JOURNAL OF TOURISM AND SERVICES
Issue 29, volume 15, ISSN 1804-5650 (Online)
www.jots.cz

Smart Tourism, Hospitality, and Destination: A Systematic Review and Future Directions

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Received: 17 January 2024. **Revision received**: 8 July 2024. **Accepted**: 16 July 2024

Abstract
This paper aims to conduct a scientometric and systematic literature analysis on smart tourism, destination, and hospitality, focusing on the utilization of ICT to enhance tourism experiences, improve the quality of life for residents and tourists, and promote sustainable tourism development. Using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, relevant articles from the Scopus database (2013-November 2023) were selected and analyzed. A total of 321 articles and review articles were included, highlighting the collaborative efforts in enhancing tourism experiences, well-being, and sustainable practices. The analysis revealed China as the most productive country with 88 documents, while the USA emerged as the most influential with 1970 citations. Kyung Hee University in South Korea was identified as the most productive and influential institution, contributing 15 documents and 1328 citations. Frequent authors' keywords included "smart tourism," "smart cities," "smart tourism destination(s)," "tourism," and "smart destination(s)." The integration of smart tourism, IoT, and social media was found to significantly influence consumer behavior, shaping travel experiences and decision-making processes. The study provides valuable insights for future research, emphasizing the need for further exploration in areas such as ecosystem hospitality and smart traveling. Enhanced collaboration among researchers is expected to deepen the understanding and expand the scope of smart tourism research, ultimately leading to more publications and advancements in this field.

Key Words: smart tourism; smart destinations; smart hospitality; IoT; Scopus database; systematic review

JEL Classification: Z30, Z32, Z39

Reference: Alsharif, A., Isa, S. M., & Alqudah, M. N. (2024). Smart Tourism, Hospitality, and Destination: A Systematic Review and Future Directions. *Journal of Tourism and Services*, 15(29), 72–110. https://doi.org/10.29036/jots.v15i29.746

1. Introduction

Smart tourism is a growing field that leverages various theoretical foundations to comprehend and enhance the tourist experience in technologically advanced settings (Buhalis et al., 2022b; Gretzel et al., 2015). Smart tourism integrates information and communication technologies (ICT) to enhance the tourism experience (Mehraliyev et al., 2019). This concept extends to smart hospitality, which leverages smart cities and smart tourism to establish agile business ecosystems in networked destinations (do Rosário Mira & de Jesus Breda, 2021). Smart tourism development is closely linked to the broader concept of smart cities, which aim to improve the quality of life for residents and tourists through ICT

(Jeong & Shin, 2020). In this context, smart tourism destinations are expressed as smart cities that follow innovations and use ICT to enhance the travel experience of tourists (Gök & Şalvarci, 2022). The adoption of smart tourism applications is affected by factors such as perceived usefulness, ease of use, enjoyment, motivations for information and interaction, network effects, and privacy concerns (Yoo et al., 2017). Scholars strive to link theoretical frameworks with empirical studies by framing the conceptualization of smart tourists within relevant theories, thus shedding light on the engagement of stakeholders in smart tourism initiatives (Femenia-Serra et al., 2019). The service-dominant logic is acknowledged as a pivotal theoretical underpinning for understanding the implications of smart tourism, accentuating the importance of value co-creation in the smart tourism ecosystem (Chen et al., 2022; Ye et al., 2020). Privacy concerns, risk perception, and control over information are underscored in the investigation of smart tourism, leveraging social cognitive theory to guide destination management organizations and service providers (Olasumbo Afolabi et al., 2021). The theory of planned behavior has played a significant role in examining tourists' environmentally responsible conduct and their inclination towards engaging in pro-poor tourism, illustrating the diverse applications of theories within the domain of smart tourism (Kiatkawsin et al., 2020; Wang et al., 2022).

The convergence of smart cities and smart tourism has given rise to the concept of a smart tourism city, which guarantees sustainable development and enhances visitor interaction with experiences at the destination, focusing on tourism quality over quantity and improving residents' quality of life (Lee et al., 2020). The role of perceived smart tourism technology experience is crucial for tourist satisfaction, happiness, and revisit intention, highlighting the significance of ICT in shaping tourist experiences (Pai et al., 2020). Furthermore, smart tourism has emerged as a subset of the smart city concept, aiming to address specific travel-related needs and provide tailored solutions for tourists (Oo & Zan, 2020).

The relationship between smart cities and smart tourism is essential for achieving a sustainable tourism sector and enhancing the competitiveness of the country's tourism industry (Habeeb & Weli, 2020). Additionally, the impact of smart tourism technologies on tourist destination loyalty underscores the importance of memorable tourism experiences in enhancing tourist satisfaction and loyalty (Azis et al., 2020). Beyond smart tourism cities, there is a growing focus on developing a new generation of "wise" tourism destinations, signaling a shift in paradigms within this field (Coca-Stefaniak, 2021). Smart tourism goes beyond the focus on citizens in smart cities and emphasizes enhancing the experiences of tourists and visitors at the destination (Sharma, 2022; Zadel et al., 2021).

The concept of smart tourism is also integral to the development of smart cities, as it is considered one of the pillars of a smart city (Widodo & Rahman, 2021). By optimizing a comprehensive travel experience using smart tourism technology, various stakeholders can enhance tourism destinations and improve communication between tourists and host residents (Rafdinal et al., 2021). A conceptual model for smart tourism cities' competitiveness index emphasizes the importance of smart destinations, smart business ecosystems, and smart experiences in shaping the competitiveness of tourism cities (Chung et al., 2021).

The use of terminology related to smart tourism destinations has been associated with emphasizing clean, green, and ethical provisioning of high-quality services, aligning with the principles of sustainable tourism (Kim & Kim, 2017). Furthermore, the systematic review of smart tourism destinations highlights the need for a comprehensive understanding of smart tourism's components, metrics, and expected results (Shafiee et al., 2021). Smart tourism technology plays a crucial role in maximizing the use of tourism resources, managing tourism cities, and improving the quality of life for tourists and host residents (Susanto et al., 2020).

In the context of the COVID-19 pandemic, the goals of a smart tourism destination remain focused on increasing competitiveness and improving the quality of life for all stakeholders, including residents and tourists (Zadel et al., 2021). Smart tourism has become an effective tool for promoting the sustainable development of tourist destinations, further emphasizing its significance in shaping the future of tourism (Ye et al., 2021). The development of smart tourism technology, including 5G technology and

various smart tourism technologies, has actively contributed to the evolution of smart cities and smart tourism destinations (Wang & Lin, 2022).

Policymaking in smart tourism, destinations, and hospitality stands to gain significantly from future technological innovations. As highlighted by Mandić & Garbin Praničević (2019), the development of smart tourism destination strategies is crucial for integrating local destinations into the global tourism ecosystem, leveraging technological advancements to enhance visitor experiences and destination appeal. Shafiee et al. (2021) emphasized the need for a comprehensive conceptualization of smart tourism destinations to align objectives with the broader goals of smart tourism, ensuring that future policies are well-informed and effective. Moreover, Ivars-Baidal et al. (2019) pointed out that countries like China and South Korea are already orienting their policies towards creating technological infrastructures for smart tourism, showcasing the potential benefits of ICTs in destination marketing and management. By embracing smart technologies, as advocated by Buhalis et al. (2019), the hospitality sector can transition towards agile business ecosystems, fostering innovation, and enhancing competitiveness in networked destinations. Therefore, future policy-making in smart tourism should focus on harnessing technological disruptions to drive creativity, enhance visitor patterns, and ultimately elevate the quality of experiences in smart destinations.

Smart tourism, smart hospitality, smart destinations, smart cities, and smart traveling are interconnected concepts that leverage ICT to enhance the overall tourism experience, improve the quality of life for residents and tourists, and promote sustainable tourism development. The integration of smart technologies in tourism has the potential to shape the future of travel experiences and destination management, emphasizing the importance of embracing innovation and technology in the tourism industry. However, no previous research was performed to map ("smart tourism" OR "smart destination" OR "smart hospitality") research production in the Scopus (SC) database. Thus, this research distinguishes itself from other review articles, primarily focusing on global academic research trends within the Scopus (SC) database from 2013 to November 2023. This review paper aims to conduct a scientometric/bibliometric (performance analysis) and systematic analysis encompassing crucial elements such as identifying the most prominent countries, academic institutions, and the most popular author keywords, occurrences, and networks. The contributions and steps of this study are summarized and listed as follows:

(1) To identify the growth of annual and accumulative scientific publications based on the Scopus database.
(2) To identify the performance of the most prominent (a) countries, (b) Institutions, (c) authors' keywords, and co-words analysis in this area.
(3) To identify the most ten influential documents in this area.
(4) To provide systematic analysis relevant to this study's prominent authors' keyword occurrences, such as smart tourism and hospitality, smart cities, smart destinations, customer satisfaction, the Internet of Things (IoT), social media, and digital transformation.

