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SMART TOURISM RESEARCH LANDSCAPE 2019-2024: BIBLIOMETRIC INSIGHTS ON TRENDS, COLLABORATION, AND SUSTAINABILITY

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Abstract

Smart tourism has become a central issue in the transformation of modern tourism, thus bibliometric mapping is necessary to understand the direction, trends, and contributions of research in this field. Using a bibliometric approach, this study aims to map smart tourism research trends for 2019-2024, thereby providing a more comprehensive understanding of the direction of development, academic contributions, and potential for further research in this field. This study used a quantitative approach by analyzing scientific publication data on smart tourism obtained from the Scopus database, and the results were visualized using VOSviewer. A total of 627 documents were analyzed, producing five major thematic clusters. The most frequent keywords identified include "smart tourism", "IoT", "big data", "AI", and "social media" indicating a strong emphasis on technology-oriented research themes. The results show several key findings. First, publications on smart tourism showed a consistent upward trajectory during 2019-2024. In the early years (2019-2020), growth was moderate, while the slight decline in 2021 could be attributed to the impact of the COVID-19 pandemic, which temporarily disrupted research productivity. Nevertheless, a sharp surge began in 2022 and peaked in 2024 with more than 130 publications. Second, the main countries contributing to smart tourism research are China, Spain, and South Korea. Third, the keyword network visualization reveals that global smart tourism research is dominated by technology-driven themes like IoT, data analytics, and AI. In contrast, areas such as tourist behavior and social media represent the human dimension, while the marginalization of heritage, rural, and sustainability tourism highlights underexplored opportunities for more inclusive and sustainable development. The novelty of this study lies in mapping smart rural tourism and smart heritage tourism as under-explored domains within digital tourism, which have received limited attention in prior bibliometric studies that predominantly focused on technology-driven or urban-centered themes of smart tourism. These findings expand the theoretical scope beyond urban-focused smart tourism and open new directions for future research and practice. This study suggests that policymakers should integrate smart technologies, foster international research collaboration, and position smart tourism as a strategic framework to achieve sustainable, inclusive, and innovation-driven tourism development.

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INTRODUCTION

In the last few years of globalization, international travel has changed significantly. The changes are primarily the results of improvements in various forms of information and communication technology (ICT). Smart tourism has emerged as a new paradigm that uses digital technology to enhance tourist experiences, improve destination management, and boost competitiveness (Ionescu & Sârbu, 2024; Pribadi et al., 2021). The concept of the Smart Tourism Destination (STD) is derived from the concept of Smart City, but its features are tailored to suit the needs of the tourism industry (Bachrian & Suryawan, 2021; Sarmita & Hu, 2024). With the growing importance of information and communication technology (ICT) driven tourism, it is crucial to undertake a thorough and systematic mapping of research development in smart tourism. This is important in order to appreciate its evolution and anticipate its future. The selection of the 2019-2024 period is based on the fact that the year 2019 marked a global turning point in tourism and digital transformation, especially with the acceleration of smart technologies following the COVID-19 pandemic. During this period, there was a significant surge in the use of digital tools, big data, and artificial intelligence in tourism, making it an appropriate time frame to analyze the evolution and future direction of smart tourism research.

Katsoni & Segarra-Oña (2019) describes that smart tourism is a description of the current stage of tourism development which is influenced by the evolution of information technology. In this context, the presence of technology not only acts as a tool, but can also be a major driving factor to change the way tourist destinations manage, promote, and even meet the needs and satisfaction of tourists. The transformation to smart tourism is driven by technologies such as the Internet of Things (IoT)**,** big data analytics, and artificial intelligence (AI), which enable more personal and interactive tourist experiences and greater operational efficiency for tourism industry players. However, several key principles underpin smart tourism: first, continuously enhancing the destination's impression or image; second, providing a collaborative intellectual platform; third, effectively managing the collection, dissemination, and distribution of information and resources within tourist areas; and finally, fostering integration between different tourism stakeholders to ensure local communities benefit equitably from tourism activities (Si-Tou, 2024; Tukhliev & Muhamadiyev, 2019).

Smart tourism is a social phenomenon created from the combination of information technology and tourism experiences (Hunter et al., 2015). The smart tourism phenomenon is created from the integration of several main elements, including smart technology, tourism businesses, and digitally connected tourists. Smart technology is used to collect and analyze data in real-time to understand the needs and preferences of tourists. Tourism businesses can then utilize the data obtained to offer relevant services to tourists, such as recommendations on destinations that match individual interests. In addition, digitally connected tourists can take advantage of digital applications and platforms to obtain real-time information, interact, and share their travel experiences through social media. The presence of smart tourism thus becomes an effort to integrate the role of information technology and tourism in creating value for both industry and tourists.

Technological improvement has enhanced intelligence within the organization and the society. Smart Tourism Destinations (STD) was developed from the bulwark of smart cities, focusing the social and technological paradigm on greater efficiency and added

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meaning for the tourists (Buhalis & Amaranggana, 2013). The integration of the core ICT innovations (the Internet of Things, big data, and cloud computing) has made smart tourism possible (Hidayah & Suherlan, 2020). Generally, smart tourism is the next step of the evolution of the world tourism, in which the destinations, the industries, and the tourists interact in the digital environment to harness enormous data for innovative strategies (Gretzel et al., 2015). These characteristics reinforce the value of bibliometric analysis toward understanding the knowledge framework and suggesting the directions of future studies in the domain of smart tourism.

