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Article

Exploring the Conceptual Structure of the Research on Innovation in Hotels through Co-Word Analysis

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Abstract: This paper presents the results of a bibliometric analysis of published academic research on innovation in hotels. In particular, it aims to analyze the conceptual structure of the field, covering the period until October 2020, and predict emerging trends. This approach provides an exhaustive analysis of 334 papers collected from the Scopus database. Co-word analysis used to identify the conceptual structure reveals four clusters: (1) technological innovation, (2) innovativeness and innovation strategy, (3) knowledge and employee innovative behavior, and (4) performance as an outcome of organizational capability to innovate. The present study contributes to the literature by increasing the accumulation of knowledge on research topics, providing an up-to-date review on hotel innovation literature, and setting forth an agenda for future research.

Keywords: innovativeness; innovation; hotels; bibliometric study; conceptual structure; co-word analysis



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1. Introduction

Innovation has been widely accepted as a key factor for tourism firms and destinations and is recognized as a strategic issue to be addressed in order to be competitive and, consequently, to face the intense competition currently found in the tourism sector, as well as to achieve growth and long-term success (Agarwal et al. 2003; Campo et al. 2014; Njoroge et al. 2019; Pikkemaat et al. 2019).

Innovation research in tourism has experienced increased attention; however, innovation is a scarcely discussed and explored subject in the hotel industry (Meira et al. 2019; Nieves and Segarra-Ciprés 2015). Since innovation plays a central role in increasing the competitive advantage in a global market, especially in times of crisis (Campo et al. 2014; Shin and Kang 2020), the hotel industry benefits from research focused on innovation and its detailed analysis.

The goal of this paper is to assess the conceptual evolution and research streams in the innovation in hotels, answering the following research questions through co-word analysis and visualization maps: (1) What is the conceptual structure of the innovation in the hotel literature? (2) What are the dominant, fading, and emerging topics in the field?

This study contributes to the literature in three major ways. First, it extends the literature on hotel innovation offering a deeper analysis of the knowledge accumulated, in terms of output and impact, to understand the current state of this field. Thus, the paper helps actual and future researchers to handle the inherent complexity and challenges of the innovation process and to better direct their research.

Second, as innovation has long been considered one of the main solutions for firms, managers should place innovation at the center of their strategies, particularly in crisis periods, as is the case of the current COVID-19 pandemic. Therefore, this study helps managers to identify the most relevant (and actual) drivers and constraints of innovation

and to be aware of the different types of innovation and their impact, namely the most suitable to deal with the severe current situation. Technological innovation enables hotels to reduce physical interactions and enhance cleanliness and, consequently, decrease infection risks, while still providing personalized care to ensure customer satisfaction and hotel competitiveness.

Third, “the studies that employed relational bibliometric methods are rare” (Köseoglu et al. 2016, p. 190). “Relational techniques have been applied much less frequently to understand tourism research activity” (Jiang et al. 2019, p. 1926). The current study therefore attempts to fill this gap in the literature and improve the understanding of the conceptual structure of innovation in hotel research by using co-word analysis. The output of co-word analysis is a network of themes and their relationships that represent the conceptual space of a scientific domain (Zupic and Čater 2015; Köseoglu et al. 2016). Specifically, it uses the words in documents to establish relations and build a conceptual structure of the research field (Callon et al. 1983). Thus, co-word analysis is the appropriate method for answering the research questions formulated above.

The paper is structured into five sections. Section 1 presents the introduction. Section 2 provides a literature review addressing tourism and hospitality innovation as well as bibliometric analysis. Section 3 describes the methodology used. Section 4 analyses the results, discussion, and streams of future research, and, finally, Section 5 presents the main conclusions, theoretical and practical implications, and limitations.

2. Literature Review

2.1. Tourism and Hospitality Innovation

“Innovation is defined differently depending on the research focus” (Pikkemaat et al. 2019, p. 184). However, innovation is usually related to aspects such as creativity, newness, value creation, and economic growth (Wikhamn et al. 2018), involving the capacity to change and adapt (Meira et al. 2019). It is generally characterized by everything that differs from the usual, representing a discontinuity of previous practices in the business. In fact, “common to all definitions of innovation is newness, as innovation is strongly associated with something new. In tourism research, the definitions by Schumpeter (1934) and the OECD/Eurostat (2018) are frequently used” (Pikkemaat et al. 2019, p. 184).

Innovation is a requirement for operating in today’s competitive tourism environment. As tourism firms operate in a competitive sector, innovating is often a condition for survival and growth (Agarwal et al. 2003; Njoroge et al. 2019) and, thus, one of the most relevant determinants of organizational performance (Gürlek and Tuna 2018; Nicolau and Santa-María 2013).

Given the characteristics of tourism firms, “the innovation process requires focusing on the close relationship with customers and the level of employee commitment” (Souto 2015, p. 143). Additionally, “applying innovation theory to service sectors we must take into account the inter-sector heterogeneity which makes it important to study innovation in one specific sector at a time” (Orfila-Sintes and Mattsson 2009, p. 380). A high level of heterogeneity is, thus, a characteristic of the tourism sector. As tourism firms operate in several sectors such as transportation, accommodation, leisure, or intermediation, the innovation behavior of tourism firms will diverge (Orfila-Sintes and Mattsson 2009). In addition, there are specific characteristics of hotels that make them different and justify a separate analysis, such as the category classification of hotels (the “stars” categorization goes from 1 to 5 and determines the type, number, and quality of services provided) (Orfila-Sintes et al. 2005). “Developing and applying new ideas that add value to a service is no easy task, particularly when hotel competitors seek to duplicate any innovation they detect” (Vila et al. 2012, p. 75).

