

## **Trends in research on artificial intelligence and management control in the hotel sector: A bibliometric analysis**

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### **Abstract**

The goal of this study is to map the evolution of management control systems and artificial intelligence (AI) research in the hotel sector. It defines research gaps and thematic connections. A bibliometric analysis of articles indexed in Scopus between 2015 and 2025 is used in this article. Citation patterns, co-citation networks, keyword co-occurrence, and associated bibliometric indicators were investigated through analysis using VOSviewer and R. Results show that research on AI and management control in the hospitality industry has significantly increased. Nonetheless, there are still significant gaps in the scholarship. Limitations result from ignoring earlier work and concentrating only on Scopus-indexed articles published between 2015 and 2025. Web of Science could be added, and the sample updated to overcome these limitations. The findings point to new lines of inquiry for the hospitality sector's integration of AI and management control. This work represents the first bibliometric study at the intersection of management control and artificial intelligence in the hotel industry. It gives practitioners practical insights and establishes a conceptual framework for further research.

**Keywords:** Artificial Intelligence; Management Control; Hospitality Industry; Bibliometric Analysis; Performance

### **1. Introduction**

Recently, big data and artificial intelligence (AI) have been playing an increasingly critical role in transforming the entire business processes and the way companies analyze customer and market trends. As a result, it has been receiving significant attention from researchers in all fields including hospitality and tourism (J. Li et al., 2018; Lv et al., 2022). The innovative technologies such as chatbots, artificial intelligence (AI) and robotics are changing the way the tourism industry presently operates (Tussyadiah, 2020; Bowen and Morosan, 2018; Pillai & Sivathanu, 2020). To be competitive, tourism and hospitality businesses have to implement technological innovations that foster real-time services and optimise the host-guest interaction (Buhalis and Sinarta, 2019; Buhalis et al., 2024). This has become even more challenging in rapidly changing smart environments where robots, artificial intelligence, metaverse and service automation are anticipated to become increasingly influential on service quality and service experience (Buhalis, 2020; Jabeen, et al; 2022, Yang and Zhang, 2022; Goel, et al, 2022 ;Buhalis et al., 2024).



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The study is directed by the following research questions. RQ1: What are the yearly trends in publication and citation, the most productive and influential authors and journals, institutions, and countries in hospitality research? RQ2: What is the intellectual structure of the field, such as co-citation linkages among authors and dominant research themes, and who are the highly cited articles that shape hospitality research?

This study aims to answer these questions through (i), which examines the scientific output that impacts hospitality, AI, and management control. This is achieved by identifying the most productive journals, authors, institutions, countries, key articles, and collaboration networks, among other factors. (ii) The author aims to analyse and map the dominant theme of research for making the key development area distinct and the emerging ones visible. (iii) The literature is examined for important gaps. The present study contributes to the hospitality literature by highlighting the core indicators, research themes, and future directions reflective of the current state of AI and management control literature. The study thus establishes a conceptual framework on which further studies can be built.

## **2. Conceptual Background: Artificial Intelligence and Hotel Management Control**

The hotel industry refers to a collection of institutions and companies that provide accommodation services and other tourism-related services to customers (Tabataba'i-Nasab et al., 2025, p. 6). The following departments exist within the hotel industry: the Engineering Department, the Housekeeping Department, the Food Production and Beverage Department, the Front Office Department, the Admin and Finance Department, the Sales and Marketing Department, the ICT Department, and the Security Department (Ogola et al., 2023, p. 17). Knowing how departments are structured and what they do explains where management control systems belong. Careful oversight is necessary to coordinate a hotel's many operations. Management controls consist of the practices, procedures, and systems used to monitor strategic progress and to ensure the execution of organizational objectives (Elbanna, 2016; Kallmuenzer & Peters, 2018; Monteiro et al., 2022, p. 3). During the last decade, the literature on management control in the hospitality industry has made considerable progress toward understanding the effectiveness of the design and use of calculation-based controls (Sainaghi et al., 2017; Pavlatos, 2021; Monteiro et al., 2022, p. 3).