Building on this understanding, researchers are interested in employing bibliometric analysis to map the evolving scholarly landscape of smart tourism research. Most previous studies on smart tourism were still conceptual or focused on specific case studies, while systematic global mapping of smart tourism development from 2019-2024 remained very limited. This condition creates a research gap that needs to be addressed. The bibliometric approach in this study is therefore used not only to map the development of smart tourism, but also to provide in-depth insights into its global trajectory, particularly in relation to sustainability and innovation. This research differs from earlier studies because previous bibliometric analyses often focused on narrower regional contexts or theoretical discussions, while this study aims to provide a comprehensive global overview of smart tourism development. By expanding the analytical scope and integrating recent data, this study fills a clear gap in understanding how smart tourism research has evolved and where it is heading. This research is expected to contribute to strengthening the discourse on adaptive and sustainable technology-based tourism.

Smart tourism now extends far beyond basic online booking, utilizing technologies such as big data and artificial intelligence to comprehensively enhance user experiences and optimize business operations (Long & Chen, 2024). Many organizations around the world (e.g., telecommunications companies, social media, and e-commerce companies) have acquired huge amounts of customer data that can be used for smart tourism. Online recommendations on e-commerce platforms are commonplace, and many smart destinations are implementing flow control with visitor movement data. Although the development of smart tourism is still in its early stages, advances in 5G communications, which enable fast data transmission and ubiquitous connectivity, could be a catalyst for such development (Ye et al., 2020).

Li et al. (2017) emphasizes smart tourism as a support system for individual tourists in the context of comprehensive information and technology services. The application of the concept of smart tourism based on technology is the best solution for all parties. In addition, the application of the concept of smart tourism can provide a better tourism experience and the welfare of the population, increase the effectiveness - competitiveness - business targets, and will then lead to the sustainability of overall competitiveness (Hanum et al., 2020). The tourism industry continues to evolve along with technological advancements. In the context of Tourism Industry 5.0, technologies such as Blockchain, Artificial Intelligence (AI), and the Internet of Things (IoT) are key pillars for creating smarter, safer, and more personalized travel experiences. Smart Tourism is a concept that leverages these technologies to improve service quality, operational efficiency, and customer satisfaction (Setiawan, 2024).

Smart tourism serves as a pillar in a smart city and plays as an important part of a smart economy. Smart tourism is the integration of ICT into a tourism platform that aims

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to provide effective and efficient services and information for tourists (Jocom, 2022). The use of various information and communication technologies (ICT) in tourist destinations or smart tourist destinations has a very large influence on tourist or visitor satisfaction, and this will certainly affect the level of tourist visits to an area or a country. Recent studies, such as Hakim et al. (2023), have highlighted the growing dependence of tourists on digital technologies across all stages of the travel experience, from planning to post-visit evaluation. However, despite the proliferation of research discussing the technological transformation of tourism, there remains a lack of comprehensive bibliometric mapping that systematically analyzes how global smart tourism research has evolved in response to these digital shifts. Most existing studies are limited to conceptual frameworks or localized case studies, providing insufficient understanding of global research trends, thematic focuses, and collaboration patterns. Therefore, this study addresses the following research problem: How has global smart tourism research developed between 2019-2024 in terms of publication trends, thematic evolution, and collaboration networks based on bibliometric analysis?

METHODOLOGY

This study employed a quantitative data collection and analysis approach with the goal of providing results that addressed its purposes and measures (Creswell & Creswell, 2018). This research utilized secondary data published by Elsevier, obtained through the Scopus database, which contained peer-reviewed journal articles relevant to the topic of smart tourism. The Scopus database was the primary database used in this research. Scopus is seen as an adequate and acceptable database that is often referenced for good information based on its broad and reliable coverage of good quality journals (Mongeon & Paul-Hus, 2016). The search for records used the keyword "smart tourism" with the query TITLE-ABS-KEY ("smart tourism") and was limited to journal articles published between 2019-2024 to capture recent research topics and trends within the publications through the time frame of analysis (Donthu et al., 2021). The data were retrieved on January 1, 2025. To ensure rigor and reliability, duplicates and inappropriate records were removed in the data cleaning process. The research process was taken stage by stage as follows: (a) Selection of a data source (Scopus), (b) Determination of the scope of the analysis, and (c) Use of analysis tools. The visualization of the bibliometric network was conducted using VOS viewer.

FINDINGS AND DISCUSSION

Research on smart tourism from 2019 to 2024 has grown significantly, encompassing a wide variety of publications. Based on the search for articles available in the Scopus database and in-depth analysis, this study will describe various relevant aspects. This study focuses on the volume of collaborative publications between institutions on smart tourism, identification of core journals that are the centers of publication of works in this field, and research developments reviewed from the use of keywords and authorship networks formed during the period. This study also provides an overview of smart tourism research trends, including collaboration patterns between authors and institutions. Analysis of keywords used in publications offers insight into the thematic direction of research in this field, while authorship networks reveal the dynamics of contributions from authors and institutions to the development of science in the smart tourism sector. These findings are

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expected to provide important contributions to understanding the development of literature and encourage further collaboration to enrich future studies. In addition, to provide a more critical interpretation, the discussion of these results is compared with that of prior bibliometric studies on tourism and technology domains, allowing identification of similarities and divergences in research patterns, thematic evolution, and methodological scope. This comparative reflection enhances the analytical depth and situates the present study within a broader bibliometric context.

