

# A BIBLIOMETRIC ANALYSIS OF THE CONCEPT OF “SMART TOURISM” IN DIFFERENT DATABASES

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## Abstract

The acceleration in technology has led to the development of new concepts in the tourism sector as in other sectors. The concept of smart tourism is one of the concepts that has started to take place more and more in both domestic and foreign literature with this technological process. Smart tourism consists of a smart experience, smart business environment and smart destination components. Smart tourism is also defined as all information systems that enable efficient operation, effective decision-making and sustainability by combining data obtained from different stakeholders. The main purpose of the current study is to effectively recognize the concept of smart tourism and to provide a holistic perspective to researchers who will work on this subject. In line with these objectives, the concept of "smart tourism" was scanned in the list of journals in ScienceDirect, Scopus and TR index databases between 2015 and 2023. In the related journals, both "smart tourism" and "smart tourism" concepts were bibliometrically analyzed in terms of title, abstract and keywords. In line with the data obtained, the parameters of "journal name", "database", "publication year", "publication type", "subject area", "keywords", "number of authors", "number of citations" and "number of sources" were used. The data obtained within the scope of the research were recorded electronically and evaluated. Tables suitable for the purpose of the study were prepared, analyzed and interpreted.

**Keywords:** smart tourism, TR index, ScienceDirect, Scopus, bibliometrics

**JEL Classification:** L83, Z32, O33

## 1. INTRODUCTION

Smart tourism is a relatively new concept that has emerged due to technological developments in the last century. Although smart tourism has been popularized and studied in many ways by different researchers since the late 1990s, research in this field still lacks conceptual and empirical development (Shafiee et al, 2020).

Smart tourism is a broad field of study that encompasses smart cities, smart destinations, information technologies, smart experiences and many other concepts. However, most academic reviews in this field have focused on defining this phenomenon or research on specific technological developments rather than focusing on theoretical frameworks or development (ibid).

Köseoğlu et al. (2016) found that there has been an increase in bibliometric studies in the field of tourism after 2008. However, in the literature review conducted before the current study, it was determined that the number of bibliometric studies on smart tourism is limited. The aim of the current study is to conduct a bibliometric study in the field of smart tourism and to provide a holistic perspective to researchers who will examine this issue in the future. Bibliometric analysis gives the opportunity to evaluate and monitor the progress of disciplines by using statistical techniques at different levels, sorting data such as authors, keywords, themes, and studies published in different disciplines and methods (Köseoğlu et al, 2016). In this context, another aim of this study is to reveal the most studied research topics and keywords in smart tourism, which is an interdisciplinary field of study. Thus, it is possible for

future research on smart tourism to focus on less studied areas. Within the framework of these objectives, the concept of smart tourism was scanned in the journal lists in ScienceDirect, Scopus and TR index databases for the years 2015-2023. The sources that constitute data for the study were analysed with 9 different parameters: "journal name", "database", "publication year", "article type", "subject area", "keywords", "number of authors", "number of citations" and "number of references".

## 2. LITERATURE REVIEW

The rapid rise in information technologies and the increasing need for sustainability in the world have led to the use of the concept of smart in all areas of life (Gajdošík, 2018:26). According to Gretzel et al. (2015), the concept of smart is a fashionable phenomenon used to express the change brought about by technological developments in the economic and social fields. According to the same study, the harmonious use of different technologies such as the Internet of Things, RFID, NFC and triggering the development in other fields defines the concept of "smart". Smartness plays an important role in shaping products, actions, processes and services. Smart systems that utilize simultaneous data enable different stakeholders to be brought together, to produce solutions for each stakeholder, to make simultaneous decisions and to provide competitive advantage (Erçetin, 2023).

Tourism, which has an important place in the world economy, is one of the sectors most affected by rapidly developing technology. For this reason, tourism is one of the areas where the smart concept works. The concept of

smart tourism was first articulated by Gordon Philips in the early 2000s. Phillips defined smart tourism as "a holistic, long-term and sustainable approach to developing, operating, planning and marketing tourism products and businesses" (Hazarhun, 2022, p. 27). In their study, Dorcic et al. (2019) defined smart tourism as obtaining large amounts of data through various technologies and using these data simultaneously for the support of all tourism stakeholders. In this context, smart tourism aims to increase efficiency in resource utilization, sustainability and high competitiveness in tourism destinations with the help of new generation technologies (Çelik, 2022).