This research adheres to a well-structured framework, as outlined below: Section 2 presents a detailed explanation of the methodology adopted for this study. Section 3 illustrates the findings and discussions of the study. Section 4 presents practical, theoretical, and social implications. Section 5 presents a concise and conclusive conclusion of this study, outlining its general conclusions, limitations, and future directions.

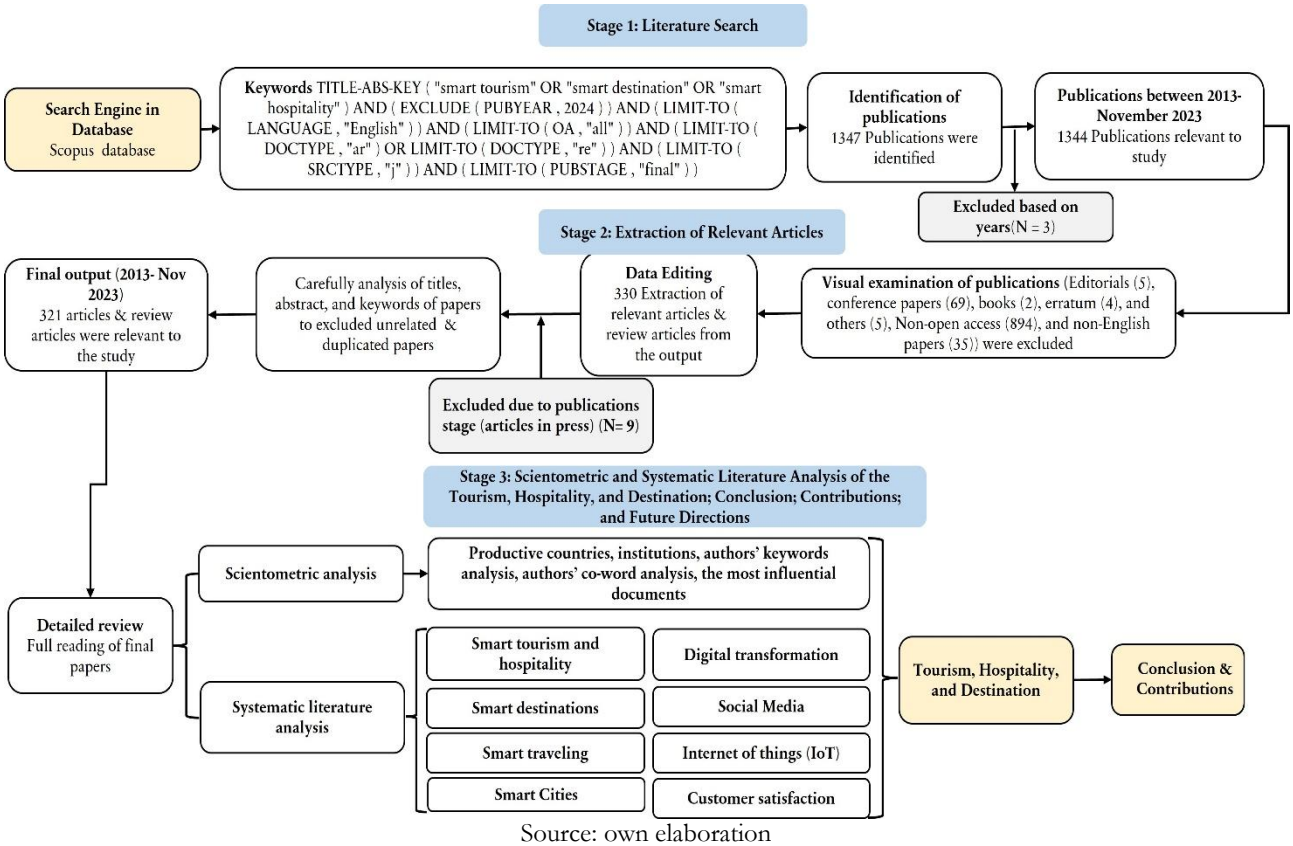
2. Methods

There are various types of review articles. Theory-based reviews (e.g., Gilal et al. (2019)), theme-based reviews (e.g., Ahmed et al. (2022b); Alsharif et al. (2022b); Hao et al. (2021); Rosado-Serrano et al. (2018)), framework-based reviews (e.g., Södergren (2021)), theory development reviews (e.g., Paul & Mas

(2020)), hybrid reviews (e.g., Dabić et al. (2020)), bibliometric analysis (e.g., Ahmed et al. (2023a); Alsharif et al. (2023c); Pilelienė et al. (2022); Şimşek & Kalıpçı (2022)), meta-analysis (e.g., Ahmed et al. (2023b); Anup Singh et al. (2023); Barari et al. (2021)). Bibliometric reviews can be domain-based or journal-based (Ahmed et al., 2021; Ali et al., 2021; Alsharif et al., 2023c; Donthu et al., 2021).

This study followed the guidelines outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol of Page et al. (2021) to assess and study the literature, which corresponds with the objectives of this study. The study conducts a scientometric (e.g., performance analysis) and systematic literature review on ("smart tourism" OR "smart destination" OR "smart hospitality"). This study aimed to provide a scientometric and systematic literature review analysis about smart tourism, destination, and hospitality, addressing the gaps in the current study.

Graph 1. **The process of extracting data and structural analysis of the paper**



Source: own elaboration

To achieve the goal of the study, four research questions were formulated to guide the structure of the analysis and gain a thorough understanding of the existing scientific research in the analyzed domain. These research questions were thoughtfully designed to shed light on key areas of interest and contribute to the improvement of knowledge in the relevant areas, as follows:

(1) What is the annual growth rate for scientific publications in the field?
(2) Can we identify the following questions:
  (a) The countries that are leading in terms of research output and influence?
  (b) The academic institutions that are most actively contributing to research in this area?
  (c) The most prevalent authors' keywords and co-word analyses in this area?
(3) What are the most ten influential documents in this area?
(4) What useful information can be found in the chosen papers?

This study starts by extracting documents from the SC database in November 2023. The reason of selecting the SC database is that it is the largest database of abstracts and citations, which covers a broad range of themes, as well as themes that might not be available on the Web of Science (WoS) (Ahmed et al., 2022a). In addition, this study has followed the instruction of Alsharif et al. (2023b) to provide a scientometric and systematic literature review.

The following query was applied to the title, abstract, and keywords: "TITLE-ABS-KEY ("smart tourism" OR "smart destination" OR "smart hospitality") AND (EXCLUDE (PUBYEAR , 2024)) AND (LIMIT-TO (LANGUAGE , "English")) AND (LIMIT-TO (OA , "all")) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re")) AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (PUBSTAGE , "final"))".

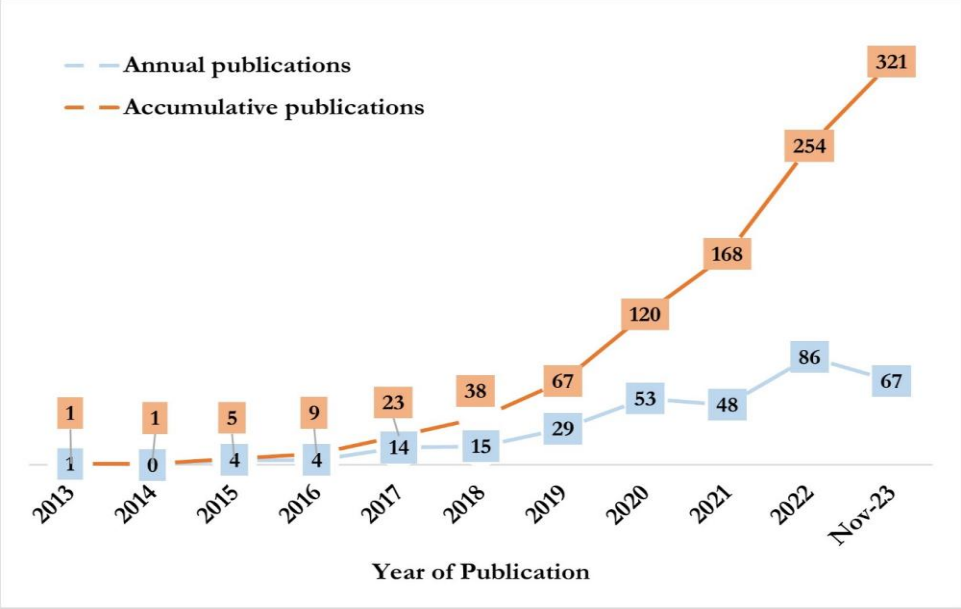
Through this process, 321 documents (articles and review articles) in the English language were identified, all published between 2013 and November 2023. Graph 1 demonstrates the selection process of relevant documents.

