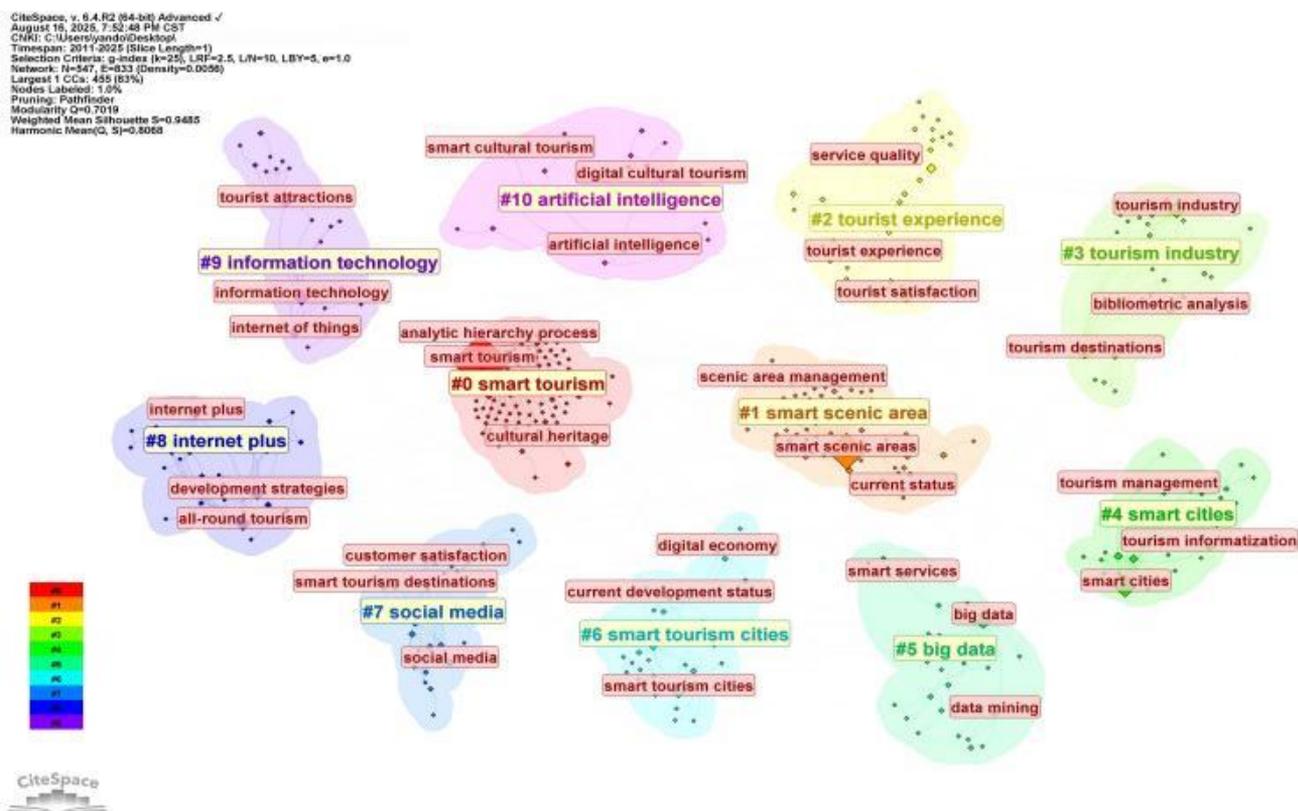


Figure 2. Keyword clustering in Chinese research

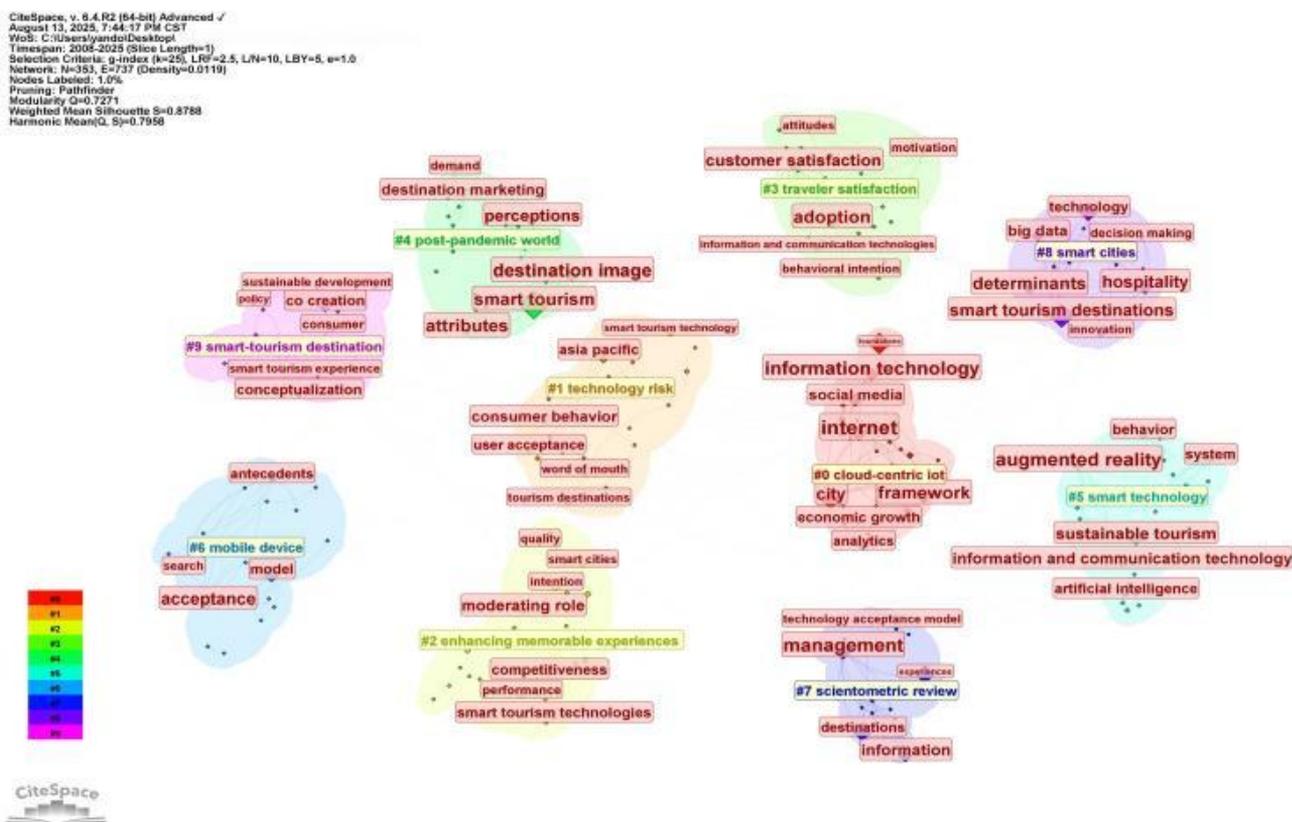


Figure 3. Keyword clustering in international research

In summary, while both Chinese and international research incorporate technology and destination perspectives, their orientations differ. Chinese clusters are more application- and policy-driven, grounded in national strategies and practical initiatives, whereas international clusters extend toward theoretical construction, user experience, and methodological diversity.

Keyword co-occurrence clustering enables further comparison of thematic distributions and research emphases in Chinese and international studies of smart tourism destinations.

1). Technology foundations and applications

Both Chinese and international studies emphasize the technological base of smart tourism, though with different orientations. In China, several clusters directly correspond to specific technologies: IoT in smart scenic spots and city construction [14] big data for system building and industrial transformation [15], and AI applications in smart and cultural tourism [16]. These clusters illustrate a technology-classification approach, analyzing the enabling role of new technologies.

International research also features technology-centered clusters. “Cloud-Centric IoT” highlights ICT infrastructure for destination development [17], while “Smart Technology” addresses mobile technologies [18], big data [19] and AI [20]. Distinctively, international literature also includes a technology risk cluster, critically examining challenges in adoption [21, 22], such as acceptance, implementation uncertainty, and the gap between “hype and reality” [23].