The incorporation of technology, especially artificial intelligence, has been a crucial component in improving these management control systems' accuracy and efficiency in recent years. Artificial intelligence is the science and engineering of making intelligent machines, especially intelligent computer programs (McCarthy, 1956). It is a rapidly growing field that includes a wide range of subfields, including knowledge representation, reasoning, planning, decision making, optimisation, machine learning (ML), and metaheuristic algorithms (Latah & Toker, 2019, p. 80). AI enables hotels to make informed decisions, conduct their businesses more efficiently, and enhance management control procedures across all departments.

## **3. Methodology**

The bibliometric analysis follows a specific workflow, which includes the following steps: research design, data collection, analysis, visualization, and interpretation (Ivan Zupic and Tomaz Cater, 2014). The research begins with formulating questions that serve to probe the knowledge base, research fronts, and also intellectual and conceptual structures of literature on artificial intelligence and management control in Hospitality. The selection of bibliometric analysis is guided by these objectives. The techniques include performance analysis, author co-citation analysis, keyword co-occurrence analysis, and thematic mapping. Moreover,

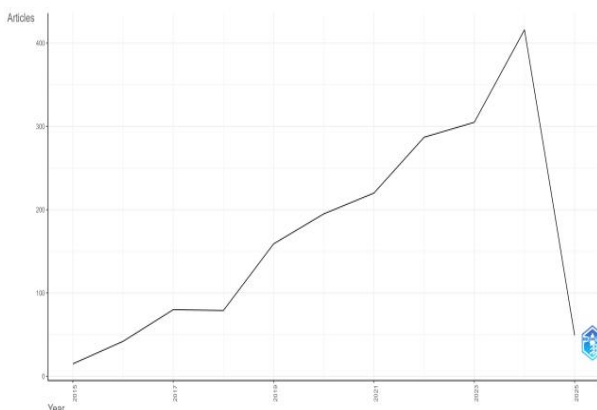
bibliometric information is systematically collected from the Scopus database using a sophisticated search query. This query combines several keywords with the hotel industry, namely, management control, artificial intelligence, and performance. In order to maintain the quality and relevance of the input, only peer-reviewed journal articles published in English and between 2015 and 2025 were included. Screened and filtered using pre-defined inclusion criteria and other procedures to refine the data.

Moreover, the analysis combines performance analysis and science mapping techniques. Further, it is done using the Bibliometrix package and its Biblioshiny interface. Descriptive performance analysis studies trends in publication and citation in order to identify influential authors, journals, institutions, countries, and articles. Analyses of author co-citation and keyword co-occurrence through science mapping techniques are applied to uncover the intellectual and conceptual structures of this field. Fourth, Visualization techniques are used that are in line with science mapping. The creation of network and thematic maps using Biblioshiny and VOSviewer will present relationships between research clusters and themes. Ultimately, the results are methodically interpreted to illuminate the patterns, clusters, and trends observed. Thematic map and trend topic analyses classify themes into motor, basic, niche, and emerging or declining categories, providing insights into the dynamic evolution of themes and the current state of research on artificial intelligence-driven management control in the hospitality sector.

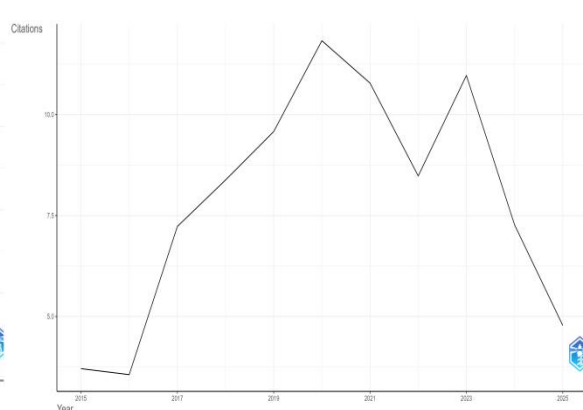
#### 4. Results and discussion

Figure 1 shows the annual distribution of publications from 2015 to November, 2025. More than half the articles (1008) appeared in the last three years (2022-2024), compared to 790 published from 2015 to 2021. Over the decade, publication numbers rose from 15 (2015), 42 (2016), 80 (2017), 79 (2018), 159 (2019), 195 (2020), 220 (2021), 287 (2022), 305 (2023) to 416 in 2024. Given recent growth, a continued upward trend is likely over the next decade. Figure 2 illustrates the average number of citations per year. The average number of citations per year has fallen significantly, from 11.83 in 2020 to 7.27 in 2024. This can mainly be explained by the time factor: older articles, such as those published in 2020, have had more time to accumulate citations, whereas recent publications from 2024 have only benefited from a short period of visibility. A total of 1 847 documents were published across 656 journals, spanning the hospitality sector and related areas such as artificial intelligence and management control. Table 1 highlights the 20 journals that publish the most research articles on artificial intelligence and management control in the hospitality sector. These journals alone published 583 articles, representing 31.56% of all articles identified (583 out of 1 847).