Figure 1 summarizes the 627 relevant articles published between 2019 and 2024 that were retrieved from the search:

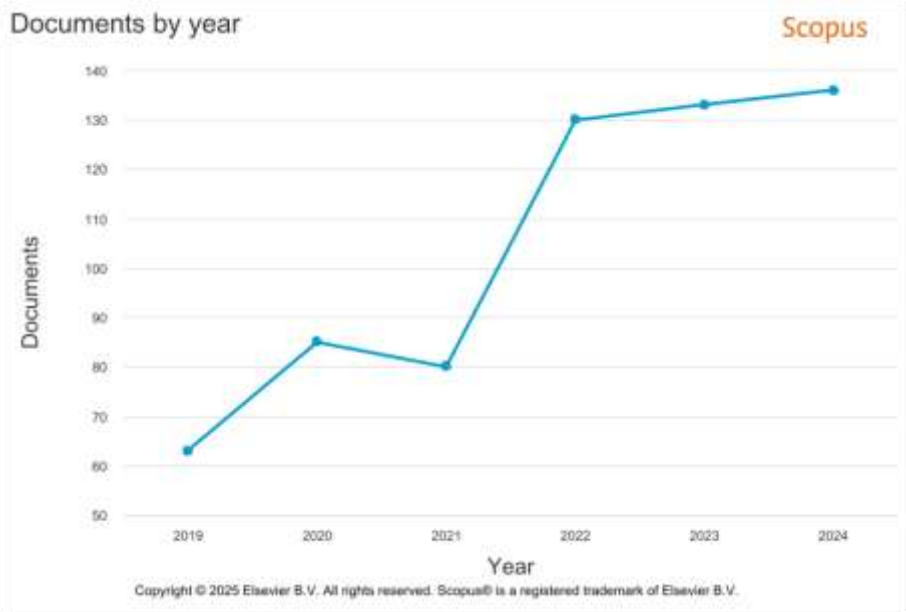

Figure 1. Documents by Year 2019-2024

(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure illustrates a significant upward trajectory in publications on smart tourism during the period 2019-2024. While the early years (2019-2020) reflected moderate growth, a slight decline in 2021 can be interpreted as an impact of the COVID-19 pandemic that temporarily disrupted research productivity. However, the sharp surge beginning in 2022 and peaking in 2024 with over 130 publications underscores the accelerated adoption of digital technologies in the tourism sector, such as artificial intelligence, big data, and IoT, in response to post-pandemic recovery needs. This consistent growth reflects both rising scholarly interest and the consolidation of smart tourism as a mature research domain. More importantly, the trend highlights a paradigm shift: smart tourism has evolved beyond a conceptual discourse into a strategic framework for sustainable, innovative, and globally adaptive tourism development.

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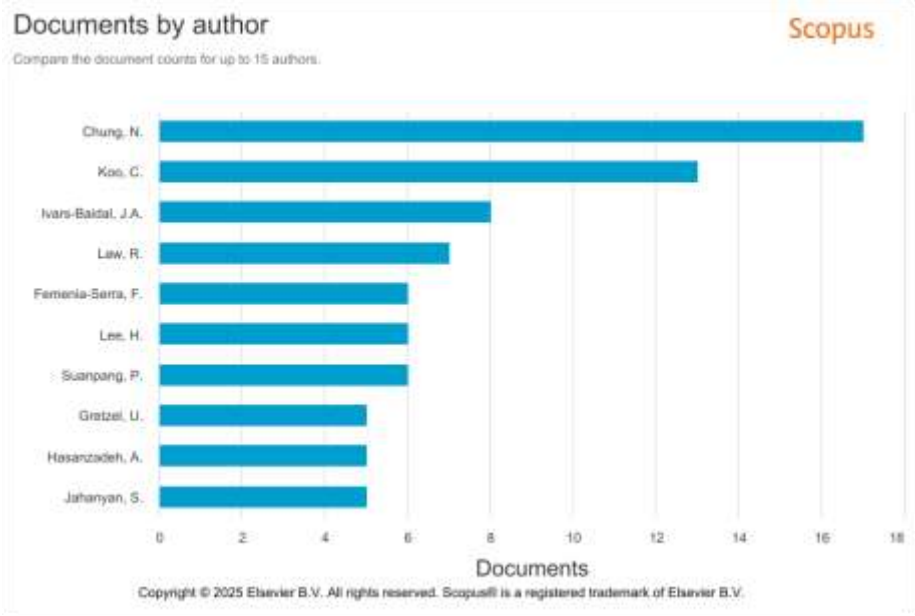

Figure 2. Documents by Author 2019-2024

(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure highlights the distribution of leading authors in smart tourism research from 2019-2024, with Chung, N. and Koo, C. emerging as the most prolific contributors, producing 17 and 13 publications respectively. This dominance underscores the formation of knowledge hubs that drive the global advancement of smart tourism. However, the concentration of output among a few key authors also reflects an overreliance on specific figures, which may limit the diversification of perspectives and innovation if not complemented by broader academic participation. From a global perspective, this trend indicates that smart tourism research is still largely shaped by particular academic networks, often emphasizing digital technologies and technology-driven tourist behavior. At the same time, it highlights opportunities to expand cross-country and cross-disciplinary collaboration, especially by involving underrepresented researchers from developing countries. The novelty emerging from this critique lies in the call to diversify research agendas toward underexplored areas such as smart rural tourism and smart heritage tourism, thereby broadening the scope of smart tourism beyond technological innovation to encompass social, cultural, and sustainable dimensions.

The figure indicates that global smart tourism research is still highly concentrated in Sustainability Switzerland, emphasizing the dominance of sustainability themes. With 69 publications, Sustainability Switzerland is recorded as the source with the highest number of publications. While this reflects the growing alignment between technology and sustainable tourism, the limited spread across other journals suggests the need to broaden research outlets and explore underrepresented areas such as smart rural tourism and smart heritage tourism to strengthen the global knowledge base.