By contrast, Chinese studies have noted issues like limited R&D investment [24] or negative user experiences [25], but these have not yet formed an independent “risk” theme. Overall, both contexts stress ICT and emerging technologies, but Chinese research focuses on “how to apply,” whereas international research also considers “what risks exist,” yielding a more comprehensive discussion.

2). Tourist experience and satisfaction clusters

Enhancing visitor experience is a shared focus of smart tourism research, yet China and the international literature differ in emphasis. In China, “tourist experience” and “satisfaction” are usually treated as an integrated theme. Scholars highlight how smart technologies and services improve tourists’ perceptions and thus increase satisfaction [5]. Empirical findings confirm that the level of smartization is closely linked to satisfaction, with smart tourism construction not only benefiting management and marketing but also directly enhancing visitor experiences.

International research, by contrast, separates these into two distinct clusters. The “Enhancing Memorable Experiences” cluster stresses how smart technologies create unique and memorable travel experiences, enhancing immersion, revisit intention, and destination attractiveness [26, 27]. The “Traveler Satisfaction” cluster focuses on how smart services and systems increase satisfaction and travel intentions, while extending to sustainability and stakeholder behavior. For example, smart experiences can encourage tourists’ environmental responsibility and contribute to destination sustainability [28, 29]. Some studies further link satisfaction to resident well-being, emphasizing the impact of smart destinations on local quality of life [30].

