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Smart tourism destination advances through qualitative research and further research avenues: a systematic literature review

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Abstract
Smart tourism destinations have emerged in the last decade as a recent evolution of destination. These denote innovative tourist spaces based on hyper-connected technological infrastructures that promote sustainable development, efficient resource management, improved tourist experiences and meaningful interactions with residents, contributing to enhancing destinations' competitiveness in the tourist sector. However, its widespread understanding and operationalization benefiting from qualitative research practices remains poorly explored. This article provides a comprehensive systematic literature review combined with thematic analysis to examine 43 studies on smart tourism destination advancements through qualitative approaches in detail and identify critical research trends that require urgent attention. The results provide multiple theoretical and practical implications related to employing qualitative methods to advance this emerging field; the most representative geographic scope covered and others demanding attention; the fundamental themes addressed for the economic, sociocultural, environmental, managerial, political, and tourism informatics dimensions of smart tourism destinations; and several future research avenues to extend and shape the future of this area of knowledge.

Keywords Smart tourism, Sustainability, Technology, Travel and tourism, ICT, Models, Qualitative research

1 Introduction

The tourism industry remains among the fastest-growing economic sectors worldwide, with investment levels in the travel and tourism sectors expected to return to pre-pandemic values by 2025, according to a recent report published by the World Travel and Tourism Council [1]. In fact, hundreds of millions of people are involved in this global industry and experience numerous direct and indirect impacts—such as social, economic, environmental and political—from the relationships and synergies occurring constantly between different actors, including tourists, residents and local communities, tourism stakeholders, governments, and industry representatives, among others [2].

Although the United States still occupies the top world position in the travel and tourism market, contributing about US$2.36 trillion to its economy in 2023, followed by China, Germany, Japan, and the United Kingdom, it is anticipated that the next decade will witness considerable shifts in the international landscape, with emerging markets such as China and India expected to ascending their position in the global ranking [1].

With these rapid developments and the complexity of subjects arising from it, including the urgent need to guarantee a sustainable development of places competing for tourist attention, side by side with constant advances in technology and information and communications technology (ICT), several authors have examined and conceptualized the rise of the relatively new notion of smart tourism destinations [3–7].

According to [6], "the real sense of smart tourism destinations is to focus on tourists' needs by combining the ICT with casual culture and tourist innovation industry in order to promote tourism service quality, improve tourism management and enlarge industry scale to a broader extent", having as priorities "to enhance tourists' travel experience; to provide more intelligent platform both to gather and distribute information within destinations; to facilitate efficient allocation of tourism resources; and to integrate tourism suppliers at both micro and macro level aiming to ensure that benefit from this sector is well distributed to local society". On the other hand, [3] highlight that "the fundamental constructs of a smart tourism destination are first of all human capital, which forms the base for the leadership, entrepreneurship and innovation, and social capital constructs. Subsequently, these are supported and enabled via technology applications and ICT infrastructures". Additionally, [5] affirm that "the smart destination is a space in which all agents involved with the destination collaborate in efficient management of infrastructure and use technology to increase the quality of life of both locals and tourists".

However, despite this field's increasing popularity, there is still a lack of consensus regarding the definition and holistic understanding of smart tourism destinations. This includes, among other factors, the significant impact of smart technologies on traditional tourism destinations and the effects on the quality of life in these geographies [8]. Moreover, notwithstanding the notable efforts conducted to advance the area during the past decade, [5, 9] also underlined that the academic knowledge concerning smart destinations remains very limited in the scientific field of tourism.

Qualitative research plays a crucial role in advancing the understanding of the tourism industry [10]. Its unique contributions to capturing detailed insights and a range of viewpoints from multiple perspectives are particularly valuable. Qualitative approaches are recognised as instrumental in shedding light on and comprehending the intricacies of tourism experiences, which are often influenced by social, cultural, and personal aspects, to name a few. This understanding should be valued for the depth and richness its use can provide to the field [11, 12].

Concerning the specific scope of smart tourism, [13] argues that "qualitative research methodologies are too infrequently applied, leading to a paradox evident in smart tourism studies", suggesting the urgent need to use qualitative approaches to promote more holistic advancements and diversify the academic discourse and understandings of the field. This lack is corroborated by the fact that qualitative approaches are needed to allow the development of exploratory work and the emergence of new and critical perspectives on these destinations, which are characterized by the rapid and continual change of processes and the need for socio-technical adaptations [14]. Among the recent literature

gaps identified in the current understanding of smart tourism destination [15], qualitative research can offer deeper insights including, among other topics: stakeholder narratives, visitors behaviour and the acceptance of artificial intelligence for personalized experiences; digital asymmetries, such as the role of technology in empowering marginalized communities, comprehending digital vulnerability and informing ethical guidelines and practices in smart tourism; contribute to develop standardized frameworks for smart tourism; and study the impacts perceived by residents of these destinations.

This article aims to uncover, examine, and provide a comprehensive understanding of the intersection of qualitative research within the academic field of smart tourism destinations. This is based on a systematic literature review, ensuring a thorough and reliable exploration of the topic. To address its purposes, this study set out to answer the following research question (RQ): "In what ways does qualitative research support developments in the academic field of smart tourism destinations?". Additionally, four specific research objectives (O) derive from the RQ to allow methodical organising of the results, providing:

O1 Summarise the qualitative methods applied to advance this emerging field.

O2 Overview of the geographic scope covered by academic research about smart tourism destinations.

O3 Investigate the smart tourism destination themes benefiting from qualitative research developments and main contributions.

O4 Identify future research avenues to advance and potentially shape the smart tourism destination field.

To the best of the authors' knowledge, this is the first study conducting a systematic literature review concerning applications and implications of qualitative research to advancing the emerging area of smart tourism destinations, offering a set of theoretical and practical contributions to the consolidation and progress of this emerging field.