**Fig. 1.** Annual Scientific Publication



**Fig. 2.** Annual Citations per Year



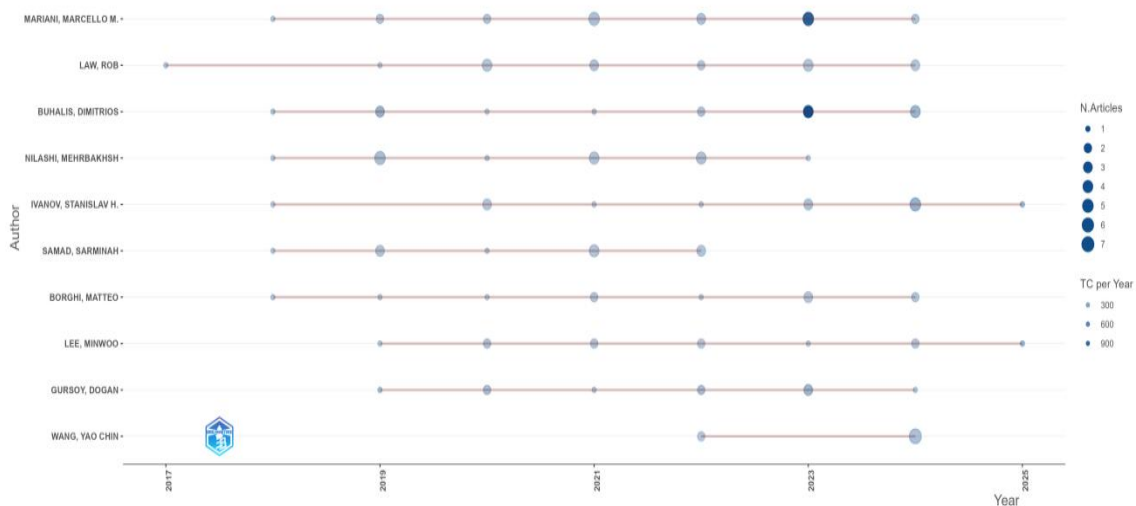
**Table 1.** Journals with the highest number of articles published and the strongest scientific impact

Source	h_index	g_index	Number of citations	Number of publications
International Journal Of Contemporary Hospitality Management	48	92	8 679	101
International Journal Of Hospitality Management	44	93	8 765	99
Tourism Management	30	36	6 154	36
Sustainability (Switzerland)	22	40	1 767	61
Journal Of Hospitality And Tourism Technology	20	34	1 223	34
Journal Of Hospitality Marketing And Management	19	22	2 784	22
Journal Of Hospitality And Tourism Management	16	20	969	20
Annals Of Tourism Research	15	16	1 401	16
Current Issues In Tourism	15	27	944	27
Tourism Review	15	17	1 495	17
Ieee Access	14	24	1 123	24
Tourism Management Perspectives	13	14	732	14
Journal Of Hospitality And Tourism Insights	12	24	674	24
Journal Of Hospitality And Tourism Research	11	14	591	14
Journal Of Tourism Futures	11	13	1 105	13
Technology In Society	11	11	1 018	11
Information Technology And Tourism	10	11	1 168	11
Expert Systems With Applications	9	9	437	9
Journal Of Travel And Tourism Marketing	9	11	1 392	11
Worldwide Hospitality And Tourism Themes	9	14	208	19

Table 1 (Fourth column) shows that the IJCHM ranks first in terms of the number of articles published (101 articles), representing 5.46% of the total sample (101 out of 1,847). It is followed by the IJHM (99 articles), *Sustainability (Switzerland)* (61 articles), TM (36 articles), JHTT (34 articles), and the CIT (27 articles). Table 1 (Third column) shows the most cited sources in the analyzed corpus. The top five are dominated by the IJHM, with 8 765 citations, followed by the IJCHM (8679 citations), TM (6154 citations), the IJIM (3 339 citations), and the JHMM (2 784 citations). Table 1 (First and Second column) illustrates the ranking of journals based on the h and g indices, created by Hirsch and Egghe, respectively, which assess scientific impact by combining productivity and influence.

