

# Bibliometric study about hotel competitiveness in Scopus and Web of Science

## Estudio bibliométrico sobre competitividad hotelera en Scopus y Web of Science

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### ABSTRACT

*The changing demands of the environment in which business activities take place have imposed a constant quest for the improvement of its administrative processes. In this context, positioning and competitive advantage are vital factors to stand out from the competition and to assure a long-term stability. For this reason, this subject may be of great importance both for companies and researchers, exploring new alternatives in this area. Nevertheless, it is intriguing to note that in the hotel industry, competitiveness has been a little-studied topic. The objective of this research is to address this gap by carrying out a review of articles published about hotel competitiveness. The methodology consists of a study that combines bibliometric and bibliographic review tools, through five steps, using two fundamental databases, Scopus and Web of Science, in order to point out future lines of research. The results show, firstly, there is little systematization on the subject in the Scopus database, given that it was not possible to determine the most productive journals; secondly, the countries with the highest number of publications are Portugal (1) with a total 11 publications and, in second place, Spain (2) with 8 publications. Among the main conclusions, it was reached that it is necessary to carry out more in-depth studies on the factors that influence hotel competitiveness, the indicators to measure it and strategic alliances, since research on these constructs, in the database analysed, is scarce and unsystematic.*

**Keywords:** *bibliometric study, competitiveness, hotel competitiveness, Scopus, Web of Science.*

### RESUMEN

Las cambiantes exigencias del entorno en el que se desarrolla la actividad empresarial han impuesto una búsqueda constante por la mejora de sus procesos administrativos. En este contexto, el posicionamiento y la ventaja competitiva son factores vitales para diferenciarse de la competencia y asegurar una estabilidad a largo plazo. Por ello, este tema puede ser de gran importancia tanto para empresas como para investigadores, explorando nuevas alternativas en este ámbito. Sin embargo, es interesante notar que en la industria hotelera, la competitividad ha sido un tema poco estudiado. El objetivo de esta investigación es abordar ese vacío realizando una revisión de artículos publicados sobre competitividad hotelera. La metodología consiste en un estudio que combina herramientas bibliométricas y de revisión bibliográfica, a través de cinco pasos, utilizando dos bases de datos fundamentales, Scopus y Web of Science, con el fin de señalar futuras líneas de investigación. Los resultados muestran, en primer lugar, que existe poca sistematización sobre el tema en la base de datos Scopus, dado que no fue posible determinar las revistas más productivas; en segundo lugar, los países con mayor número de publicaciones son Portugal (1) con un total de 11 publicaciones y, en segundo lugar, España (2) con 8 publicaciones. Entre las conclusiones se arribó a que es necesario realizar estudios más profundos sobre los factores que influyen en la competitividad hotelera, los indicadores para medirla y las alianzas estratégicas, puesto que las investigaciones sobre estos constructos, en las bases de datos analizadas, son escasas y poco sistemáticas.

**Palabras clave:** *competitividad, competitividad hotelera, estudio bibliométrico, Scopus, Web of Science.*

**INTRODUCTION**

Tourism constitutes an important mainstay for the socio-economic and cultural development of a country; because of this reason, a large number of researchers focus their studies on this field. At the same time, the sector, under the impact of technological progress, has been developing rapidly with the sole objective of satisfying the needs of customers, who are becoming more and more demanding and whose gamut of service choices is also progressively higher. Additionally, the changes in demand are even more profound and decisive; which, a few years ago, made Fayós announce the arrival of the “New Era of Tourism” (Serra, 1999) as a temporary space in which consumers are more knowledgeable, more independent, more active, more cultured, and, at the same time, increasingly guided by values such as respect for the natural and cultural environment. The race for success of destinations and products is bringing about deep and constant changes in the sector which notably affect its structure (Ivars, 2012; López and Melgarejo, 2013).

In this area, competitiveness among companies is growing at a frenetic pace, which demands constant update strategies focused on their growth. Therefore, the profitable management of the co-evolution of products, processes and systems is crucial for the competitiveness of the company (Colledani et al., 2016). According to Coronado (2017) competitiveness has to do directly with the way of approaching and executing any business initiative, which causes an evolution in the business model.

Porter (1990) argues that organizations must choose at least one long-term competitive strategy, with characteristics of great significance for the social agents involved. In addition, he refers to the need for the implementation of one of the three generic strategies defined by him and which, in his opinion, guide decisions and actions for administration and management: 1- cost leadership, 2- differentiation or innovation, 3- focus or segmentation.

Competitiveness is a broad (macro and micro), ambiguous, comparative, controversial, multifaceted concept (Spence and Hazard, 1998), which can be evaluated in the short or long term. For these reasons, there are several theoretical approaches: 1-competitive or price advantages (Dwyer et al., 2000; Rodriguez and Guisado, 2003; Mazanec et al.,2007), 2-strategic management (Rumelt, 1994; Wilson et al., 2001; Domareski et al., 2013), 3-historical and social

(Franke et al., 1991; Diéguez et al., 2011), 4-indicators or indices (Huang and Peng, 2012; R. Croes and M. Kubickova, 2013; Pavón et al., 2015). In order to focus efforts on the competitive performance of firms it is necessary to study competitiveness and its component elements in depth. A study of the different concepts leads to the creation of strategies for strategic direction and administrative management, capable of providing solutions to the needs of business actors (Coronado, 2017).

It is essential for a company to permanently adapt to changes in order to maintain or improve its levels of competitiveness, due to the dynamism of markets and consumer preferences. The same is true for the tourism company, although constant innovation is very complex, given the characteristics of services: impossible to store, intangible and produced at the same time as they are consumed (Grönroos, 1994; Juran and Frank, 1993).

Tourism competitiveness has been addressed by various researchers who have explored the topic in depth. Thus, the main lines dealt with in the last 15 years have been related to processes such as strategic direction and destination management, proposals for indicators to measure competitiveness, as well as the factors that determine the latter. Among these researchers stand out (Ayikoru, 2015; Cibinskiene and Snieskiene, 2015; Cîrstea, 2014; Robertico Croes and Marketa Kubickova, 2013; Croes et al., 2020; Domínguez Vila et al., 2015; Drakulić Kovačević et al., 2018).