Overall, international research places greater emphasis on the psychological and behavioral mechanisms underlying experience-such as memorability, pro-environmental behavior, and social value. Chinese research, in contrast,

remains more practice-oriented, focusing on the direct use of technology to improve experience and satisfaction, with later discussions on derivative effects such as environmental responsibility [31]. This contrast shows that Chinese studies emphasize direct optimization, while international research highlights indirect benefits and behavioral change stemming from enhanced experiences.

3). Governance and destination management clusters

The integration of smart tourism with smart city governance is another common theme, though with different emphases across contexts. In China, clusters centered on “smart cities” examine the pathways of integration between smart tourism and urban development. Research covers safety control, management models, evaluation systems, and cross-departmental collaboration, stressing the role of smart city concepts and technologies in supporting sustainable tourism [32].

International research likewise discusses the intersection of smart cities and tourism. The “Smart Cities” cluster explores frameworks and open data in shaping the broader development of smart tourism [33, 34]. Scholars conceptualize smart cities as institutional and environmental contexts for smart tourism, offering methodological frameworks for regional development and stressing their value in governance and sustainability [35]. In addition, an independent “smart-tourism destination” cluster treats destinations as core objects of study, analyzing themes ranging from visitor experience and governance innovation to social inclusiveness. This includes research on accessibility for disabled tourists [36, 37], intergenerational service optimization and process-oriented governance frameworks [38].

In summary, Chinese research highlights government-led construction and performance outcomes, focusing on management efficiency and economic benefits. International research, by contrast, emphasizes governance models and social dimensions, examining how smart tourism improves institutional frameworks and multi-stakeholder participation. Both, however, converge in recognizing smart cities and destinations as critical environments for smart tourism development, China, from the perspective of infrastructure and policy implementation, and the international literature from frameworks, governance, and cross-level collaboration.

4). Smart scenic area clusters

In Chinese research, “smart scenic area” emerges as an independent cluster, reflecting strong scholarly attention to smart practices at the scenic-site level. Studies focus on how big data, IoT, and AI technologies improve management efficiency, visitor experience, and resource protection. For instance, research explores how virtual monitoring platforms and organizational restructuring can reduce congestion and enhance visitor satisfaction [39]. The independence of this theme is closely related to China’s tourism management system, which has long taken the scenic area as the core management unit, with policies often positioning smart scenic areas as pilots for smart tourism development.

By contrast, international research has not developed an independent “smart scenic area” category. Instead, the concept of “smart destination” serves as a broader framework encompassing tourism space management and smart development, usually at the level of cities, regions, or destinations rather than single scenic sites. Within this framework, site-level smart applications are treated as components of the overall destination system rather than separate research themes.

This difference reflects divergent management traditions: China emphasizes scenic-area hierarchy and government-led initiatives, whereas international scholarship highlights multi-stakeholder governance and macro-level frameworks. In this sense, smart scenic areas can be viewed as the localized and operationalized expression of smart destinations in the Chinese context.

5). Industrial transformation and strategic orientation clusters

Chinese research identifies smart tourism as a key engine for innovation and industrial upgrading. The “tourism industry” cluster covers personalized demand, marketing innovations, IoT applications, and fiscal policy support [40]. Case studies demonstrate its empowering effects on marketing and management for scenic areas and destinations, while also noting deficiencies in supporting policies such as funding and R&D, reflecting a strong practice-oriented orientation. The “Internet+” cluster situates smart tourism within broader strategies of industrial integration and regional development. Concepts such as “Internet+ all-for-one tourism” emphasize a shift from single-site management to regional coordination, driving supply-side reform and new business models [41, 42]. These clusters illustrate the close alignment between Chinese scholarship and national strategies (e.g., Internet+, all-for-one tourism) in discussing the industrial value of smart tourism.

International research, in contrast, does not cluster around industry policy but instead highlights strategic technologies and overarching frameworks. The “Smart Technology” cluster showcases how mobile, AI, and big data reshape industry management and innovation. A distinct “Scientometric Review” cluster reflects efforts to map research hotspots and intellectual evolution through bibliometric methods [7, 9, 43, 44]. Such reviews indicate a strategic, meta-level reflection on the field, offering forward-looking perspectives for practice and policymaking.

In comparison, Chinese studies tend to focus on practical applications and policy-driven implementation, asking “how to do,” while international research engages in strategic reflection and conceptual mapping, adopting a top-down perspective on future trajectories. This contrast underscores two complementary approaches: bottom-up case-driven trends in China versus top-down strategic frameworks internationally.