3. Results and Discussions

3.1 Scientometric analysis

3.1.1 Growth of publications

Graph 2. **The annual and accumulative publications between 2013 and November 2023**



Source: own elaboration

To answer RQ1, Graph 2 depicts the annual and accumulative publications of the ("smart tourism" OR "smart destination" OR "smart hospitality") research between 2013 and November 2023. The annual publications have increased from one article in 2013 to 67 in Nov 2023. Moreover, there was a steady increase in the annual number of relevant publications, which emerged in publishing 48 and 86 articles in 2021 and 2022. The growing interest in ("smart tourism" OR "smart destination" OR "smart hospitality") is evident in this review. Furthermore, the observed increase in the number of publications showed that researchers and scholars recognized the power of smart tourism, destinations, and hospitality in solving some tourism and leisure research challenges during COVID-19 and post-COVID-19. The

number of papers is expected to increase due to the importance of the theme in solving some challenges and issues that confront tourism and leisure research.

3.1.2 Productive countries and institutions

To answer RQ2(a) & (b), the study identified that the nine leading countries in research output could be grouped into three tiers based on their document production levels. The top tier included two nations, namely China and Spain, each published (49 <number of publications (X)< 89) publications). The second tier comprised another pair of countries, South Korea and the UK, with their publications (22 <X<35). The final tier encompassed five countries - Italy, the USA, Malaysia, Portugal, and Taiwan - each contributed (11 <X< 17). As shown in Table 1, China stands out, especially its "The Hong Kong Polytechnic University," for being the most prolific, with a total of 88 documents and 1382 total citations (T.Cs), while the university alone accounts for four T.Ps and 99 T.Cs. Spain follows closely with 50 T.Ps and 1250 T.Cs, and its "Universitat d'Alacant" is highlighted for its significant contribution of 11 documents and 651 T.Cs. Taiwan is located at the tail of the list, with 12 T.Ps and 307 T.Cs.

The number of citations reflects the influence of the country or institution in the relevant field. Therefore, the greater the number of citations, the greater the influence of the country of the institution. Thus, The USA is the most influential country, while "Kyung Hee University" is the most influential institution on the list. This pattern indicates that the number of publications a country or institution produces is not always directly proportional to the citations those publications receive.

Table 1. **The most prominent countries with (>= 12 documents)**

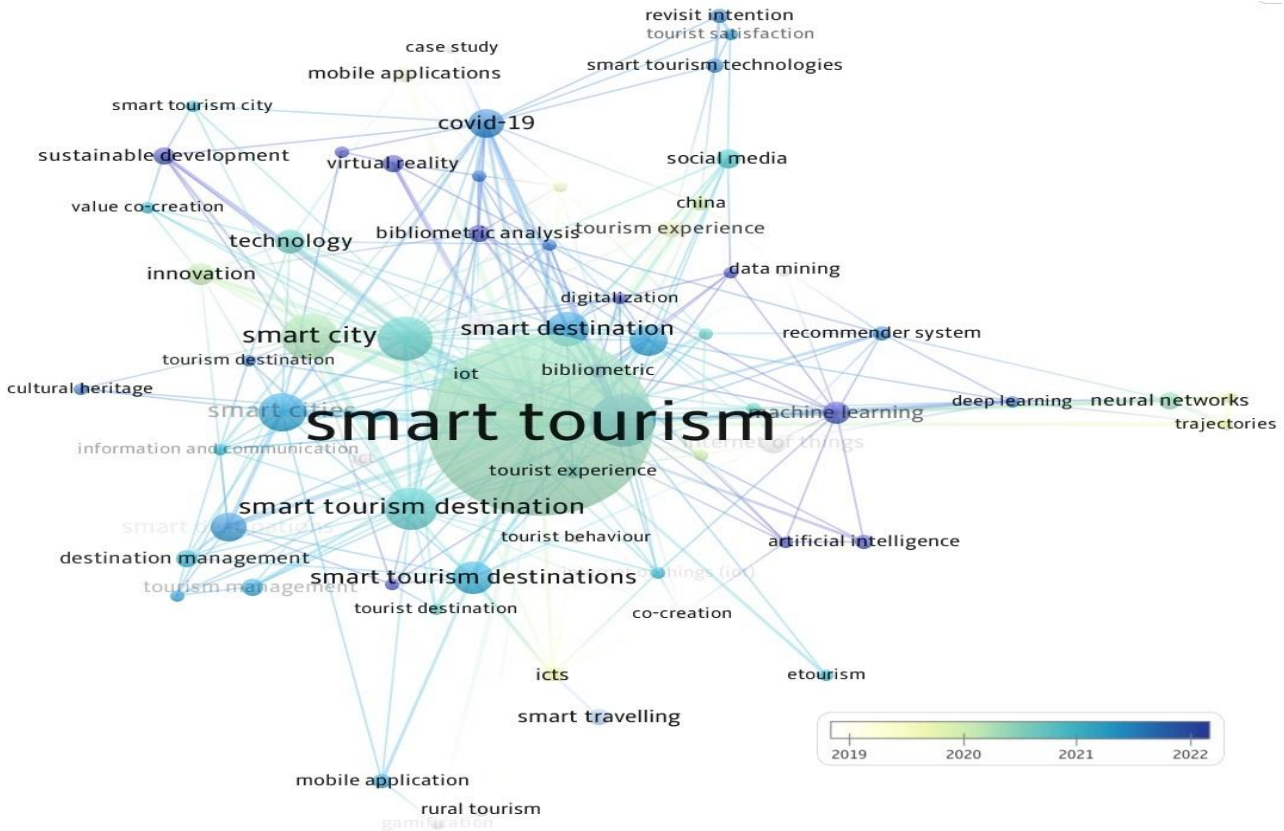
#	Country	T.Ps	T.Cs	The productive institution	T.Ps	T.Cs
Tier 1						
1	China	88	1382	The Hong Kong Polytechnic University	4	99
2	Spain	50	1250	Universitat d'Alacant	11	651
Tier 2						
3	South Korea	34	1755	Kyung Hee University	15	1328
4	UK	23	1894	Bournemouth University	5	961
Tier 3						
5	Italy	16	263	Università degli Studi di Salerno	2	71
6	USA	15	1970	Purdue University	2	95
7	Malaysia	13	498	International Islamic University Malaysia	2	10
8	Portugal	13	271	Universidade do Algarve	5	96
9	Taiwan	12	307	National Chung Hsing University	3	27

Abbreviations: T.Ps – total publications; T.Cs – total citations
Source: own illustration

3.1.3 Keywords analysis

To answer RQ2(c), In this present study, a comprehensive analysis of co-occurring author keywords was performed using VOSviewer software. The frequency of keyword appearances is employed as a quantitative indicator to assess the strength of associations between keyword pairs. A greater frequency suggests a stronger connection, as outlined by Alsharif et al. (2023a); Pilelienė & Jucevičius (2023). A total of 978 keywords were identified by authors publishing their research related to smart tourism, smart destination, and smart hospitality. A total of 24 keywords were occurring at least 5 times. This analysis focused on 68 keywords that appeared at least five times within the article, ensuring a robust dataset for examination. This methodology proves valuable in elucidating key findings concerning the article's content and evaluating thematic trends within the specific domain of neuromarketing. The outcomes of this analysis are visually represented in Graph 3, providing a clear illustration of these findings.

Graph 3. **Snapshot of authors' keywords with (>= 3 occurrences)**



Source: own illustration

The integration of technologies such as AI, IoT, Blockchain, AR, and VR has significantly enhanced the tourism experience. These technologies have revolutionized the production and delivery of tourism goods and services, moving towards full automation (Stankov & Gretzel, 2020). AI-empowered IoT plays a crucial role in sustainable energy technologies, showcasing the potential for environmental benefits in the tourism sector (Kumar & Vivekananda). Augmented Reality, although still in the early stages of implementation in tourism, offers opportunities to improve user experiences in urban cultural heritage tourism (Han et al., 2018). Additionally, the use of AR applications in tourism, including on mobile devices, sports fields, and education fields, is gaining traction for providing competitive advantages (Özkul & Kumlu, 2019). Furthermore, the adoption of technologies like IoT in smart tourism applications has been shown to enhance tourism experiences interactively (Bin et al., 2019). These technologies, along with rich media like AR and VR, are transforming industry structures and

practices, creating smart environments that redefine tourism products and services (Buhalis et al., 2019). Overall, the amalgamation of AI, IoT, blockchain, AR, and VR technologies is reshaping the tourism landscape, offering personalized, interactive, and immersive experiences to travelers, thereby enhancing their overall satisfaction and engagement during their journeys. In addition, these technologies enhance customer experiences by providing personalized services, efficient operations, and secure transactions, ultimately leading to increased guest satisfaction and loyalty in the hospitality sector.

Table 2 presents a summary of the most frequently used author's keywords in smart tourism, destination, and hospitality research. The keyword analysis revealed that "smart torusim" is the most recurrent keyword, appearing 124 times, followed by " Smart city(ies)" with 34 occurrences, and 47 TLS. These keywords, along with others like "Smart tourism destination (s)," " Tourism," "Smart destination (s)," "Sustainability," "Smart cities," "Covid-19," "Technology," "Internet of things (IoT)," "Big data," "Machine learning," "Social media," "Sustainable development," " ICTS/ICT," "Smart hospitality," "Neural networks," and others, indicate the primary areas of interest in the fields of smart tourism, destination, and hospitality.