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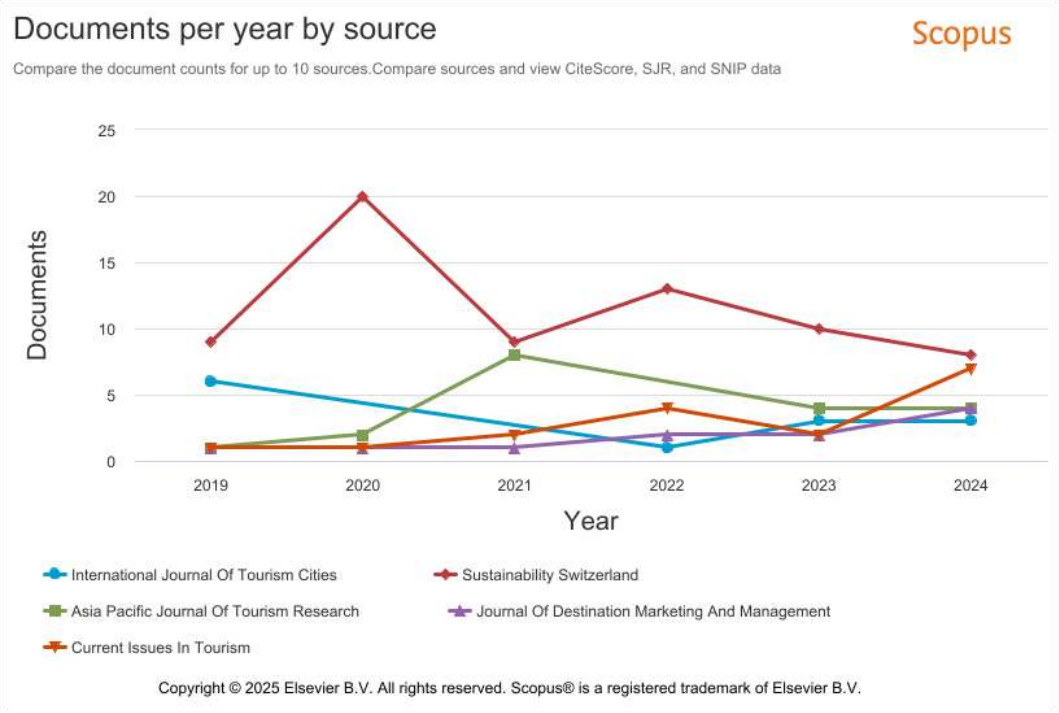

Figure 3. Documents per year by source 2019-2024

(Source: Reproduced from Scopus database, Elsevier, 2025)

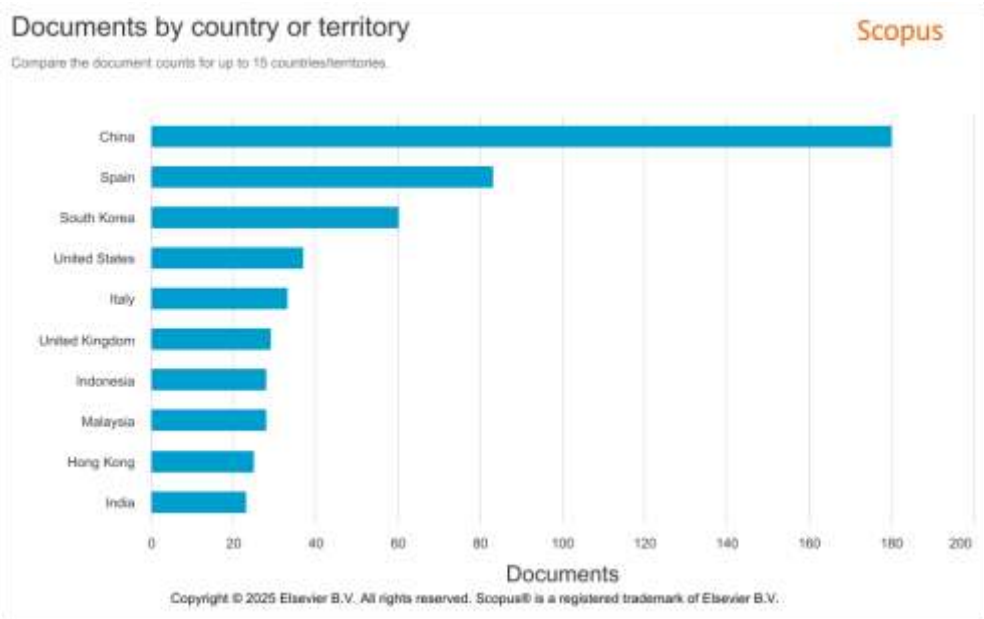

Figure 4. Documents by Country or Territory 2019-2024

(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure reveals a strong concentration of smart tourism research across several countries, with China, Spain, and South Korea leading global publications. China ranked first with a total of 180 documents, solidifying its position as a major center for producing scholarly literature in this field. Spain ranked second with 83 documents, reflecting the country's significant role in tourism research and related studies. Meanwhile, South Korea ranked third with 60 documents. This dominance underscores their role as primary knowledge hubs while revealing significant research gaps in other regions. This points to

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a clear need for more inclusive, context-specific studies in areas like smart rural and heritage tourism. This dominance also reaffirms that although the role of these countries is significant, expanding global participation remains crucial to enrich perspectives and broaden the scope of smart tourism research.