More recently, scholars have used bibliometric methods to study innovation in tourism firms (e.g., Durán-Sánchez et al. 2019). We add to the existing studies by focusing on the particular case of innovation in hotels, using a co-word analysis (conceptual structure).

2.2. Bibliometric Analysis

According to [Broadus \(1987, p. 376\)](#), bibliometric analysis corresponds to “the quantitative study of physical published units, or of bibliographic units, or of the surrogates for either”. Bibliometric analysis is a set of methods that use a quantitative approach to study or measure the research of a given field based on scientific publications indexed in bibliographic databases ([Gutiérrez-Salcedo et al. 2018](#); [Zupic and Čater 2015](#)). In this way, such analysis complements the traditional methods of review ([Zupic and Čater 2015](#)).

Some authors identify two types of bibliometric procedures ([Köseoglu et al. 2016](#); [Thelwall 2008](#)): evaluative bibliometrics and relational bibliometrics or science mapping. Evaluative bibliometrics assesses the productivity and impact of scientific actors such as researchers, research centers, and countries ([Thelwall 2008](#)). In turn, relational bibliometrics or science mapping examines the similarity and relationship between publications, authors, and keywords using, respectively, co-citation analysis and/or bibliographic coupling, co-authorship analysis, and co-word analysis ([Köseoglu et al. 2016](#); [Thelwall 2008](#)). These methods allow one to reveal, respectively, the intellectual, social, and conceptual structures of a given research field ([Gutiérrez-Salcedo et al. 2018](#); [Zupic and Čater 2015](#)).

In particular, co-word analysis uses an advanced content analysis technique to study relationships between words in a set of documents ([Callon et al. 1983](#)) and to delimit the boundaries of scientific areas ([Castriotta et al. 2019](#)). “The idea underlying the method is that when words frequently co-occur in documents, it means that the concepts behind those words are closely related” ([Zupic and Čater 2015, p. 435](#)). Co-word analysis utilizes the text of the title, abstract, keyword list, or/and the body of the document to build a semantic map of the research field ([Zupic and Čater 2015](#)). This method has increasingly been used to identify the conceptual structure of the tourism field (e.g., [Hoz-Correa et al. 2018](#); [Rodríguez-López et al. 2020](#)).

3. Methodology

This section describes the methodological procedures used in the identification of papers for the review as well as the application of the method of data analysis.

The Scopus database, similar to [Jiang et al. \(2019\)](#), [Agapito \(2020\)](#), and [Santos et al. \(2020\)](#), was selected as the data repository from which to search for and extract papers. In the field of tourism innovation, Scopus has better coverage due to collecting a greater number of papers and receiving a greater number of citations ([Durán-Sánchez et al. 2019](#)).

The search was made in October 2020 using two keywords: (1) “innovat*” and (2) “hotel*”, combined with the Boolean operator “AND” in three alternative fields, title, keywords, and abstract. Following the previous literature, the review adopted a restricted scope in terms of document type as the sample was limited to articles published in international journals (e.g., [Agapito 2020](#); [Gomezelj 2016](#)), written in English, and allocated to the subject area of “Business, Management and Accounting” (e.g., [Wut et al. 2021](#)). Similar to [Jiang et al. \(2019\)](#), to ensure the homogeneity of the sample, other publications such as books, book chapters, conference papers, and reports were excluded. No start date was specified, thereby allowing the search algorithm to identify the earliest papers in the literature. No restriction was made regarding the publication stage (i.e., final or article in process). This search process resulted in a total of 695 papers.

The bibliographic data extracted from Scopus database were then exported to Elsevier’s software Mendeley 1.19 to manage the papers selected. In this process, 361 papers were excluded because they were out of the scope of this study. After completing the screening of papers, the final sample included a total of 334 papers (please see [Figure 1](#)).

Co-word analysis was conducted using the VOSviewer 1.6.15 software, similar to [Agapito \(2020\)](#). In particular, the co-occurrence of terms in the title and abstract was analyzed. In addition, temporal co-word analysis was performed to identify fading and emerging topics in the field.