The remainder of this article is structured as follows: the next section presents the research methods, detailing the sample identification, screening and selection process, and informs the qualitative methods used for data analysis. The article proceeds with the presentation of the main findings related to the four specific objectives shaping this research. It finishes with the conclusions, highlighting the study's main implications, limitations and further research directions.

2 Research methods

2.1 Sample identification, screening and selection process

To achieve the main goal of this research, the systematic literature review was carried out by carefully following the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines [16], given its globally recognised framework to ensure a transparent and reliable report process to overview the research field under study.

In order to obtain a general understanding of the most widely used terms associated with the subject of analysis, an exploratory search of the literature was first carried out. During this stage, it was concluded that the keyword "smart tourism destination" provides fewer results than "smart tourism". Therefore, the following search string was used to identify the most relevant records by querying the Scopus and Web of Science databases, chosen for its comprehensiveness of the literature related to the smart tourism

destination field: "smart tourism" AND ("qualitative" OR "qualitative research" OR "qualitative stud*" OR "qualitative method*").

A total of 142 records were found from this identification process (n = 84 in Scopus and n = 58 in Web of Science), conducted in October 2024. Next, 46 records were removed for being duplicates, and several inclusion criteria were applied for screening the remaining 96 records: (i) peer-reviewed articles to ensure the high quality of the research; (ii) published in English; (iii) published in any subject area, aiming to provide a broad overview of this field; and (iv) no time limitation was applied. Note that the resulting sample of 60 records was not screened based on their number of citations or h-index as an exclusion criterion, intending to include both well-established and new research in this emerging knowledge area for the final analysis. During the retrieval stage, it was not possible to access 15 records, resulting in 45 being assessed for eligibility. Given the study's specific objectives, it was decided to qualitatively analyse all the articles in depth at this point to select the final sample instead of selecting them based only on their titles and abstracts. Two articles were excluded for only applying quantitative research methodologies and, therefore, not responding to the research question. Finally, 43 articles corresponding to individual studies comprised the sample for the systematic literature review performed. The entire procedure followed during the identification, screening, and selection phases is presented in Table 1.

2.2 Qualitative data analysis

The thematic analysis method [17, 18] was used to perform the systematic literature review, considering the six stages informed by the authors to identify, examine, and report patterns and connections within the 43 articles included in the study. The specific objectives of this research served as a broader guide for the qualitative data analysis, which was systematically coded and iteratively organized into refined themes and subthemes for each case. For the coding process, it was agreed between the authors that

Table 1 Process systematization for the selection of samples included in the systematic literature review

Phase 1: Exploratory search	Search categories	Smart tourism destination and qualitative research
Phase 2: Identification process	Title-abstract-keywords	"Smart tourism" AND ("qualitative" OR "qualitative research" OR "qualitative stud*" OR "qualitative method*")
	Databases and number of records identified	Scopus (n = 84); Web of Science (n = 58)
Phase 3: Screening process (n = 142)	Document type	Article
	Language	English
	Subject area	All subject areas
	Years	All publication years
	Records removed before screening	Duplicate records removed (n = 46)
Phase 4: Records screened (n = 96)	Removed publications	Records removed for not being articles published in journals (n = 31)
		Records removed for only having the abstract written in English (n = 5)
		Reports not retrieved (n = 15)
		Articles removed for only applying quantitative research methodologies (n = 2)
Phase 5: Studies included	Sample of articles included for the systematic literature review (n = 43)	

the themes identification should derive from the data and be based on a semantic level. Therefore, it followed an inductive approach, where the data's explicit meaning was considered to identify the diverse patterns.

The organization and management of the qualitative data were supported using the NVivo 15 qualitative data analysis computer software, particularly during the coding process for the various themes and subthemes. After completing the initial identification and categorization of themes, the authors discussed and revised the data until they reached a consensus on the final categorization. This iterative process involved re-analyzing each code individually, assessing the level of agreement among the researchers regarding the hierarchy of the theme nodes, and rearranging them until concordance was achieved for all codes.

3 Results

This section presents the results of the systematic literature review, organised into four subsections according to the specific objectives of this study, to provide methodical information and insights for each one: qualitative methods supporting smart tourism destination research, the geographic scope of the previous scientific works, central themes, and proposal of further research avenues for advancing this field. Before exploring each of these dimensions in detail, it is critical to mention that the publication period of the analysed articles ranged from 2015 to 2025, even though no time limitation was applied for the identification and screening processes, as already clarified. This fact indicates that advances in this topic under study started to gain traction only recently, especially after the COVID-19 pandemic, with 74.4% of publications dating from 2021 onwards, with the higher volume of publications being after 2023, representing 44.1%, i.e., about half of the academic publications in this specific field.

3.1 Qualitative methods supporting smart tourism destination research

Regarding the applied research methodologies of the 43 articles included in the systematic research, it was first concluded that about half were conducted using purely qualitative research methods and techniques (n = 21), while 22 articles used mixed methods approaches. Given the first specific objective of summarizing the qualitative research methods and techniques applied to advance the emerging field of smart tourism destinations, Table 2 provides a systematic organization of the results from data analysis according to: qualitative data gathering techniques, qualitative data analysis approaches, mixed data analysis approaches, and qualitative research methods.