The research in these areas typically employs technologies such as Internet of things (IoT), Machine learning, Social media, ICTs/ICT, Neural networks, Mobile applications, and Virtual reality, to study, explore, and predict tourist responses to smart tourism, destination, and hospitality. This keyword analysis thus highlights the key themes and tools that are currently at the forefront of scholarly interest in these fields. All the 24 identified keywords, their occurrences and total link strengths are provided in Table 2.

Table 2. **Top 24 authors' keywords with (>= 5 occurrences)**

#	Authors Keywords	Occ	TLS	#	Authors Keywords	Occ	TLS
1	Smart tourism	124	95	13	Machine learning	7	7
2	Smart city(ies)	34	47	14	Social media	6	6
3	Smart tourism destination (s)	29	36	15	Sustainable development	5	8
4	Tourism	23	20	16	ICTs/ICT	5	8
5	Smart destination (s)	23	25	17	Neural networks	5	5
6	Sustainability	18	34	18	Destination management	5	6
7	Smart cities	15	22	19	Mobile applications	5	7
8	Covid-19	10	15	20	Tourism experience	5	5
9	Technology	8	9	21	Tourism management	5	5
10	Innovation	7	11	22	Virtual reality	5	4
11	Internet of things (IoT)	7	9	23	Smart hospitlaity	5	4
12	Big data	7	9	24	Smart traveling	5	4

Abbreviations: TLS – total link strength; Occ – Occurrences
Source: own illustration

Table 3. **The Co-word analysis with (>= 4 occurrences)**

Word	Co-word analysis	# of co-word

Tourism	Rural tourism, tourism management, tourism industry, digital tourism, tourism experience, smart tourism destination(s), tourism development, tourism intelligence, ambient intelligence tourism, etourism/e-tourism, wellness tourism, tourism 4.0, sustainable tourism, smart tourism city, smart tourism technologies, tourism destination, smart tourism, overtourism, tourism planning, smart tourism management	20
Smart	Smart ecosystems, smart technology(ies), smart city(ies), smart destination(s), smart tourism destination(s), smart mobility, smart hospitality, smartness, smart tourism city, smart tourist, smart tourism technologies, smart tourist destination, smart communications, smart tourism, smartphone, smart tourism management	16
Travel	Travel satisfaction, travel enjoyment, uncertainty in travel, smart travel management, travel blogs, smart traveling, travel behavior, free independent travelers, travel activities, travel expenditures, travelers price sensitivity	11
Cit*	Smart tourism city, smart heritage city, digital city, smart city(ies), city tourism/tourism cities, sustainable cities, regional cities, age-friendly cities, European cities	9
Destination	Tourist destination(s), smart destination(s), smart tourism destinations, destination development, destination management, smart tourism destination, smart tourist destination, tourism destination	8
Tourist	Tourist destination(s), tourist experience, tourist attractiveness, smart tourist, tourist behavior, tourist satisfaction, smart tourist destination	7
Hospitality	Hospitality ecosystem(s)/ecosystem of hospitality, smart hospitality, hospitality/tourism, hospitality and tourism onlien reviews	4

Source: own illustration

At the same time, Table 3 shows the number of co-word related to each searching word. For example, "tourism" is connected with 20 co-words, while "smart" has been found with 16 co-words. Furthermore, “travel” is linked with 11 co-words, such as travel satisfaction, travel enjoyment, smart traveling, travel behavior, travel expenditures, and so forth. Also, “city(ies)” is/are connected with nine co-words, such as smart heritage city, regional cities, digital city, sustainable cities, friendly cities, and European cities. In addition, "destination" and "tourist" were associated with eight and seven co-words, respectively. In addition, "hospitality" is linked with only four co-words, such as hospitality ecosystem, smart hospitality, hospitality/tourism, and hospitality and tourism online reviews, as tabulated in Tab. 3.

3.1.4 The most ten influential documents

To answer RQ3, Citation analysis is crucial in identifying prevailing trends in various fields (Ahmed et al., 2022a; Alsharif et al., 2022a; Halsharif & Pilelienė, 2023). This study aims to identify the most influential articles and review articles within the domain of smart tourism, destination, and hospitality. Initially, the research endeavors to pinpoint the ten most influential articles and review articles based on their citation count, assuming that those garnering the highest scholarly attention are also the most pertinent and informative. Additionally, this citation analysis aims to offer guidance to newbie scholars aiming to contribute to the advancement of the smart tourism, destination, and hospitality field. According to data sourced from the SC database, the top ten articles and review articles under scrutiny amassed a total of 3,750 citations.

To establish a suitable threshold for inclusion in the analysis, publications cited more than 125 times are deemed appropriate. Consequently, the study focuses on the top ten influential articles and review articles within the smart tourism, destination, and hospitality field, as presented in Table 4. Notably, the investigation reveals a composition comprising three case studies, two conceptual papers,

and five literature review papers. Strikingly, no original articles are featured among the ten most influential papers.

Among these top influential papers, the most notable review article is "Smart tourism: foundations and developments," written by Gretzel et al. (2015), boasting 972 citations, derived from secondary data analysis. Following closely is the publication "Internet of Things and Big Data Analytics for Smart and Connected Communities" authored by Sun et al. (2016), with 652 citations. It's noteworthy that D. Buhalis has authored three papers as the primary author and one as a co-author, indicating a significant contribution to the field. Additionally, the paper highlights the least influential publication in the list, "Towards a conceptualisation of smart tourists and their role within the smart destination scenario," produced by Femenia-Serra et al. (2019), which garnered 129 total citations.

Table 4. **The top ten influential documents**

#	Title of manuscript	T.Cs	Reference	A	B	C	D	E
1	Smart tourism: foundations and developments	972	Gretzel et al. (2015)	RE	LR	-	-	Secondary data analysis
2	Internet of Things and Big Data Analytics for Smart and Connected Communities	652	Sun et al. (2016)	RE	Case study	-	Italy	Secondary data analysis
3	COVID-19: potential effects on Chinese citizens' lifestyle and travel	469	Wen et al. (2021)	RE	Case study	-	China	News broadcasted
4	Smart tourism destinations: ecosystems for tourism destination competitiveness	338	Boes et al. (2016)	RE	Case study	-	Amsterdam, Barcelona, Copenhagen, Helsinki, Manchester and Vienna	Google, Google Scholar, and EBSCO
5	SoCoMo marketing for travel and tourism: Empowering co-creation of value	326	Buhalis & Foerste (2015)	RE	CP	-	-	Secondary data analysis
6	Technology in tourism-from information communication technologies to eTourism and smart tourism towards ambient intelligence tourism: a perspective article	320	Buhalis (2019)	RE	SLR	-	-	Secondary data analysis

7	Smart hospitality—Interconnectivity and interoperability towards an ecosystem	217	Buhalis et al. (2022b)	RE	SLR	-	-	WoS
8	Smart destinations and the evolution of ICTs: a new scenario for destination management?	193	Ivars-Baidal et al. (2019)	RE	SLR	-	-	Secondary data analysis
9	Mobile technologies and applications towards smart tourism – state of the art	134	Dorcic et al. (2019)	RE	SLR	-	-	EBSCO, Science Direct, and Google Scholar
10	Towards a conceptualisation of smart tourists and their role within the smart destination scenario	129	Femenia-Serra et al. (2019)	RE	CP	-	-	Secondary data analysis

Abbreviations: A – type of document; B – method used; C – theory used; D – region of study; E– Database; AR – article; RE – review article; LR – literature review; SLR – systematic literature review; CP – conceptual paper; WoS – Web of Science
Source: own illustration

3.2. Analyzing the interplay of themes

The amalgamation of keywords like smart tourism, smart hospitality, smart cities, smart and traveling, propelled by IoT and social media, profoundly influences consumer behavior in the digital era (Susanto et al., 2020). This integration, empowered by IoT, provides personalized and seamless travel experiences, shaping consumer intentions and inspiring anticipatory services (Tsourela & Nerantzaki, 2020). Social media-driven online reviews act as influential sources, impacting attitudes, perceptions, and intentions and inspiring potential travelers (Kim & Kim, 2020b). The immediacy of information from smart tourism and hospitality enhances satisfaction, fostering positive experiences and lasting perceptions (Pai et al., 2020). Loyalty is cultivated through efficient, personalized services, as consumers are drawn to brands prioritizing technological innovation (Pappu & Quester, 2016). These keywords, in synergy with IoT and social media, shape consumer behavior across intention, experience, satisfaction, attitude, perception, inspiration, and loyalty in the dynamic landscape of modern travel.

3.2.1. Smart tourism and hospitality

Smart tourism and hospitality (STH) have emerged as critical concepts in the tourism and hospitality industry, driven by the integration of digital technologies (e.g., IoT) to provide convenient and timely services for travelers (Zhang & Li, 2022). This integration of technology and service industries has led to the emergence of tourism 4.0, which aims to improve the added value of tourism and hospitality through innovation, knowledge, and creativity (Nezai et al., 2021). The notion of smart tourism destinations has been examined, emphasizing the role of digital technology in enhancing the competitiveness of tourism destinations (Boes et al., 2016). This concept has its origins in the extension of research on Smart Cities into the tourism domain (Gretzel, 2021), highlighting the interconnectedness of smart tourism with smart cities and agile business ecosystems in networked destinations (Buhalis et al., 2022b).