From the late 1990s to the present day, the concept of smart tourism has become increasingly popular both academically and managerially (Borges-Tiago et al, 2021). However, since smart tourism is a new topic, there are gaps in conceptual understanding, formulation of different perspectives and theoretical underpinnings (Johnson and Samakovlis, 2019). In this context, bibliometric studies on smart tourism can help to develop a holistic perspective in this field because bibliometric studies reveal the general trends in a certain field. Thus, it enables research on a specific topic and provides a road map for future research (Topsakal et al., 2020).

When bibliometric studies in the field of smart tourism are analyzed, Bastidas-Manzano et al. (2020) conducted a bibliometric study on smart destinations, one of the components of smart tourism. In this study, 258 articles in the publications indexed by the ISI Web of Science database between 2013 and 2019 were analysed. The study concluded that the topic of smart tourism destinations has a multidisciplinary structure, and that technology and environmental journals cover the topic more. Topsakal et al. (2020) conducted bibliometric analysis of the smart tourism studies in the Web of Science Core Collection database between 1980-2019. In this context, 145 articles were investigated with the parameters of publication year, publication language, publication types, country collaborations, document co-citation network, journal co-citation network, author co-citation network, subject and keyword trends. According to the study, the most common publication type is article, and the most frequently used keywords are "smart tourism, tourism, technology, model and social media". Chen et al. (2021) aimed to examine the trend of smart tourism research in their study. In this context, 441 studies in the Web of Science database between 2020-2021 were bibliometrically analysed. It was observed that the existing studies were predominantly (248) articles. Another result obtained from the research is that the concepts of "smart tourism", "smart city", "smart tourism destination", "technology", and "social media" are mostly used in keywords.

### 3. METHODOLOGY

The research was prepared to examine the studies published between 2015-2023 on "smart tourism" and/or "smart tourism" according to the determined parameters.

The scope of the research was determined as ScienceDirect, Scopus and TR index journals open to access. The sampling criterion method was determined for the research. The criterion method is that the research meets all the criteria determined at the planning stage. Researchers have the opportunity to determine the criteria to be used in the criterion method (Baltacı, 2018). Within the scope of the research, 1268 studies published in the specified time interval and about the concepts were taken into consideration.

The data were subjected to descriptive analysis and content analysis. During content analysis, data that are similar to each other should be brought together according to predetermined concepts and themes and organized in a way that the target audience can easily understand and interpret (Yıldırım & Şimşek, 2013, p.242). Therefore, the data obtained in the study were uploaded to the MAXQDA 2020 program and coded under nine main headings. While coding, answers to the following questions determined for the research were sought:

1. In which year were there more publications on "smart tourism" and/or "smart tourism" in open access journals?
2. In which indexes and journals are open publications on "smart tourism" and/or "smart tourism" published?
3. What is the status of studies on smart tourism, such as the number of citations and the number of references they utilize?
4. What are the field, study type and keywords of the relevant publications?

The MAXQDA 2020 program was used to answer the above questions in accordance with the purpose of the study. For this purpose, tables, code hierarchy models and word clouds were prepared, and the results were evaluated.

**Table 1 | Distribution of publications by year**

Years	N	%
2023	385	21,83
2022	373	21,16
2021	291	16,51
2020	228	12,93
2019	179	10,15
2018	122	6,92
2017	95	5,39
2016	55	3,12
2015	35	1,99
<b>Total</b>	<b>1763</b>	<b>100,00</b>

### 4. FINDINGS

Within the scope of the research, the years in which the studies on smart tourism were published were examined first. The findings obtained as a result of the examination were interpreted with the help of tools such as tables etc.

#### 4.1. Findings by Years of Publications

While examining the studies within the scope of the research by years, firstly, it was investigated how many publications were made in which year. Afterwards, it was analysed how many studies were published in which database in which year.