When investigating the qualitative data gathering techniques, it was clearly evidenced that interviews, especially semi-structured ones, were the most applied techniques to conduct qualitative research in this field of scientific knowledge, used in 48.8% of studies [19–39]. Next, six articles focused on public documents and reports' analysis as techniques to collect qualitative data supporting the developed investigations [21, 23, 31, 39–41]. Furthermore, focus group discussions were organized in four studies involving multiple stakeholders to generate widespread discussions or validate concepts, allowing the collection of rich qualitative data [32, 41, 43, 44], and another four relied on observations to accomplish a deeper understanding of behavioural, spatial and other intrinsic aspects under study [20, 28, 31, 41]. Lastly, three works applied digital ethnography as a data-gathering technique to collect qualitative information and digital community

Table 2 Summary of the qualitative research methods and techniques from the systematic literature review's articles sample

Qualitative approaches	Techniques and methods	References
Qualitative data gathering techniques	Interviews	[19–39]
	Public documents and reports	[21, 23, 31, 39–41]
	Digital ethnography	[40–42]
	Focus group	[32, 41, 43, 44]
	Observations	[20, 28, 31, 41]
Qualitative data analysis approaches	GABEK method	[14]
	Interpretative phenomenological analysis	[26]
	Grounded theory	[19, 37, 39]
	Thematic analysis	[12, 14, 23, 25, 30, 33, 35, 36, 44]
Mixed data analysis approaches	Fuzzy-set qualitative comparative analysis (fsQCA)	[21, 45–47]
Qualitative research methods	Case study method	[20, 23, 38, 44, 48]
	Delphi method	[27]
	Systematic literature review	[12, 34, 49–53]
	Non-systematic literature review	[54–59]

interactions on social media platforms [42], and to retrieve content made available on smart tourism-related websites [40, 41].

After examining the qualitative data analysis approaches, it was concluded that nine studies employed thematic analysis to codify data and determine the most prominent arising themes to interpret diverse smart tourism destinations-related phenomena [12, 14, 23, 25, 30, 33, 35, 36, 44]. In turn, only three articles employed grounded theory as an approach to discover and frame new theoretical implications and emerging concepts from qualitative data collected in the field [19, 37, 39]. Additionally, [26] employed interpretative phenomenological analysis to understand how functional, psychological and individual barriers affect tourists' resistance to immersive experiences. In the case of [14], the authors employed the qualitative research GABEK method to analyse data and integrate empirically rooted knowledge from experts concerning their diverse understanding of smart tourism destinations.

When reviewing the data analysis approaches contributing to the field under study, it was noted that the Fuzzy-set Qualitative Comparative Analysis (fsQCA) method was used by four studies [21, 45–47] for assessing outcomes based on the effects of configurations of qualitative and quantitative variables. Despite this approach being highlighted as a mixed data analysis technique, it requires qualitative variables rich in contextual information to function [60], therefore constituting significant relevance for the present article's results.

Finally, it was concluded that broader qualitative research methods transversal to some studies analysed. The most expressive concerns conducting systematic literature reviews on diverse topics linked to smart tourism destinations, but this method was only applied in 16.3% of the cases [12, 34, 49–53]. On the other hand, six studies employed non-systematic literature review as qualitative research methods to advance the scientific field [54–59]. It was also noticed that another five articles based on case study methods applied in particular research contexts to pursue multi-faceted objectives in well-delimitated geographic places [20, 23, 38, 44, 48]. Lastly, the Delphi method was only employed in the case of [27] to conclude experts' opinions about technologies used

in smart tourism and its impacts on several national tourist regions, as will be detailed in the following sections.

3.2 Geographic scope of smart tourism destination qualitative research

Table 3 presents the geographic scope of the revised literature. It is organized according to the continents, countries, and regions, provinces or cities to which the results apply, allowing an overview of the extent and specific geographical areas the documents cover.

It should be noted that nine articles did not specify any geographic scope, as they encompass general literature reviews about specific topics of smart tourism destinations or discuss the development of models or strategic guidelines with application into

Table 3 Overview of the geographic scope of smart tourism destination qualitative research

Continent	Country	Region or province or city	References
Europe	Austria	Innsbruck and border region of Tyrol	[24]
	Greece	Corfu island (Pentati)	[57]
	Iceland	n.d	[37]
	Italy	Palermo and Rome	[22]
	Romania	Transylvania, Banat and Crisana, Bucovina and Moldova, Dobrogea, Maramures, and Walachia and Oltenia	[27]
		n.d	[55]
	Spain	Alcalá de Henares, Ávila, Cáceres, Córdoba, Cuenca, Eivissa, Mérida, Salamanca, Santiago de Compostela, Segovia, San Cristóbal de la Laguna, Tarragona, Toledo, Úbeda, and Baeza	[39]
		Benidorm	[23]
		Cartagena and La Union	[31]
		n.d	[43, 47]
	Slovenia	Ljubljana	[36]
	Sweden	Åre (Jämtland County) and Stockholm	[14]
	Croatia and Hungary	Koprivnica (Podravina Region)	[58]
	Italy and Austria	Venice (Italy) and Salzburg (Austria)	[40]
	Spain and Portugal	Donostia-San Sebastián, Madrid, Málaga, and Valencia (Spain); Lisbon (Portugal)	[29]
	United Kingdom and Spain	n.d	[30]
Asia	China	Beijing and Fujian province	[46]
		Hong Kong	[19]
		Beijing, Nanjing, Nanping, Lijiang and Anshun	[45]
		n.d	[21, 53]
	India	Himalayan cities	[33]
		n.d	[26]
	Indonesia	Kenderan	[32]
		Jakarta	[41]
	Iraq	Karbala region	[38]
	South Korea	n.d	[25, 42]
	United Arab Emirates	Abu Dhabi	[44]
	Vietnam	n.d	[48]
Europe and Asia	Italy and Russia	Milan (Italy) and Tomsk (Russia)	[54]
	Turkey	Izmir	[35]
South America	Colombia	Medellín	[20]

broader geographical contexts [12, 28, 34, 49–52, 56, 59]. Moreover, eleven articles did not mention any particular region, province or city (marked as "n.d." in the table), only indicating the countries to which the conducted research applies.

Concerning the geographic applications of the revised studies, it can be noted that two continents—Europe and Asia—are in the vanguard of combining qualitative research within diverse topics of smart tourism destination, which will be explored in deeper detail further. In the case of Europe, 12 countries are represented as benefiting from advances in this field: Austria, Croatia, Greece, Hungary, Iceland, Italy, Romania, Portugal, Spain, Slovenia, Sweden, and the United Kingdom. When looking at the research developed directly under regions, provinces or cities, it is notable that Spain presents the most widespread qualitative research applications to smart tourism destinations, followed by Romania. It should also be mentioned that four studies were developed from multinational perspectives, namely, between Croatia and Hungary, Italy and Austria, Spain and Portugal, and the United Kingdom and Spain.