6). Social media and data application clusters

As smart tourism moves toward deeper experience and interaction, social media and big data have become key themes, though expressed differently across contexts. In China, an independent “social media” cluster highlights how user-generated big data, combined with smart technologies, shapes tourist experience and destination competitiveness [45]. Empirical studies show that interactive technologies enhance perceived value and word-of-mouth intentions, while theoretical approaches such as service-dominant logic emphasize value co-creation among governments, enterprises, and tourists [46]. This reflects growing recognition of social media as a critical link between tourists and destinations, facilitating information dissemination and management innovation.

In international research, however, no standalone “social media” cluster has emerged. Instead, relevant themes are embedded within other clusters. For example, the smart city cluster discusses the use of social network big data for market analysis and city image management.

Overall, both Chinese and international studies

acknowledge the importance of social media and data. Yet Chinese scholarship tends to frame it as a distinct emerging field for enhancing experience and governance, whereas international research treats it as part of the broader smart tourism architecture, with emphasis on data integration and analytical applications.

7). Pandemic impact and recovery themes

International scholarship has paid significant attention to the role of smart tourism in the context of COVID-19, forming a distinct “post-pandemic world” cluster. This theme examines how smart tourism, through the interaction of socio-technical systems, contributes to recovery and sustainable development, including aspects such as digital governance, tourist behavior, and loyalty [47, 48]. The emergence of this cluster illustrates the rapid responsiveness of international research to real-world challenges, bringing disaster recovery and resilience into the smart tourism discourse.

In contrast, Chinese literature has not developed a dedicated cluster on post-pandemic recovery. Discussions of COVID-19’s impact are fragmented within other themes [49], with most studies continuing to focus on technology and management within a framework of normalized development. Limited attention has been given to the specific role of smart tourism under crisis conditions.

This divergence highlights different levels of responsiveness: international research tends to elevate major contextual changes into new research frontiers, while Chinese scholarship has been relatively slower to integrate crisis-oriented perspectives into smart tourism studies.

Gretzel et al. [3] outlined a smart tourism research agenda comprising three thematic dimensions and seventeen research topics. Our keyword-clustering results show that most contemporary studies—both in China and internationally—continue to concentrate on themes that correspond closely to these seventeen topics. This alignment suggests that current research trajectories remain largely consistent with the conceptual directions proposed by Gretzel et al. [3].

3.3 Comparative analysis of thematic evolution

3.3.1 Thematic evolution in Chinese research

The timezone visualization reveals a three-stage trajectory in Chinese smart tourism destination research since 2011, shifting from technology and scenic-spot practices, to policy expansion, and finally to behavioral deepening and digital integration (Figure 4).

The initial stage (2011-2013) focused on technologies and scenic applications, with keywords such as smart tourism, smart scenic areas, ICT, IoT, and cloud computing, later extending to smart cities, development strategies, tourist experience, and destination competitiveness.

The expansion stage (2014-2018) highlighted national strategies and industrial transformation, marked by big data, smart tourism cities, bibliometric analysis, all-for-one tourism, and Internet+. Studies emphasized the integration of tourism into broader urban and policy frameworks, while also beginning to address visitor satisfaction and consumer experience.

The deepening and transformation stage (2019-2025) reflects the convergence of technology, service, and behavioral research. Keywords such as AI, service quality, behavioral intention, and destination loyalty point to a shift toward the service-behavior-loyalty chain. More recent terms—digital technology, sustainable tourism, new productive

forces, and smart cultural tourism-indicate an orientation toward digital-cultural integration and sustainability agendas [50].

Overall, Chinese research exhibits a clear evolution: from technology-driven practices, through policy-led expansion, to integrated studies linking service quality, visitor behavior, and sustainable digital transformation-underscoring its policy-

driven and practice-oriented character.

3.3.2 Thematic evolution in international research

Since 2013, international research on smart tourism destinations has evolved progressively from technology-driven studies to behavioral mechanisms, and more recently to governance and value agendas (Figure 5).