The application of smart technology in the tourism and hospitality industry has been shown to improve tourists' holiday and accommodation experiences, providing innovative tourist services and enhancing the quality of tourism experiences (Garanti et al., 2023). Furthermore, the emergence of 'smart tourism' and 'smart hospitality' underscores the increasing role of digital technology in ensuring the long-term sustainability of tourism and hospitality enterprises (Filimonau & Naumova, 2020). In addition, the integration of smart home technology in peer-to-peer accommodations has been explored, shedding light on the drivers of intention to stay in smart accommodation (Papagiannidis & Davlembayeva, 2022). The role of smart tourism technology in influencing traveler satisfaction and future behavioral intentions has also been a subject of study, emphasizing the impact of technology readiness and smart tourism technologies (Hailey Shin et al., 2021). Additionally, the concept of Ambient Intelligence Tourism (AIT) has been introduced, driven by disruptive technologies, and aims to revolutionize the tourism experience (Buhalis, 2020).

The digital transformation approach in hospitality and tourism research has focused on digital business intelligent processes, including the opportunities and challenges of big data use in smart tourism (Cheng, X. et al., 2023). Moreover, the smartness in the tourism and hospitality industry has been identified as a catalyst for data-driven innovation, providing tools and platforms to enhance the overall customer experience and value chain (Troisi et al., 2023). The impact of information and communication technologies on the hospitality and tourism industry has been extensively covered, encompassing topics such as artificial intelligence, blockchain technology, digital marketing, and technologies for sustainable hospitality and tourism (Ali et al., 2022). Thus, the integration of smart technologies in tourism and hospitality has transformed these industries, paving the way for innovative business models and enhanced customer experiences in the digital economy (Adeyinka-Ojo et al., 2020). For example, AI complements the future of tourism by enhancing personalized experiences (Samala et al., 2020). AR plays a significant role in making travel safer, easier, and more memorable for tourists (Özkul & Kumlu, 2019). VR enables tourism managers to enhance tourists' satisfaction by providing them with memorable experiences (Huang et al., 2020). These technologies, along with IoT and blockchain, are transforming the way information is communicated and experiences are created in the hospitality sector (Buhalis et al., 2022a). The use of AR, VR, and Mixed Reality (MR) in tourism is enhancing user experiences and creating innovative tourism products (Chen et al., 2023). Furthermore, the application of VR in cultural heritage tourism is enriching visitor experiences and contributing to the preservation of heritage sites (Han et al., 2019).

The ongoing crisis has further underscored the need for institutional innovation to conceptualize resilient and agile strategic initiatives and operations in the travel, hospitality, and leisure sectors (Koo et al., 2021b). Furthermore, the challenges and opportunities of tourism destinations and ecosystems in the smart perspective have been highlighted, emphasizing the need to better understand the determinants of smart tourism (Pencarelli, 2020).

The evolution of smart tourism and hospitality has been characterized by a focus on leveraging smart technologies to enhance the overall tourist experience, improve destination competitiveness, and drive sustainable and innovative practices within the industry.

3.2.2. Smart destinations

Smart destinations, also known as smart tourism destinations, have become a focal point in smart tourism research, integrating innovative technologies to enhance the tourist experience and ensure sustainable development (Tyan et al., 2020). These destinations aim to improve visitor interaction, contributing to satisfaction and residents' quality of life (Cardoso & Ruiz, 2021). Stakeholder involvement is crucial, requiring collaboration among tourism companies, ICT companies, governments, residents, and individual travelers to co-create value, exchange information, and enhance decision-making (Abd Hamid et al., 2023).

Smart tourism, an application of 'smart' in the tourism sector, emphasizes technology integration into on-site experiences, with smart destinations enhancing competitiveness, sustainability, and the overall tourist experience (Williams et al., 2020). Despite extensive research, critical dimensions of this concept remain underexplored (Femenia-Serra & Ivars-Baidal, 2021).

Smart tourism destinations play a pivotal role in place marketing, addressing strategic industry dilemmas and contributing to sustainable and accessible tourism development (Coca-Stefaniak, 2021). The COVID-19 pandemic has underscored their importance in crises and economic effects, emphasizing their multifaceted nature (Lee & Hlee, 2021). The competitiveness index of smart tourism cities highlights technological, economic, and social development, connecting smart tourism to smart cities (Chung et al., 2021).

The global adoption of smart tourism destinations supports efficient consumer communication, tourism experiences, and destination competitiveness (Faur & Olimpia, 2021). Research shows that smart tourism technology influences travelers' attitudes, subjective norms, perceptions, behavior intentions, satisfaction, and revisit intentions (Jeong & Shin, 2020;). Smart tourism technology also predicts destination visits and impacts satisfaction and future behavioral intention, emphasizing its role in shaping tourists' experiences (Hailey Shin et al., 2021).

The transformative potential of smart tourism technologies is evident, influencing sustainable and responsible behavior and personalizing tourist experiences (Shen et al., 2020). Ethical and moral issues underscore the need for responsible and sustainable smart tourism development (Pan, B. et al., 2021). Success hinges on robust destination management organizations and governance models, emphasizing the enabling role of the smart destination context in shaping tourism governance models (Gretzel, 2022).

In summary, smart destinations represent a paradigm shift in tourism management, leveraging technology and innovation for sustainable, personalized, and value-driven tourist experiences, enhancing residents' overall quality of life. While the concept is evolving, it holds significant potential for shaping the future of tourism and destination management.

3.2.3. Smart traveling

Smart traveling, enabled by technologies like artificial intelligence, the IoT, and big data, is revolutionizing the tourism industry by providing travelers with enhanced services and a more personalized experience (Cugno et al., 2022; Rafdinal et al., 2021). Thus, optimizing every facet of the travel experience through ubiquitous access to information and services throughout the travel journey (Hailey Shin et al., 2021). From the initial stages of trip planning and booking to on-the-ground navigation and post-journey reflections, smart traveling relies on innovations such as the Internet of Things (IoT), artificial intelligence (AI), and mobile applications to create a seamless and personalized journey (Rejeb et al., 2021). These technologies can balance travelers' novelty and worry reduction needs, contributing to travel satisfaction (Goo et al., 2022). However, researchers emphasize the need for responsible digitalization that considers sustainability, equity, and other ethical dimensions of travel (Hermann & Paris, 2020). Additionally, for smart tourism to develop sustainably, privacy, bias, and ethics issues must be addressed (Tuo et al., 2021).

The COVID-19 pandemic has accelerated the adoption of smart tourism technologies while also impacting travel behaviors (Chen, 2022). Travel restrictions during the pandemic improved air quality and reduced foreign travel (Rovetta, 2020). As countries recover from the pandemic, artificial intelligence and other smart technologies are playing an increasingly important role in transforming and upgrading the tourism industry (Hu et al., 2021). Furthermore, digital servitization and smart connected products can enable more sustainable production recovery in the travel industry post-COVID (Rapaccini et al., 2020). Digital nomadism, which combines remote working and extensive travel, has also emerged as a trend enabled by new technologies (Hermann & Paris, 2020). However, researchers caution that digitalization must be implemented thoughtfully to maximize benefits while minimizing harms (Hermann

& Paris, 2020). Simply increasing travel and digital connectivity does not necessarily lead to better outcomes (Chalvatzis & Ormosi, 2020). Other factors like the quality of research, citations, and knowledge sharing also matter (Schmidt, 2022). Smart travel solutions should, therefore, be evaluated rigorously based on their actual impacts (Lucchese et al., 2013). With careful implementation and evaluation, smart traveling has the potential to transform the travel industry for the better in the coming years.

In essence, smart traveling represents a transformative approach that optimizes the traveler's journey and contributes to a more sustainable, connected, and technologically advanced global travel industry.

3.2.4. Smart cities

Smart cities (SCs) are a contemporary urban development concept characterized by integrating technology and a strategic approach to sustainability, citizen well-being, and economic development (Cortese et al., 2022; Salkuti, 2021). The realization of smart cities is based on Information and Communication Technologies (ICT) infrastructure, employing big data, the Internet of Things (IoT), and cloud computing (Bauer et al., 2021; Pandiyan et al., 2023). SCs aim to use technology to address urban challenges, improve the quality of life, and promote sustainable development (Rifaid et al., 2023). Despite gaining attention, the concept is still evolving and requires further development to reach its full potential (Bauer et al., 2021).

SCs strive to become citizen-centered, where citizens actively engage in urban operations and share data within a high-tech ICT infrastructure (Shin et al., 2021).

Citizen engagement is crucial in smart city planning, with studies emphasizing its role in making initiatives responsive and inclusive (Choo et al., 2023). Involving citizens in governance and decision-making is seen as essential (Preston et al., 2020), and there is a growing focus on developing frameworks to assess citizen engagement within smart city projects (Chantry, 2023). SCs are viewed as platforms for open innovation, empowering citizens as proactive co-producers of inclusive and sustainable urban growth, innovation, and policies (Praharaj, 2021).