Regarding the Asian continent, seven countries benefit from this emerging field of knowledge: China, India, Indonesia, Iraq, South Korea, United Arab Emirates, and Vietnam. For these cases, China is where vaster regions, provinces, and cities are being explored through qualitative methods to develop smart tourism destinations, followed by Indonesia.

During the systematic literature review, it was also found two specific cases of European-Asian joint research, specifically regarding destination branding of Italian and Russian cities [54], and the examination of multiple city components to support the progress of Izmir in Turkey as a smart tourism destination [35]. Additionally, one study explored the process certification of a Colombian city as a smart tourism destination [20].

3.3 Smart tourism destination themes

The results presented in Tables 4, 5, 6, 7, 8 convey the central themes evidenced during the thematic analysis performed to investigate the under-study literature's diverse contributions. They were iteratively organized based on the research of [3] and [51], aiming to systematically report the results according to well-established and widely accepted

Table 4 Central themes and study's contributions to the economic dimension of smart tourism destinations

Dimension	Factors	Themes	Contributions	References
Economic	Entrepreneurship	Innovative local businesses	Explore the value of digital innovation and its significance for rural tourism entrepreneurs	[37]
			Propose a holistic ecosystem of hospitality model based on entrepreneurial ecosystems as approaches for development	[52]
			Demonstrate that developing smart destinations impacts supporting young companies' or startups' success	[24]
	Quality of products or services	Products or services innovation	Analyse the most important aspects of tourism products innovation to favour the competitiveness of emerging economies	[55]
			Understand the value of small and medium-sized alternative accommodation and its competitive advantage for local suppliers (micro-business owners)	[34]

Table 5 Central themes and study's contributions to the sociocultural dimension of smart tourism destinations

Dimension	Factors	Themes	Contributions	References
Sociocultural	Culture and entertainment	Industrial heritage sites	Explore a synthetic landscape index based on a comprehensive set of indicators	[31]
		Museums	Proposal and validation of 3 models for digital innovation in museum tourism	[21]
			Assess factors influencing the use of pervasive mobile apps in museums	[47]
		Scenic spots	A model for evaluation, determination and building of the smart tourism level of scenic spots	[46]
	Social Capital	Interactions between residents and tourists	Explores gamified experiences of geocaching as community practices to promote interactions between local businesses and tourists	[57]

Table 6 Central themes and study's contributions to the environmental dimension of smart tourism destinations

Dimension	Factors	Themes	Contributions	References
Environmental	Overtourism	Overcrowded spaces	Analyse how multiple cities with smart destination or smart city strategies manage overtourism	[29]
	Sustainable urban areas	Urban planning	Examine the connection between BIM, business models and smart cities in promoting a sustainable development	[56]

dimensions of smart tourism destinations (economic, environmental, political and managerial, and sociocultural) and several factors comprising them.

3.3.1 Economic dimension of smart tourism destinations

When investigating the literature contributions to the economic dimension of smart tourism destinations (presented in Table 4), two central themes were concluded: innovative local businesses and products or services innovation. These themes are related to two factors: entrepreneurship and the quality of products and services.

According to [51], the entrepreneurship factor encompasses the implementation of new ventures of innovative local businesses associated with tourism activities or others supporting smart destinations through information and communications technology, or the modernisation of local businesses. To this extent, the work of [37] explored the value and significance of digital innovation for rural tourism entrepreneurs, while [24] demonstrated several impacts in supporting young companies' or startups' success from developing smart destinations. Additionally, [52] proposed a holistic ecosystem of hospitality model based on entrepreneurial ecosystems as approaches for development.

On the other hand, factors linked to the quality of products or services concern their innovation and are stressed as favouring the destination's competitiveness. Contributions to this specific theme include analysing the most important aspects of tourism products innovation to favour the competitiveness of emerging economies [55], and understanding the value of small and medium-sized alternative accommodation and what competitive advantages it encompasses for local micro-business owners and suppliers [34].

Table 7 Central themes and study's contributions to smart tourism destinations' managerial and political dimension: governance factor

Dimension	Factor	Themes	Contributions	References
Managerial and political	Governance	Establishing smart tourism destinations and Certification process	Highlights advantages and limitations of certification processes based on European standards in Latin American destinations	[20]
			Development of tourism villages through a model encompassing creative events, tourism circular economy, and digital competence	[32]
			Evaluate the potential of a city as a smart tourism destination based on four characteristics: attraction, accessibility, digitalization readiness, and sustainability	[41]
			Explore enabling factors for establishing selected cities as smart tourism destinations	[33]
			Assess elements of a city based on Cohen's Smart City Wheel model to tourn it into a smart tourism destination	[35]
			Study the potential to transform a classic tourist destination into a smart one and develop a model to support this process	[58]
			Investigate the development potential of a region according to techniques, trends and ICT to build a sustainable smart tourism destination	[38]
		Smart Tourism development policies and practices	Research how World Heritage Cities are implementing policies and strategies for developing smart destinations	[39]
			Identify configurational paths, including smart infrastructure and co-creation activities, to arouse tourists' positive experiences	[45]
			Explore suppliers' perceptions (accommodation, restaurants and ICT-related businesses) on their engaging with developing smart tourism initiatives	[36]
			Explore how destination stakeholders (municipalities, industry and ICT experts) perceive smart tourism destinations	[14]
			Construction of a framework to develop new strategies and policies based on insights from multiple stakeholders	[19]
			Investigate which strategies and solutions affect destination management and tourists' experiences	[23]
			Propose a model of sustainable smart governance to ensure ICT adoption empowers residents' and tourists' experiences	[59]
			Review the relationships between tourism, smart places and residents' quality of life, and propose a theoretical model	[51]
		Tourism marketing / branding strategies	Examine how social media publications and comments from DMO's can provide higher customer engagement	[42]
			Discuss how creativity influences innovation, and its role in strategies for branding and marketing destinations	[54]
		Further managerial and political issues	Identify the most and least researched areas and articulate knowledge domains in the smart tourism research agenda	[9]