On the other hand, in the Scopus database, competitiveness in the hotel industry has been a topic that has been little studied, so the present research aims to review the articles published on hotel competitiveness based on a bibliometric study, as well as to point out future lines of research in this domain. However, authors such as (Hua, 2020; Kapiki and Fu, 2015; Klochko et al., 2017; Rodríguez-Victoria et al., 2017; Tsai et al., 2009a; Veiga et al., 2019; Xia et al., 2019; Yang, 2020), have addressed this topic. Likewise, one of the most relevant pieces of research, is that of (Gómez-Díaz and Millán-García, 2018), which deals with the factors and indicators of hotel competitiveness. For various researchers, this is a topic of great interest and of great importance for companies, hotels and economic actors interested in becoming increasingly competitive. Moreover, competitiveness is one of the most widely used parameters to describe the sustainable

development of tourism based on the most important dimensions of the industry. According to Porter (1985), positioning and competitive advantage, resulting from the integration of customer needs, are indispensable elements to stand out from the competition and assure permanence in time (López Noriega et al., 2019).

The articles found in the Web of Science fundamentally address hotel competitiveness related to hotel characteristics, quality, technology, labor productivity, customer experiences, innovation and green competitiveness. On the other hand, the authors address competitiveness in terms of online review ratings, related to price, destination attributes, tourist satisfaction and behavioral intentions among hotel guests. They also address issues such as how hotel competitiveness influences competitiveness at the destination level, as well as the determinants of competitiveness. Furthermore, they address the influence of strategic alliances on the competitiveness of hotel companies. Consequently, it is possible to affirm that the subject of hotel competitiveness is more systematized in the journals indexed in the WOS, which evidences their interest in this area. Among the most cited authors, the following stand out because of the masterly scientific contributions they have made which have served to increase the competitive capacity of companies: (Aslam et al., 2022; Buhalis et al., 2023; Dada et al., 2022; Fernandez-Barcala et al., 2022; Gallarza et al, 2019; Garcia-Muina et al., 2020; Hanafiah and Zulkifly, 2019; Iraldo et al., 2017; Mariani and Baggio, 2020; Mei et al., 2012; Melian-Alzola et al., 2020; Pakdil and Kurtulmusoglu, 2017; Pascual-Fernandez et al., 2021; Perramon et al., 2022; Stylos and Vassiliadis, 2015; Tsai et al., 2009b; Yang et al., 2021), among others.

In the course of the investigation, the authors aim to answer the following scientific questions:

- What kind of bibliometric indicators are necessary to determine the evolution of research on hotel competitiveness?
- Who are the most referenced and prolific authors on the subject?
- Which are the most cited articles?
- What is the thematic structure of the references?
- Which are the journals that have published the greatest number articles on this topic?

- What are the main thematic lines?
- In which regions or countries have hotel competitiveness studies been carried out?
- Is the number of publications studying hotel competitiveness relevant?

**MATERIALS AND METHODS**

In the development of this research both qualitative and quantitative research methods were employed. In order to carry out the analysis of the scientific articles used, which included the thematic descriptor "hotel competitiveness", the authors used the methodology proposed by (Hernández et al., 2021), which contains five essential steps that are explained below:

**1. Determination of units of analysis**

In order to carry out this first phase, the database was selected. It was decided to use "Scopus", which belongs to ELSEVIER and has been in operation for many years, which makes it reliable. It is also a platform for accessing specialized information, where high-quality scientific journals can be found. In the search for scientific articles in the "Scopus" database, which included the descriptor "hotel competitiveness" in the title, abstract or keywords,; the filters by year, publication title, area of knowledge or type of access provided by the database were not used. To complement this information, a search was also carried out in the Web of Science (WOS) database, where the same thematic descriptor was used and no filters of any type were used.

**2. Delimitation of the time frame of the study**

In the case of the Scopus search, the articles analyzed fall within a time frame of 12 years and five months, specifically from January 2009 to the first half of 2022, the date on which the database search was carried out (13/06/2022). As for Web of Science, the articles range from 1996 to February 2023 (16/02/2023), covering a period of 27 years.

**3. Collection and processing of the data obtained**

During the analysis of the collected data, both production and consumption indicators were taken into account. The first step was to export the results of the Scopus search into RIS files. Subsequently, a single library was created where all the "RIS" files were exported and combined, using the End-

Note X9 bibliographic manager. This was done with the aim of eliminating duplicates and then exporting them to a file in "txt" format, which is necessary to process the data in the Bibexel software. Once this step has been carried out, it is possible to statistically analyze the results of the search and with the resulting information, the productivity indicators will be obtained. The latter was then plotted in the Microsoft Excel 2016 software of the Microsoft Office Professional Plus 2016 package for subsequent interpretation. With the "RIS" file extracted from Web of Science, the same procedures were carried out as described above. Furthermore, the data from the countries where the Scopus articles have been published were exported in comma-separated files (CSV) to be plotted using the "Geographic Heat Map" add-in in Excel. The determination of consumption indicators required the use the Excel spreadsheet again, where the references used in each of the articles were processed and extracted independently. These last two steps were not carried out with the resulting articles from the Web of Science, as this is not the objective of this research and (it) is a complementary search to superficially visualize the behavior of literary production.

**4. Selection of the bibliometric indicators to be assessed**

The indicators selected were productivity and consumption, with the aim of gaining credibility and of turning the research into a valuable contribution. As for the productivity indicators, a quantitative analysis of the number of publications per author, per year and per journal was carried out. Among the consumption indicators, the most cited authors, usefulness of the references, half-life and update or Price index were used. For Web of Science, only productivity indicators were used: year/author/journal, and for consumption indicators: most cited authors.

As part of the quantitative analysis, the keywords of the titles and abstracts of the articles related to this research were processed, as well as the references corresponding to each one of them. The latter was taken into account in order to investigate the research sources used by the authors in their studies on hotel competitiveness. In addition, each of the articles extracted from the database in question were reviewed in order to diagnose gaps or future lines of research. As for Web of Science, only the extraction of the keywords in the title and abstract of the articles was carried out.

**5. Mapping and interpretation of results**

In order to achieve an easier interpretation of results, the

authors relied on a mapping, resulting from the use of the VOSViewer software. The results of the quantitative and qualitative analyses were used for this purpose.