The h-index represents the highest number h of articles with at least h citations, illustrating a balance between quantity and quality. The g factor favors publications with many citations. It is defined as the highest number g of articles where the total citations for those articles reach at least  $g^2$ . This highlights articles that have a big impact. Such measures provide a close examination of journals. They judge journals by what they publish and how they affect the academic world. The five leading journals with the highest h-index and g-index values are: IJHM (h=44; g=93), IJCHM (h=48; g=92), *Sustainability (Switzerland)* (h=22; g=40), TM (h=30; g=36), and JHTT (h=20; g=34). This table highlights that the first two journals, namely IJCHM and IJHM, appear to be the most productive and influential in this field of research. The other journals, although with lower values, also play a significant role in the dissemination of knowledge, particularly *sustainability (switzerland)*, which, despite its multidisciplinary nature, contributes significantly to the field under study.

**Fig. 3.** Most Productive and Influential Authors



A total of 5 232 authors contributed to the number of publications. **Figure 3** illustrates the distribution of publications by year for the ten most productive authors over the period from 2015 to November 2025. The five most prolific authors are Marcello Mariani (20 articles), Rob Law (18 articles), Dimitrios Buhalis and Mehrbakhsh Nilashi (16 articles each), followed by Stanislav H. Ivanov (15 articles). Marcello Mariani’s publication output increased over time, rising from one article in 2018 to a peak of five articles in 2023, with moderate productivity in the intervening years. And Rob Law published an average of 3.2 articles between 2020 and 2024. Focusing on recent years, in 2024 the most productive authors were Yao Chin Wang (7 publications), Stanislav Ivanov (5 articles), Dimitrios Buhalis (4

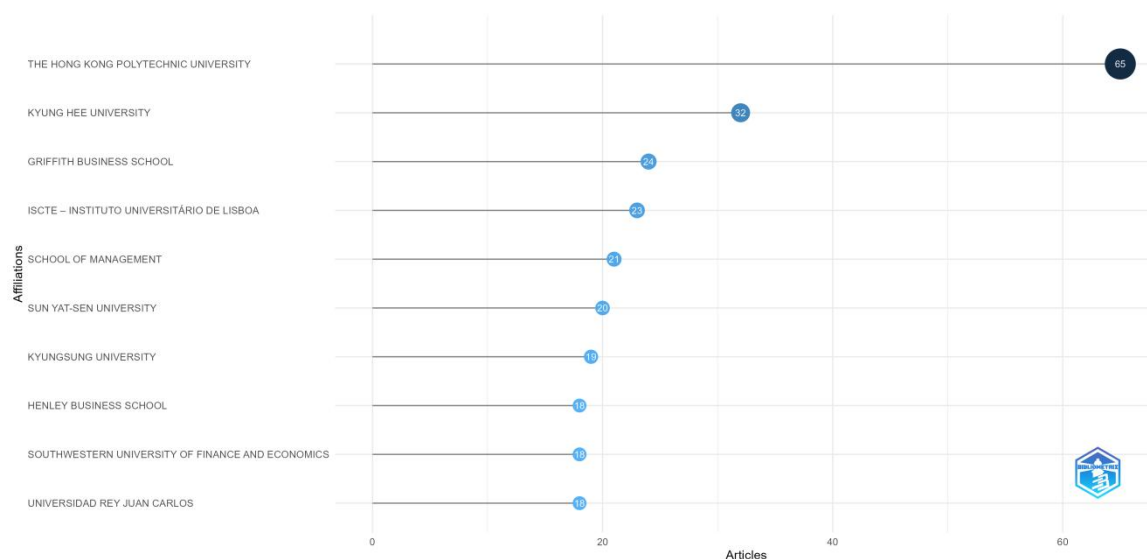
publications), and Rob Law (3 publications), followed by Marcello Mariani, Minwoo Lee, and Matteo Borghi, each with two publications.