The development of SCs addresses urban problems, aiming to move cities towards a sustainability-oriented future (Romanelli, 2022). Challenges like the digital divide and the lack of cross-applicable Smart City Governance (SCG) models are barriers (Tenney et al., 2020), but SCs are recognized as determinants of sustainable transformation, driving urban innovation and involving all stakeholders (Srivastava et al., 2022). The process involves non-technical and bottom-up social and political initiatives (Verrest & Pfeffer, 2019), and ethical analyses are crucial for responsible technology use (Clever et al., 2018).

SCs impact urban practices like food production and spatial structure, influencing total factor productivity and sprawl (Hosseinifarhangi et al., 2019). Compact city development is seen as effective during urbanization (Yu et al., 2019), and technological innovation can create job opportunities and drive urbanization (Wei et al., 2021). A financially sustainable business model is crucial for local authorities undertaking smart city initiatives (Mustaffa et al., 2022). SCs contribute to knowledge-based urban development, relying on information technology to address and develop smart solutions to urban problems (Romanelli, 2022).

In summary, SCs represent a paradigm shift, leveraging technology and citizen engagement to address urban challenges, promote sustainability, and improve the quality of life. They have the potential to advance cities towards a sustainability-oriented future, with a focus on inclusive planning, citizen participation, open innovation, and the development of financially sustainable models.

3.2.5. Digital transformation

Digital transformation, integrating digital technology into organizational facets, fundamentally reshapes operations and customer value delivery (Liu et al., 2022). Driven by technologies like social, mobile, analytics, cloud, and the Internet of Things (IoT) (Sebastian et al., 2020), it has become a pervasive subject in academic and practical discussions (Hanelt et al., 2021). The impact of digital transformation spans diverse domains such as business models, sustainability, intrapreneurship, and human resource management (Lyu et al., 2023).

Disruptions in organizational rules and structures, altering competitive patterns and business models, exemplify digital transformation's broad impact (Zhang, C. et al., 2022). It fosters green technology innovation and sustainability, emphasizing the balance needed for high-quality enterprise development (Ning et al., 2022). The role in promoting intrapreneurship and driving business model innovation underscores its significance in fostering creativity and internal management re-engineering (Cheng, Y. et al., 2023; Tsai & Su, 2022). It also influences corporate environmental management, potentially improving environmental practices and sustainability (Xia et al., 2022). The research delves into the digital transformation of business models, particularly in telecommunications (Moumtzidis et al., 2022), highlighting the multidisciplinary nature of this phenomenon Grewal et al. (2020).

The impact of digital transformation extends beyond sectors, influencing governance, diplomacy, and national strategies (Lan, 2022; Masters, 2021). It plays a crucial role in various fields, from the digitalization of the economy to its intersection with neuroscience technology research, in tourism and hospitality. In addition, the neuromarketing field has been used in tourism and hospitality to investigate the image of a destination (Ramsoy et al., 2019). Neuromarketing is a multidisciplinary field, including psychology, marketing, and neuroscience (Ahmed et al., 2023c; Alsharif & Khraiwish, 2024).

In the automotive industry, digital transformation is a focal point, affecting manufacturing, supply chains, and customer relations (Llopis-Albert et al., 2021). It influences the development of innovative and sustainable business models (Acciarini et al., 2022), emphasizing the need for digital competency in employees (Mazurchenko & Zelenka, 2022). Research on Industry 4.0 in Hungary and the Indian perspective showcases the global impact of digital transformation on the automotive industry (Khan et al., 2021; Tóth-Kaszás et al., 2022). The digital transformation in the automotive industry presents challenges for established companies and necessitates the evolution of IT sourcing strategies (Siegfried, 2021). However, challenges for established companies and opportunities for enhancing environmental commitment through digital media underscore the complexity of this transformation (Trubitsyn, 2020).

Digital transformation also intersects with human resource management (Zhang & Chen, 2023), enterprise architecture management, and labor input perspectives (Harting et al., 2020). It presents challenges and opportunities across society and the economy (Kokolek et al., 2019), affecting company structures, jobs, skills, privacy, security, and social and economic interaction (Mubarak et al., 2019). The impact on international trade and its potential for competitive advantage highlight the diverse dimensions of digital transformation (Font-Cot et al., 2023).

In conclusion, digital transformation is a multifaceted phenomenon with broad technological, organizational, and strategic implications. Its impact is evident in innovative business models, the need for digital competency, and the evolution of IT sourcing strategies, presenting challenges and opportunities across various industries and sectors.

3.2.6. Social media

Social media has become integral to modern society, encompassing platforms like blogs, social networks, and virtual health communities (De Martino et al., 2017; Hoang et al., 2024; Rolls et al., 2016). These platforms offer communication avenues and opportunities for customer feedback, impacting the reputation and credibility of tourism and hospitality businesses (Herrero et al., 2015; Hoang et al., 2022a; Yamagishi et al., 2023). Additionally, social media enables targeted content delivery, enhancing visibility, customer engagement, and conversion rates (Gruss et al., 2020).

The use of social media in the tourism and hospitality industry has grown significantly (Chu et al., 2020). Besides brand strategies, social media reaches wider audiences and targets specific market segments (Dix et al., 2021). Marketing managers must understand success factors for optimal returns (Pour et al., 2021). Social media engagement fosters brand loyalty and audience interaction through valuable content (Du Plessis, 2017).

Businesses in this sector utilize social media for customer engagement, service promotion, and brand enhancement (Bozkurt et al., 2021). It influences consumer behavior and facilitates communication and information sharing (King & Lee, 2016; Moro & Rita, 2018). Social media significantly shapes destination image and tourists' decision-making processes (Pan, X. et al., 2021; Susanti et al., 2023). Authenticity on social media influences engagement and decision-making (Kim & Kim, 2020a). Positive destination images attract tourists (Satyarini et al., 2017). Research on social media in tourism emphasizes emerging trends like "big data" and "smart tourism" (Nusair, 2020). Social media also plays a role in mental health promotion, especially among adolescents (Rolls et al., 2016). Adolescents use social media for mental health information, providing a cost-effective way to reach a wide audience (O'Reilly et al., 2019).

However, challenges include ensuring accurate information and addressing privacy concerns (De Martino et al., 2017; Moro & Rita, 2018). False information governance is crucial for platform reliability (Asur et al., 2021; Chin et al., 2022). Excessive social media use, especially among teenagers, can lead to negative psychological impacts, highlighting the importance of responsible use (Hampton, 2023; Militello et al., 2021).

In summary, social media's profound impact on society transforms tourism and hospitality strategies. While it fosters positive connections, there are concerns about privacy, false information, and negative psychological effects, underscoring the need for responsible use and awareness.

3.2.7. Internet of things

The Internet of Things (IoT) is a rapidly evolving technology integrating sensors, embedded systems, computing, and communication technologies (Alsharif et al., 2024; Ghouchani et al., 2019), serving as a catalyst for sustainable digital transformation and environmental protection (Rosca et al., 2021). Its growth introduces unprecedented opportunities and challenges from both technological and societal perspectives (Baiyere et al., 2020). IoT gains prominence with city modernization, becoming integral to smart developments. Its transformative impact on business and society is extensive (Shim et al., 2019), enhancing building automation, energy efficiency, and safety (Tanko et al., 2023). The applications extend across healthcare, education (Saputra & Ramadhan, 2023), smart farming (Navarro et al., 2020), tourism (Morais et al., 2022), and agriculture (Quy et al., 2022), promising to revolutionize industries like livestock farming. Integrating IoT in medicine enhances service efficiency (Behmanesh et al., 2020), reflecting its growing significance in various spheres (Lainjo, 2021).

Despite its potential benefits, the IoT architecture faces challenges in security, privacy, reliability, scalability, diversity, and energy consumption (Ullah et al., 2023). Devices within the IoT ecosystem confront cyber attacks (Iftikhar et al., 2022), and citizens' perceived value towards public services is a concern (Hu et al., 2022). IoT systems, consisting of small wireless devices with limited capabilities, demand energy-efficient solutions (Almasoud et al., 2022). Integrating IoT with blockchain presents challenges but offers promising prospects (Nartey et al., 2021;). The IoT's impact on energy consumption and its role in addressing the energy crisis are subjects of interest (Lone et al., 2023). Addressing issues like access control and dynamic policies is crucial for seamless integration (Ragothaman et al., 2023).

In the tourism and hospitality industry, the IoT has emerged strongly, presenting opportunities for innovation and efficiency (Verma et al., 2021). The proliferation of IoT systems worldwide suggests its potential to revolutionize the industry, creating smart tourism destinations with personalized services (Liang et al., 2023). The convergence of IoT in this sector can create intelligent tourism information services, shaping the industry's future (Bi & Liu, 2022). Leveraging IoT capabilities is crucial for smart

tourism development (Lestari et al., 2022). IoT's integration with edge computing addresses challenges in sports tourism services (Zheng et al., 2021; Wang, 2021; Wang & Zhang, 2021). IoT's influence extends to ecotourism, impacting visitor motivation and satisfaction (An & Shin, 2020). A proposed smart tourism perception system and management platform integrates IoT with cloud computing and networking technologies for a comprehensive tourism management system (Wang, 2014).