**RESULTS AND DISCUSION**

After searching the "Scopus" database, a total of 20 publications were extracted and subsequently processed in EndNote X9, with no false positives or duplicates. These results show that the number of publications that study competitiveness in the hotel industry and that have been published in journals indexed in this database is not relevant, which provides an answer to one of the scientific questions in the present research. Therefore, in a time frame of 12 years and five months, it was not possible to exceed 30 publications. Concerning the results obtained in "Web of Science", a total of 434 publications were extracted and processed in EndNote X9, without false positives or duplicates. On the basis of these results, the systematicity of the WOS-indexed journals in terms of subject matter could be confirmed. Of the 434 articles, 400 are in English, 15 in Spanish, 9 in Croatian, 6 in Portuguese, 2 in Russian, 1 in Polish and 1 in Korean.

**Productivity Index (Number of publications per author)**

The productivity index per author is used to determine the most prolific author(s) in the subject under study, by determining the number of research projects carried out by each author. The number of authors of the 20 publications resulting from Scopus was determined, for a total of 59 authors. The productivity index or Lotka's coefficient was calculated for each of the authors, using the formula:  $n > 0$ , in which "lp", productivity index is determined by the logarithm of "n", which is the number of publications per author (table 1).

**Table 1: Productivity index per author in Scopus**

Number of Publications	Number of Author	Productivity
$n \geq 10$	0	$lp \geq 1$
$1 < n < 10$	2	$0 < lp < 1$
$n = 1$	57	$lp = 0$

Source: Elaborated by the authors

According to the table, 96.61% of the authors have zero productivity; this is because they have only one signed article, for a productivity index of 1.76 approximately. The remaining 3.39% of the authors (2) have signed only 2 articles each, which gives a productivity index of 0.30 approximately. This shows that there is little systematization on the subject, as there were no authors with more than 10 signatures.

For the 434 articles resulting from the WOS, exactly the same procedure was carried out, resulting in a total of 978 authors. The productivity index was then calculated as shown below (table 2).

**Table 2: Productivity index per author in Scopus**

Number of Publications	Number of Authors	Productivity
$n \geq 10$	0	$lp \geq 1$
$1 < n < 10$	691	$0 < lp < 1$
$n = 1$	287	$lp = 0$

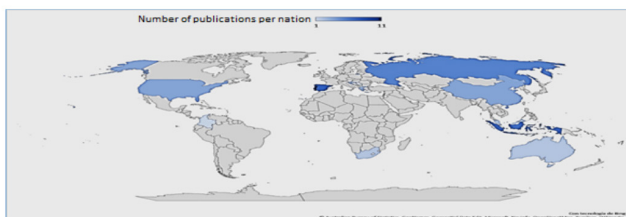
Source: Elaborated by the authors

70.65% of the authors have signed between 1 and 10 articles, for a productivity index of 2.84 approximately. On the other hand, 29.35% of the authors have zero productivity, because they have only 1 signed article, which gives a productivity index of 2.46 approximately.

**Productivity at regional level**

This indicator was only measured for the data of the 20 articles extracted from Scopus. The country with the highest number of publications was Portugal, with a total of 11 publications. Spain ranked second with 8 publications, followed by Indonesia with 7 and Russia with 6, the United States, Hong Kong and China with 4, Greece and Croatia with 3, South Africa, Australia and Malaysia with 2, and finally Colombia, Slovenia and Serbia with 1.

**Illustration 1: Distribution of number of publications**

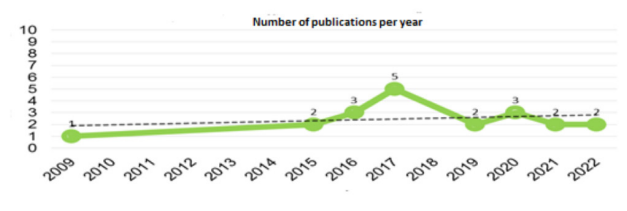


Source: Elaborated by the authors

**Productivity per year**

Through the indicator productivity per year, it is possible to appreciate the number of publications over the period of time under study, which makes it possible to determine the rate of growth or otherwise of publications.

**Figure 1: Number of publications per year in Scopus**



Source: Elaborated the authors using Microsoft Excel 2016

In figure 1 it is possible to appreciate a "dead" period where publications increased from 1 to 3 between 2009 and 2015, with no publications in the intermediate years of this period. From 2015 onwards, an exponential growth is observed, with 3 publications in 2016 and 5 in 2017, adding up to a total of 8 publications and therefore resulting in one of the most prosperous periods. In 2018, there were no publications, which started a drop in the production of publications, with only 2 in 2019. The period from 2020 to the first half of 2022 shows a slightly negative trend, with a decrease in publications with a series of 3,2,2. On the other hand, in general, as shown in the graph, there is a tendency to growth. Of the 20 publications, 9 are five years old or less, for an updating rate of 45%.

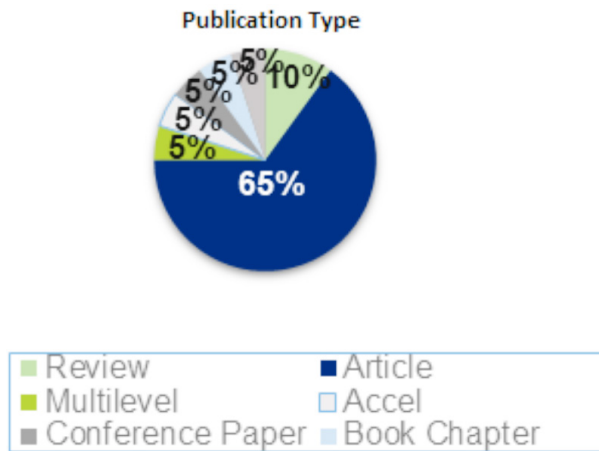
**Figure 2: Number of publications per year in WOST**



Source: Elaborated by the authors using Microsoft Excel 2016

Figure 2 shows, though irregular, an upward trend. However, from 2021 onwards, there is a notable drop in scientific production, from 29 publications in 2021 to 5 publications to the present day in 2023, and none in 2022. In general terms, it is worth noting that interest in the study of hotel competitiveness has increased over the years, as can be seen in the Web of Science database.