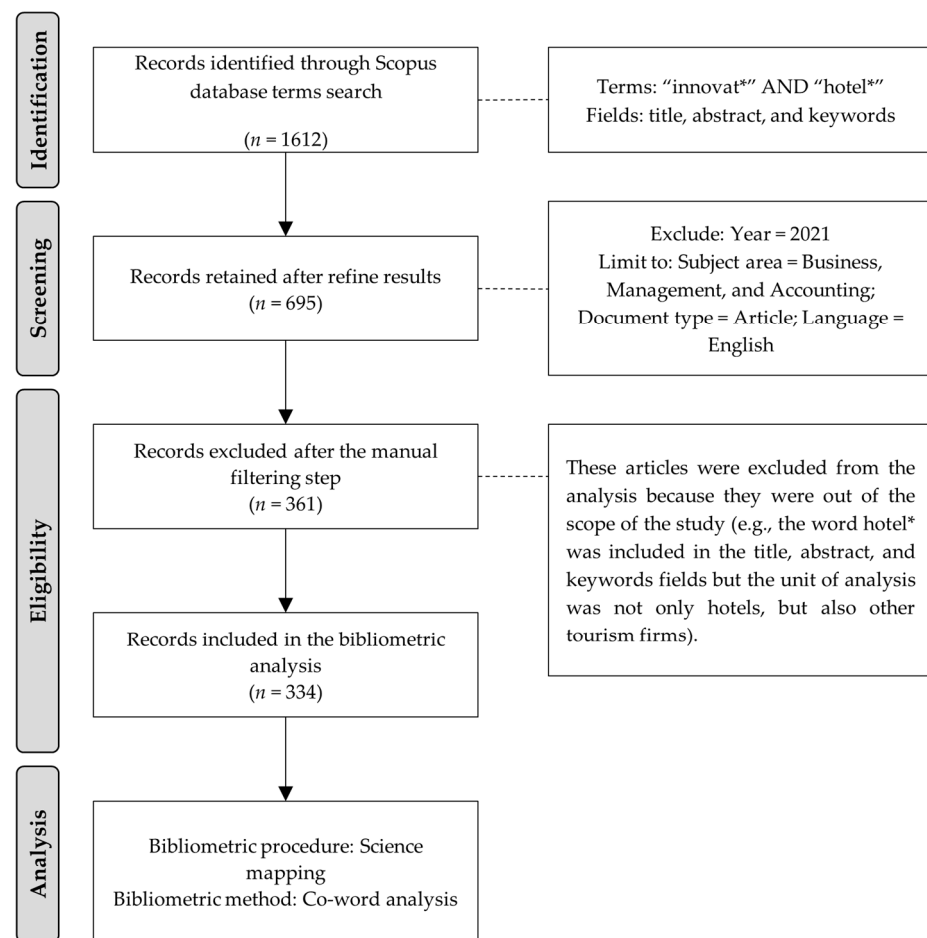


Figure 1. Process of data collection and analysis.

4. Results

4.1. Analysis of the Publications and Journals

Figure 2 illustrates the evolution of the papers published on the topic per year from 1982 to October 2020. The considerable increase in publications on innovation in hotels (except for 2010 and 2017) shows an increasing trend, suggesting that this subject has been progressively gaining popularity in the academic community. The significant growth in the research focused on innovation in the hotel sector began in 2004, which is in accordance with Meira et al. (2019).

In a broader scope, in recent years, tourism innovation has become an emerging research topic in the field of tourism (Hjalager 2010; Narduzzo and Volo 2018). In fact, the scientific literature on innovation in tourism is recent (Durán-Sánchez et al. 2019), and thus, the same is true regarding innovation in hotels, as can be seen in Figure 2.

The 334 papers were published in 115 journals. As the papers were published in a wide variety of journals, only those with six or more papers published on the topic, which represents 54.5% of the scientific production in the field, are presented in Table 1. *International Journal of Hospitality Management* (IJHM), *International Journal of Contemporary Hospitality Management* (IJCHM), and *Tourism Management* (TM) appear to be the major outlets to publications on innovation in hotels. Curiously, the journals which have higher average citations are not from the area of tourism/hospitality.

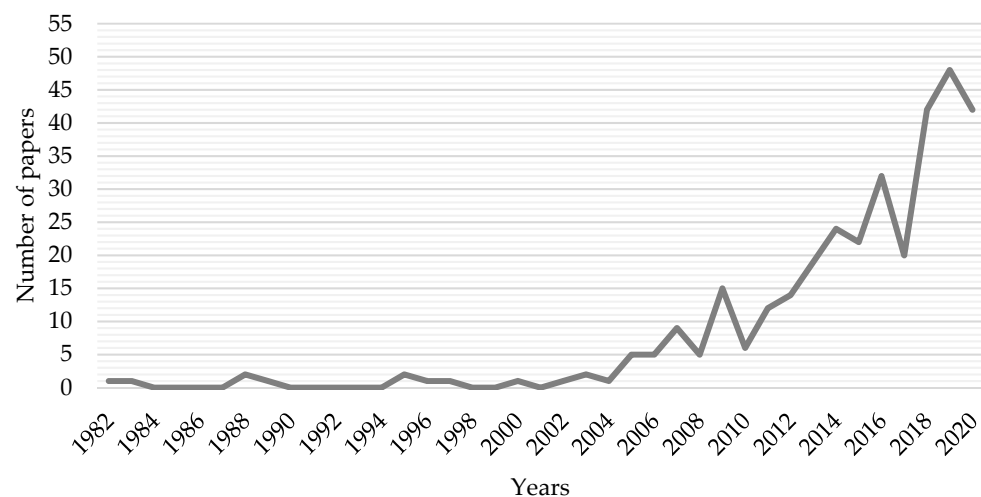


Figure 2. Evolution and quantification of the publications ($n = 334$).

Table 1. Journals with six or more papers on innovation in hotels from 1982 to 2020.

Journal Title	fi	fri	TC	AC
<i>International Journal of Hospitality Management</i>	39	11.71%	1200	30.77
<i>International Journal of Contemporary Hospitality Management</i>	38	11.41%	668	17.58
<i>Tourism Management</i>	19	5.71%	850	44.74
<i>Journal of Hospitality and Tourism Technology</i>	11	3.30%	113	10.27
<i>Service Industries Journal</i>	10	3.00%	303	30.30
<i>Cornell Hospitality Quarterly</i>	8	2.40%	386	48.25
<i>African Journal of Hospitality, Tourism and Leisure</i>	7	2.10%	52	7.43
<i>Journal of Hospitality Marketing and Management</i>	7	2.10%	161	23.00
<i>International Journal of Hospitality and Tourism Administration</i>	7	2.10%	52	7.43
<i>Current Issues in Tourism</i>	6	1.80%	87	14.50
<i>Journal of Cleaner Production</i>	6	1.80%	970	161.67
<i>Journal of Hospitality and Tourism Research</i>	6	1.80%	12	2.00
<i>Journal of Travel and Tourism Marketing</i>	6	1.80%	75	12.50
<i>Tourism</i>	6	1.80%	364	60.67
<i>Worldwide Hospitality and Tourism Research</i>	6	1.80%	39	6.50

fi = frequency (number of papers published); fri = relative frequency; TC = total number of citations received by the published papers; AC = average citations received by the published papers.