**Table 2.** Journals with the highest number of articles published and the strongest scientific impact

Author	h_index	g_index	Total Citations	Number of Publications
MARIANI MARCELLO M.	19	20	4076	20
BUHALIS DIMITRIOS	16	16	6311	16
NILASHI MEHRBAKHS	15	16	1324	16
LAW ROB	14	18	1003	18
IVANOV STANISLAV H.	13	15	1343	15
LEE MINWOO	11	11	1009	11
SAMAD SARMINAH	11	12	946	12
BORGHI MATTEO	11	11	709	11
GURSOY DOGAN	10	10	2299	10
WEBSTER CRAIG	9	9	600	9

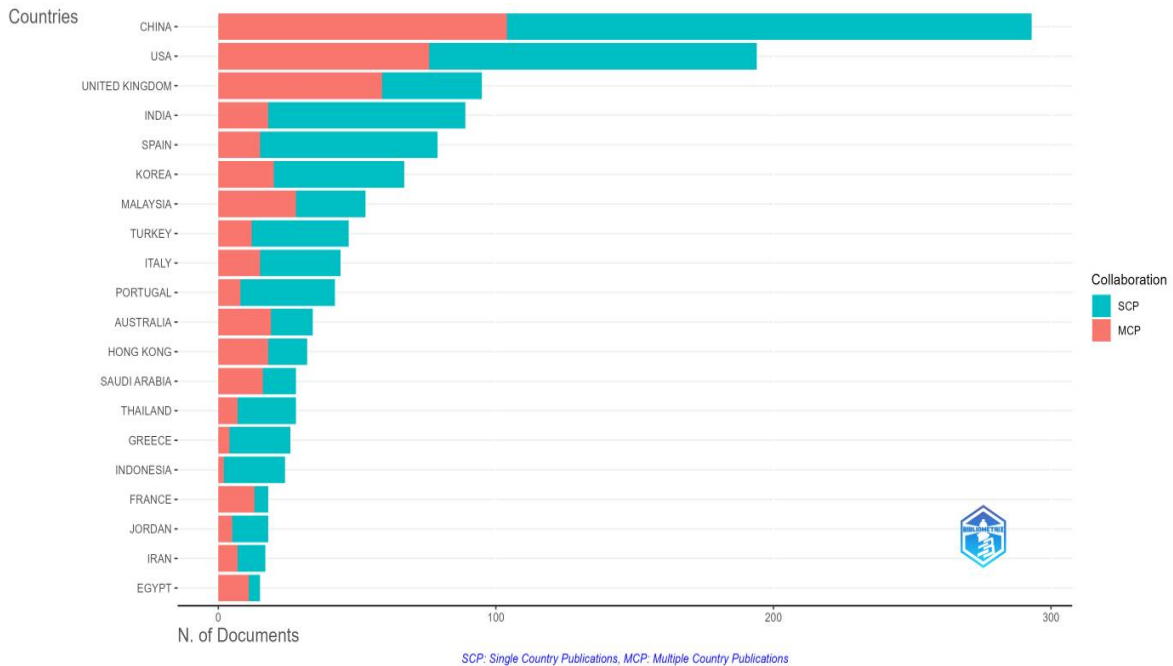
Table 2 presents the most influential authors in the field studied, ranked according to the scientific impact of their publications, as measured by the h-index and g-index. The authors who stand out in particular are Marcello Mariani, Dimitrios Buhalis, Mehrbakhsh Nilashi, Rob Law, and Stanislav H. Ivanov, with respective h-index and g-index values of (h = 19; g = 20), (h = 16; g = 16), (h = 15; g = 16), (h = 14; g = 18), and (h = 13; g = 15). Furthermore, Mariani Marcello and Buhalis Dimitrios stand out not only for their h-index values but also for their cumulative citation volumes, reaching 4,076 and 6,311 citations, respectively. These results highlight their central role in the production and dissemination of scientific knowledge within this field of research.

**Fig. 4.** Most Productive Institutions and Countries



Illustrated in Figure 4 is the hotel industry study that emerged from the research on artificial intelligence and management control with various academic institutions. The Hong Kong Polytechnic University is the most productive institution (65), followed by Kyung Hee University (32), Griffith Business School (24), ISCTE – Instituto Universitário de Lisboa (23), School of Management (21), Sun Yat-sen University (20) and Kyungsoong University (19). Henley Business School, Southwestern University of Finance and Economics, Universidad Rey Juan Carlos, Universidade do Algarve, University of Florida, University of Houston have published 18 times.

