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Science Mapping of the Knowledge Base on Tourism Innovation

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Abstract: In order to shed light on the trends and performance of the contributions in the field of tourism innovation, a comparative bibliometric analysis of production in this area, indexed in the Web of Science (WoS) and Scopus databases is carried out in this research. We opted for a document tracking strategy through a search of terms, in which 211 and 264 articles were identified in WoS and Scopus, respectively. Based on the analysis of the selected articles, it is concluded that it is an emerging and fragmented field of knowledge with more than two thirds of its production concentrated in the last five years. Other results indicate that there is a great concentration of articles within the subject areas of business, management and accounting (Scopus), and social science (WoS), highlighting Hjalager, A, M. as the most prolific researcher and tourism management as the journal that publishes the highest number of papers. Spain, the United Kingdom, and Denmark hold the top positions in the ranking of countries by number of articles and authors affiliated with one of their centers. In the area of tourism innovation, Scopus has better coverage due to collecting a greater number of articles and receiving a greater number of citations.

Keywords: Tourism and Innovation; Competitiveness; Bibliometric Analysis; Coverage and Overlap; WoS; Scopus

1. Introduction

The tourism industry is immersed in a market structure that is constantly changing, which is a consequence, among other factors, of the consumer's current demands for new tourism products and the introduction and widespread use of new information technologies in their creation, production, and consumption. In this uncertain environment, innovation processes are essential not only for generating, adapting, and implementing new ideas to solve problems, but also for creating new advantages that enable companies and destinations to be much more competitive and thus face the intense competition currently found in this sector [1–4]. On the other hand, innovation is one of the fundamental pillars for sustainable development, the fundamental objective of the tourism sector set by the UNWTO (World Tourism Organization) together with the UN. These two bodies approved the Sustainable Development Goals (SDGs, 2015–2030) in the United Nations Global Compact in 2015 [5]. Innovation and sustainability are two inseparable principles [6].

According to Fagerberg & Verspagen [7], innovation is recognized as one of the most determining factors in the improvement of competitiveness, becoming a powerful explanatory factor of the

differences between countries, regions, and companies in terms of their economic growth (see growth and innovation theories by Arrow [8]). Many studies empirically show that innovation improves productivity and therefore competitiveness [9–14]. Following this same line, the OECD [15] proposes the adoption of innovation as the optimal mechanism to face intense competition and Simoncveska [16] states that it enables one to face the constant changes in tourists' demand. This is also seen by Hjalager [17], who claims that innovations can be a major driver of growth in tourism.

In fact, innovation in the tourism sector can be developed by following different approaches, developing new ideas, products, services, or practices with the aim of improving productivity (use of available resources), and on the other hand, satisfying potential customers' new needs. It is not only about satisfying needs, but also about creating them, offering products or services that the customer does not demand, but with which they will be able to create and satisfy needs. Thus, tourism companies create barriers to competition based on innovation processes, and on the other hand, improve their positioning in tourist markets.

In recent years, tourism innovation has become an emerging research topic in the field of tourism [17–25]. Specifically, in the 80s and 90s, several papers developed theoretical models and theories focused on studying and measuring innovation in different sectors [26]. However, "the theoretical body of tourism innovation is relatively scarce and has been generated from the progressive adaptation of theories from other areas of knowledge" Rodríguez-Sánchez [27] (p. 31). In this sense, Williams [28] and Hall & Williams [1] make it very clear that for adapting innovation concepts, the distinctive features of services (intangibility, inseparability, heterogeneity, and perishable nature) were taken into account, which will determine the nature of innovation.

An important aspect to highlight is that "the tourism sector is characterized by its tendency to individualism and poor collaborative culture, and a gap that is emphasized between companies and knowledge-generating organisms…" aspects that "condition the innovation process that takes place in tourism". In addition, this sector is characterized by a tendency to "the reinvention or modification of innovations by those who adopt it" Rodríguez-Sánchez [27] (p. 39).

The studies carried out on adopting innovation in the service sector show that companies in this sector are innovative, but to a lesser extent than manufacturing companies [26], and reveals that large companies have higher levels of innovation than small–medium enterprises (SMEs). This is corroborated by studies of an empirical nature in the tourism sector [29–32], which show that this sector generates innovation. However, Camisón & Monfort [33] state that the difficulty lies in measuring their intensity and they question whether the current measurement indicators are adequate. In this regard, Rodríguez-Sánchez [27] (p. 64) states "that the data sources available for the measurement of tourism innovation do not reflect the reality of a system composed of multiple subsectors… and the measurement tools are poorly adapted to the needs of a service sector with its own and distinctive features".

Scientific literature on innovation and tourism is recent and studies of an empirical nature are scarce [18,34]. In this regard, Hall [35] states that they are mainly case studies and Hjalager [36] talks about exploratory and qualitative studies that enable advancing the knowledge of this area. In fact, Divisekera and Nguyen [23] (p. 157) maintain that "much of the existing literature on tourism innovation focuses on conceptual and theoretical issues". The main barrier to conducting studies of an empirical nature is the lack of official statistics [35].

Following Divisekera and Nguyen [23] (p. 158), it is observed that qualitative studies deal with aspects such as: "(1) the need, drivers and obstacles of innovation [30,37], (2) determinants of innovation [33]; (3) the concept of innovation and its usefulness for tourism and tourism systems [1]; (4) integrative models for innovativeness in tourism [38] and internationalization and innovation in tourism [39]".