4.2. Structure of the Conceptual Innovation in Hotels Sub-domains

A co-word map was created in VOSviewer to answer the first research question (see Figure 3). As Figure 3 was based on the co-occurrence of multiple words, which indicates the interrelatedness of the topics they represent, it reveals the conceptual structure of the scientific domain under analysis. The distance between terms is indicative of the extent to which they are different or similar. “A strong proximity among terms implies that they are strongly correlated” (Castriotta et al. 2019, p. 418).

The map in Figure 3 shows four sub-domains representing technological innovation (red cluster), innovativeness and innovation strategy (green cluster), knowledge and employee innovative behavior (blue cluster), and performance as an outcome of organizational capability to innovate (pink cluster).

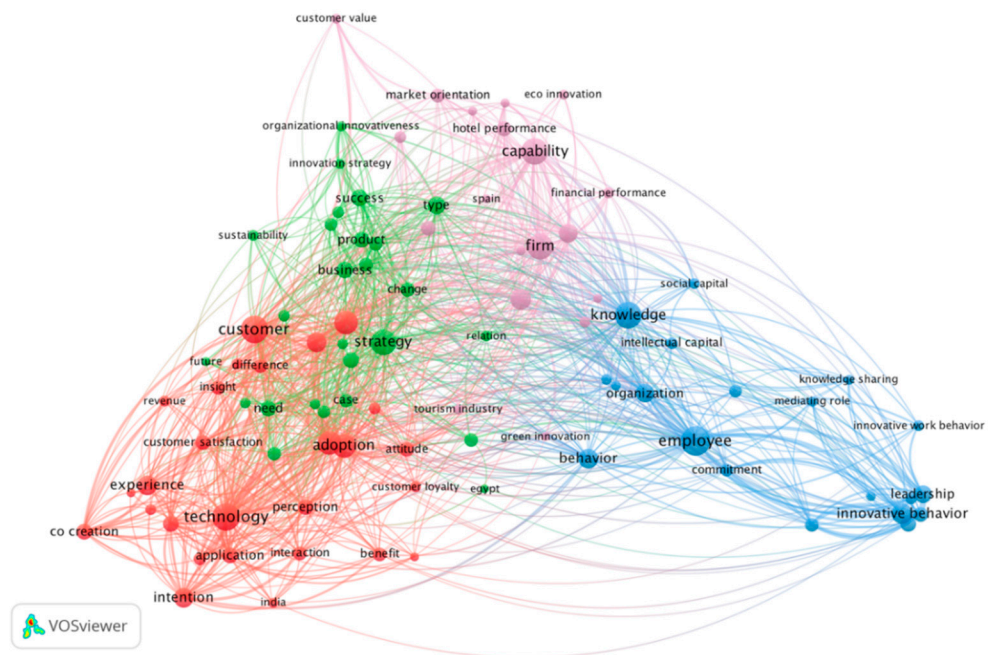


Figure 3. Global thematic network in innovation in hotel research based on word co-occurrence analysis.

Additionally, a temporal overlay was applied to the co-word map shown in Figure 3 to answer the second research question (see Figure 4). The temporal overlay relates terms to the date of publication of papers. Therefore, it enables identifying fading and emerging topics in the innovation in hotels field. The analysis of the words by color allows one to examine the evolution of the innovation in hotel research. Darker circles represent terms that were dominant earlier in such literature, and lighter ones represent those that have prevailed in the recent literature.

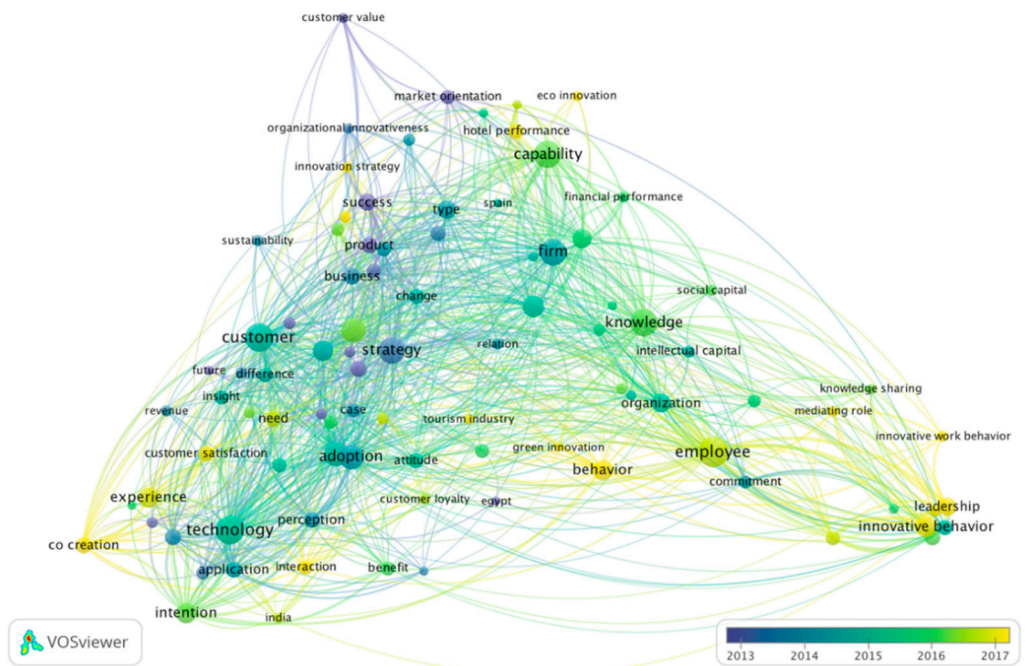


Figure 4. Temporal overlay on word co-occurrence map.