Table 8 Central themes and study's contributions to smart tourism destinations' managerial and political dimension: tourism informatics factor

Dimension	Factor	Themes	Contributions	References
Managerial and Political	Tourism informatics	Emerging technologies	Explore the impact of AI-generated virtual influencers as destination ambassadors, develop marketing strategies and managerial implications	[25]
			Investigate tourists and experts' perspectives on smart tourism technologies (AI, IoT, VR and AR) and tourists' satisfaction levels	[27]
			Systematization and evaluation of emerging research on tourism informatics	[28]
			Review AI technologies and tools in the hospitality and tourism industry and identify future developments	[49]
			Identify emerging technologies and trends in digital tourism: AR-integrated e-tourism, AI-driven personalized experiences, and co-creation approaches	[53]
			Exploratory use of AR technology to recreate an extinguished marketplace as part of a smart tourism experience	[44]
			Review the use of AR, VR, big data and AI/ML to recast virtual tourism	[50]
			Propose a framework encompassing the use of IoT, cloud computing services and end-user internet service systems to enhance the co-creation of tourism experiences	[40]
		Metaverse based tourism	Identification of key barriers to metaverse based tourism adoption: technological complexity, privacy and security concerns, and cultural or behavioural resistance	[26]
		Tourism mobile apps	Develop a smart tourism app to enhance tourists' satisfaction and efficient transactions	[48]
			Assessment of senior tourists' use of mobile apps and perception of the travel experience	[43]
			Impact of a mobile travel assistant app in enhancing and streamlining the tourist experience	[22]
		Digital security and privacy	Suggest that privacy concerns influence tourists' behaviour and relate to preceding factors: technology use, data misuse past experiences, lack of data management practices knowledge	[30]

3.3.2 Sociocultural dimension of smart tourism destinations

Regarding the sociocultural dimension of smart tourism destinations (Table 5), the concluded central themes correspond to two factors: culture and entertainment, and social capital.

Three emerging themes comprise industrial heritage sites, museums, and scenic spots, inserted in the scope of culture and entertainment factors. These are connected to the increased use of ICT for modernising cultural heritage, providing visitors with more immersive cultural heritage experiences, and increasing leisure opportunities and cultural offers. The study from [31], in the field of industrial heritage sites, explores a synthetic landscape index based on a comprehensive set of indicators. In the context of museum visits, [21] proposed and validated three models for digital innovation museum tourism, and [47] assessed diverse factors influencing visitors' intentions and use of pervasive mobile apps while engaging in these cultural sites. Furthermore, a study

concerning the modernization of cultural places developed a model to inform the readiness level of scenic spots as smart tourism places [46].

Another central theme linked to the sociocultural dimension emerged from the thematic analysis, corresponding to social capital factors. This theme concerns generating relationships through smart tourism and exchanging interactions and experiences between residents, tourists and other stakeholders. In this sense, [57] explored the potential of gamified experiences through geocaching as community practices to promote meaningful interactions between local business owners and young adult tourists visiting a Greek island (Millennials and Generation Z).

3.3.3 Environmental dimension of smart tourism destinations

Table 6 presents two themes directly related to the environmental dimension of smart tourism destinations, which emerged from only two studies. This aspect reveals scarce research benefiting from the potential of qualitative research applied to the tourism field under study.

The theme of overtourism and overcrowded spaces in smart cities was empirically approached by [26], who analysed how overtourism is being managed and which strategies are adopted or under development.

Additionally, one theme emerged from factors encompassing sustainable urban areas, mainly concerned with the renovation, development or construction of sustainable and innovative buildings or infrastructures. In this case, a study was reviewed examining the connection between Building Information Modeling (BIM), business models and smart cities to promote sustainable development goals [56].

3.3.4 Managerial and political dimension of smart tourism destinations

Eight themes concerning smart tourism destinations' political and managerial dimensions emerged from the systematic literature review, as presented in Tables 7 and 8. It should be noted that this dimension was the one with the highest volume of scientific research produced in the scientific field of knowledge under exploration, so it was decided to split the data analysis results into two tables according to two principal managerial and political factors, for the sake of organization of the present subsection: governance and tourism informatics.

Regarding the coding of these themes, four central ones are linked to governance factors (Table 7)—establishing smart tourism destinations and certification processes; smart tourism development policies and practices; tourism marketing and branding strategies; and further managerial and political issues. In general terms, these address aspects relating to the participation and collaboration of stakeholders from the public and private sectors, among others, in the decision-making process, planning, and policymaking, with the support of ICT. On the contrary, the remaining four codified themes relate to tourism informatics and rising issues from the increased use of ICT (Table 8): emerging technologies, metaverse-based tourism, tourism mobile apps, and digital security and privacy.

When investigating the theme of establishing smart tourism destinations and certification processes, it was concluded that there were several contributions to the governance topic from seven articles. The study conducted by [20] highlighted both the advantages and limitations of applying European standards to the certification process of Latin

American destinations. It was also concluded that three models were created to develop smart tourism destinations. [32] proposed a model to support the development of tourism villages, encompassing three fundamental aspects: creative events, tourism circular economy, and digital competence. Additionally, [58] studied the potential to transform a classic tourism destination into a smart one and developed a model to support this process, while [35] assessed a set of elements of a city based on Cohen's Smart City Wheel model to turn it into a smart tourism destination. Lastly, three studies explored the potential of places as smart tourism destinations. [41] evaluated the potential of a city based on the characteristics of attraction, accessibility, digitalization readiness, and sustainability. [33] explored enabling factors for establishing previously selected cities as smart tourism destinations, while [38] investigated the development potential of a region according to techniques, trends and ICT to build also a sustainable destination.