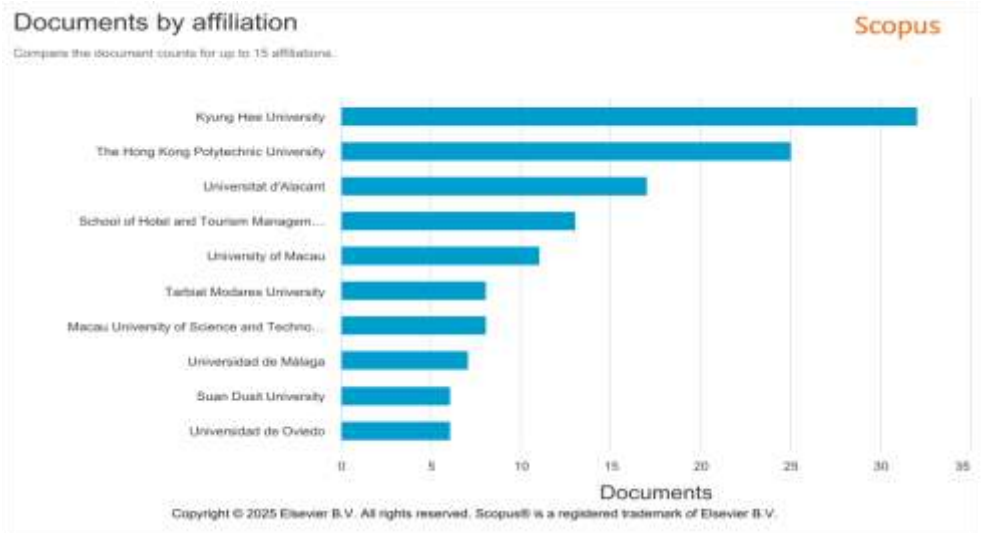

Figure 5. Documents by Affiliation 2019-2024

(Source: Reproduced from Scopus database, Elsevier, 2025)

The figure shows that smart tourism research is highly concentrated in a few leading institutions, notably Kyung Hee University (32 documents) and The Hong Kong Polytechnic University (25 documents), positioning them as global knowledge hubs. While this concentration strengthens academic leadership in Asia and Europe, it also reveals a gap in contributions from institutions in developing regions, underscoring the need for broader collaboration to diversify perspectives and develop more context-specific smart tourism models.

Furthermore, the VOSviewer analysis of the keyword "smart tourism" produced the visualization shown in the following figure:

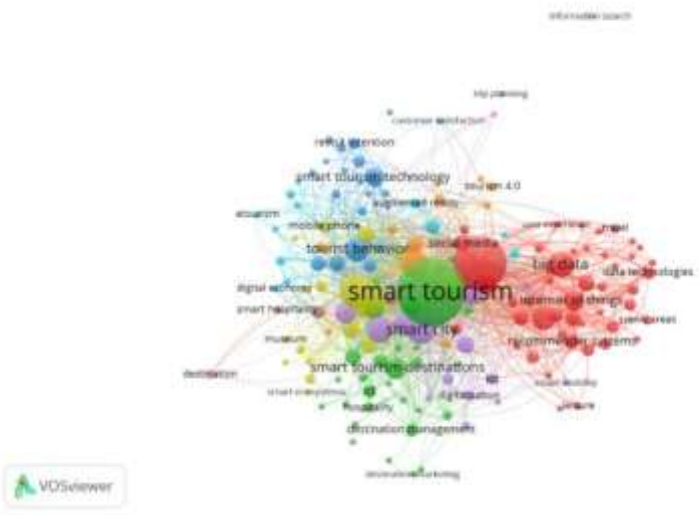

Figure 6. Network Visualization Co-Occurrence

(Source: Vosviewer, 2025)

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The visualization illustrates that global smart tourism research is structured around several dense thematic clusters, with “smart tourism”, “smart city”, and “big data” as central nodes. This indicates a strong emphasis on technology-driven approaches, particularly IoT, data analytics, and AI, reflecting how digitalization has become the backbone of tourism innovation. At the same time, clusters such as “tourist behavior”, “social media”, and “revisit intention” highlight a growing interest in understanding the human dimension of smart tourism, namely how technology shapes experiences and decisions. However, the relative marginalization of smart-related themes such as “heritage tourism” and “rural tourism” indicates the existence of research opportunities that remain largely unexplored. This imbalance shows that while the field has advanced in technological sophistication, it still needs to strengthen its integration with socio-cultural and environmental perspectives to support inclusive and sustainable global smart tourism development.

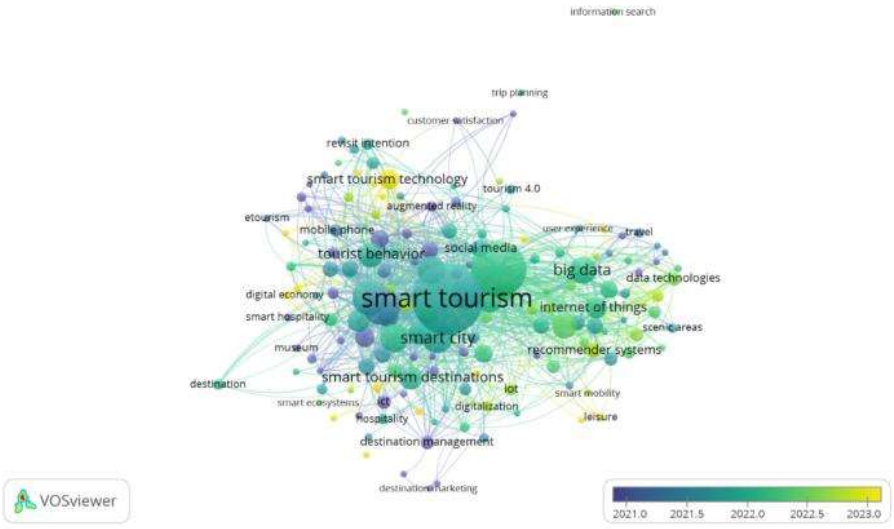

Figure 7. Overlay Visualization Co-Occurrence

(Source: Vosviewer, 2025)