Figure 4. Keywords timezone in Chinese research

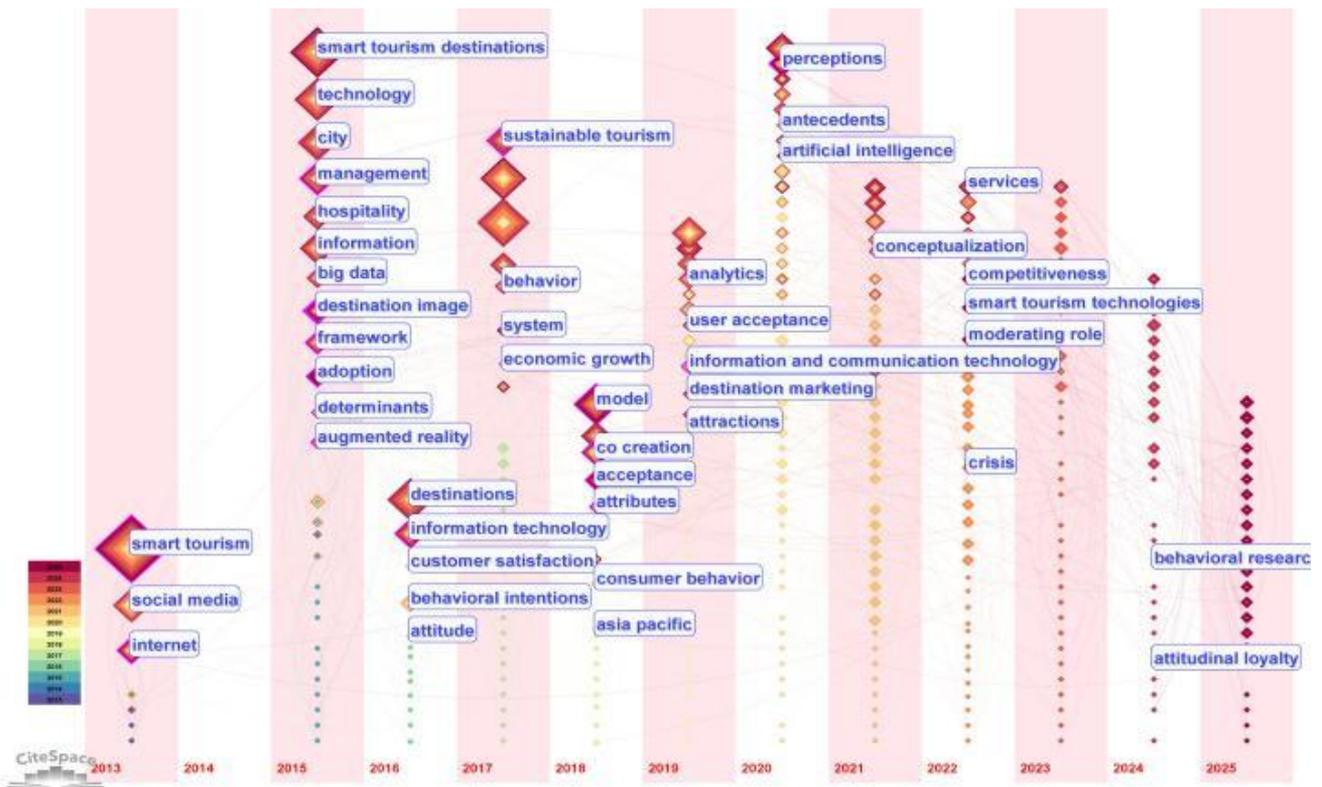


Figure 5. Keywords timezone in international research

The initial stage (2013-2015) was technology-oriented, with keywords such as smart tourism, social media, and internet, later expanding to smart tourism destinations, technology, city, management, hospitality, and big data, reflecting a shift toward destination- and city-level frameworks, image management, and technology adoption.

The expansion stage (2016-2019) emphasized visitor-centered themes. Keywords including customer satisfaction, behavioral intentions, acceptance, and co-creation highlighted the links between smart technologies, satisfaction, behavioral intentions, and value co-creation. At the same time, terms like analytics and destination marketing indicated a growing integration of methodological innovation and practical application.

The deepening stage (2020-2025) shows diversification. Keywords such as perceptions, antecedents, and artificial intelligence reflect closer attention to visitor psychology and AI applications, while conceptualization in 2021 suggests efforts at theoretical consolidation. By 2022, terms like services, competitiveness, smart tourism technologies, moderating role, and crisis expanded research into competitiveness and crisis management, with greater model complexity and contextualization. Recent years highlight behavioral research and attitudinal loyalty, and more recently perceived risk, trust, and willingness to pay [51-53], signaling a turn toward risk governance and trust-building.

Overall, the international trajectory can be summarized as a three-phase path: initiation (2013-2015) focused on technology and framework building; expansion (2016-2019) emphasized visitor experience and behavioral mechanisms; and deepening (2020-2025) addressed broader issues of societal impact, competitiveness, and trust governance. A consistent behavioral chain linking satisfaction–acceptance–intention–loyalty runs throughout, while technologies such as big data and augmented reality appear episodically. This evolution demonstrates a clear shift from technology adoption toward integrated discussions of sustainability, resilience, and value creation in smart tourism destinations.

3.3.3 Comparative insights on thematic evolution

Overall, both Chinese and international research on smart tourism destinations follow a three-stage trajectory—initiation, expansion, and deepening—reflecting a shared shift from technology adoption to visitor behavior and broader value

agendas (Figure 6). In both contexts, smart technologies are recognized as enhancing visitor experience, driving destination transformation, and advancing sustainability, with research gradually extending from short-term adoption and satisfaction toward long-term loyalty, trust, and governance.