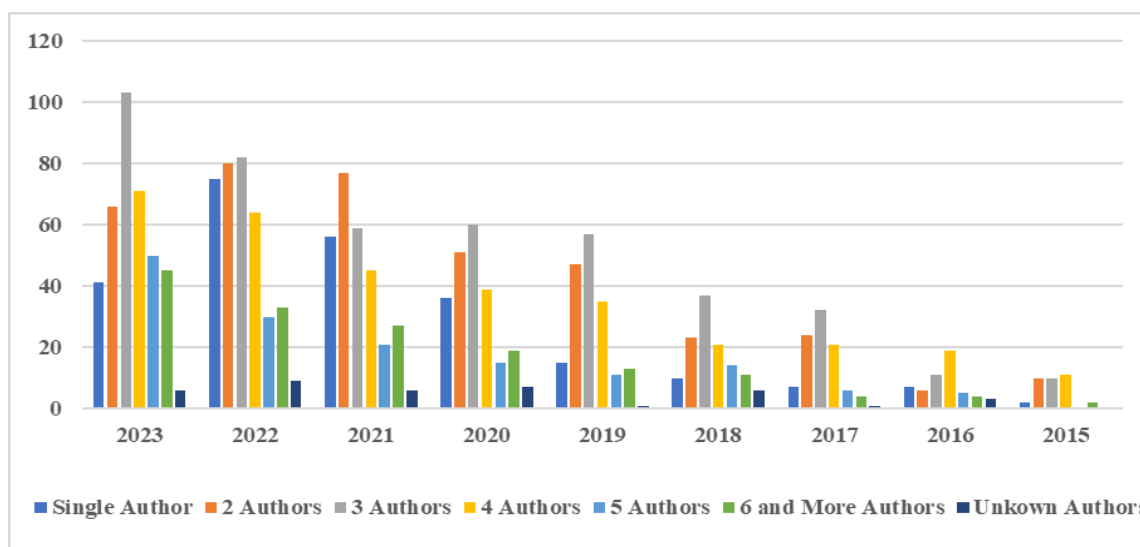
It is seen that the highest number of publications on smart tourism was made in 2023 (385 publications). When the

table 1 is carefully analysed, it is seen that studies on smart tourism have gradually increased in recent years. However, the biggest increase occurred during the pandemic period. This situation can be interpreted as academic studies concentrated in the field of smart tourism since all transactions were made online during the pandemic period.

Table 2 | Table 1: Distribution of publications according to indices

Year	ScienceDirect		Scopus		TR Index		Total	
	N	%	N	%	N	%	N	%
2023	149	25,60	234	20,22	2	8,33	385	21,84
2022	108	18,56	257	22,21	8	33,33	373	21,16
2021	98	16,84	186	16,08	7	29,17	291	16,51
2020	69	11,86	154	13,31	5	20,83	228	12,93
2019	49	8,42	129	11,15	1	4,17	179	10,15
2018	36	6,19	86	7,43	0	0,00	122	6,92
2017	38	6,53	56	4,84	1	4,17	95	5,39
2016	17	2,92	38	3,28	0	0,00	55	3,12
2015	18	3,09	17	1,47	0	0,00	35	1,99
Total	582	100,00	1157	100,00	24	100,00	1763	100,00

Figure 1. | Distribution of publications by number of authors



The table 2 was prepared to investigate in which index type the publications were published on a yearly basis. When the table is examined, it is seen that publications in journals indexed in ScienceDirect and Scopus index have increased regularly over the years. Publications in the TR Index were realized after 2017. However, a significant decrease in publications in journals indexed in the TR Index was detected in 2023.

The graph above was prepared to show the distribution of publications according to the number of authors. When the graph is analyzed, it is seen that the majority of the studies on smart tourism were conducted by two or three

authors. However, most of the studies conducted in 2016 were conducted with four authors.

#### 4.2. Findings According to the Nature of Publications

While quantitative criteria are generally taken into account when evaluating publications, the readability of the publication and the number of citations it receives are ignored (Yılmaz & Memişoğlu, 2019). Along with the citations to the studies, the sources utilized in the study also show the quality and impact of the research (Feinstein, 2008). Therefore, in this part of the study, the publication type of the studies in the sample, the number



Figure 3. | Word cloud related to the subject area of the research



### 4.3. Findings According to General Characteristics of Publications

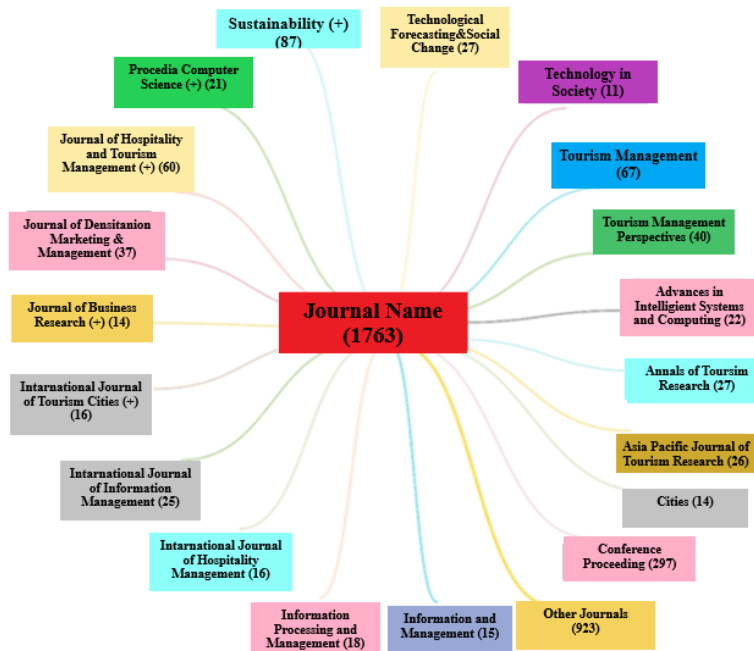
The general characteristics of the studies on smart tourism were investigated according to the journal, subject and keywords of the studies. For this purpose, the subject and keywords of the studies were analysed with the help of word cloud and the journals in which they were published were analysed with the help of code hierarchy.