The overlay visualization illustrates the temporal dynamics of smart tourism research between 2021 and 2023. The intial research (blue nodes) focused on fundamental aspects such as destination management, mobile phone, and tourist behavior. Over time there was a shift toward more advanced themes (green-yellow) such as big data, IoT, recommender systems, and augmented reality. This trend highlights the acceleration of digital technology adoption in supporting smart destinations and personalized tourist experiences. However, the most recent research (yellow nodes) remained concentrated on technical issues, while strategic themes like sustainability, heritage tourism, or rural tourism are still underexplored. This indicates a research opportunity to expand the focus beyond technology toward integration with social, cultural, and environmental dimensions. Thus, the global smart tourism trend is moving progressively toward digitalization, but requires balancing to ensure that technological innovation also strengthens tourism sustainability and inclusivity.

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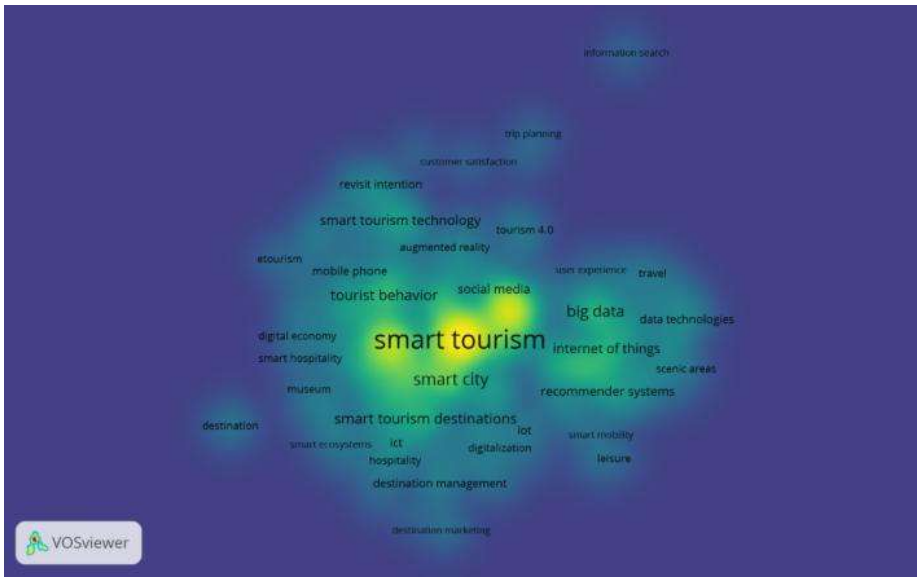

Figure 8. Density Vizualization Co-Occurrence
(Source: Vosviewer, 2025)

The density visualization highlights the most intensively studied themes in global smart tourism research, with “smart tourism”, “smart city”, “tourist behavior”, “social media”, and “big data” appearing in the brightest yellow areas, signalling their dominance. This concentration reflects the strong global orientation toward technology adoption and behavioral studies, showing that the field is largely driven by digital innovations such as IoT, data analytics, and AI. However, the fading green-to-blue areas, such as heritage tourism, rural tourism, sustainability, or destination marketing, indicate limited attention, suggesting underexplored domains. The imbalance reveals that while the academic community has advanced technological sophistication and digital engagement strategies, it has yet to fully integrate broader socio-cultural and environmental dimensions. Strengthening research in these underrepresented areas could enhance the inclusivity and sustainability of global smart tourism development, ensuring that innovation is not only tech-centered but also context-sensitive and community-oriented.

The authorship network is visualized in the following figure:

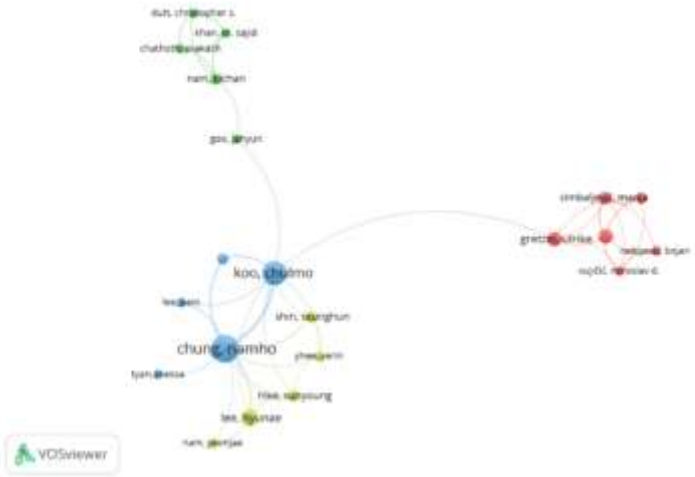

Figure 9. Network Visualization Co-Authorship
(Source: Vosviewer, 2025)

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The visualization shows that global smart tourism research collaboration is still relatively fragmented, with clusters centered on key scholars such as Koo, Chulmo and Chung, Namho (blue cluster), and Gretzel, Ulrike (red cluster). While these figures serve as important knowledge hubs, the limited cross-linkages between clusters suggest that collaboration is concentrated regionally or within specific academic circles rather than globally integrated. This indicates that despite the rapid growth of smart tourism research, knowledge exchange remains uneven and overly dependent on a few influential scholars. The weak connectivity between Asian (Koo, Chung) and European-American (Gretzel) groups reflects a gap in cross-regional collaboration, which could hinder the development of more holistic and globally relevant smart tourism models. Strengthening international partnerships across these clusters would bridge geographical divides and integrate diverse perspectives, particularly from underrepresented regions like the Global South. This step is crucial for advancing inclusive, adaptive, and sustainable global smart tourism development.