According to the color bar at the bottom of the Figure, blue words are older than the yellow ones, meaning that the blue terms were used on average around 2013 and the yellow ones were employed on average around 2017.

It is noteworthy that customer value (average year of publication = 2009) and market orientation (average year of publication = 2010) are two of the oldest terms. Finally, co-creation (average year of publication = 2017), eco-innovation/green innovation (average year of publication = 2018), and innovation strategy (average year of publication = 2018) are the most recent terms, which shows an increasing interest in these themes.

4.2.1. Cluster 1 (Red Cluster): Technological Innovation

The cluster “technological innovation” (red) contains papers that analyze the role of technological innovation such as social network websites (SNWs) (Al-Shami et al. 2021), self-service technology (SST) (Kucukusta et al. 2014; Liu et al. 2020), and information and communication technology (ICT) (Karadag and Dumanoglu 2009; Lee et al. 2019; Praničević and Mandić 2020) on hotels’ competitive advantage, performance, brand equity, and efficiency. On the one hand, technology enables hotels to access to large amounts of customer information and integrate the information for more tailored, sophisticated, and efficient services to customers, through a better understanding of their needs, while saving both time and costs (e.g., Praničević and Mandić 2020; Shin et al. 2019). Furthermore, “mobile technology has been recognized as an accessible tool with high potential for enhancing customer experiences and facilitating value co-creation in the hospitality industry” (Lei et al. 2019, p. 4340). With the rising development and dissemination of technology, smart phones, and smart phone apps, it becomes easier for users to participate in co-creation of hotel service innovation, personalizing their interactions and service experience, which are high in value (e.g., Kamboj and Gupta 2020; Morosan and DeFranco 2016).

On the other hand, technological interfaces which allow customers to access hotels without the direct involvement of employees, SST, promote labor cost reduction and customer satisfaction (Liu et al. 2020), enable customers to participate in the co-creation and delivery of products and services (Montargot and Lahouel 2018), improve perceptions of safety, reduce perceived health risk and customers’ anxiety, and enhance cleanliness, being especially relevant to attract hotel customers during the COVID-19 pandemic (Shin and Kang 2020).

Technological innovation refers to a combination of innovations related to technology developments, with the aim of improving existing products or services in an incremental or radical way. In the tourism industry, technological advances are producing fundamental disruptions by empowering tourism actors to create new markets, shape new services, and manage their businesses more effectively (e.g., Law et al. 2014; Sigala 2018). In particular, “hotels need to use advanced technology to attract customers and enhance their perceived value and trust” (Ruan et al. 2020, p. 17). In fact, technology is an important source of competitive advantage for hotels because it can transform the way hotels communicate with their customers, improve productivity, decrease costs, and provide efficient services (Shin et al. 2019). Thus, “understanding technology innovation is a key strategic management concern in hotels” (Shin et al. 2019, p. 310). SNWs promoting the interaction between users and hotels allow proper feedback to be obtained from clients who are the sources of knowledge and information, which improves hotels’ competitive advantage and performance (Al-Shami et al. 2021). Also, Praničević and Mandić (2020) highlight the role of technology, in particular ICT, in obtaining and managing information. For instance, such technologies enable guests to share their reviews and to exchange opinions about the hotels. Customer service in the hospitality industry has a highly information-intensive nature, and thus, hotels should invest significant resources in information systems in order to improve service efficiency and quality (Lee et al. 2019).

Implementing technology innovations for decreasing guest interactions with hotel staff, using SST, is (potentially) an effective strategy, not only to reduce costs and improve service quality but also to decrease perceived health risks for hotel customers, a key factor in

the hotel booking intention in the current pandemic crisis. The travel unwillingness during and after the COVID-19 pandemic is resultant from a high health risk (Shin and Kang 2020). Thus, most hotels are already adopting technology systems for social distancing (e.g., mobile check-in systems, kiosk check-in machines, and robot cleaning systems) and cleanliness (e.g., advanced cleaning technologies for enhanced disinfection). As an essential risk-reduction strategy, technology innovation is likely to play a key role during and after the COVID-19 pandemic. Accordingly, some (scarce) of the latest literature focuses on investigating the impact of technology innovation on hotel selection behavior during the 2020 coronavirus pandemic crisis and on the hotel industry's recovery after such a pandemic crisis. Due to the unprecedented threat to the hotel industry caused by COVID-19, the role of technology innovation in reducing the perceived degree of health risk, which influences travel decisions, seems to be a promising field of research.

4.2.2. Cluster 2 (Green Cluster): Innovativeness and Innovation Strategy

The cluster "innovativeness and innovation strategy" (green) comprises papers that investigate the role of innovativeness in a successful innovation strategy, most of them highlighting that there is little agreement on what innovativeness is (Kessler et al. 2015; Tajeddini and Trueman 2014). As there is no real consensus on the meaning of innovativeness, which impacts the results, the research usually defines the meaning of innovativeness or even investigates the perception of innovativeness, as is the case of Tajeddini and Trueman (2014) in the hotel industry context. Additionally, the papers belonging to this cluster identify the determinants and barriers to innovativeness.