Word clouds are prepared to collect a large number of repeated words in a common denominator and to show how important those words are for the relevant subject (Ragbir et al., 2018: 6). In the word cloud, whether the relevant words are in the central position in the studies within the scope of the research is prepared according to the font size, colour and frequency of the words. Frequent repetition of a word shows how much emphasis is placed on that word. Therefore, a word cloud was used to

examine the subject matter of the articles within the scope of the research. While preparing the word cloud, a visual was prepared through the MAXQDA program, in which the words in the subject areas of the studies were repeated at least 5 times and limited to 50 words. According to the figure 1, research on smart tourism is mostly conducted in the fields of management, accounting, and business administration.

To determine the keywords of the studies published in the relevant database, a word cloud was created using the MAXQDA program. While preparing the word cloud, the frequency of words was limited to at least ten, and the number of words was limited to 120. According to the image created as a result of the process, it was determined that the words tourism and smart were repeated the most in the studies on smart tourism. Destination, technology, recommendation, experience, social and behaviour are among the most preferred keywords.

Figure 4. | Code hierarchy model according to the journals in which the research was published





In order to evaluate the research results, the data obtained were also evaluated by dividing them into main, sub and auxiliary codes. Coding helps divide the data into meaningful parts, label them, and maintain the integrity of meaning within the parts (Corbin & Strauss, 2008; Miles & Hiberman, 2016). In addition, coding is used to identify various aspects of data (Corbin & Strauss, 2008). Coding also involves the process of collecting textual or visual data into small categories of information and exploring evidence from different databases (Creswell, 2013).

## 5. CONCLUSION

In the study, 1763 studies published in ScienceDirect, Scopus and TR index databases between 2015-2023 in the field of "smart tourism" and open to access were analysed bibliometrically. The parameters examined during the bibliometric analysis were determined as "journal name", "database", "publication year", "publication type", "subject area", "keywords", "number of authors", "number of citations" and "number of references". Within the limitations of the research, when the studies in all databases were analysed on a yearly basis, it was observed that the number of studies in the field of smart tourism increased regularly. Bastidas-Manzano et al. (2020) examined bibliometrically the studies on smart destinations, one of the components of smart tourism. In this study, the distribution of publications by year was investigated.

Based on the databases, it is seen that 1157 (65.63%) of the studies published in the field of smart tourism between 2015 and 2023 are included in the Scopus database. Considering the published database and year of publication, it is observed that the number of studies published in the field of smart tourism in TR Index and Scopus is unstable, while the number of studies published in ScienceDirect database has increased regularly over the years.

One of the parameters used in the study is the types of publications. In this context, 59.61% (1051) of the studies

are research articles, 24.33% (429) are conferences, and the rest are book chapters, reviews, editorials, etc. Chen et al. (2021) reported that 248 of the 441 documents they analysed in their bibliometric study in the field of smart tourism were articles. In this respect, the findings obtained are consistent with the aforementioned study.

While examining the subject distribution of the studies in the research, a word cloud was created through the MAXQDA program. Although the majority of the studies were conducted in the fields of management, accounting and business administration, terms such as "computer", "engineering", and "psychology" were also included in the analysis. In this context, it has been observed that smart tourism is an interdisciplinary field of study. In this respect, the current study is in line with the study conducted by Bastidas-Manzano et al. In the bibliometric study of smart tourism conducted by Topsakal et al. (2020), it was reported that the majority of the studies (70.7%) were published as articles in parallel with the current study.

The keyword distributions of the studies constituting the data of the study were also analyzed with the MAXQDA program. As a result of the analysis, it was determined that the most commonly used keywords were "tourism" and "smart". When we examined the studies in question with the "published journal" parameter, journals that published at least 8 of the studies on smart tourism were included. Within this limitation, it was concluded that the studies were published in 20 different journals, and the highest rate among these journals was 297 publications published as conference proceedings.

The number of authors, number of references and number of citations were also analysed. It is seen that the majority of the studies utilized in the research were conducted by two or three authors. It was concluded that more than half of the studies (50.65%) had 0 to 20 citations, and 19.06% had less than 20 references.