Regarding quantitative studies, Divisekera and Nguyen [23] (p. 158) also group them as: (1) The effect of involving employees and visitors in the innovation process: Ottenbacher and Gnoth [40], Orfila-Sintes and Mattsson [32], López-Fernández et al. [41]; (2) The role of Information

and Communication Technology (ICT) for innovation generation: Jolly and Dimanche [42], Buhalis and Law [43]; Aldebert et al. [44]; (3) the relationship between innovation and business performance: Martínez-Román et al. [45], Lee et al. [46]; (4) other studies focusing on various aspects of innovation and related issues in the hotel sector: Razumova et al. [19] and Backman et al. [2]; (5) the effect of ethical leadership on service innovative behavior: Dhar [21]; and (6) The influence of knowledge on marketing innovation and the effect of marketing innovation on the financial performance of hotels: Nieves and Díaz-Meneses [22].

The literature review enabled us to observe that there is no bibliometric study applied to this "tourism innovation" field, only literature review [17] that identified the issues raised in this area of study and its main conclusions. Therefore, this research was proposed with the aim of carrying out a systematic review of tourism innovation research, while being aware that as scientific production increases, these types of reviews become necessary.

The analysis of academic production using bibliometrics is a fundamental element in the research process that allows us to know about the knowledge structure of a field through its researchers (production indicators), the institutions to which they belong, and the most influential publications and journals through citation analysis. Bibliometrics enables one to analyze progress in academic knowledge and trends [47], as well as to develop a shared understanding of how knowledge develops [48]. The articles were identified through a search of terms in the two main international databases (Web of Science and Scopus).

This paper is structured as follows. First of all, in the introduction, the knowledge area of "tourism innovation" is contextualized, the objective of the research is stated, and the research is justified. Next, the theoretical framework is considered and then the research design is described. In the fourth section, the analysis is collected and the results are discussed. The paper finishes with a summary of the main conclusions, as well as the limitations of research.

2. Tourism Innovation

Two definitions of innovation are highlighted due to their broad view of innovation and its multidimensional nature. Kanter [49] (p. 20) defines it as "the process of putting into practice any new idea or solution to a problem. Ideas to reorganize, reduce costs, improve communication or group products are also innovations. Innovation is the generation, acceptance and adoption of new ideas, processes, products or services" (definition also collected by Hall & Williams [1] (p. 5)). On the other hand, The Oslo Manual (the Organization for Economic Co-operation and Development's document "The Measurement of Scientific and Technological Activities, Proposed Guidelines for Collecting and Interpreting Technological Innovation Data", defines innovation as "the implementation of a new or significantly improved product, or a new process, a new marketing method, or a new method of organization in business practices, in the organization of the workplace or in external relationships" [26] (p. 46).

In the literature, there are different approaches that do not reach a consensus on the definition of innovation. For many researchers, it is necessary to generate innovation [50] by following the phases of the linear process of innovation proposed by Von Hippel [51] (identification of a need, research/development, prototype construction, and application/commercialization of innovation dissemination), which implies generating new ideas and disseminating them with the aim of achieving an economic impact. [52]. However, for others, innovation can be synonymous with adopting an available idea. Finally, there are researchers for whom innovation means both the generation and adoption of ideas, forming the innovation concept with both perspectives [50]. It is important to also consider the perspective of Rogers [53] (p. 17), who points out that innovation can undergo changes in its adoption process, which moves away from the general idea, so innovation changes during the innovation process.

According to Ferras [54] (p. 19), currently, innovation "is conceived as an integrating process that has evolved through different phases, depending on the economic characteristics of each period".

These phases are innovation 1—technology-push, 2—market pull, 3—organizational innovation, 4—company-supplier, 5—global knowledge networks, and 6—cultural, systemic, and global innovation. In this last phase, "innovating no longer means only developing new products or processes, innovation becomes complete" [54] (p. 9).

Specifically, innovation that aims at organizational competitiveness can be classified as product innovation (introducing a new good or service), process innovation (introducing a new or significantly improved production or distribution process), market innovation (new marketing method that implies significant changes in the design or packaging of the product, its positioning, its promotion, or its pricing), or organizational innovation (new organizational method in practices, organization of the workplace or external relations of the company) [24]. Álvarez-Sousa et al. [55] (p. 21) incorporate "innovation in the environment as something imposed at a legal-social level and whose purpose is corporate social responsibility". Following this same line, Hjalager [17] suggests the following innovation categories: product or service innovations, process innovations (aim to increase efficiency and productivity), managerial innovations (aim to retain staff, maintain flexibility, increase staff satisfaction, and control personnel costs), management innovations, and institutional innovations (aim to improve the business efficiently in certain tourism fields through networks and alliances). Table 1 summarizes the different types of innovation.

Table 1. Typologies of innovation.

Classification Criteria	Typologies
According to its scope	• Product/service innovation • Process innovation • Organizational innovations • Marketing innovation • Innovation in management • Innovation of business models
According to its impact on the market	• Incremental or evolutionary, improving what already exists • Radical or disruptive, incorporating to the market a product or service that in itself is not new
According to its origin	• Powered by technology • Attracted by the market
According to its degree of novelty	• Relative: they are new for the company and they are companies that innovate. • Absolute: they are new to the market and are generally promoted by innovative companies.

Source: Own elaboration from [24].

In the tourism sector, it is necessary to focus on the concept of "innovation in services", since service and marketing are the two main categories of tourism innovation [18]. In services, the client is the center of attention and the company tries to create value for clients by taking into account their expectations and values through the creative management of its intangible value.

When talking about innovation in the tourism sector, it is important to mention that it does not refer only to the digital transformation of the sector (social networks, software, Internet service provision, cloud management...), but it must be integrated into companies through their management process. In this sense, following the integrative perspective of innovation 6.0, it must be present in the main areas of the company, marketing, technologies, cost reduction, brand improvement, people management, and new business models, thus enabling tourism companies to be more flexible and agile to the constant changes in the sector. On the other hand, in the tourism sector, the concept of innovation must contain the two perspectives previously seen in the generation of ideas and adaptation, which is a very common practice in this sector [27].