Clear differences, however, emerge in orientation. Chinese research emphasizes macro-level top-down design and industrial transformation, characterized by policy embedding and technology-driven pathways. International research, in contrast, focuses more on micro-level behavioral mechanisms and theoretical innovation, with systematic attention to experience optimization, trust-building, and sustainability. These divergences reflect institutional contexts and developmental stages, revealing a dual logic: Chinese scholarship prioritizes “hardware construction” and strategic alignment, whereas international studies stress “soft experience” and theoretical refinement.

Future progress may lie in bridging macro policy orientations with micro experiential mechanisms, fostering a more integrated global dialogue that advances both theoretical development and practical implementation in smart tourism research.

3.4 Burst keyword analysis

3.4.1 Burst keywords in Chinese research

Burst keyword analysis highlights the policy orientation, technological focus, and staged evolution of Chinese smart tourism destination research (as shown in Figure 7). In the early phase (2011-2015), terms such as Internet of Things, tourism informatization, and information technology emerged first, reflecting the role of ICT infrastructure and informatization as the starting point, closely aligned with early “smart scenic area” policies. In the middle phase (2016-2020), attention shifted to policy-driven concepts such as Internet Plus and all-round tourism, while high burst strengths for service quality (3.9) and big data (5.95) underscored the growing emphasis on experience orientation and data-driven transformation. Since 2020, new bursts such as rural tourism, digital economy, and high-quality development have revealed deeper integration with national strategies such as rural revitalization and regional coordination, indicating a shift from functional construction to systemic governance and performance evaluation.

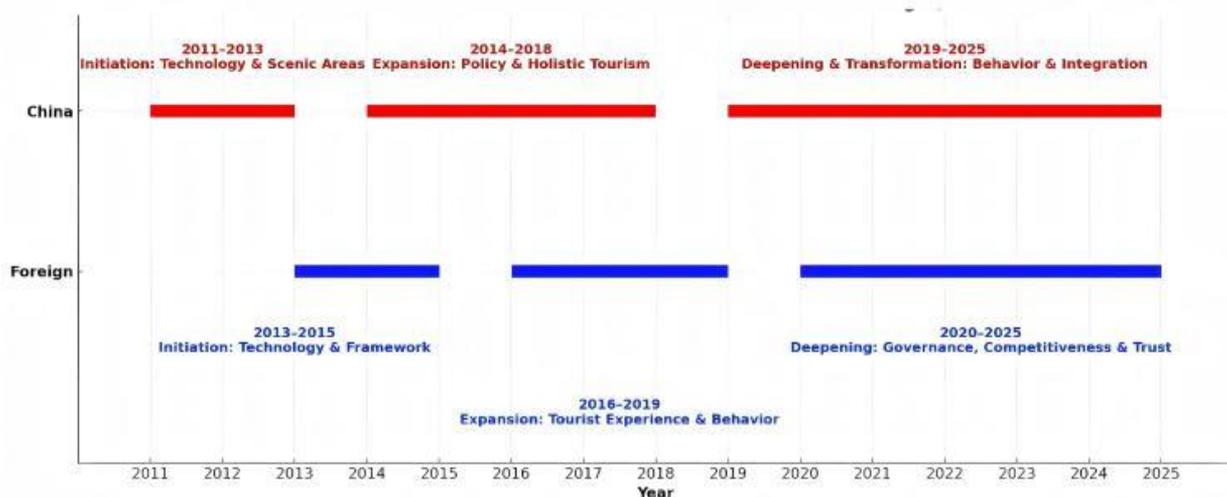


Figure 6. Timeline comparison of research theme evolution: China vs foreign (2011-2025)

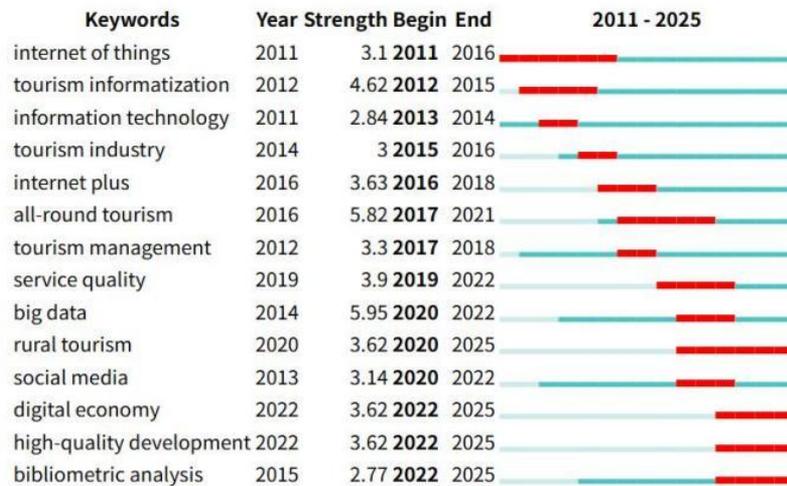


Figure 7. Keywords with strong bursts in Chinese research

Overall, the distribution of Chinese burst keywords follows a “technology-integration-development” trajectory, with bursts strongly synchronized with policy agendas. This pattern reflects a policy-driven knowledge production mechanism, contrasting with the theory-driven and visitor-oriented trajectory of international research.