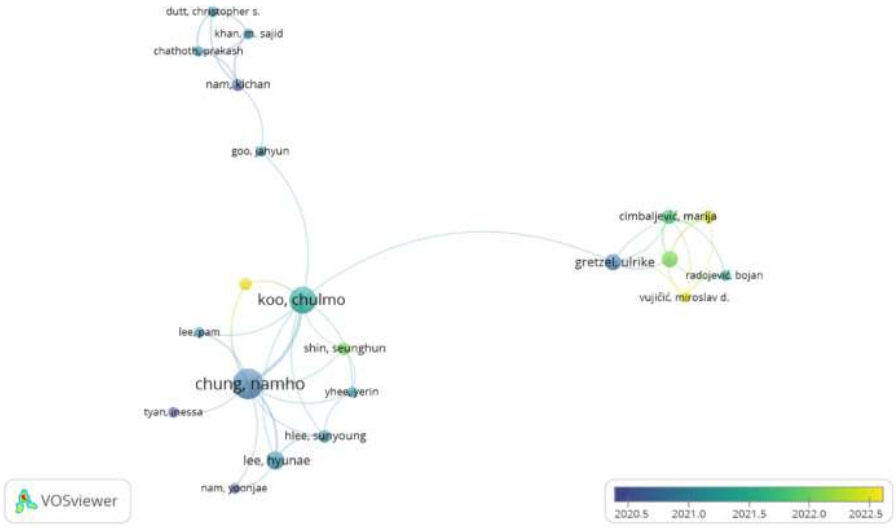

Figure 10. Overlay Visualization Co-Authorship
(Source: Vosviewer, 2025)

The figure illustrates that global smart tourism research is still highly dependent on a few key scholars, such as Koo, Chulmo, Chung, Namho, and Gretzel, Ulrike, who act as central hubs within their respective clusters. This pattern indicates the emergence of strong knowledge hubs but also reveals limited connectivity between clusters. In other words, collaboration networks remain regionally segmented and have yet to form a truly inclusive global network. Such a structure risks reinforcing the dominance of certain groups while limiting cross-cultural knowledge exchange. For the global development of smart tourism, this trend highlights the need to foster broader cross-regional and cross-disciplinary collaborations, ensuring that research incorporates the perspectives and needs of developing nations alongside those of developed countries to foster greater global equity. Strengthening such collaborations would enable smart tourism to evolve into a more comprehensive, adaptive, and globally relevant framework.

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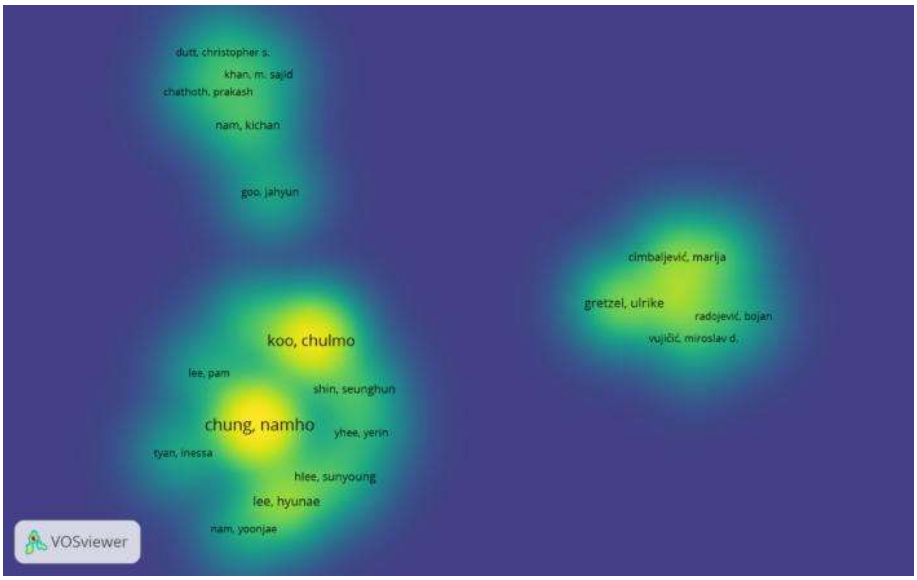

Figure 11. Density Visualization Co-Authorship
(Source: Vosviewer, 2025)

This figure illustrates the collaboration patterns among authors in smart tourism research, showing that the field is still dominated by a few key scholars such as Koo, Chulmo, Chung, Namho, and Gretzel, Ulrike. The visualization highlights the formation of strong knowledge hubs; however, the collaboration network remains fragmented, as connections between clusters are relatively limited. This pattern suggests that while certain groups have consolidated their influence, cross-cultural and cross-regional knowledge exchange is still constrained. For the global development of smart tourism, this trend underscores the importance of expanding interdisciplinary and international collaborations to foster more inclusive, adaptive, and globally relevant advancements in the field.