Concerning the second central theme – smart tourism development policies and practices—the representative studies encompass several actors and community participation in the decision-making process of destinations. [39] explored how managers from Destination Management Organizations (DMOs) of World Heritage Cities implement policies and strategies for developing these places as smart destinations. Additionally, [23] investigated which strategic policies and solutions affect both destination management and tourists' experiences. Similarly to this last aspect, [45] dedicated their research to identifying configurational paths to arouse tourists' positive experiences, revealing the need to include co-creation activities and smart infrastructures. Moreover, two studies explored explicitly the perceptions of accommodation, restaurants and ICT-related business suppliers regarding their engagement with developing smart tourism initiatives [36] and how destination stakeholders, including municipalities, industry and ICT experts, perceive smart tourism destinations [14].

Still, concerning the second central theme, three articles are based on constructing models and frameworks linked to smart tourism development policies and practices. The framework constructed by [19] envisioned creating new strategies and policies based on insights from multiple stakeholders. On the other hand, the two other models proposed were directed to the local people and community, respectively, concerning sustainable smart governance to ensure ICT adoption can empower residents' and tourists' experiences [59], and theoretically model the relationship between tourism, smart places and residents' quality of life [51].

The third central theme from the thematic analysis relates to tourism marketing and smart destination branding strategies. One study focused specifically on social media publications and comments from DMOs to examine how to provide higher customer engagement, corroborating DMOs' strategies should align with investing heavily in social media management to communicate destinations [42]. Furthermore, [54] discussed how creativity influences innovation and its role in implementing strategies for branding and marketing destinations.

Lastly, one study was identified as the fourth central theme for the governance factor, associated with managerial and political issues needing urgent address. [9] identified the most and least researched areas under this scope and articulated numerous knowledge domains to pay attention to in the smart tourism research agenda.

Concerning the tourism informatics factor, the most evidenced theme was managerial and political issues arising from emerging technologies, with contributions from eight

articles. [23] explored the impact of Artificial Intelligence (AI)-generated virtual influences as destination ambassadors to inform new marketing strategies needing addressing and managerial implications of using such technologies. Still concerning AI use, [49] reviewed these technologies and tools in the hospitality and tourism industry to identify further research developments and managerial issues to consider.

In turn, scientific research encompassing broader types of emerging technologies was found, as the study of [28], which provided a systematization and evaluation of the role of new media in the tourism sector, and the work of [50], which reviewed the use of Augmented Reality (AR), Virtual Reality (VR), big data and AI and Machine Learning (ML) to recast virtual tourism opportunities. [27] also considered various technologies employed in smart tourism—AI, VR, AR, and Internet of Things (IoT)—to investigate tourists and experts' perspectives on them, as well as evaluate tourists' perceived satisfaction levels. In another case, [53] dedicated to identifying emerging technologies and trends in digital tourism, concluding the importance of AR-integrated e-tourism, AI-driven personalized experiences, and co-creation approaches. Moreover, [44] conducted a qualitative exploratory study to investigate the extent of using AR technology to recreate an extinguished marketplace as part of a local smart tourism experience, and [40] proposed a framework encompassing the use of IoT, cloud computing services and end-user internet service systems to enhance the co-creation of tourism experiences.

In what concerns the theme of tourism mobile applications, three different applications were found, and diverse managerial conclusions were drawn. [48] provided multiple insights and decision-making strategies for developing an app to enhance tourists' satisfaction at smart destinations and complete efficient transactions. [43] assessed senior tourists' use of mobile apps and their perceptions of the overall travel experience, providing critical managerial inputs for this specific case of visitors and the sustainability of World Heritage Sites. A third article, conducted by [22], explored the development of a holistic mobile travel assistant app as a new service available for travellers, providing informative impacts about enhancing and streamlining the tourist experience.

The third theme identified regards a new type of tourism intrinsically related to tourism informatics: metaverse-based tourism. The research of [26] was the only one reviewed on this topic, providing an extensive identification of key barriers and political and managerial concerns to consider to future advance and implement this specific type of tourism, among them: technological complexity, privacy and security, and cultural or behavioural resistance.

Lastly, one study [30] was conducted specifically on the subject of digital security and privacy, suggesting that privacy concerns influence tourists' behaviour and relate to preceding factors: technology use, past experiences with data misuse, and the lack of data management practices knowledge.

3.4 Further research avenues

The last specific objective of the present article was to identify future research avenues linked to qualitative research to advance and shape the smart tourism destination field of knowledge. Results from the thematic analysis allowed for mapping several issues and trends that need further addressing. These will be discussed next, based on economic, environmental, sociocultural, managerial and political, and tourism informatics dimensions.

Concerning economic questions arising from smart tourism destinations, there is a need to expand scientific awareness related to smart tourism's positive and negative effects on business ecosystems and their adoption [9]. In this context, it is crucial to comprehend smart tourism trends and study interconnected industry developments [49], investigate skill shortages in entrepreneurial ecosystems, and how to transfer knowledge between research institutions and tourism businesses [24]. Additionally, there is a gap in assessing technological progress, such as AI, and how it can impact hospitality ecosystems [52].

In this line, future research can follow approaches examining the impacts of smart tourism initiatives on local economies [24, 35, 37, 38] and investigating innovative tourism products in emerging economies [55]. For instance, there is a demand to explore the financial implications of geocaching activities for local businesses in rural smart tourism destinations [57] and investigate micro-entrepreneurship opportunities within rural ecosystems [52], such as unique micro-business attributes concerning providing alternative accommodation [34]. Considering the role of lifestyle entrepreneurs in rural innovation and their influence on related business success in tourism [37] is also stressed as a future research opportunity, apart from focusing on customers' and locals' perspectives on smart tourism contributions to develop alternative business opportunities [34, 37].