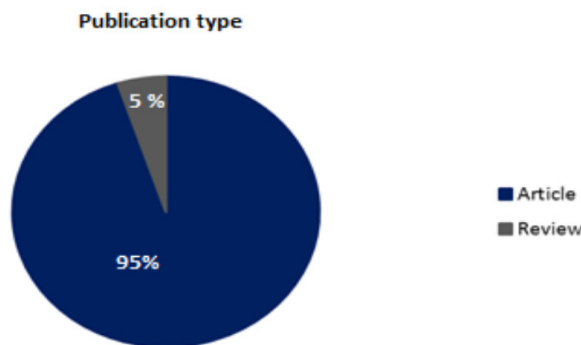
Figure 3: Type of publication in Scopus



Source: Elaborated by the authors using Microsoft Excel

Figure 3 graphically represents the typology of the publications in Scopus, as well as the data of the portions that each of them represents in relation to the total number of publications. Of the 20 publications, 13 of them correspond to scientific research articles, which represents 65% of the total number of publications. In addition, 2 of them are review articles (10%), and the rest of them, 5%, one article each per classification (Multilevel, Accel, Conference Paper, Book Chapter, Handb).

Figure 4: Types of publications in WOS



Source: Elaborated by the authors using Microsoft Excel

Regarding the results obtained in WOS, as shown in figure 4, out of the 434 publications, 412 are scientific articles, which represents 95% of the total; while only 22, the remaining 5% belong to review articles. It is not possible to

determine the most productive journal among the ones that have published articles related to competitiveness in the hotel industry, because only one article per journal has been published. This reflects, according to data in Scopus, the lack of systematization and interest of the journals in giving continuity to the central theme of the study.

The journals include (table 3): Journal of Hospitality and Tourism Technology; Journal of Hospitality Marketing and Management; Journal of Coastal Research; International Journal of Contemporary Hospitality Management; International Journal of Information Systems in the Service Sector; Sustainability (Switzerland); Tourism Analysis; Quality and Quantity; Journal of Travel and Tourism Marketing; Multilevel Approach to Competitiveness in the Global Tourism Industry; Tourism and Leisure (African Journal of Hospitality); Croatian Economic Survey; Accelerating Knowledge Sharing, Creativity, and Innovation Through Business Tourism; 8th International Conference of the International Association of Cultural and Digital Tourism; Academy of Strategic Management Journal; Information Technology and Tourism; International Journal of Applied Business and Economic Research; Handbook on Tourism Development and Management; Developments in Marketing Science: Proceedings of the Academy of Marketing Science y; Geojournal of Tourism and Geosites.

Table 3: List of articles by scientific journals indexed in WOS

Journals	Number Of Publications
International Journal of Hospitality Management	33
International Journal of Contemporary Hospitality Management	22
Tourism Economics	21
Tourism Analysis	13
Current Issues in Tourism	11
International Journal of Tourism Research	10
Journal of China Tourism Research	9
Tourism Management Perspectives	9
Worldwide Hospitality and Tourism Themes	9
Journal of Hospitality Marketing & Management	8
Journal of Travel Research	8
International Journal of Tourism Cities	7
Journal of Destination Marketing & Management	7

**Figure 5: Total number of bibliographic references per year**

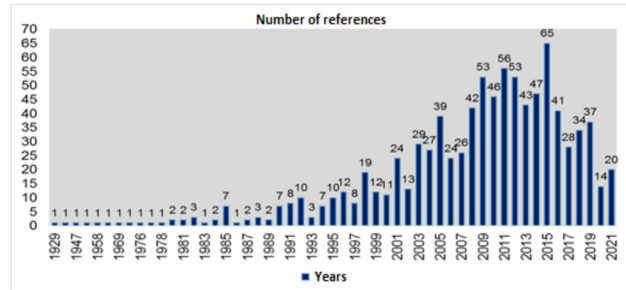
Journal of Hospitality and Tourism Management	7
Pasos-Revista de Turismo y Patrimonio Cultural	7
Tourism	7
Asia Pacific Journal of Tourism Research	6
Journal of Travel & Tourism Marketing	6
Total Quality Management & Business Excellence	6
Tourism and Hospitality Management-Croatia	6
Acta Turística	5
Economic Research-Ekonomiska Istrazivanja	5
International Journal of Hospitality & Tourism Administration	5
Journal of Hospitality and Tourism Technology	5
Quality-Access To Success	5
Service Industries Journal	5
Tourism and Hospitality Research	5
Tourism Review	5
Tourism Review International	5

Source: Elaborated by the authors

Table 3 shows how the 434 articles are distributed by each of the journals in WOS, showing only those with the highest productivity. Among the journals with the highest productivity on competitiveness in hospitality are: International Journal of Hospitality Management (33), International Journal of Contemporary Hospitality Management (22), Tourism Economics (21), Tourism Analysis (13), Current Issues in Tourism (11) e International Journal of Tourism Research (10); all with more than 10 publications. This demonstrates the journals' interest in continuing the study of the subject, with the aim of achieving a deeper understanding of this theme for its subsequent management.

**Most referenced authors**

In the 20 publications from Scopus, a total of 904 sources were cited (figure 5), signed by 1596 authors. With the use of this indicator, it is possible to determine the most referenced, most important and most successful authors within hotel competitiveness.



Source: Elaborated by the authors

Among the authors who have contributed the most to the development of the subject are Law, R. with 16 references, Li, G. con 11, Song, H. with 8 Bohdanowicz, P.; Buhalis, D.; Reynolds, D. y Ringle, C.M. with 7 each, followed by Crouch, G.I.; Enz C.A.; Kim, W.G.; Mattila, A.S.; Sarstedt, M.; Verma, R.; Vu, H.Q. & Witt, S.F. with 6; Becken, S.; Berry, L.L.; Dev, C.S.; Parasuraman, A.; Porter, M.E.; Ritchie, J.R.B.; Sainaghi, R.; Semrad, K.J.; Sigala, M. & Zeithaml, V.A. with 5. In addition to some of them, such as Barros, C.P.; Brown, J.R.; Teece, D.J.; Tsai, H.; Ubeda-Garcia, M.; among others.

**Age of references**

As a starting point for the elaboration of this consumption indicator, the first half of the year 2022 was defined as age 0, taking into account that was the date on which the Scopus search was carried out. Based on basic knowledge of descriptive statistics, specifically from working with cumulative data, it was possible to group these data into classes for a more optimal interpretation. As a first step, we proceeded to establish the lower and upper limits (1926, 2022 respectively), which contains an interval of 97 years. Twenty-four classes were established, with a (range) of 4 years (table 4 and 5).