The internal and external factors that drive innovation are addressed from three theoretical schools: the Schumpeterian approach, where entrepreneurs represent a major contribution to innovative dynamics, the technology-push/demand-pull paradigm (they also recognize environmental factors such as changes in the market and political issues), and the Marshallian innovation systems or innovation cluster approach [17] (p. 4). Similarly, Divisekera and Nguyen [23] (p. 158) group them into "(i) collaboration [56–58], (ii) human capital [32,41,59], (iii) information technology [18,43,60], (iv) funding [1], and (v) factors specific to firms, and market characteristics-institutional factors".

To finalize the theoretical framework, it is essential to mention two emerging concepts in this area of knowledge: "open innovation" and "sustainable innovation". The former refers to innovation that does not end within a specific organization, but is open to external contributions and moves away from the aforementioned linear innovation process [15,61]. According to Chesbrought [62] (p. 2), this type of innovation differs from internal innovation and is defined as "a paradigm in which the possibility and duty of firms to use both external and internal ideas is assumed, as well as internal and external channels, in order to reach the market", which would include customers, research centers, universities, specialists, users, and the general public. At present, according to Hjalager [17], there is no empirical evidence of this type of innovation in the tourism sector.

On the other hand, the concept of "sustainable innovation" emerges, which is inspired by the Finnish model. This concept integrates five fundamental principles: sustainable development, participatory innovation, continuous innovation, and innovative management. Although there is no exact definition (see review by Carrillo-Hermosilla et al. [63]), it is usually labelled with the term "eco-innovation". By considering the definition of eco-innovation by Carrillo-Hermosilla et al. [63], Boons et al. [64] (p. 2) define sustainable innovation as "innovation that improves the performance of sustainability", where such performance includes ecological, economic, and social criteria. Following this same line, the European Commission [65] also defines eco-innovation and links it with sustainability. "Eco-innovation is any form of innovation aiming at significant and demonstrable progress towards the goal of sustainable development, by reducing impacts on the environment or achieving a more efficient and responsible use of natural resources, including energy". Therefore, it is the type of innovation that has a positive impact on society or the environment. It is characterized by the use of technology as the main tool and because it does not have the sole objective of economic growth. In this sense, it incorporates specific objectives aimed at satisfying social and human needs.

3. Methodology

After establishing the updated theoretical framework, the next step is the systematic, structured, and nonrandom bibliographic search on "tourism innovation". In this sense, bibliometrics, which is understood as the quantitative analysis of bibliographic data through statistical and mathematical tools [66], is a widely used method to analyze specific areas of research and draw valuable conclusions [67] by using an objective information which is easy to handle [68].

Following Rowley & Slack [69], before beginning the bibliometric study, a mental map was designed to carefully establish the steps to follow in the process of systematic search of bibliography (Figure 1).

The bibliographic databases, understood as digital collections of references to classified published sources [70], have nowadays become an essential resource for any bibliometric study; they collect a large amount of information produced by researchers, centers, and regions around the world. Due to the existence of a multitude of national and international databases, both generic and specialized, it is essential to evaluate and assess which one makes a better coverage of each field and is, therefore, more convenient to use in the bibliometric analysis. The validity of the results obtained will depend to a large extent on the correct choice [71]. For the specific study of the Tourism and Innovation field, the WoS and Scopus bases were chosen, which are world references, by providing research work in all disciplines with the highest quality standards [72]. On the other hand, these databases have been subject to comparisons from the perspective of their coverage and uniqueness in many other areas of knowledge [73,74].

To select documents on the tourism and innovation subject, a document search was chosen through the search of terms (in January 2019) with the equation shown in Table 2. This strategy enabled us to thoroughly track articles within all subject areas [75]. Only articles and reviews published in scientific journals evaluated by a blind peer review procedure were selected; therefore, considered references were of proven quality. The documents were filtered and the false positive ones were deleted, being irrelevant for our research, and the inconsistencies detected in the spelling of authors'

names, institutional affiliations, etc. were standardized. Thus, 296 articles indexed in WoS and 205 in Scopus were identified, 501 articles altogether.
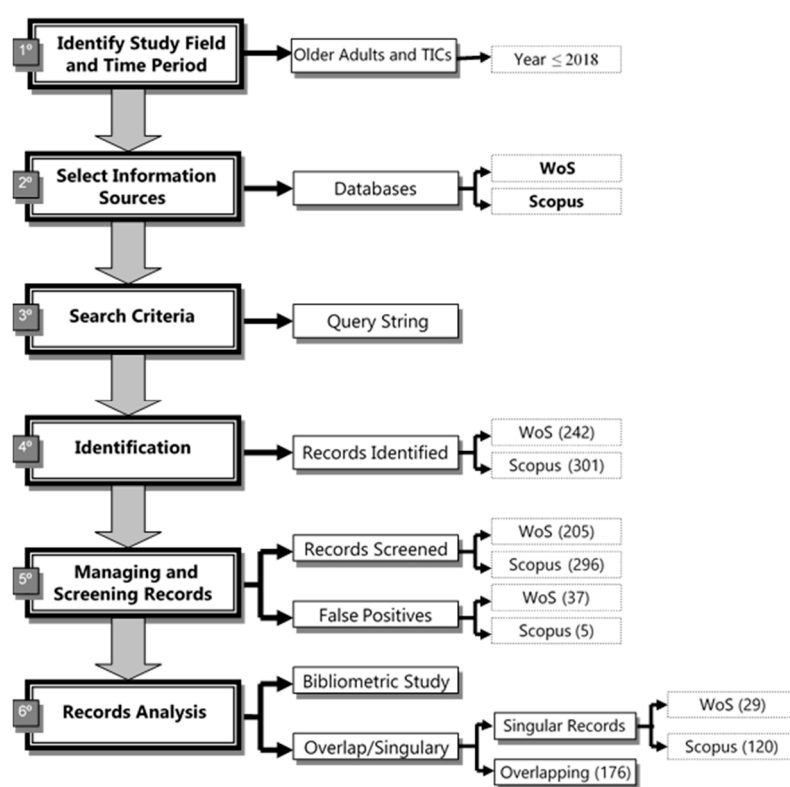

Figure 1. Bibliometric methodological procedure. Source: Own elaboration.