From the systematic literature, research avenues exploring several sociocultural dimensions can follow three different approaches. The first regards including stakeholders, such as tourists and residents [33], and study their perspectives on the negative impacts of smart tourism and their attitudes towards it [9, 51], as well as analyse comprehensive elements affecting tourists' satisfaction in this kind of destinations [27]. Another line of investigation should examine stakeholders' collaboration and co-creation challenges in smart destinations [36, 59], namely exploring local community involvement in cultural heritage tourism projects [31] and investigating tourists' perceptions of experiences co-creation [40]. The third gap needing further development regards understanding smart tourism's effects on cultural heritage preservation [38] and studying the impact of ICT on both industrial heritage promotion [31] and cultural tourism sustainability [43].

Other rising future research lines are linked to environmental and sustainable development topics concerning smart cities and industrial tourism sites. [56] suggest exploring the application of business models integrated with BIM to support innovations in resource sharing, energy efficiency, and circular and sharing economy, through digital platforms. In the scope of mining areas with the potential to become industrial tourism places, it is recommended to understand further what motivates tourists to visit these places, develop additional indicators for landscape and surrounding environment valuation, and explore how technology can be used to enhance mining landscape interpretation and allow the creation of collective identity and memory [31].

In the broader field of management and policy developments needing further qualitative advancements for establishing and improving smart tourism destinations, there are highlighted research avenues for conducting comparative studies across different regions to evaluate approaches and policies applied for the development of smart scenic places [46] and diverse smart tourism destinations of countries with similar cultures [48]. It is also suggested to investigate the multiple strategies of DMOs [42] and the diverse types of smart destinations in different geographical places [23, 39, 45], namely concerning

barriers influencing both the development and certification processes [19, 20]. In this sense, the integration of overtourism in the future agenda is also suggested, especially in the case of smart cities, to comprehend better its impacts on residents and the quality of life, socio-economic implications, and how to develop managerial measures to prevent adverse impacts inherent to these phenomena [29, 51]. Furthermore, sustainability emerged as another crucial theme needing wide focus, aiming to assess good practices and identify deficiencies [38, 41, 58, 59], to shape new managerial and policy-making that can guarantee positive long-term and lasting impacts in smart tourism destinations [35].

Concerning the marketing strategies for these touristic places, future studies should explore creativity's impact on destination identity and authenticity discourse [54], the development of tourism network marketing systems [28], and assess the effectiveness and impacts of social media as digital marketing tools in tourism promotion and monitoring [42, 50, 55], apart from evaluating long-term effects of virtual influencers as tools in tourism marketing [25].

Lastly, regarding tourism informatics' future research lines, it is highlighted a transversal and crucial need to deeply explore the impact of digital technologies on tourism experiences and how to design them to include different users' needs and improvement suggestions [14, 31, 35, 38, 43, 46, 55, 57], how ICT can be used for supporting co-created experiences [40], and analyse longitudinal effects and authenticity of technology-driven tourism experiences [9, 23]. Most specifically in the area of emerging technologies, approaches linked to extended realities are highlighted as research topics lacking further investigation, such as the development of AR gamified tourism experiences [57], the exploration of both AR and VR to promote immersive touristic products for consumer experience improvement [49, 50, 53], and how to include and use personal memories, photographs or architectural visual registers to generate 3D models for these virtual environments, with the potential to serve both tourists and the community of smart destinations [44]. The role of the metaverse in tourism is another topic requiring serious attention, especially given its novelty and embryonic knowledge related to user adoption behaviour and its potential to advance smart tourism [26, 49].

Another emergent subject in this field is exploring the adoption, impacts and privacy concerns of AI-generated content and service providers, both on the tourists' experiences [25, 50, 58] and in hospitality and tourism organisations scopes [49]. Moreover, big data and blockchain technologies are complementary research paths to study how they can be integrated to support tourism management [35], specifically for demand prediction, tourism development and consumer care [32, 49]. As expected, given the newness, complexity and rapid expansion of these digital media, with an enormous potential to shape alternative tourism trends, several authors call attention to the need to develop a more comprehensive volume of scientific research encompassing privacy and technological infrastructural holistic aspects [19, 48–50], calling attention to the joint effort to further developing tourism informatics related studies with interdisciplinary views from multiple disciplines [28]. The cross and integration of different theoretical and practical viewpoints could help to deal with the complexity of issues, promote problem solving through advanced and innovative methodologies of interdisciplinary disciplines, and upgrade the tourism industry, being evidenced the following in the field of tourism informatics [28]: hospitality, leisure, sport and tourism; computer science and information

systems; green and sustainable science and technology; environmental science; multidisciplinary sciences; engineering; and information and library science.

4 Conclusions and implications

This study set out to provide a comprehensive literature review to investigate how qualitative research supports developments in the academic field of smart tourism destinations, with the primary objectives being to shed light on (i) the qualitative methods applied to advance this emerging field; (ii) overview the geographic scope covered by academic research; (iii) investigate the fundamental themes benefiting from this field and the main contributions; and, (iv) identify future research avenues to advance and shape this field.

The systematic literature review on the intersection of smart tourism destinations and qualitative research revealed that this scientific subject started to gain expression only recently, especially after 2022. Despite the emergent impact, its enormous potential is already notorious, instilling a sense of optimism about the future of this field and the need to continue advancing it through multiple research directions.

Among the qualitative methods applied to progress in this arising field, it was concluded that conducting interviews, public documents and report analysis, focus group sessions, direct observations, and digital ethnography represented the most significant techniques for qualitative data gathering. On the other hand, thematic analysis was evidenced as the most significant data analysis approach applied to advance this scientific field, apart from grounded theory, interpretative phenomenological analysis, and the GABEK method employed in one study. The application of fuzzy-set qualitative comparative analysis was also verified, but, in this case, as a mixed data analysis approach. Concerning the research methods adopted, it is underlined systematic and non-systematic literature reviews, conducting case studies, and the Delphi method.