Organizational innovativeness is a precondition for innovation and business success, as it is capable of creating innovations which, in turn, contribute to gaining strategic advantage and, consequently, to business success (Kessler et al. 2015). In other words, organizational innovativeness is a prerequisite for a successful implementation of an innovation strategy, consisting (adopting an integrative view) of the dimensions of willingness to innovate, ability to innovate, and possibility to innovate (Kessler et al. 2015). Tajeddini (2010) regards innovativeness as an attitudinal dimension of innovation. Thus, a new product or service, a new process, a new collaborative/organizational structure, etc., can each be considered an innovation resulting from the organizational innovative climate (Singjai et al. 2018). Innovativeness is, in fact, one of the most important strategic orientations for firms to achieve long-term success (Jalilvand 2017; Tajeddini 2010). In this sense, innovativeness is considered to be a continual process toward long-term successful innovation strategies. Among organizational intangible resources, innovativeness and an innovation strategy are crucial to the success of the hotel industry and play a role in supporting productivity levels and competitiveness. "Innovativeness in the service industry embraces a wide spectrum of multiple activities. These activities include supportive leadership, improved services and safety, new technologies, new strategy development, communication technologies interaction and a new friendly environment" (Tajeddini et al. 2017, p. 101).

On the one hand, new service development is significantly impacted by the degree of innovativeness; on the other hand, hotels are an ideal example of a marketplace with the potential to benefit from the introduction of service innovations. "Hotel market is characterized by many similar, easily substitutable service offerings that can make it difficult to differentiate one hotel from its competition. Thus, hotels' ability to innovate is regarded more and more as a key factor in successfully differentiating in a competitive environment" (Ottenbacher and Harrington 2010, p. 6).

Since environmental degradation has become a serious concern across the world, many companies, namely hotels, are faced with pressures to implement green innovation strategies in pursuing their economic advantages, while simultaneously protecting the environment. Innovation that favors environmental sustainability can help hotels to reduce costs in the long run and to differentiate their offerings from those of their competitors (Singjai et al. 2018), attracting customers more conscious of sustainability, who are likely to pay higher prices for environmentally friendly products and services. Thus, the hotels'

ability to understand customers' needs and develop innovative services that offer social and environmental solutions can have a significant implication on long-term economic success. "From sustainability point of view, the ability to innovate may represent a necessary business capability whether related to small incremental steps or to radical innovations to derive long-term economic value" (Njoroge et al. 2019, p. 264).

Although the environmental sustainability dimension has been incorporated into innovation following the increased attention on "green" innovation, it has not been fully explored until now. However, it should be noted that "sustainable innovation is a critical attribute in modern hotel management, as is widely recognized by experts and hotel managers alike" (Horng et al. 2017, p. 44).

4.2.3. Cluster 3 (Blue Cluster): Knowledge and Employee Innovative Behavior

The cluster "knowledge and employee innovative behavior" (blue) encompasses papers that analyze the role of knowledge and knowledge-based resources (i.e., intellectual capital) in promoting innovation (e.g., Allameh 2018; Huang and Liu 2019; Nieves and Diaz-Meneses 2018; Nieves et al. 2014) and papers that examine the determinants of employee innovative behavior (EIB) (e.g., Afridi et al. 2020; Dhar 2016; Eid and Agag 2020; Jung and Yoon 2018; Nazir and Islam 2020; Schuckert et al. 2018). In today's competitive world, knowledge is a key driver of sustainable innovative capabilities (Allameh 2018; Nieves et al. 2016) and one of the main sources of value and competitive advantage. In turn, EIB "encompasses not only creating a novel and useful idea but also to actually realize, implement, and commercialize it by building social support in favor of the idea" (Afridi et al. 2020, p. 1865), which determines the level of customer satisfaction and loyalty. Thus, knowledge and EIB are two essential intangible assets to survival and growth, especially in service firms such as hotels (Jung and Yoon 2018).

One set of papers examines the link between the acquisition, sharing, and use of knowledge and innovation, namely service innovation and management innovation. External agents (e.g., academic researchers, consultants, and customers), external events (e.g., professional conferences), and internal agents (i.e., employees) are relevant sources of knowledge for developing innovation in hotels (Allameh 2018; Cheng et al. 2018; Huang and Liu 2019; Nieves and Diaz-Meneses 2018; Nieves and Segarra-Ciprés 2015). Therefore, hotels can enhance their knowledge-based resources through external networks with academic researchers, artists, and consultants (Cheng et al. 2018; Nieves and Segarra-Ciprés 2015). These networks facilitate the collection and exchange of useful information (Allameh 2018, p. 861) for the development and introduction of service and management innovation (Cheng et al. 2018; Nieves and Segarra-Ciprés 2015). For instance, when employees interact with customers they capture and assimilate customers' knowledge (i.e., customers' desires and needs), which can lead to incremental innovations (Nieves and Diaz-Meneses 2018). In fact, hotels "can be more innovative if they are able to detect changes in clients' preferences and respond by reviewing and adapting their services to consumers' new desires" (Nieves et al. 2016, p. 167). In turn, the social capital developed by hotels' employees themselves improves knowledge acquisition and creativity, which enhances service innovation (Huang and Liu 2019). Moreover, employees with high levels of knowledge play a critical role in the introduction of new processes and management innovations (Nieves and Segarra-Ciprés 2015). Hotels "that have an appropriate level of intellectual capital will be more innovative and facilitate innovation by transferring knowledge and new ideas and increasing the employees' ability to understand and apply them" (Allameh 2018, p. 867).