Table 2. Search strategy.

Search Word	Touris* AND Innovat*
Category	Title
Subject area	ALL
Document type	Journal Article and Review
Period time	Year of publication ≤ 2018
Language	English
Query String	WoS: TI = (Touris* AND Innovat*) AND Idioma: (English) AND Tipos de documento: (Article and Review) Refined by: Base de datos = (WOS) AND Período de tiempo = 1900–2018 Scopus: TITLE (Touris* AND Innovat*) AND DOCTYPE (ar OR re) AND PUBYEAR < 2019 AND LANGUAGE (english)
Search Date	January 2019

Source: Own elaboration.

Three types of bibliometric indicators can be used for the bibliometric analysis [68]: quantity, measuring the productivity (number of articles), structural, looking for possible connections between publications, authors, etc., and performance, valuing more the quality (number of citations, h index). This research uses quantity and performance indicators.

4. Results

4.1. Production

The first work appears in 1991 (Scopus); however, it is not until 2012 that there is a real interest in tourism and innovation by the scientific community. It can be seen that 77.07% of WoS articles and 59.46% of Scopus articles were published in 2014–2018. This data shows that it is a current field of study, especially when 2018 is by far the most productive year, with 57 and 59 articles, respectively.

It is also observed that after an initial period of more than 20 years with occasional publications, "Precursors" according to the exponential growth law of Price [76], as of 2014, there is a turning point in the production growth curve, with the start of the second stage of exponential growth, that continues to this day. This fact, together with the extrapolated data of Figure 2, enables one to assume that this behavior will be maintained in the next few years before finally going on to the linear growth phase, where the emergence of publications is mainly reduced and limited to reviews. There also seems to be a strong correlation between the number of articles indexed in WoS and Scopus each year ($R^2 = 0.9225$), despite the fact that the growth curves separate.
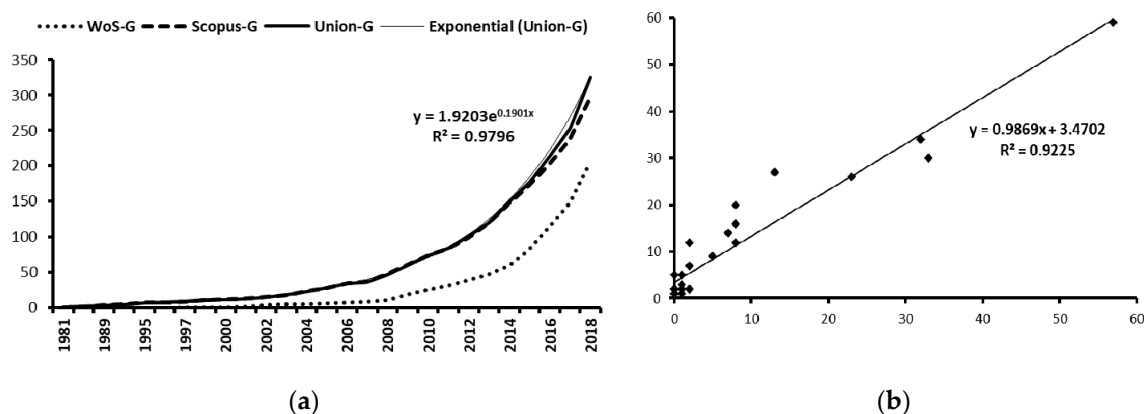

Figure 2. Growth (**a**) and Correlation (publications) (**b**). Source: Own elaboration.

4.2. Citations

The 205 articles found in WoS received 1557 citations; 17.6 citations/article and h-index = 27 (out of the total, 27 documents obtained 27 citations or more). With respect to Scopus, 296 articles received 4940 citations; 16.7 citations/article and h-index = 33. There is great similarity between WoS and Scopus regarding the total number of citations received. Thus, in both bases, the articles produced in 2010 received the highest number of citations (631 and 687 respectively), followed by those published in 2006 (345 and 463).

On the other hand, if the number of citations received annually by the total number of articles indexed in each of the bases is observed (Figure 3), growth is practically constant throughout the analyzed period, with the exception of the year 2007, achieving the maximum figure in 2018 with 963 citations (WoS) and 1283 citations (Scopus). This data corroborates again the interest aroused by the subject under study. As with production, there is also a strong correlation between the number of citations received per year between both bases, with $R^2 = 0.9921$.
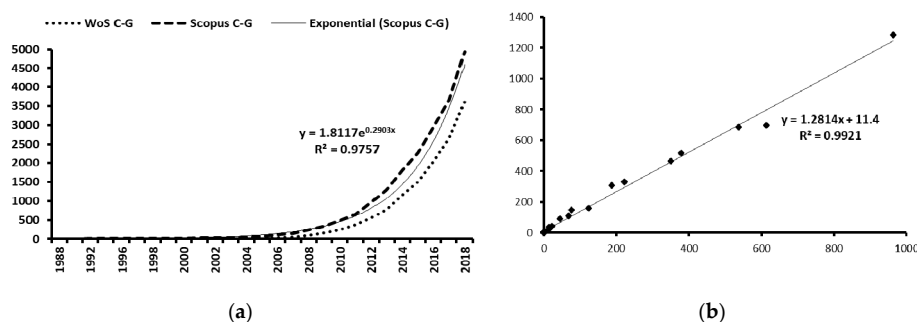

Figure 3. Growth (**a**) and Correlation (citations) (**b**). Source: Own elaboration.