It was also concluded that Europe and Asia comprised the geographic scopes with broader empirical and theoretical applications and advances in this area, with vast results showing benefits to developing regions, provinces, cities and cross-border territories in both continents as smart tourism destinations. It also concluded the potential of this field in South America, although only one study was found debating related matters. However, none of the revised studies mentioned their application in North America, although several authors inform the development of smart tourism destination initiatives in this continent—namely in the United States of America [4], Ottawa in Canada [61], and in other tourism geographies of North America [62], neither in Africa nor Oceania. Recognized worldwide for having numerous tourist places of interest, these continents could benefit from assessing, developing or certifying smart tourism places, as discussed in this article. Notwithstanding, framing the geographic scope within these continents needs further research to gain a comprehensive understanding of the countries, cities, or regions where it would be particularly beneficial and urgent to develop future actions.

Concerning the fundamental themes linked to smart tourism destinations benefiting from qualitative research developments, several contributions were concluded for the economic dimension, linked to establishing entrepreneurial ecosystems and consequent innovations and competitiveness increase for local business, also contributing to the modernization of touristic products and services offered to visitors. Other

themes connected with sociocultural dimensions of smart tourism destinations included advancements in culture and entertainment, especially regarding industrial heritage sites, museums, and scenic spots, and contributions to increasing social capital through exchanging interactions and experiences between residents, tourists, and other stakeholders. Furthermore, it was concluded that environmental issues were the theme less explored in the examined articles, despite uncovering advances in the analysis of overtourism effects in smart cities and the importance of urban planning to ensure the development of sustainable urban areas.

Contrary to this last dimension, the managerial and political ones demonstrated to have a more considerable volume of scientific results accomplished. Several themes emerged related to the governance factor, namely, establishing sustainable smart tourism destinations and certification processes, several development policies and practices approach, strategies employed for tourism marketing and branding, and managerial and political issues needing articulation in the smart research agenda. Additionally, tourism informatics revealed multiple benefits from employing qualitative research methods during the different phases of design, development and assessment, contributing significantly to advance the progress and understanding of using emerging technologies—such as AR, VR, IoT, ML and big data—to enhance and promote the co-creation of tourism experiences. Also, it was concluded the identification of key barriers to metaverse-based tourism adoption among users, contributions to user-centred design and improvements of usability of mobile apps with tourism purposes, and also fundamental digital security and privacy concerns among tourists.

Despite these findings, it is necessary to mention that the dissected works did not provide an in-depth understanding of other fundamental perceived tourism influences on smart destinations development, such as: cost of living with housing and consumptions of goods and services; human capital developments; health system and services impacts; public transport systems and traffic control; social inclusion and accessibility; gentrification; water, energy and other natural resources management; and sound, environmental and visual pollution, among others [51]. Naturally, these gaps constitute notable areas of future interest to advance knowledge in the field.

Besides those, several conclusions were drawn from this study concerning identifying future research avenues to expand and shape the scientific field of smart tourism destinations through qualitative investigation. Among them, it is briefly pointed out the need to explore arising economic subjects and several effects of business and entrepreneurial ecosystems; include stakeholders in future studies to understand their perspectives, co-creation challenges and heritage preservation of smart destinations; advance environmental and sustainable topics inherent to these phenomena; improve sustainable management practices and new policies aiming to assess, develop, establish, certify and market various geographic places as smart tourism destinations; and advance tourism informatics applications for several stakeholders and interconnected organizations through integrating user-centred approaches to drive new designs and innovations of emergent technologies both at the macro and micro levels. These gaps constitute significant unexplored areas of knowledge.

Lastly, the authors acknowledge some limitations of this study, which are essential for contextualizing findings, their interpretation and the scientific validity of deriving conclusions, apart from additional opportunities for future research. Despite the academic

consensual reduction of bias deriving from systematic reviews following the PRISMA guidelines, it is mentioned that the records considered from the screening process were limited exclusively to the Scopus and Web of Science scientific databases. Although being recognized as two of the most reputable and comprehensive data sources comprising literature on tourism science-related topics, it should be underlined that the presented results should not be regarded as exhaustive, meaning that other relevant publications on this area, covered by other databases, could have been left out. Thus, the results should not be interpreted as fully covering this research topic. It is suggested as another line of research that future studies follow the same methodology but search other databases and apply different terms related to smart tourism and qualitative research to complement the findings of this article.

On the other hand, the thematic analysis method was used to conduct the qualitative research, aiming to support the identification of themes and provide an organization of the field. To avoid bias and guarantee the rigorous thematic approach, the criteria used for conducting the analysis and the accomplished results were thoroughly discussed between the authors. However, using other analysis methods, such as grounded theory, could have led to seeking patterns and finding more theoretically bounded results. Nonetheless, given the embryonic stage of this research field, it was envisioned to explore the diverse phenomena without pretending to direct it towards theory development.

As a last consideration, the authors believe that the findings and conclusions of the present article convey multiple theoretical and practical implications. It is first mentioned that this study allowed for the extension of the understanding of how applying qualitative research in the smart tourism field can consistently add value over existing predominantly quantitative research. Second, it identified and dissected the central factors of smart tourism destinations linked to sociocultural, environmental, managerial, and political dimensions, and concluded to what extent they benefit from involving different stakeholders participating in qualitative research studies. Third, it systematized the most commonly used qualitative methods and techniques, allowing for a better understanding of the current academic practices. This organization offers comprehensive insights for other scholars and practitioners looking to advance both theory and practice in this field. Fourth, the study underscored several gaps and potential research avenues in the realm of qualitative research that can further contribute, among others, to knowledge, innovation, technology acceptance, and policy development for more sustainable smart tourism destinations. These implications benefit the consolidation and progress of sustainable smart tourism destinations through qualitative approaches, serving academics, destination management organizations, policymakers, private and public sectors, and other professionals running this emerging field, supporting further exploration in the field.

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Data availability
The authors confirm that all data generated or analysed during this study are included in this published article and can be accessed online by following the methodological process explained in section "2.1 Sample Identification, Screening and Selection Process" of this article.

Declarations

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Not applicable.

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The authors declare no competing interests.

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