**Table 4: Age of references**

Age	Years	Interval	References	Percentage %
[96; 92)	[1926; 1930)	1		0.11
[92; 88)	[1930; 1934)	0		0.00
[88; 84)	[1934; 1938)	0		0.00
[84; 80)	[1938; 1942)	1		0.11
[80; 76)	[1942; 1946)	0		0.00
[76; 72)	[1946; 1950)	1		0.11
[72; 68)	[1950; 1954)	0		0.00
[68; 64)	[1954; 1958)	1		0.11
[64; 60)	[1958; 1962)	2		0.22

[60; 56]	[1962; 1966]	0	0.00
[56; 52]	[1966; 1970]	1	0.11
[52; 48]	[1970; 1974]	0	0.00
[48; 44]	[1974; 1978]	3	0.33
[44; 40]	[1978; 1982]	5	0.55
[40; 36]	[1982; 1986]	13	1.44
[36; 32]	[1986; 1990]	8	0.88
[32; 28]	[1990; 1994]	28	3.10
[28; 24]	[1994; 1998]	37	4.09
[24; 20]	[1998; 2002]	66	7.30
[20; 16]	[2002; 2006]	108	11.95
[16; 12]	[2006; 2010]	145	16.04
[12; 8]	[2010; 2014]	198	21.90
[8; 4]	[2014; 2018]	181	20.02
[4; 0]	[2018; 2022]	105	11.62
<b>ΣR</b>		<b>904</b>	<b>100</b>

Source: Elaborated by the authors

**Table 5: Statistical breakdown**

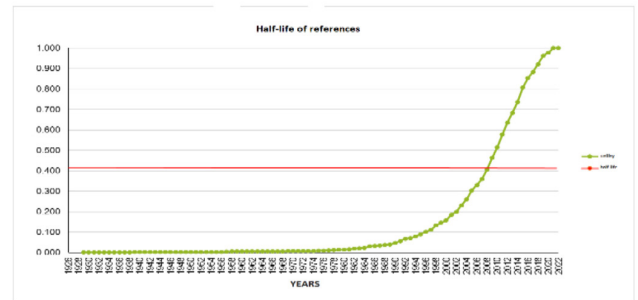
Lower Limit	1926
Upper Limit	2022
Interval	97
Class time range	4
Number of classes	24

Source: Elaborated by the authors

**Obsolescence of the literature**

The literature obsolescence indicator is responsible for describing the behavior of the evolution of usefulness, according to the degree of updating of the information sources, during the period of time under study. This is done by calculating the Price index or currency index of each of the references, as well as the half-life. The usefulness is calculated by finding the quotient of the number of references accumulated per year and the total number of references studied. On the other hand, the half-life is the point in time where the references reach half of their usefulness. After carrying out the procedures concerning this indicator, it was determined that the age of most of the references ranges from 0 to 25 years (89.71%).

**Figure 6: Half-life (h)**



Source: Elaborated by the authors using Microsoft Excel

Figure 6 illustrates the graphical relationship between the half-life of the references and the utility. As shown above, it is the year 2008 where the references reach the half-life, with a utility of 0.406.

**Price index**

Once the age of the references and their usefulness have been calculated, it is possible to determine the Price index, which is the quotient between the references of the publications studied that are less than five years old and the total number of references. The calculation of this indicator allows to know the rate of updating of each reference in relation to the year.

**Table 6: Price index**

Years	References	References under 5 years of age	Price index	%
2022	63	9	0.14	2%
2022	23	6	0.26	4%
2021	120	27	0.23	1%
2021	92	30	0.33	1%
2020	63	19	0.30	2%
2020	58	21	0.36	2%
2020	13	13	1.00	8%
2019	52	14	0.27	2%
2019	51	19	0.37	2%
2017	69	23	0.33	1%
2017	49	29	0.59	2%
2017	33	5	0.15	3%



2017	35	15	0.43	3%
2017	20	7	0.35	5%
2016	24	8	0.33	4%
2016	29	2	0.07	3%
2016	60	15	0.25	2%
2015	8	0	0.00	0%
2015	55	13	0.24	2%
2009	136	29	0.21	1%
<b>Total</b>	<b>1053</b>	<b>304</b>		

Source: Elaborated by the authors

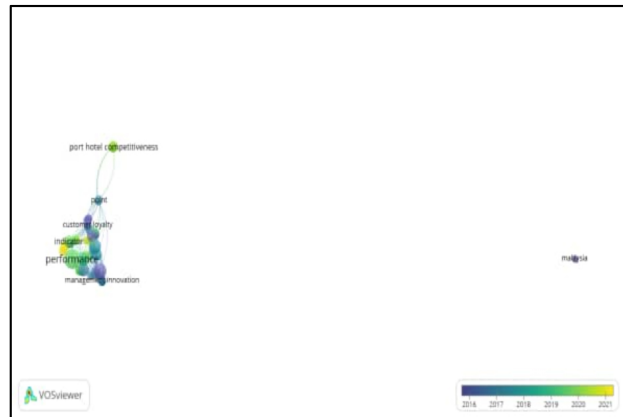
Table 6 shows that one of the articles published in 2020 obtained the highest Price index, where all the references are around five years old. This indicates that it is one of the most up-to-date articles in terms of bibliographical references. It is followed by two articles out of the five published in 2017, with indexes of 0.59 and 0.43.

### Most important thematic lines and future research gaps.

In order to map the results, the clustering algorithm developed by (Jan van Eck and Waltman, 2020) in version 1.6.8 of the VOSViewer software was used. After a compilation of the keywords in the titles and abstracts of the 20 Scopus publications under study, it was possible to determine the preferred thematic lines in the development of these scientific articles. A total of 655 keywords were extracted using the "full counting" method, to which a cut-off of 3 co-occurrences was applied to facilitate the study of the constructs; as a result 79 keywords were obtained.

Subsequently, the level of relevance was calculated for these 79 terms, and based on this data, 60% of the most relevant constructs were selected over the total (47). On the other hand, the authors did not consider it necessary to apply a Thesaurus for these terms resulting from the keywords in the titles and abstracts of the 20 initial articles. The terms with the highest co-occurrence were performance (17), destination (12), information (10), impact (9), crm (8), and capability, implementation, indicator, knowledge management strategy, property (7). The three terms are located in different nodes, although they have in common the link with the word "destination".

### Illustration 2: Most important thematic lines. Network of co-occurrence of keywords in the titles and abstracts of the 20 initial articles.



Source: VOSViewer software clustering algorithm.

As a result of the clustering algorithm, the network nodes are distributed in the following 7 clusters:

Clúster 1 (12 ítems): "China", "framework", "Greece", "hbdw", "hotelier", "ict", "information", "oficial website", "property", "success", "way", "website".