In the Fourth Industrial Revolution, IoT's evolution in the tourism and hospitality sector is synonymous with technological advancements (Lee et al., 2018). Smart tourism destinations with IoT enhance the overall tourist experience and optimize tourism supply chain management (Wise & Heidari, 2019). The integration of advanced technologies, including Artificial Intelligence (AI), IoT, and robotics, has transformed the industry, leading to a shift from Internet Plus to Intelligence Plus (Chen et al., 2021). Automation in service jobs changes employment skill requirements (Tussyadiah, 2020). IoT and AI revolutionize hospitality, empowering voice assistants for enhanced customer service (Buhalis & Moldavska, 2022). Big data and analytics disrupt the industry, offering personalization, convenience, cost savings, and competitive advantage (Yallop & Seraphin, 2020). Technology, including IoT, continues to impact guest service and customer relationship management (Car et al., 2019). IoT's role in the era of COVID-19 connects tourist destinations with global tourists, fostering new opportunities and resilience in tourism management (Alsharif et al., 2020; Biancone et al., 2020). Integrating IoT in tourism and hospitality holds promise for enhancing customer satisfaction, optimizing operations, and driving innovation in the industry (Tsigie & Dagnaw, 2021).

Incorporating IoT and AI in the sector presents opportunities for enhanced service delivery, personalization, innovation, efficiency, and competitive advantage while posing challenges related to skill requirements and adapting to technological advancements.

3.2.8. Customer satisfaction

Customer satisfaction, a critical measure of contentment in customer interactions with products, services, or brands (de Oliveira Santini et al., 2020; Hoang et al., 2022b), profoundly influences business success, impacting customer loyalty, repurchase intention, and overall performance (Hoang et al., 2023; Khan & Ghouri, 2018; Oduro et al., 2022). In the realm of e-commerce, various factors contribute to customer satisfaction, with convenience being a prominent driver (Kaura et al., 2015). Studies by Safa & Von Solms (2016) affirmed that customer satisfaction and repeat purchase intentions are higher when customers find transactions convenient and enjoyable. Moreover, perceived benefits, such as value for expenditures and obtaining desired products or services, positively influence customer satisfaction in e-commerce.

The perception of security significantly influences customer satisfaction in online transactions (Tandon et al., 2017; Vasić et al., 2019). A clear shopping process, navigable websites, and reliable payment systems further contribute to positive customer experiences (Safa & Von Solms, 2016). Market orientation, involving understanding and responding to customer needs, and customer inspiration (Fernandes, 2018), and creating positive emotional connections (Halsharif, 2023), have also been identified as crucial antecedents of customer satisfaction (Halsharif et al., 2022; Khan & Ghouri, 2018).

Service quality plays a pivotal role, with higher service quality correlating with increased customer satisfaction and loyalty (Sutrisno et al., 2019). The quality of online services, like internet banking, is another determinant; problems such as security breaches or technical glitches can diminish customer satisfaction (George & Kumar, 2015). Additionally, customer engagement through social media positively impacts satisfaction, allowing businesses to build relationships and provide personalized experiences (de Oliveira Santini et al., 2020).

To ensure customer satisfaction, businesses must deliver high-quality products, offer excellent customer service, and actively engage with customers through various channels, including social media (de Oliveira Santini et al., 2020). In e-commerce, factors like convenience, customer benefit, enjoyment, security perception, a clear shopping process, and reliable payment systems are paramount for customer

satisfaction (Safa & Von Solms, 2016). Market orientation and customer inspiration play significant roles in enhancing satisfaction and fostering loyalty (Khan & Ghouri, 2018). To cultivate enduring loyalty, businesses should prioritize customer requirements, provide exceptional experiences, and actively interact with customers.

3.3. Smart tourism, hospitality, and smart destinations: China and South Korea vs. international findings

China and South Korea are at the forefront of smart tourism, hospitality, and destination development, leveraging advanced technologies, strong infrastructure, and personalized services to enhance tourist experiences. These initiatives align with global trends, emphasizing sustainability, personalization, and operational efficiency. The insights from these countries provide valuable lessons for enhancing smart tourism, hospitality, and destinations worldwide, underscoring the importance of robust infrastructure, sustainable practices, and personalized services.

In China, the central government of China proposed a strategic plan for smart tourism development in 2011 (Lan et al., 2021). This support continued to grow, with the China National Tourism Administration officially endorsing smart tourism projects in 2011 and designating 2014 as the year of smart tourism in China, leading to the involvement of numerous cities in the smart tourism initiative (see Mehraliyev et al. (2019)). This has led to the development of smart tourist cities like Hangzhou and Beijing, where 5G technology, AI, and big data are extensively used (Feng, 2022; Zhang et al., 2020). Tourists benefit from personalized travel experiences facilitated by AI, while big data analytics help in managing tourist flows and predicting trends (Zhang, Y. et al., 2022). Super apps like WeChat and Alipay offer a one-stop solution for tourists, integrating services from booking to navigation and payments (Huang & Miao, 2021). In addition, hotels utilize AI and robotics for services such as check-in, room service, and cleaning (Chen et al., 2021). For instance, in smart hotels, facial recognition technologies, in conjunction with other advanced technologies such as fingerprint recognition, voice activation, and mobile check-in, have transformed traditional hospitality services, providing guests with a more convenient and efficient experience (Hao & Chon, 2021; Qiu et al., 2022; Wu et al., 2022). Adopting platforms in the hotel (e.g., WeChat and Alipay), offer on-demand services, flexible booking options, and seamless integration of requests and payments, which are crucial for enhancing user engagement and adoption (Tang et al., 2021). Big data analytics are used to personalize services based on guest preferences (Zhang & Lv, 2021). Tiwari et al. (2021) emphasized that developing countries like China are at the forefront of research on smart cities, indicating a strong foundation for implementing big data analytics in various sectors, including hospitality. Furthermore, in China, significant investments in 5G and IoT enable real-time data collection and enhanced connectivity in major tourist destinations. AI and big data analytics are used for personalized travel experiences and efficient destination management. For instance, cities like Hangzhou and Beijing have developed integrated platforms providing comprehensive services to tourists (Wang et al., 2018). The use of social media platforms like WeChat, Weibo, and integrated tourism websites such as Meituan.com and TripAdvisor plays a crucial role in shaping tourists' perceptions of destinations and influencing their travel choices (Zhou et al., 2020). Moreover, the digital economy, driven by Information and Communications Technology (ICT), has significantly impacted the tourism industry, leading to a paradigm shift in how destinations are marketed and experienced (Tang et al., 2022). AR and VR are used in museums and heritage sites to offer immersive experiences and promote local culture through digital platforms and live-streaming events (Li et al., 2022; Wen et al., 2023).

South Korea, on the other hand, focuses on combining advanced connectivity with cultural experiences. The country's robust 5G and IoT networks support real-time data collection and service delivery (Rezaee et al., 2021). South Korea uses AR and VR to provide immersive experiences at cultural and historical sites, and AI-based concierge services offer personalized recommendations (Bae et al., 2020; Kim et al., 2020). These technologies allow visitors to engage with the rich heritage of locations such as Jeju Island (El Marai et al., 2022). For instance, the JejuView AR/VR web application offers an

interactive platform for users to explore the cultural heritage of Jeju Island using smartphones and head-mounted devices (El Marai et al., 2022). Additionally, South Korea has been leveraging its strengths in areas like medical tourism to enhance cultural exchanges and foster relationships with other countries, such as the United Arab Emirates (Kim & Hyun, 2022). The emphasis on integrating cultural elements into smart tourism initiatives aligns with global trends observed in Italy and France, where AR and VR are used to enhance cultural heritage tourism (Garbin Praničević, 2021). In addition, South Korea's smart hospitality ecosystem is characterized by its advanced IoT and 5G infrastructure, supporting seamless connectivity in hotels (Choi et al., 2022). Automation is extensively used in front desk services, room management, and maintenance. Smart rooms equipped with IoT devices allow guests to control various aspects of their stay through mobile devices or voice commands (Choi, 2020; Myeong et al., 2020; Oh et al., 2021). Guest experiences are enhanced through AR and VR applications, providing interactive hotel tours and information (Wei, 2019). AI-powered concierge services offer personalized recommendations, while smart energy management systems optimize energy consumption and reduce environmental impact (Gupta et al., 2022). Moreover, South Korea's smart destination ecosystem features advanced 5G and IoT networks, facilitating real-time updates and connectivity for tourists (Cardoso & Ruiz, 2021). Cities like Seoul and Busan integrate smart tourism services within their urban planning (Koo et al., 2021a). Furthermore, studies have examined specific cases within South Korea, such as the development of Incheon as a metaverse smart tourism city, showcasing how various forms of metaverse technologies can enhance the tourism experience (Um et al., 2022). AR and VR enhance guest experiences through virtual tours and interactive content (Jung et al., 2015; Wei, 2019). South Korea also focuses on sustainability, implementing smart waste management and energy-efficient systems in tourist areas (Koo et al., 2021b). Smart public transportation systems in South Korea are integrated to reduce carbon emissions and improve tourist mobility (Bellini et al., 2022).