3.4.2 Burst keywords in international research

From a burst keyword perspective, international research on smart tourism destinations shows more concentrated and distinct phases of thematic evolution (as shown in Figure 8). Information technology exhibited the strongest burst (5.19) from 2016 to 2019, reflecting intensive attention to its embedded role in destination management and tourism services, and its foundational importance in smart transformation [3]. During the same period, customer satisfaction also entered a burst phase (2016-2021, strength 3.15), highlighting the growing prominence of visitor-centered evaluation, particularly in assessing the value created at the intersection of service experience and technological utility.



Figure 8. Keywords with strong bursts in international research

Notably, destination competitiveness showed a burst in 2019 (strength 3.13), though lasting only until 2020. This shift indicated that as technology and experience perspectives matured, scholarly focus expanded to destination-level strategic governance and performance optimization.

The temporal overlap of these three keywords reveals a coupled trajectory across technology, experience, and governance, underscoring the progressive integration and systematization of international research on smart tourism destinations.

3.4.3 Comparative analysis of burst keywords

Overall, burst keywords in international research are more concentrated and targeted, emphasizing the integration of technology and management and their impacts on visitor

experience and destination competitiveness. In contrast, Chinese burst keywords exhibit a broader scope, spanning specific technologies and industrial applications as well as macro-level national strategies. This contrast reinforces the dual logic of smart tourism destination research: Chinese scholarship is primarily shaped by policy-driven agendas and industry practice, whereas international studies place greater emphasis on theoretical construction and visitor-centered perspectives.

4. DISCUSSION

4.1 Differences in research orientation

A clear divergence emerges between Chinese and international research orientations. The first distinction lies between practice-driven approaches and theoretical expansion. Chinese studies are predominantly application-oriented, producing outcomes that directly serve policy and practice. Much of the literature centers on case studies and system construction, focusing on how technologies solve practical problems and improve management efficiency or visitor satisfaction, often through specific models or implementation paths [54]. Theoretical innovation is typically supportive of practice rather than developed as abstract conceptual work. In contrast, international research emphasizes theoretical frameworks and critical reflection. Scholars introduce new concepts and models—such as the Competitive Productivity framework linking smart technologies to destination performance [55], or smart destinations as new governance modes [32]. They also engage in critical assessments of existing practices, for instance, debating risks and challenges in technology adoption and the gap between hype and reality [56-58]. This dual orientation of theory-building and critique enriches the conceptual foundation of smart tourism while deepening insights into practice. By comparison, Chinese research shows potential for greater theoretical output and critical depth, moving beyond “problem-solving” toward broader conceptual inquiry.

A second difference lies in governance models and stakeholder participation. Smart tourism development in China has largely been state-led and top-down, reflected in studies that highlight government leadership in planning, investment, and standard setting, and call for stronger

administrative guidance [59]. Only a limited number emphasize multi-stakeholder involvement [60]. In contrast, international research adopts a multi-actor governance perspective, focusing on the interactions among governments, enterprises, residents, and tourists. For example, some studies stress that smart destinations influence not only tourists but also residents' quality of life, advocating their inclusion in value co-creation. Others propose process-oriented governance frameworks that highlight collaborative innovation between public agencies and stakeholders as essential for sustainability [61, 62]. International research also considers inclusivity, exploring how smart tourism can meet the needs of diverse groups such as different generations and disabled tourists [63]. These studies underscore that the success of smart tourism depends on collaborative governance networks.

Although the increasing volume of Chinese publications in international journals since 2020 shows growing engagement with global scholarship and the adoption of value co-creation perspectives, domestic research still lags in the depth of stakeholder analysis and collaborative governance. Future work in China should further explore context-appropriate models of multi-stakeholder governance, making smart tourism systems more resilient and inclusive.

4.2 Theoretical perspectives and paradigm evolution

The evolution of smart tourism research reveals converging yet context-specific trajectories in China and abroad. A common trend is the shift from a technology-driven paradigm to a socio-technical systems perspective. Early studies, both Chinese and international, largely emphasized the application of ICT in tourism, reflecting a technology-oriented approach. More recently, particularly after the COVID-19 pandemic, international scholarship has advanced a paradigm shift toward integrated socio-technical governance, stressing that the future of smart tourism depends not only on technological innovation but also on social structures, organizational mechanisms, and data governance to ensure resilience and sustainability [64].