Clúster 2 (11 ítems): "case study", "client", "energy sustainability", "environmental sustainable", "hotel business", "importance", "indicator", "main goal", "performance", "renewable energy source", "resource".

Clúster 3 (9 ítems): "clustering", "Colombia", "crm", "destination", "implementation", "innovation", "management innovation", "relationship", "South Africa".

Clúster 4 (5 ítems): "brand image", "chain hotel", "competitive strategy", "customer loyalty", "point".

Clúster 5 (5 ítems): "capability", "impact", "knowledge management", "non technological infrastructure", "quantitative approach".

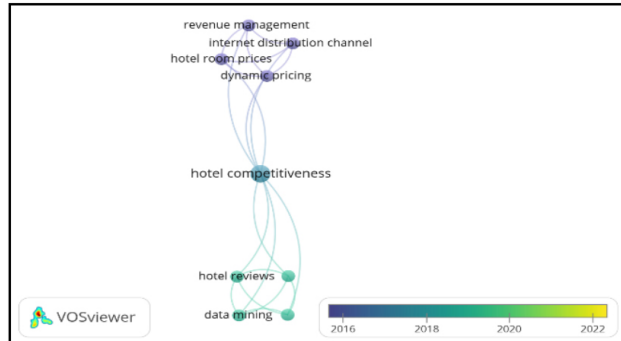
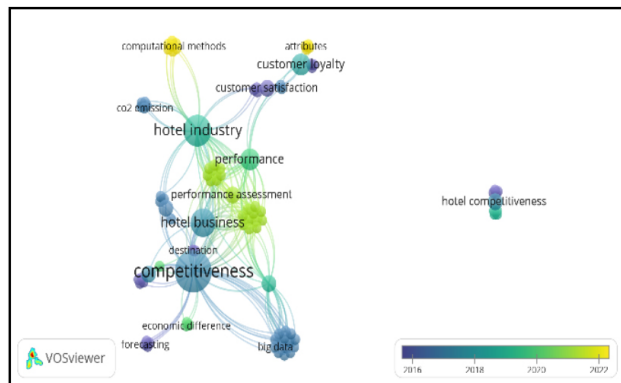
Clúster 6 (4 ítems): "economic difference", "port hotel", "port hotel competitiveness", "spatial structure model".

Clúster 7 (1 ítems): "Malaysia".

The processing in VOSViewer of the main thematic descriptors was also carried out for the content of the 20 articles under study, for a total of 94 keywords analyzed and with a cut-off point of 1 co-occurrence. The authors considered that for a cut-off point of 3 co-occurrences there was a very small number of keywords that did not constitute a representative sample for the research. In this case, it was necessary to apply a Thesaurus for the standardization and normalization of the terms, where seven out of a

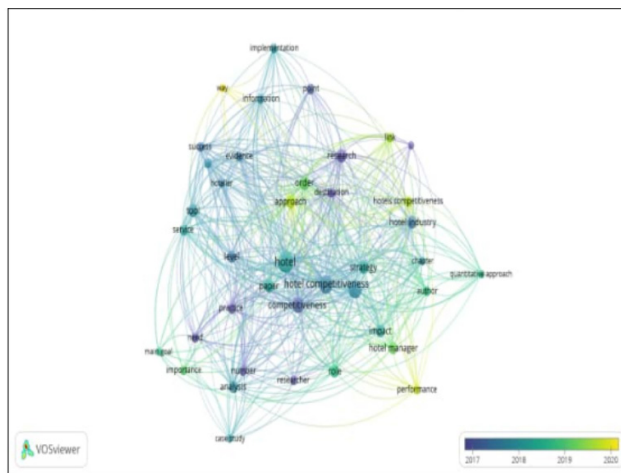
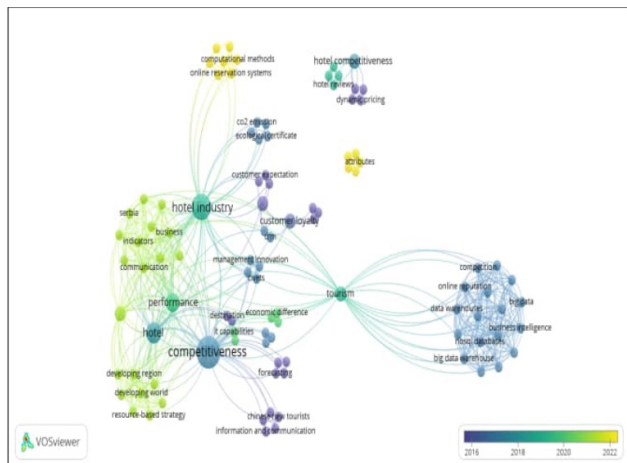
total of 101 initial terms were replaced (resulting in the 94 used in the analysis).

**Illustration 3: Most important thematic lines. Cooccurrence network of keywords in the body of the articles.**



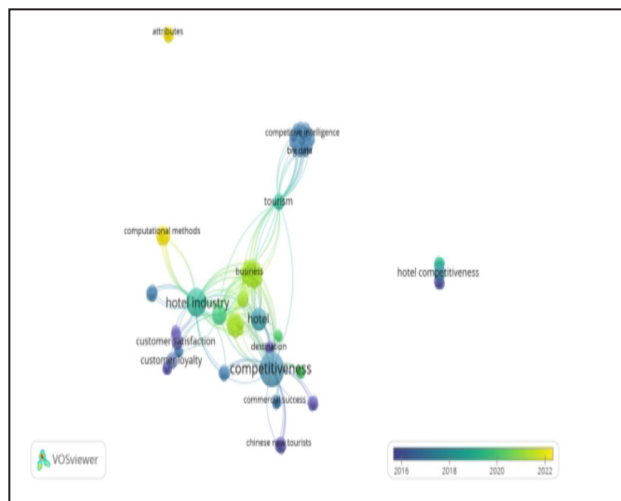
Source: VOSviewer software clustering algorithm.

**Illustration 4: Most important thematic lines. Map based on the data text. Keyword co-occurrence network in the body of the articles. Method linlog modularity bibliographic data (1) and strength of association (2).**



Source: VOSviewer software clustering algorithm.

**Illustration 5: Most important thematic lines. Text-based map of bibliographic data. Network of co-occurrence of keywords in the body of the articles.**



Source: VOSviewer software clustering algorithm.