A detailed citation analysis shows that only 3.90% (8) of WoS articles and 3.04% (9) of Scopus articles receive more than 100 citations, 3.90% (8) and 5.07% (15), respectively, between 50–100 citations, 20.98% (43) and 25% (74) between 10–49 citations and 40.79% (83) and 44.59% (132) between 1–9

citations. Only 30.70% (63) of WoS articles and 22.3% (66) of Scopus articles do not receive any citations. As stated by Merigó et al. [72], articles published within the last ten years may not have reached their maximum citation level yet.

Regarding the classification of articles according to the number of citations received, a review of innovation research in tourism [17] stands out from the rest of the articles in both databases, with 427 citations in WoS and 435 citations in Scopus, followed by Networks, clusters and innovation in tourism: A UK experience [77] with 334 and 330 respectively. It is also observed that Hjalager, A.M. has three articles within this ranking (Table 3).

Table 3. Ranking of articles most cited.

Author/s	Year	Age	Title	WoS			Scopus		
				R.	TC	C/Y	R.	TC	C/Y
Hjalager, A.M. [17]	2010	8	A review of innovation research in tourism	1	427	53.38	1	435	54.38
Novelli, M. Schmitz, B. Spencer, T. [77]	2006	12	Networks, clusters and innovation in tourism: A UK experience	2	334	27.83	2	330	27.50
Hjalager, A.M. [78]	2002	16	Repairing innovation defectiveness in tourism	3	276	17.25	3	285	17.81
Stamboulis, Y. Skayannis, P. [79]	2003	15	Innovation strategies and technology for experience-based tourism	4	259	17.27	4	242	16.13
Guttentag, D. [80]	2015	3	Airbnb: disruptive innovation and the rise of an informal tourism accommodation sector	5	193	64.33	5	237	79.00
Sundbo, J. Orfila-Sintes, F. Sorensen, F. [81]	2007	11	The innovative behaviour of tourism firms- Comparative studies of Denmark and Spain	6	181	16.45	6	178	16.18
Camisón, C. Monfort-Mir, V.M. [33]	2012	6	Measuring innovation in tourism from the Schumpeterian and the dynamic-capabilities perspectives	7	111	18.50	8	116	19.33
San Martín, H. Herrero, A. [82]	2012	6	Influence of the user's psychological factors on the online purchase intention in rural tourism: Integrating innovativeness to the UTAUT framework	8	101	16.83	7	152	25.33
Hjalager, A.M. [83]	1997	22	Innovation patterns in sustainable tourism - An analytical typology	9	89	4.05	14	89	4.05
Williams, A.M. Shaw, G. [39]	2011	7	Internationalization and Innovation in Tourism	10	86	12.29	12	93	13.29
Kenteris, M. Gavalas, D. Economou, D. [84]	2009	9	An innovative mobile electronic tourist guide application	13	73	8.11	9	102	11.33
Macbeth, J. Carson, D. Northcote, J. [85]	2004	14	Social capital, tourism and regional development: SPCC as a basis for innovation and sustainability	-	-	-	10	97	6.93

R. = rank; TC = the total number of citations received by the published articles; C/Y = average citations received by years. Source: Own elaboration.

4.3. Overlap and Singularity

Among the 501 articles identified in both databases, 325 articles are different, 176 are overlapping (they are found in both databases), which represents 85.85% of WoS documents and 59.46% of Scopus documents. The remaining articles, 29 (14.15%) and 120 (40.54%), respectively, are single articles (they are indexed in only one of them). If journal analysis is applied, the overlapping percentage is 75.73 in WoS and 56.11% in Scopus and of single elements 24.27% and 43.89%, respectively.

To compare the coverage of WoS and Scopus of the area under study, Meyer's Index or the relative singularity index was used [86]. For this indicator, the sources contained in a single database are those that have the greatest weight or value (1), a weight that will be reduced proportionally for duplicate (0.5) or triplicate (0.3) sources. Therefore, the base that shows the greatest number of single documents is rewarded. A high index value indicates a higher number of single documents, which is a figure of great interest to make an adequate selection of both bases and documents in bibliometric studies [87]. Singularity is greater in Scopus, since of the total of 325 articles and 164 journals selected between both bases, it has 36.92% of articles (8.92% WoS) and 37.20% (15.85% WoS) of single journals and a Meyer's index of 0.70 and 0.72, respectively, and 0.58 and 0.62 in WoS.

The most complete review and discussion on overlap is carried out by Gluck [88], where the concept of traditional overlap (TO) between secondary sources of two databases is defined. The higher the TO value, the greater the degree of similarity between the bases. The relative overlap (RO) of one database in relation to another is also defined, which was originally used by Bearman & Kunberger [89] as the result of the intersection of both divided by the number of elements of one of them.

$$\%\text{TO} = 100 * \left(\frac{\left| WoS \cap Scopus \right|}{\left| WoS \cup Scopus \right|} \right) => \ \% \ \text{TO} = 54.15\% \tag{1}$$

Therefore, there is a 54.15% similarity between the selected articles on tourism and innovation when comparing WoS and Scopus. Viewed from the opposite perspective, there is a 25.85% disparity between both bases.