## REFERENCES

1. Asan, A. (2017). International Scientific Journal Indexes, Their Importance and the Status of Turkish Journals: Part 1: Scientific Journal Indexes, *Acta Medica Alanya*, (1)1, 33-42, <https://dergipark.org.tr/tr/download/article-file/290492>
2. Bastidas-Manzano, A. B., Sánchez-Fernández, J., & Casado-Aranda, L. A. (2021). The past, present, and future of smart tourism destinations: a bibliometric analysis. *Journal of Hospitality & Tourism Research*, 45(3), 529-552. <https://doi.org/10.1177/1096348020967062>
3. Borges-Tiago, T., Veríssimo, J., & Tiago, F. (2022). Smart tourism: a scientometric review (2008-2020). *European Journal of Tourism Research*, 30, 3006-3006. <https://doi.org/10.54055/ejtr.v30i.2593>
4. Chen, S., Tian, D., Law, R., & Zhang, M. (2022). Bibliometric and visualized review of smart tourism research. *International Journal of Tourism Research*, 24(2), 298-307. <https://doi.org/10.1002/itr.2501>
5. Corbin, J., & Strauss, A. (2008). *Basics of qualitative research techniques and procedures for developing grounded theory* (third edition). Los Angeles, USA: Sage
6. Creswell, J. W. (2013). *Qualitative inquiry & research design: Choosing among five approaches*. Los Angeles, USA: Sage
7. Çelik, P. (2022). Sustainable practices in smart tourism. *Journal of Tourism Intelligence and Smartness*, 5(1), 50-60.
8. Dorcic, J., Komsic, J., & Markovic, S. (2019). Mobile technologies and applications towards smart tourism-state of the art. *Tourism Review*, 74(1), 82-103. <https://doi.org/10.1108/TR-07-2017-0121>

9. Erçetin, E., (2023). The Importance of Smart City and Smart Tourism in Sustainable Tourism, Unpublished Master's Thesis, Institute of Social Sciences, Dokuz Eylül University
10. Feinstein, J. (2008). The Importance of Accurate References in Journals, *Editors' Bulletin*, (4)3, 100-102. <https://doi.org/10.1080/17521740802651237>
11. Gajdošík, T. (2018). Smart tourism: Concepts and insights from Central Europe. *Czech Journal of Tourism*, 7(1), 25-44 <https://doi.org/10.1515/cjot-2018-0002>
12. Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart tourism: foundations and developments. *Electronic markets*, 25, 179-188.
13. Hazarhun, E., (2022). Reflections of the Digital Transformation Process on the Tourism Sector: A Research on the Use of Smart Tourism Technologies, Unpublished Doctoral Dissertation, Social Sciences, Dokuz Eylül University
14. Koseoglu, M. A., Rahimi, R., Okumus, F., & Liu, J. (2016). Bibliometric studies in tourism. *Annals of tourism research*, 61, 180-198.
15. Johnson, A. G., & Samakovlis, I. (2019). A bibliometric analysis of knowledge development in smart tourism research. *Journal of Hospitality and Tourism Technology*, 10(4), 600-623. <https://doi.org/10.1108/JHTT-07-2018-0065>
16. Miles, M. B., & Huberman, A. M. (2016). An expanded sourcebook: Qualitative data analysis (S. Akbaba Altun & A. Ersoy, Eds.) Ankara: Pegem Akademi.
17. Ragbir, N. K., Baugh, B. S., Rice, S., & Winter, S. R. (2018), How Nationality, Weather, Wind, and Distance Affect Consumer Willingness to Fly in Autonomous Airplanes. *Journal of Aviation Technology and Engineering*, 8(1), pp.2-10. <https://doi.org/10.7771/2159-6670.1180>
18. Shafiee, S., Rajabzadeh Ghatari, A., Hasanzadeh, A., & Jahanyan, S. (2021). Smart tourism destinations: a systematic review. *Tourism Review*, 76(3), 505-528. <https://doi.org/10.1108/TR-06-2019-0235>
19. Topsakal, Y., Bahar, M., & Yüzbaşıoğlu, N. (2020). Review of smart tourism literature by bibliometric and visualization analysis. *Journal of Tourism Intelligence and Smartness*, 3(1), 1-15.
20. Yılmaz, Ö. & Memişoğlu, S. P. (2019). Academician Opinions on Academic Performance Evaluation in Higher Education Institutions. *Journal of Higher Education and Science* (3), 542-554. <https://doi.org/10.5961/jhes.2019.353>