Chinese scholarship has also begun to signal a paradigm transition. While technology application remains central, recent studies increasingly incorporate visitor-centered perspectives, inclusivity, cross-sectoral governance, and critical reflections on the challenges facing smart tourism destinations [65-69]. Research highlights that smart transformation should ultimately serve human experience rather than technology alone, aligning with the international shift from a "technology logic" to an "experience logic." Similarly, the "Internet+ all-for-one tourism" initiative positions smart tourism within broader socio-economic systems, stressing multi-industry integration and institutional innovation. These developments suggest that Chinese scholarship is moving beyond a narrow technology-centric lens toward more diverse theoretical perspectives, though still at an early stage compared to international research.

In terms of theoretical and methodological paradigms, international studies have more extensively employed multidisciplinary frameworks such as the Technology Acceptance Model and sustainability frameworks [70-73]. Moreover, an entire cluster focuses on scientometric methods, reflecting a methodological shift that uses bibliometrics, knowledge mapping, and data analytics to uncover the intellectual structure and evolution of the field, thereby

treating smart tourism research itself as an object of inquiry.

Chinese scholars have also begun adopting new theories and methods. These innovations largely derive from practice-driven insights, exhibiting strong local characteristics and policy orientation. Although their global theoretical impact remains limited, the increasing volume of Chinese publications in international journals demonstrates a growing presence in global academic dialogues.

Looking ahead, achieving a full paradigm shift will require stronger engagement with international theoretical discourses. Chinese scholarship may benefit from adopting frontier perspectives such as socio-technical integration and value co-creation, while simultaneously extracting generalizable principles from local practices to contribute unique theoretical insights to global debates.

Both Chinese and international research on smart tourism destinations are undergoing a shift from a technology-driven to an integrated governance paradigm, albeit with different emphases and paces. International scholarship has more systematically constructed multidisciplinary frameworks and advanced the paradigm through critical and reflexive approaches, whereas Chinese research is striving to transform its practice-based strengths into theoretical contributions, seeking a paradigm of smart tourism development aligned with its own contextual realities.

5. CONCLUSIONS

This study employed bibliometric methods to systematically compare Chinese and international research on smart tourism destinations, achieving the intended research objectives. By applying keyword co-occurrence, cluster analysis, thematic evolution (timezone) mapping, and burst detection, the study traced the developmental trajectories and stage characteristics of the field. The findings confirm that bibliometric approaches provide an effective quantitative tool for cross-contextual comparisons, revealing knowledge structures, thematic shifts, and emerging frontiers, thereby deepening the understanding of similarities and differences across contexts.

The analysis shows that both Chinese and international research share a common trajectory—from a technology-driven orientation toward a comprehensive governance paradigm. Early studies focused on ICT applications in tourism, while recent work has shifted toward visitor experience, destination management innovation, and sustainability. Nonetheless, distinct differences exist due to institutional contexts and developmental stages. Chinese research emphasizes macro-level top-down design, policy embedding, and government-led practice, highlighting industrial transformation and "hardware" construction. In contrast, international studies focus on micro-level behavioral mechanisms, multi-stakeholder governance, and theoretical innovation, prioritizing "soft" experiences and social outcomes. For example, China's unique focus on "smart scenic areas" reflects its scenic-area-centered management system, while international research pays greater attention to "smart experiences," underscoring differences in research units and perspectives. Together, these orientations provide complementary contributions to the advancement of the field.

The contributions of this study are threefold. Methodologically, it offers the first cross-cultural bibliometric comparison of smart tourism destination knowledge structures

and evolutionary trends, extending the application of bibliometrics in tourism research. Theoretically, it reveals the field's evolution from technology adoption to experience optimization and sustainability, enriching the understanding of paradigm shifts. Practically, it develops an integrative framework of complementary research pathways, providing new insights for international dialogue and cross-cultural learning.

Several limitations should be acknowledged. The dataset was restricted to Chinese- and English-language publications, potentially excluding other languages and gray literature. Methodologically, the study relied on quantitative macro-level analysis, which may overlook deeper mechanisms, while cluster parameter selection involved subjective judgment. Future research should combine qualitative approaches to explore underlying dynamics, expand to multilingual data sources, address issues such as data governance and privacy protection, and strengthen international collaboration to bridge macro-level strategies with micro-level experience. Such efforts will foster the theoretical enrichment and practical advancement of smart tourism destination research.

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NOMENCLATURE

IoT	Internet of Things
ICT	Information and Communication Technology
AI	Artificial Intelligence