To determine the coverage percentage of WoS with respect to Scopus and vice versa, we use relative overlap [89]. Scopus overlaps or covers 85.85% of WoS articles in the tourism innovation field.

$$\%\text{RO WoS} = 100 * \left(\frac{\left| WoS \cap Scopus \right|}{WoS} \right) => \ \%\text{RO WoS} = 85.85\% \tag{2}$$

The differences in overlap between both bases may be due, among other reasons, to the different indexing policies that each of the bases follows, but mainly due to the difference in the number of journals indexed in WoS and Scopus.

4.4. Authors

A.M. Hjalager leads the ranking of the most productive authors (Table 4) with a total of 16 papers published between both bases. Based on the classification proposed by Lotka [90], only this author is considered a large producer by having more than ten publications. In total, 7.61% (51) of them are medium producers (two–nine publications), while the majority of authors, 92.09%, are transient authors with a single authorship. The productivity index is 1.15.

The coauthorship index (no. authorships/no. articles) is 2.38, which together with the degree of collaboration (proportion between the number of collaborative papers and the total number of papers) of 70.77% shows a high degree of collaboration between researchers who deal with the subject of tourism innovation. The transience index is 92.24%. The majority of papers, 31.69% (103), are signed by two authors, followed by 29.23% (95) by one author and 21.51 (70) by three authors. Two hundred and thirty articles altogether have multiple authorship (70.77%) compared to 95 (29.23%) by only one author (Figure 4).
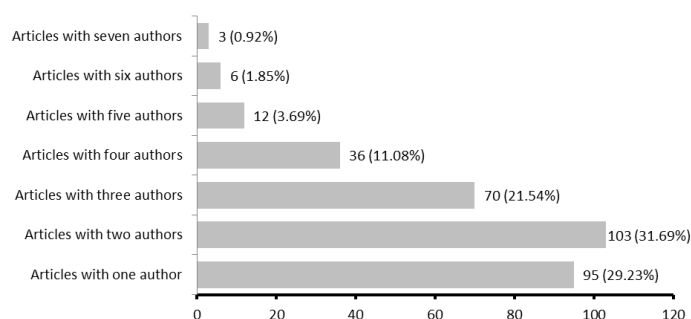
Figure 4. Collaboration. Source: Own elaboration.

By country (Table 5), and taking into account the number of authors, Russia stands out from the rest with 10.60% (71) of the authors affiliated to one or more of its centers. It is followed closely by Spain with 10.30% (69), but with the highest percentage of authorships, 10.49% (81), and Italy with 6.27% (42). However, Spain is the country with the highest number of articles, 11.22% (23) in WoS and

9.46% (28) in Scopus. By number of citations that countries receive, the first place is held by Denmark with 1010 citations in WoS and 1393 citations in Scopus.

Table 4. Authors ranked by publications.

R.	Name	Affiliation	Country	Tfi	WoS						Scopus					
					fi	LA	SA	TC	C/P	h	fi	LA	SA	TC	C/P	h
1	Hjalager, A.M.	Univ. of Southern	Denmark	16	9	9	7	890	98.9	8	16	15	12	1038	64.9	12
2	Booyens, I.	Univ. of Johannesburg	South Africa	7	6	6	1	34	5.7	4	6	6	1	40	6.7	5
3	Rogerson, C.M.	Univ. of Johannesburg	South Africa	6	5	0	0	27	5.4	4	5	0	0	31	6.2	4
4	Elche, D.	Univ. Castilla-La Mancha	Spain	5	5	2	0	32	6.4	3	5	2	0	37	7.4	3
-	García-Villaverde, P.M.	Univ. Castilla-La Mancha	Spain	5	5	1	0	30	6.0	3	5	1	0	37	7.4	3
-	Martínez-Pérez, A.	Univ. Castilla-La Mancha	Spain	5	5	2	0	30	6.0	3	5	2	0	37	7.4	3
7	Krizaj, D.	Univ. of Primorska	Slovenia	4	3	1	0	27	9.0	2	4	1	0	30	7.5	2
-	Ruhanen, L.	Univ. of Queensland	Australia	4	2	0	0	8	4.0	2	4	1	1	21	5.3	2
-	Sorensen, F,	Roskilde Univ.	Denmark	4	2	0	0	174	87.0	1	3	2	1	258	86.0	3
-	Szymanska, E.	Bialystok Univ. Technology	Poland	4	2	0	0	1	0.5	1	3	1	1	3	1.0	1
-	Zuñiga-Collazos, A,	Univ. San Buenaventura Cali	Colombia	4	4	3	1	11	2.8	2	4	3	1	11	2.8	2
12	Carson, D.B.	Charles Darwin Univ.	Australia	3	2	0	0	22	11.0	2	3	2	0	94	31.3	2
-	Costa, C.	Univ. of Aveiro	Portugal	3	3	0	0	32	10.7	2	3	0	0	30	10.0	2
-	Fuglsang, L.	Roskilde Univ.	Denmark	3	2	1	0	4	2.0	1	2	1	0	1	0.5	1
-	Jayawardena, C.	Univ. of Peradeniya	Sri Lanka	3	2	1	1	0	0.0	0	3	2	2	2	0.7	1
-	Nordli, A.J.	Inland Norway Univ.	Norway	3	2	2	2	4	2.0	1	3	2	2	2	0.7	1
-	Omerzel, D.G.	Univ. of Primorska	Slovenia	3	3	2	1	49	16.3	3	3	2	1	56	18.7	3
-	Pikkemaat, B.	Innsbruck Univ.	Austria	3	1	1	0	7	7.0	1	3	1	0	35	11.7	3
-	Williams, A.M.	Univ. of Surrey	UK	3	3	1	0	117	39.0	2	3	1	0	126	42.0	2

R. = rank; fi = frequency (number of articles published); LA = Lead Author; SA = Second Author; TC = the total number of citations received by the published articles; C/P = average citations received by the published articles; h = Hirsch's index. Source: Own elaboration.