Internationally, smart tourism trends emphasize sustainability, personalization, and efficient destination management. For instance, countries like Denmark and New Zealand focus on eco-friendly initiatives, leveraging smart technologies to minimize environmental impact (Garanti, 2023). Personalization through AI and machine learning is prevalent in the US and Europe, offering tailored travel recommendations (Buhalis et al., 2022b). There is also a strong emphasis on data privacy, especially in the EU under GDPR regulations (Badii et al., 2020; Bellini et al., 2022). The comprehensive use of integrated platforms for managing tourism resources, seen in countries like Australia and Canada, ensures safety and enhances the tourist experience (Schönherr, 2024). Additionally, smart tourism aims to offer more efficient and personalized high-quality services to tourists (Lin, 2022). In addition, smart hospitality and destination trends highlight sustainability, personalization, and operational efficiency (Buhalis et al., 2022b). Destinations (e.g., hotels) in Sweden and New Zealand implement green technologies like energy-efficient lighting and water-saving fixtures (Gunduz Songur et al., 2023). Moreover, AI and machine learning are employed for personalized guest experiences and predictive maintenance in hotels (Asaithambi et al., 2021; Gupta et al., 2023). Mobile integration, including mobile check-ins and keyless entry, is increasingly common worldwide (Nadkarni et al., 2020). Operational efficiency is enhanced through automation and data analytics, streamlining reservations, housekeeping, and guest services, particularly in tech-savvy regions (Buhalis et al., 2022b; Davari et al., 2022).

4. Practical, Theoretical, and Social Implications

The practical implications lie in the improved and personalized experiences for consumers. Tourism and hospitality businesses can leverage smart technologies to provide seamless services, ensuring customer satisfaction and loyalty. Furthermore, implementing IoT in smart hospitality, such as keyless entry systems and automated check-ins, contributes to operational efficiency for service providers, reducing costs and streamlining processes. In addition, practical implications extend to marketing strategies. Businesses can harness the power of positive online reviews on social media platforms to

enhance their reputation and attract more customers. Conversely, they must actively manage negative reviews to mitigate potential reputational damage.

The theoretical implications suggest adapting existing consumer behavior models to incorporate the influence of smart technologies, IoT, and social media. Theoretical frameworks may need to evolve to encompass these elements' dynamic and interconnected nature. Additionally, the impact of IoT on consumer behavior raises questions related to technology adoption theories. Understanding factors influencing the acceptance and usage of smart tourism and hospitality services becomes crucial for researchers and practitioners. Furthermore, theoretical implications extend to concepts like Service-Dominant Logic, where integrating smart technologies facilitates the co-creation of value between consumers and service providers, impacting traditional service delivery models.

Social Implications illustrate that adopting smart technologies may lead to social stratification, as those with access to and proficiency in these technologies benefit more from the enhanced services. This raises concerns about digital inclusion and exclusion. Furthermore, the social implications include considerations of privacy and security. As IoT collects and shares vast amounts of personal data, consumers may become more conscious of their privacy, necessitating ethical guidelines and regulations. The shift towards smart cities and smart tourism has implications for local communities and cultural preservation. Balancing technological advancements with the preservation of cultural heritage becomes a social challenge.

5. Conclusion, limitations, and future directions

5.1 Conclusion

This study systematically analyzed 321 selected documents from the Scopus database in the domains of "smart tourism," "smart destination," and "smart hospitality." The research delved into global academic perspectives, unveiling influential countries, institutions, and keyword networks that promise to guide future scholars efficiently. The tourism and hospitality industry, centered on delivering exceptional experiences, undergoes a transformative influence from customer satisfaction, online reviews, social media, and CSR. Incorporating keywords like smart tourism, smart hospitality, and online reviews has altered consumer behavior in the digital era, particularly with the advent of IoT and widespread social media use. Smart tourism, marked by technology integration for enhanced travel experiences, shifts consumer intentions and behaviors through personalized, context-aware services facilitated by IoT.

In smart hospitality, IoT and social media contribute to innovative services, impacting customer experiences, satisfaction, and attitudes. Real-time information from smart traveling apps and social platforms shapes travelers' perceptions, emphasizing the role of online reviews in decision-making. Smart technologies enhance the accuracy and credibility of online reviews, influencing consumer trust and perceptions. The interconnectedness of smart tourism components fosters loyalty, as efficient, personalized services generate positive attitudes and increased loyalty to destinations, services, or brands. Social media amplifies this influence, creating a virtual network of shared experiences that shapes perceptions and intentions. In summary, the synergy of smart tourism, smart hospitality, smart cities, smart traveling, and online reviews, facilitated by IoT and social media, emerges as a powerful force molding consumer behavior across various dimensions in the dynamic landscape of the travel and hospitality industry.

Policy-making in smart tourism, destinations, and hospitality stands to benefit significantly from technological innovations, particularly in the integration of smart technologies like the Internet of Things (IoT) and social media. These technological advancements offer avenues for enhancing tourist experiences and destination competitiveness by providing personalized and seamless travel experiences. Additionally, the data-driven nature of smart technologies enables informed decision-making and

optimized resource allocation, contributing to more efficient governance and crisis response strategies. Collaboration among stakeholders, facilitated by policy initiatives, can foster co-creation processes that drive innovation, inclusivity, and shared value creation within destinations. Furthermore, policies can incentivize the adoption of sustainable practices, leveraging smart technologies for energy efficiency, waste management, and resource optimization to mitigate environmental impacts. Amidst the challenges posed by events like the COVID-19 pandemic, smart technologies enable destinations to adapt more effectively, supporting remote operations, contactless services, and data-driven decision-making. In parallel, policy initiatives should prioritize the empowerment of local communities and equitable distribution of benefits, promoting digital literacy, entrepreneurship, and inclusive tourism experiences. Moreover, regulatory frameworks must address ethical considerations and privacy concerns, safeguarding consumer rights and promoting transparent data practices to build trust among tourists and residents alike. By embracing these opportunities and addressing challenges, policy-makers can create an enabling environment for smart tourism development that fosters sustainable, resilient, and inclusive growth.

5.2 Limitations of the study

The objective of this paper was to minimize methodological constraints in the study; however, despite efforts, some limitations were encountered, prompting recommendations for future research. The study focused exclusively on articles published in English-language journals between 2013 and November 2023, specifically those indexed in the Scopus database. This narrow scope omitted other documents, such as review papers, conference papers, and editorials, potentially introducing bias into the study. While the study acknowledges its methodological restrictions, it is a valuable resource for understanding the landscape of the relevant research during the specified period.

5.3 Future directions of the study

The future of smart tourism and hospitality is on the brink of transformative change, driven by groundbreaking technological advancements. Artificial intelligence (AI) is set to reshape personalization, leveraging algorithms to predict individual preferences and deliver tailored and anticipatory services. Blockchain technology is anticipated to enhance trust and security in online reviews and transactions, providing a decentralized platform for managing user-generated content. Augmented reality (AR) and virtual reality (VR) technologies will redefine consumer experiences, offering real-time information about landmarks through AR and influencing travel decisions with virtual previews via VR. Sustainable tourism practices will be prioritized, utilizing IoT for environmental impact monitoring and social media for promoting eco-friendly travel options.

The integration of 5G technology promises faster and more reliable connections, facilitating real-time services, immersive experiences, and efficient data exchange within the smart tourism ecosystem. The prevalence of AI will bring ethical considerations and responsible data governance to the forefront, potentially leading to industry standards and regulations. The future envisions collaborative platforms and ecosystems where diverse stakeholders collaborate to create integrated travel experiences.

Smart city expansion, marked by technology integration for enhanced urban living, including smart transportation systems and data-driven urban planning, will enrich the travel experience. Inclusive and accessible technologies are expected to bridge digital literacy gaps, ensuring affordability and catering to the needs of travelers with varying technological proficiencies. Despite their inherent synergy, a notable research gap exists, as no comprehensive study has mapped the intricate intersections among these dynamic fields, underscoring the need for further investigation into their collective impact on the evolving landscape of modern tourism. Finally, this study will suggest several questions for future studies, as follows:

- How can policymakers balance innovation in smart tourism with privacy, security, and ethical concerns?

- What policies foster collaboration among stakeholders (e.g., tourism companies, ICT firms, governments, residents, and individual travelers) to co-create value and drive innovation within smart destinations?
- How can policy-makers ensure equitable distribution of smart tourism benefits to local communities, promoting inclusive growth and empowering residents to participate in and benefit from tourism development??
- What regulatory frameworks are needed to promote sustainability in smart tourism, such as energy efficiency measures and waste management solutions,?
- How can policymakers leverage smart technologies to enhance tourism resilience during crises like COVID-19?

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