At first, it is noted that the term hotel competitiveness was not discussed, but competitiveness was seen in a more general way. It was associated with terms such as prediction, information and communication, and hotel business. Later, all of these terms were linked to technology or big data and it was then that the terms smart business and smart competitiveness started to become popular. The volume of the nodes is proportional to the amount of co-occurrence of keywords, while the colors indicate their location on the time horizon according to the scale.

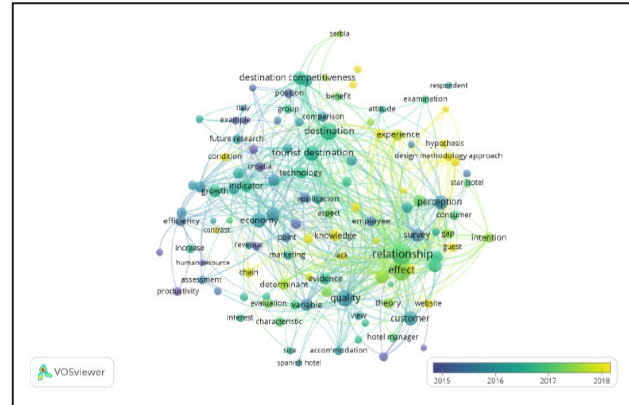
Thus, the origin of the theme, according to the map, is associated with competitiveness in destinations and it was initially studied in Greece. In a second stage, it was linked to tourism, further denoted by other keywords such as economic differences, hotel industry, management innovation, performance and capabilities. Competitiveness is closely linked to hospitality, demonstrated by the volume of nodes related to tourism, hotel business and the hotel industry. In the third stage, represented by the yellow color, there are emerging terms that need to be studied for the understanding of the construct.

In this context, sustainability in business and regional development, as well as performance evaluation, are shown as relevant nodes due to their linkage and closeness to the terms of the second stage and the inclusion of indicators. In this stage, studies were carried out in countries such as Indonesia and Serbia. On the other hand, it could be seen that the term "hotel competitiveness" is not related to the aforementioned constructs. Furthermore, only two stages can be distinguished in the observation of this isolated node. In the first stage, hotel competitiveness was involved with terms such as hotel room prices, internet distribution channel, dynamic pricing and revenue management.

In a second stage, it was studied in relation to data processing, feature ratings, core destination estimation and hotel reviews. This allows us to identify as a line of research the link between hotel competitiveness, indicators that influence it, as well as factors that determine it.

As for the content analysis of the 20 articles, the most important ones were selected. For this, the authors based their selection on the number of citations and the impact they have achieved. The terms of highest co-occurrence were: relationship (96), effect (92), destination (73), economy (54), tourist (50), perception (47), customer (44), sample (44), satisfaction (43), survey (42), Spain (41), y destination competitiveness (40).

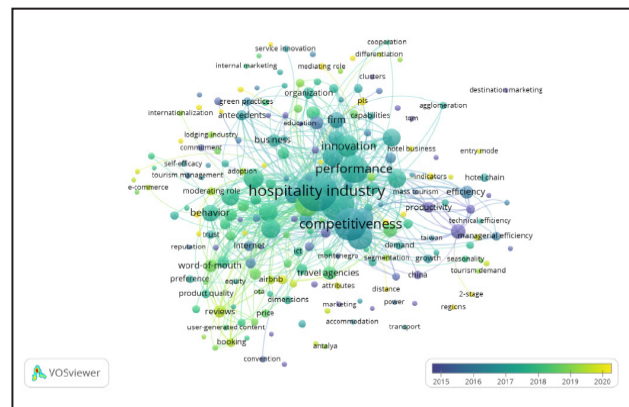
**Illustration 6: Major thematic strands. Network of keyword co-occurrence in the abstracts of the 434 WOS articles.**



Source: VOSViewer software clustering algorithm.

The processing in VOSViewer of the main thematic descriptors was also performed on the content of the 434 articles in general, for a total of 2094 analyzed keywords. Subsequently, a cut-off point of 3 co-occurrence was applied, resulting in 281 keywords. In this case it was also necessary to apply a Thesaurus for the standardization and normalization of the terms, where seventy of the initial 281 words were replaced (resulting in the 211 used in the analysis).

**Illustration 7: Most important thematic lines. Keyword co-occurrence network in the body of the 434 WOS articles.**



Source: VOSViewer software clustering algorithm.

***Bibliographic review of the publications with the highest impact in Scopus.***

1. Tourism and Hotel Competitiveness Research (115 citations), Henry Tsai, Haiyan Song & Kevin KF Wong (2009). The aim of this article is to review published studies on destination and hotel competitiveness, as well as to provide critiques and point to future directions in tourism and hotel competitiveness research. The method employed was a review of published studies. The review provided the researchers with a good understanding of the current state of research on competitiveness and ideas which allow progress in relation to existing knowledge on destination and hotel competitiveness. The state of competitiveness of a destination can be effectively improved through the quality of the services and (tourism) organizations that complement these clusters and the infrastructure built.

Moreover, future research on hotel competitiveness could focus on investigating how existing models and approaches could be adapted to determine appropriate interventions at different stages of hotel development. The development of appropriate assessment methodologies and key indicators for future references, the understanding of the constantly changing parameters, policies and institutional elements in the business environment that impact future competitiveness in the hospitality and tourism sector, as well as gaining a deeper understanding of the salient factors that determine competitiveness at the enterprise level are essential.

2. Clustering, innovation and hotel competitiveness: evidence from destination Colombia (23 citations). Orietha Eva Rodríguez-Victoria, Francisco Puig & Miguel Gonzalez-Loureiro (2017). This article, explores the relationship between clustering and hospitality and competitiveness in emerging economy destinations, analyzing the potential mediation of implemented management innovations. This empirical study was carried out at hotel level. It collects information from a survey that included 131 hotels in 2014. Colombia was chosen to represent Colombia, Indonesia, Vietnam, Egypt, Turkey and South Africa (CIVETS) emerging destinations. Relationships were analyzed by structures, modelling and partial least squares. The contribution of the present research focused on separating the direct from the indirect (effects of clustering on hotel competitiveness). It considers the implementation of management innovations as an outcome

of clustering in emerging tourism destinations, using the example of Colombia.

Some limitations of the study that future research should address are: the number of cases in the sample made it difficult to test the models on one variance. Covariance-based SEM. However, the values of the covariance matrix were close to zero so this can be considered a good approximation. The study analyzed a single emerging economy, and future research should replicate this work in similar and dissimilar contexts. Larger samples over disparate economies will allow for more precise estimates of variable and mediator impacts. These new studies should provide further clarification on which model best explains the relationships between clustering, innovation and competitiveness in emerging economies. Only managerial innovations were considered. Models in other tourism-related sectors and service industries should be explored for the particular case of emerging economies.