Table 5. Main countries by affiliation of researchers.

R.	Country	WoS U Scopus			WoS				Scopus			
		Authors	Authorships	Centres	fi	hi%	TC	h	fi	hi%	TC	h
1	Russia	71	72	24	9	4.39%	0	0	12	4.05%	23	2
2	Spain	69	81	36	23	11.22%	416	10	28	9.46%	754	13
3	Italy	42	45	20	12	5.85%	27	3	18	6.08%	73	5
4	Australia	38	47	19	18	8.78%	131	5	28	9.46%	350	9
5	Taiwan	37	37	23	13	6.34%	43	4	17	5.74%	70	6
6	United Kingdom	35	41	24	15	7.32%	665	10	21	7.09%	732	13
7	United States	34	35	26	12	5.85%	217	6	19	6.42%	233	7
8	China	27	28	22	13	6.34%	19	3	17	5.74%	23	2
9	Slovenia	20	27	4	12	5.85%	110	5	15	5.07%	121	5
10	Canada	20	20	14	9	4.39%	356	5	9	3.04%	390	5
11	Norway	18	23	14	16	7.80%	150	8	16	5.41%	173	9
12	Denmark	17	38	6	15	7.32%	1010	8	27	9.12%	1393	15
13	France	16	16	14	5	2.44%	165	2	10	3.38%	189	4
14	Brazil	15	15	8	3	1.46%	2	1	3	1.01%	0	0
15	Indonesia	13	13	5	-	-	-	-	4	1.35%	3	1
16	New Zealand	12	14	7	4	1.95%	41	2	9	3.04%	180	5
17	Malaysia	12	13	7	3	1.46%	6	1	6	2.03%	14	2
18	Romania	12	12	5	3	1.46%	1	1	3	1.01%	1	1
19	Thailand	10	10	4	3	1.46%	2	1	4	1.35%	6	1

R. = rank; fi = frequency (number of articles published); hi% = relative frequency; TC = the total number of citations received by the published articles; h = Hirsch's index. Source: Own elaboration.

4.5. Journals

Knowing which journals are the most productive in a certain area can be of great help when choosing where to publish. According to the law of Bradford [91], in each field there is a small number of journals (Bradford's nucleus) that group most of the articles published related to the field (Figure 5). The Bradford nucleus is formed by those journals whose sum of articles was equal to MBZ = 57. Thus, this core is composed of three journals: Tourism Management (Q1) with 21 published articles, Sustainability (Q2), and Scandinavian Journal of Hospitality and Tourism (Q3), each with 11 articles (Table 6).
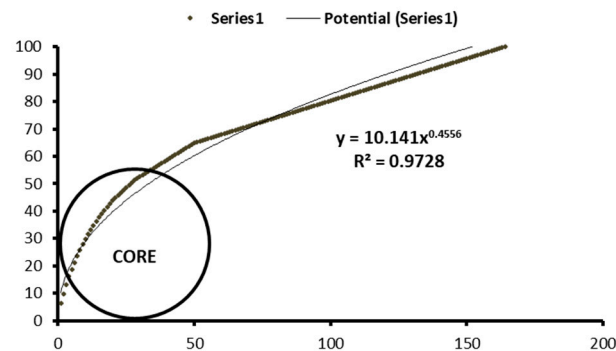

$$y = 10.141x^{0.4556}$$
$$R^2 = 0.9728$$

Figure 5. Bradford core. Source: Own elaboration.

Table 6. Main publication resources.

Journal Title	Tfi	%	WoS				Scopus			
			fi	TC	h	Q	fi	TC	h	Q
Tourism Management	21	6.46%	19	1911	12	Q1	21	1960	14	Q1
Sustainability	11	3.38%	11	19	3	Q2	11	19	3	Q2
Scandinavian Journal of Hospitality and Tourism	11	3.38%	10	96	6	Q3	11	125	7	Q2
International Journal of Contemporary Hospitality Management	10	3.08%	10	74	4	Q1	10	92	5	Q1
Current Issues in Tourism	8	2.46%	7	234	4	Q1	8	370	6	Q1
Worldwide Hospitality and Tourism Themes	8	2.46%	6	2	1	-	8	11	2	Q3
Tourism Recreation Research	8	2.46%	2	4	1	-	8	10	2	-
Annals of Tourism Research	7	2.15%	5	280	5	Q1	7	273	5	Q1
Tourism and Hospitality Research	7	2.15%	1	1	1	-	7	130	5	Q3
International Journal of Tourism Research	6	1.85%	6	92	5	Q2	6	92	5	Q1
Journal of Sustainable Tourism	6	1.85%	5	70	4	Q1	6	125	5	Q1
Tourism Geographies	5	1.54%	3	51	3	Q2	5	137	4	Q1
Journal of Advanced Oxidation Technologies	5	1.54%	0	-	-	-	5	0	0	Q3
Journal of Environmental Management and Tourism	5	1.54%	0	-	-	-	5	1	1	Q4
Journal of Quality Assurance in Hospitality and Tourism	5	1.54%	0	-	-	-	5	92	5	Q2

fi = frequency (number of articles published); TC = the total number of citations received by the published articles; h = Hirsch's index; Q = quartile. Source: Own elaboration.

Comparisons can be made between WoS and Scopus on aspects such as production, citation, or journals. However, the same does not happen for the thematic areas in which the latter are classified, and consequently for the articles, since there is no clear correspondence in the denomination and content between both bases (Table 7). Despite this fact, great similarities are observed in tourism innovation. In both WoS and Scopus, the area that ranks first by number of journals is business (Business Economics in WoS and Business, Management and Accounting in Scopus) with 77 and 79 journals respectively, followed by social sciences (57, 75), and environmental sciences (32, 20). The large number of areas demonstrates the diversity of perspectives from which to address tourism innovation.