The other set of papers investigates how the external and internal organizational environment (e.g., corporate social responsibility, corporate support, customer interactivity, external pressures, and leadership style) and employee characteristics (e.g., affect, authenticity, engagement, job stress, psychological capital, and workplace happiness) influence, directly and/or indirectly, EIB. Therefore, to inspire employee creativity and increase EIB, the hotel industry should invest in corporate social responsibility (CSR) activities (Afridi et al. 2020), develop corporate support programs (e.g., budget, time, and advice) (Eid and

Agag 2020), and emphasize organizational learning (Liu 2017). Moreover, leadership style also influences EIB (Dhar 2016; Karatepe et al. 2020; Schuckert et al. 2018). Ethical leadership (directly and indirectly through leader-member exchange) (Dhar 2016) and servant leadership (directly and indirectly through climate for creativity) (Karatepe et al. 2020) foster EIB. Authentic leadership and transformational leadership also stimulate innovative behavior, although authentic leadership has a greater influence than transformational leadership (Schuckert et al. 2018). In this sense, it appears that different leadership styles can promote EIB, although some styles can have a greater influence than other styles. Thus, further research is needed to shed light on the link between leadership styles and EIB.

Regarding the individual factors, the literature shows that work engagement (Nazir and Islam 2020), psychological capital (i.e., self-efficacy, optimism, hope, and resilience) (Schuckert et al. 2018), and workplace happiness (Bani-Melhem et al. 2018) enhance EIB. Workplace happiness, for instance, “has significant effects on employees’ positive emotions and motivation, thereby encouraging employees to engage in IB [innovative behavior]” (Bani-Melhem et al. 2018, p. 1613). These and other individual factors, such as affect, authenticity, and volunteerism, also have a mediating role in the relationship between job and individual characteristics and EIB (e.g., Afridi et al. 2020). As national culture moderates the link between contextual factors, such as corporate support and external pressures, and EIB (Eid and Agag 2020), further research should explore how national culture influences the relationship between other job and individual characteristics and EIB.

4.2.4. Cluster 4 (Pink Cluster): Performance as an Outcome of Organizational Capability to Innovate

The cluster “performance as an outcome of organizational capability to innovate” (pink) includes papers that investigate the determinants and outcomes of the innovation capability, performance being one of the most relevant and well-studied outcomes. The innovation capability enables one to respond “to the demands of the consumers, to the requirements of the market and to the global competition” (Revilla-Camacho et al. 2020, p. 506). Consequently, it promotes product differentiation, brand image, and customer loyalty, allowing a sustainable competitive advantage to be achieved (Martínez-López and Vargas-Sánchez 2013; Wang et al. 2020).

Strategic orientations, mainly market orientation and entrepreneurial orientation, enhance the development and/or improvement of innovation capabilities (Alnawas and Hemsley-Brown 2019; Angkanurakbun and Wanarat 2016; Ghantous and Alnawas 2020; Revilla-Camacho et al. 2020). In fact, “market orientation affects innovation capability as it enables the development of marketing capabilities and the generation of positive marketing results” (Revilla-Camacho et al. 2020, p. 514). However, it appears that entrepreneurial orientation has a stronger influence on both exploitative (incremental) innovation and exploratory (radical) innovation than market orientation (Ghantous and Alnawas 2020). Furthermore, other factors, such as collaborative relationships (Pongsathornwiwat et al. 2019) and learning orientation (Nair 2019) also stimulate the organizational capability to innovate.

Regarding the link between innovation capability and performance, the majority of the studies show that such capability enhances hotel performance (Alnawas and Hemsley-Brown 2019; Angkanurakbun and Wanarat 2016; Ghantous and Alnawas 2020; Meira et al. 2019; Nair 2019; Pongsathornwiwat et al. 2019; Revilla-Camacho et al. 2020). Nevertheless, the literature stresses that different combinations of innovation types have different influences on performance (Mattsson and Orfila-Sintes 2014; Tseng et al. 2008). The hotel’s innovative focus could not increase short-term performance but only medium- and long-term performance (Campo et al. 2014).

In addition, some recent papers explore, in particular, the determinants and outcomes of the eco-innovation capability (Aboelmaged 2018; Reyes-Santiago et al. 2019; Wang et al. 2020). Environmental orientation (Aboelmaged 2018), proactive environmental strategy (Reyes-Santiago et al. 2019), opportunity recognizing and opportunity capitalizing capabilities, top manager’s pro-environmental attitudes, and stakeholder pressures (Wang

et al. 2020) promote eco-innovation. In turn, eco-innovation influences hotels' performance (Aboelmaged 2018; Wang et al. 2020). However, the results on the relationship between eco-innovation and performance remain inconclusive. Despite eco-innovation enhancing environmental performance (Reyes-Santiago et al. 2019) and financial and non-financial performance (Aboelmaged 2018), according to Reyes-Santiago et al. (2019), eco-innovation has a negative and significant influence on organizational performance (i.e., positive changes regarding internal processes, open system, rational goals, and human relations). Studies that emphasize eco-innovation in hotels are scarce (Aboelmaged 2018), and so further research should be developed to understand the influence of such innovation on performance.

4.3. Streams of Innovation in Hotels Research and Their Future Contributions

The papers reviewed enabled the identification of four underanalyzed themes, which represents opportunities of further research (Table 2).

Table 2. Opportunities for research on innovation in hotels.