The visualization of collaboration density using VOSviewer indicates that global smart tourism research has developed strong knowledge hubs, particularly around key scholars such as Koo, Chulmo; Chung, Namho; and Gretzel, Ulrike. This demonstrates that the advancement of smart tourism is not fragmented but is instead concentrated within strategic academic collaboration networks. Such a trend reflects the growing importance of cross-country collaboration in accelerating the diffusion of tourism technology innovations. Thematically, two main orientations emerge: first, the development of digital technologies such as IoT, AI, and big data to optimize destinations; and second, the study of digital tourist behavior that increasingly relies on online platforms. This evidence confirms that smart tourism represents a dual transformation: not just a technological upgrade, but a fundamental shift in global tourist behavior and expectations.

The novelty of this study lies in its ability to identify thematic clusters while also highlighting research gaps. The identification of novelty clusters such as smart rural tourism and smart heritage tourism was derived from keyword co-occurrence analysis in VOSviewer, where these terms appeared as emergent nodes during the 2022-2024 period. Their temporal emergence and relative isolation from dominant clusters such as “smart city” or “big data” indicate that these themes represent new and evolving subfields rather than extensions of prior technological discussions. For instance, smart rural tourism and smart heritage tourism remain underexplored, despite their importance in promoting

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community-based tourism and cultural preservation. Emphasizing these aspects expands the scope of smart tourism research from merely focusing on technology to also strengthening social and cultural values. Furthermore, the global mapping for 2019-2024 reveals that research is dominated by developed countries (China, Spain, South Korea), while developing countries including Indonesia still make limited contributions. This opens strategic opportunities for developing nations to fill research gaps by designing local data-driven smart tourism models that align with their unique socio-economic characteristics.

The implications for policy derived from this study carry direct practical significance. In practical terms, these findings carry direct implications. First, destination managers can leverage smart technologies to enhance tourist experiences while simultaneously building digital loyalty. Second, the results encourage the establishment of international research consortia to foster stronger cross-disciplinary collaboration, enabling responses to global challenges while reinforcing sustainability. Third, by linking technology and sustainability, this study highlights that smart tourism should be positioned as a strategic pathway for inclusive and adaptive tourism development, and oriented toward balancing innovation, economic growth, and both environmental and cultural preservation. Furthermore, this discussion integrates sustainability goals by linking the dominance of digital technologies in smart tourism with the objectives of SDG 8 (Decent Work and Economic Growth), SDG 11 (Sustainable Cities and Communities), and SDG 12 (Responsible Consumption and Production). This integration emphasizes that the advancement of smart tourism necessitates a dual commitment—not solely to technological innovation, but equally to the furtherance of sustainable tourism development.

CONCLUSION

This study makes a significant contribution by systematically mapping the global development of smart tourism research during the period 2019-2024. The findings indicate that this field has experienced substantial growth, with a strong concentration on digital technology themes such as IoT, AI, big data, and technology-driven tourist behavior. However, there remains a notable imbalance in research coverage, where socio-cultural and sustainability-oriented topics such as smart rural tourism and smart heritage tourism are still underexplored. The identification of these gaps represents the novelty of this study, as it opens opportunities to expand research beyond technological innovation toward the integration of social, cultural, and environmental values.

From a practical perspective, these findings highlight the strategic necessity for destination managers to harness smart technologies as a holistic platform, one that transcends tourist experiences to foster digital loyalty, promote sustainable practices, preserve cultural heritage, and empower local communities. From an academic standpoint, the study emphasizes the importance of building stronger international collaborations, expanding the participation of researchers from developing countries, and developing more contextualized smart tourism models tailored to local socio-economic characteristics.

From a policy perspective, the findings of this bibliometric study can also serve as a strategic reference for policymakers and destination managers in formulating national tourism R&D agendas. By identifying dominant themes, emerging research gaps, and institutional collaboration patterns, decision-makers can allocate resources more effectively to stimulate innovation in underrepresented areas such as smart rural tourism,

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digital sustainability initiatives, and heritage-based smart destinations. This actionable insight encourages the use of bibliometric evidence to guide evidence-based policymaking in tourism innovation and sustainability programs.

Accordingly, future research directions should focus on: (1) strengthening cross-country and cross-disciplinary collaborations to reduce knowledge fragmentation, (2) increasing the contributions of developing countries to enrich global perspectives, and (3) exploring smart rural tourism, and smart heritage tourism as integral elements of smart tourism transformation. By emphasizing these aspects, this study contributes to the academic discourse on smart tourism while offering actionable guidance for tourism policy and development. Based on the bibliometric findings, the evolution of smart tourism research highlights the need for policies that integrate digital innovation, sustainability, and community empowerment. Smart tourism should be positioned as a strategic framework within tourism policy to promote digital transformation, sustainability, and inclusivity across destinations while empowering local communities, ensuring equitable digital access, and preserving cultural and environmental values. Therefore, the study contributes to policy directions by identifying how smart tourism can guide governments and destination managers in designing adaptive, technology-driven, and socially responsible tourism strategies.

Overall, the study reinforces smart tourism as a transformative pathway for shaping future tourism policies that are more inclusive, adaptive, and sustainable. This study acknowledges certain limitations related to data coverage and analytical scope. The use of a single database and specific analytical tools may restrict the comprehensiveness of findings. Future research is encouraged to broaden data sources and apply comparative approaches to enhance methodological robustness and ensure a more comprehensive understanding of smart tourism research development.

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