Table 7. Main subject areas.

	WoS					Scopus				
Area	J	fi	TC	C/fi	h	Area	J	fi	TC	C/fi	h
Business Economics	77	152	3328	21.9	25	Business, Management and Accounting	79	208	4469	21.5	31
Social Science other topics	57	135	3222	23.9	26	Social Sciences	65	162	3766	23.2	30
Environmental Sciences Ecology	32	89	2955	33.2	25	Environmental Science	20	56	256	4.6	9
Geography	21	61	909	14.9	16	Economics, Econometrics and Finance	19	24	115	4.8	5
Science Technology other topics	10	37	387	10.5	10	Energy	7	19	126	6.6	4
Public Administration	22	34	767	22.6	10	Engineering	14	19	87	4.6	5
Education; Educational Research	19	31	210	6.8	7	Computer Science	12	15	168	11.2	6
Psychology	23	28	214	7.6	7	Decision Sciences	10	11	298	27.1	4
Sociology	8	24	440	18.3	10	Agricultural and Biological Sciences	6	8	64	8.0	4
Engineering	10	13	85	6.5	6	Earth and Planetary Sciences	7	8	33	4.1	3

J. = journal; fi = frequency (number of articles published); TC = the total number of citations received by the published articles; C/fi = average citations received by the published articles; h = Hirsch's index. Source: Own elaboration.

Other data that can be useful to locate papers are the keywords most used by authors and these also show specific aspects or points of view from which this area is addressed. In this way, in Figure 6, it is observed that tourism innovation is studied from the perspective of management, development, and tourist destination, the market, sustainability, and competitiveness, among others.

Figure 6. Main Keywords. Source: Own elaboration.

5. Conclusions

The research made it possible to observe and corroborate the statement by Divisekera and Nguyen [23] that research on tourism innovation is in its embryonic state. Although the first work appears in 1991 (Scopus), it is not until 2012 that there is an increase in the interest of the scientific community towards the subjects related to tourism and innovation. Since then, a constant growth in the production of articles has taken place.

The application of bibliometric analysis allowed us to map the structure and development of innovation research in tourism, obtaining relevant information on the most productive authors and institutions, highly cited articles, journals that publish on the subject, etc. This information is of great value for researchers who take their first steps in the area of tourism innovation and who seek to establish collaborative networks.

The most relevant results, presented in a synthetic way, on the scientific production on tourism innovation are:

Production is concentrated in the 2014–2018 period and it is foreseeable that this behavior will continue in the coming years.

A.M., Hjalager, with 16 papers published between both bases, is the most productive author and the only one considered a large producer (ten papers or more).

In this subject, nine out of ten authors are transient with a single authorship.

The productivity index is close to 1 (1.15). The coauthorship index of 2.38 and the degree of collaboration close to 70% indicate a high level of collaboration between researchers.

By country, and taking into account the number of authors, Russia stands out, followed by Spain (indexing the highest number of articles) and Italy. None of these three countries leads in the ranking of the most cited articles, however, which is led by Denmark.

The varied affiliation of researchers shows the enormous interest in this subject worldwide.

The core of journals that collect most of the published articles consists of only three journals, with Tourism Management standing out from the rest, with 6.5% of the articles and located in the Q1 quartile in both the Journal Citation Report (JCR) index, as well as in Scimago Journal Ranking (SJR).

In WoS and Scopus, the fields that hold the first place by number of journals is Business, followed by Social Sciences and Environmental Sciences.

The key words show that tourism innovation is studied from multiple perspectives and is an interdisciplinary subject.

Scopus shows a higher indexing of documents and obtains a greater number of citations; two out of every five documents are single documents and overlap 85% of WoS articles. WoS and Scopus show a strong correlation both in the number of articles published annually and in the number of citations received.

This research makes a significant contribution to the knowledge of the area. However, it also presents some limitations to be addressed in future studies. Firstly, a bibliometric description of the literature is made, which in the future could be completed with a review focused on analyzing the contributions to the area of knowledge and thus continue the studies of Hjalager [17] (p. 1) and Rodríguez-Sánchez [27]. Hjalager proposed research "to identify literature on tourism innovation, to present the issues raised and their main conclusions". Rodríguez-Sánchez [27] conducted a review of the indexed literature (articles) in WoS until 2013 and grouped the studies into: (1) theoretical approaches to tourism innovation, (2) systemic analysis of tourism innovation, (3) networks, clusters, and tourism innovation, business analysis on tourism innovation, (4) technological approaches on tourism innovation, (5) sustainability approaches to tourism innovation, and (6) others (in this section the contributions with very different interests are included: internationalization and innovation, difficulties in measuring innovation, innovation typologies in specific subsectors, innovations and adventure tourism, etc.). Both investigations support the statement that the interest in this subject is very recent, scarce, and fragmented.

This new study would allow one to observe whether the studies on tourism innovation in the last eight years are still mainly exploratory and qualitative cases, and whether progress has been made in the "research gaps" identified by Hjalager [17] (pp. 8–10) in the following areas: innovation processes, driving forces, barriers to tourism innovation, innovation and economic performance, technological innovations, diffusion of innovation, the role of entrepreneurship, policy studies and evaluations, academia and innovation, and developing tourism innovation theories.

Another limitation involves the choice of databases. Although two of the most internationally recognized databases (in the English language) were used, the existence of others raises the hypothesis that part of the literature on the subject was not considered in this study. A future line of research would be to complete the study by expanding the databases. Finally, bias involved in using a specific search equation should be noted.

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