Major Themes	Future Opportunities of Research
Cluster 1: Technological innovation	<ul style="list-style-type: none"> - Explore the role of technological innovation, in particular SST, on hotels' behavior during the COVID-19 pandemic and, especially, in the hotel industry recovery in the post-pandemic crisis (social distancing, cleanliness, and, consequently, perceived degree of health risk) (i.e., what is the impact of technology innovation on perceived health risk and travel decisions/hotel booking intention in post- COVID-19?). - Investigate what kind of organizational technological resources may foster customer co-creation in hotels. - Examine what customer profile is best suited to customer co-creation in hotels (involvement and their continuous intention to co-create) using innovative technologies.
Cluster 2: Innovativeness and innovation strategy	<ul style="list-style-type: none"> - Study how public policies and industry standards set by the tourism industry associations encourage and/or pressure hotels' managers to include sustainability in their innovation strategy (i.e., normative and coercive institutional pressures). - Explore the interconnection between sustainable innovation and technological innovation in the digital age. - Analyze the role of sustainable innovation for hotels to cope with climate changes.
Cluster 3: Knowledge and employee innovative behavior	<ul style="list-style-type: none"> - Investigate how strategic alliances/(heterogenous) networks that include universities and research institutes promote the acquisition and dissemination of knowledge as a driver of innovation. - Explore the role of national culture, organizational culture, and leadership styles on employee innovative behavior. - Analyze how the employees' individual characteristics, such as gender, age, nationality, education (level, number, and academic area), experience, and tenure impact their innovative behavior. - Investigate how digital work connectivity can impact employees' innovative work behavior.
Cluster 4: Performance as an outcome of organizational capability to innovation	<ul style="list-style-type: none"> - Investigate what types of innovation influence short term and/or long-term performance, given that it (potentially) affects managers' decisions depending on their compensation structure (fixed versus variable). - Analyze the mediating and moderating effects of eco-innovation on the relationship between organizational capabilities and hotel financial and non-financial performance.

Some of the potential future lines of research should be developed in the open innovation realm given the plurality of stakeholders involved in the process of innovation. Tourism products may be the result and/or benefit of a co-creation approach. Thus, the adoption of open innovation can offer added value for tourists, hotels, and other actors of the tourism industry. Furthermore, different actors interact on a collaborative basis and create value in the innovation process. Therefore, the adoption of the open innovation approach is also useful to improve efficiency, effectiveness, and performance.

Additionally, an interesting aspect that should be noted is the fact that sustainable innovation is connected with technological innovation and has to be conceived in the framework of open innovation. On the one hand, technological innovation helps to implement more sustainable practices. On the other hand, an open innovation approach implies that the environment offers information about tourists' behaviors, expectations, and needs, promoting personalized interactions during the tourist experience.

5. Conclusions, Theoretical and Practical Implications, and Limitations

This study sought to reveal the conceptual structure of innovation in hotel research through the analysis of the terms in the articles' titles and abstracts retrieved from the Scopus database. In accordance, we performed a co-word analysis and used both network and overlay visualization maps available in VOSviewer software. Therefore, we were able to reveal the terms most used by scholars and synthesize research trends in the field.

The results of the cluster analysis indicate the existence of four sub-domains of research on innovation in hotels that we can label as follows: (1) technological innovation; (2) innovativeness and innovation strategy; (3) knowledge and employee innovative behavior; and (4) performance as an outcome of organizational capability to innovate.

The literature review provides not only an up-to-date review of hotel innovation research but also an agenda for future research that calls for an integrative view in the open innovation approach.

The number of publications is still small and concentrated in the last decade. This is a particularly interesting feature that shows possibilities for truly contributing to the development of the research field, namely through the collaboration between institutions and researchers. The study's contribution to the theory is in the form of various topics that can be studied in further research. Thus, future authors can explore the opportunities/gaps identified (see Table 2) to advance the research in this field.

The implications of this paper are relevant not only for academics and future researchers but also for practitioners (e.g., managers). First, given that innovation is a pillar in a successful strategy, managers should integrate it into their core business strategy. Second, managers might be aware of the significance of the human resources practices in promoting employees' innovative behavior: selection and training development procedures, appraisal, and reward systems, which impact motivation and performance. Furthermore, managers should provide their employees with adequate environmental support (e.g., time, budget, and brainstorming sessions) and promote a supportive innovation organizational culture (e.g., loose coupling and error tolerance). In order to attract customers to visit hotels, hotels need to focus on improving perceptions of safety by adopting technological innovation for social distancing that reduces employee interaction with hotel customers and enhances cleanliness. For instance, hotels should invest in contactless check-in and check-out systems, digital key systems, face recognition systems, digital menus, online service ordering, mobile concierge apps, smart room control, and cleaning robot systems. It is expected that technological innovation will play a critical role not only in the current pandemic crisis but also after this crisis, as well as in new evolving crises. Thus, investments in technologies should be long-term oriented. Also, hotels should incorporate customers' feedback in the process of innovation (e.g., customers' claims in the hotel online platforms) for co-creation services, providing personalized care to ensure customer satisfaction.

Although the present research makes several contributions, it also has a main limitation involving the choice of the database, which gives opportunities for further research.

Despite this, in the field of tourism innovation, Scopus has a better coverage due to collecting a greater number of papers and receiving a greater number of citations; the existence of other internationally recognized databases raises the probability that part of the existing literature on the subject was not considered in this paper. Future research can include more databases. In addition, future developments of this paper may combine more than one bibliometric method: for instance, co-word and co-citation analyses. Previous studies indicate that these two bibliometric analysis methods are complementary (Braam et al. 1991), providing a more comprehensive understanding of the researched field.

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