3. Identifying hotel competitiveness based on ratings of hotel characteristics (15 citations). Haiyang Xia, Huy Quan Vu, Qiujuan Lan, Rob Law & Gang Li (2018). This study presents a new approach to hotel competitiveness assessment by identifying unique aspects that combine multiple characteristics. The proposed approach could distinguish a hotel from its counterparts, rather than relying solely on high ratings of hotel features. A data mining technique was introduced to automatically discover the different aspects of a hotel based on the hotel's feature ratings. This section describes this method for assessing hotel competitiveness from hotel ranking data. It comprises three main steps: (1) hotel data extraction, (2) construction of contrast groups, and (3) competitiveness assessment.

The proposed method is general in nature and can be applied to any tourism product with feature ratings, such as restaurants, airlines and travel packages. Tourism researchers can adopt this tool for various tourism products and in different contexts for broad applications. In addition, the proposed technique can be used to assess the competitiveness of a single hotel at a time. However, hotel managers may be interested in assessing the competitiveness of a group of hotels, such as the competitiveness of a particular brand of hotels, which is impossible to determine for the method being presented. Future studies may focus on the development of techniques to assess the competitiveness of hotels or tourism products within the group.

4. Evidence of dynamic hotel pricing patterns in an Internet distribution channel: the case study of hotels in the Basque Country in 2013-2014 (9 citations). Noelia Osés, Jon Kepa Gerrikagoitia & Aurkene Alzúa (2015). Using hotel room price data collected from an Internet distribution channel, this article presents the research carried out to discover the dynamic pricing practices of hotels in the Basque Country in 2013 and 2014. For this purpose, the collection method used was of data. The analysis shows that these hotels favor two patterns of price change. The first pattern refers to the practice of changing a price amount for future, contiguous target dates on the same date. The second pattern refers to the practice of changing the price a set number of days before the target date. This paper and the research presented in it are an extension of the research published in the ENTER 2015 conference proceedings.

The results reinforce the previous conclusions by reaching the same patterns after analyzing data from a much wider geographic area, the Basque Country versus Bilbao, and two years instead of one, 2014 as before 2013. Future work will focus on testing the hypotheses mentioned in the discussion. It is of interest to investigate the causes of vertical patterns (i.e., identifying patterns of price changes due to seasonal factors or events, etc.), the causes of changes that are not part of vertical or diagonal patterns, and analyzing the relationship between the changes corresponding to the hotels of the competition. It is also interesting to check whether these price change patterns are present in the data from hotels outside the borders of the Basque Country.

5. Framework for a Hotel Big Data Warehouse: The Implementation of an Efficient Hotel Business Intelligence System (8 citations). Célia MQ Ramos, Daniel Jorge Martins, Francisco Serra, Roberto Lam, Pedro JS Cardoso, Marisol B. Correia & João MF Rodrigues (2017). This document presents a framework for a hospitality Big Data Warehouse (HBDW), for which the data collection method was used. The framework includes a (1) web crawler that periodically accesses specific websites to automatically extract information from them, and a (2) data model to organize and consolidate the collected data into an HBDW.

Additionally, the usefulness of this HBDW for the development of business analytical tools is discussed, taking into account the implementation of business intelligence (BI) concepts. The current framework still has some limitations, it does not contemplate the treatment (semantic analysis)

of the comments (written) and opinions of the guests. Regarding future work, and to overcome the limitations, one of the next steps is to complete the development of the application/software with text mining techniques, incorporate gamification concepts in the hotel websites and the development of intelligent interfaces with focused information. on the user, part of which is already under development.

**CONCLUSIONS**

In general, it can be confirmed that competitiveness has indeed been extensively monitored, however, tourism studies on hotel competitiveness suffer from poor diffusion and systematization. In addition, the contributions made in relation to competitiveness in the hotel industry are focused neither on the factors that influence it nor on the indicators to measure it. Consequently, the study of the aforementioned elements is considered of great importance, due to the relevance they have for hotel competitiveness. On the other hand, it was determined that in Scopus, research related to clustering, innovation, dynamic hotel prices, knowledge management, ICT, digital marketing techniques, hotel management and performance indicators and environmental sustainability is limited.

Among all the articles examined, a single one analyzes, from different perspectives, the existing and practically intrinsic relationship between tourism cooperation and competitiveness, the latter being included within the former. This is due to the fact that tourism actors are not limited to just cooperating or competing; on the contrary, they tend to develop both simultaneously in specific situations. The answer to this stems from the fierce competitiveness inherent in the hotel industry that forces actors who traditionally acted on their own, to favor group objectives in order to attain common goals that in the long terms yield greater benefits. According to Della Corte and Aria (2016), this relationship is based on a realistic approach to the existing link between a company and its environment in which it competes and collaborates at the same time with the other actors in the system. This is evidenced in articles dealing with hotel competitiveness clustering.

The bibliographical review of the most relevant articles in this database showed that the piece of research dealing with the identification of hotel competitiveness based on the qualifications of the hotel characteristics, is one of the few in Scopus database, which attempts to assess hotel competitiveness. The relationship among the identified

clusters and the close relationship between hotel competitiveness and data mining and hotel reviews give rise to the main theoretical-methodological gaps, precisely because of their complexity. Of the 59 authors who have participated, only 2 exceed one publication with a total of 2 publications each, resulting from their collaboration. These 2 articles are not among the most relevant investigations in the Scopus databases. Portugal is the most important nation in terms of productivity, with predominance of studies on clustering and innovation related to hotel competitiveness, hotel-type Big Data Warehouse and knowledge management. Though, in WOS it is possible to find various articles that deal with the topic of competitiveness, there are only a few that delve into this topic in relation to the hotel industry. On the other hand, the review of the Web of Science produced a very small number of investigations, although of great relevance, addressing strategic alliances in relation to competitiveness.

Given the insufficiency of information sources dealing with hotel competitiveness, the authors propose more in-depth studies on the factors which influence it, as well as on the establishment and delimitation of the indicators that really determine this construct in a clear and concise manner. In addition, taking into consideration that strategic alliances play a significant role in the competitiveness of companies, the authors recommend a profound analysis of this relationship.

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