**Fig. 5. Corresponding Author’s Countries**

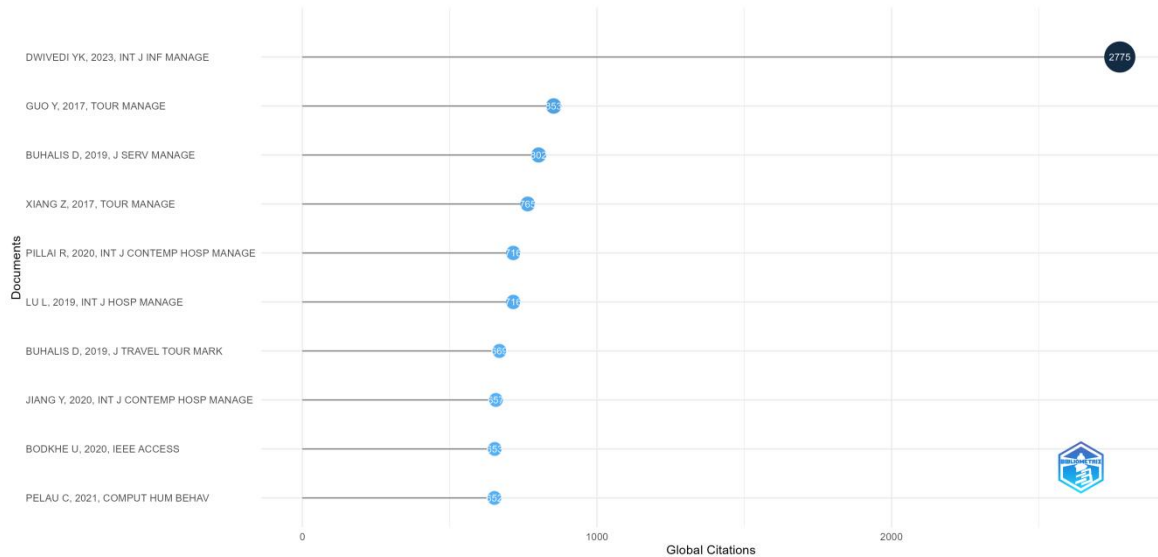


According to a report, there are a total of 1,824 universities located in 82 countries that have made a contribution to the literature of artificial intelligence and management control in the hospitality sector. In this field of science, China, the US, and the UK seem to be the most important countries. China has a lot of national publications (SCP = 189 articles; 64.5%) and a lot of international collaborations (MCP = 104 articles; 35.5%). With 293 articles (15.9% of the total), it is now a world leader. The United States comes in second with 194 articles (10.5%; 194/1,847). Its national publications make up 118 articles (60.8%), and its international collaborations make up 76 articles (39.2%). This shows how involved it is in transnational research networks. The UK is in third place. It has the highest percentage of international collaborations (MCP = 62.1%) among the major producers, even though it only produces 95 articles (5.1%). This proves that it is a major place for people to work together. India and Spain are two of the most important contributors, with 89 and 79 articles, respectively. The main reason these two countries are different is that they mostly make things for their own countries (SCP = 71 and 64). They are also less willing to work with other countries (MCP = 18 articles, or 20.2%, and 15 articles, or 19%).

The most cited document globally, as analyzed, reveals a highly hierarchical citation structure (Dwivedi et al., 2023) in the International Journal of Information Management, which shows exceptional impact in terms of total citations, citations per year, and normalized citations. Thus, Dwivedi et al. (2023) is a crucial and rapidly disseminating reference at the intersection of artificial intelligence and management research. This outlier is surrounded by a strong core

of articles that have been cited a lot. Most of these articles were published between 2017 and 2021 in top journals like *Tourism Management*, *International Journal of Hospitality Management*, *International Journal of Contemporary Hospitality Management*, and *Computers in Human Behavior*.

**Fig.6.** Most Cited and Influential Articles



Even though these works have changed the intellectual underpinnings of AI-driven tourism and hospitality research, it's important to remember that citation counts are the main way to measure their impact, which may not always show deeper theoretical or practical progress. Guo, Xiang, and Buhalis's work has had a lasting effect on theory, but the quick rise in citations of new studies could be due in part to changes in research trends or a greater focus on digital transformation topics. Therefore, citation frequency alone may not capture the full scope or limitations of this scholarship's impact. In general, absolute, temporal, and normalized citation indicators show that there are some important works and that the field is growing quickly and across disciplines.

**Fig. 7.** Co-citation Analysis of Authors in Artificial Intelligence and Hospitality Research

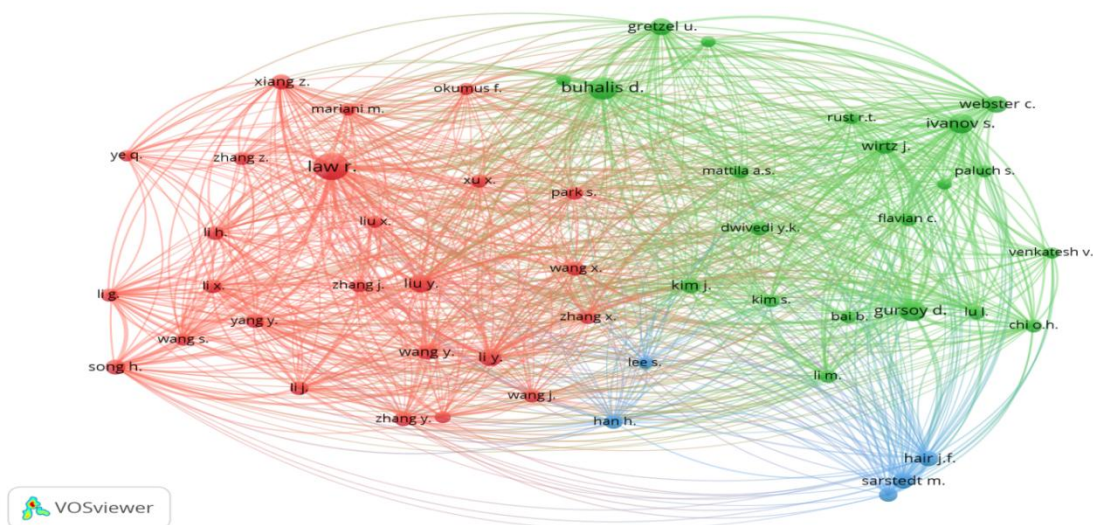
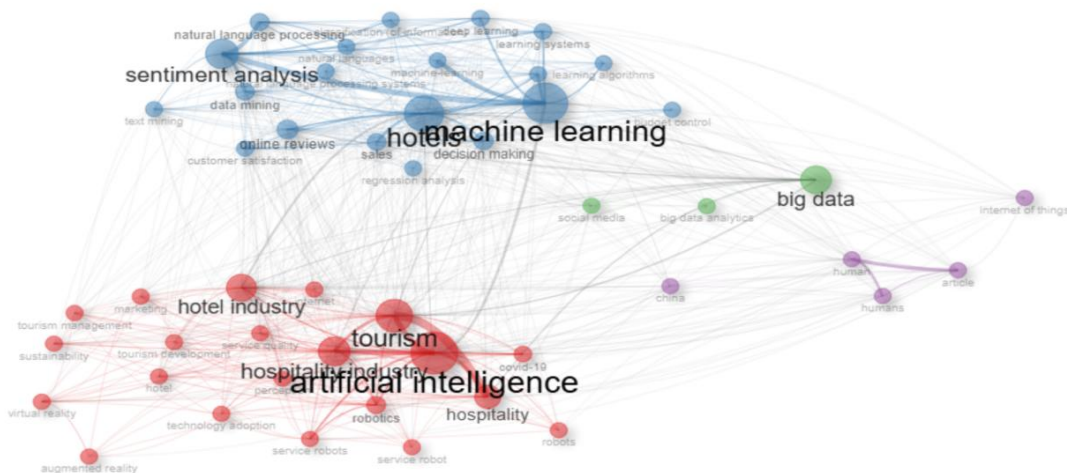


Figure 7 shows the most important networks and how strong the intellectual connections are between authors. It is based on an analysis of co-citations of authors, which happen when two works list a third common work in their bibliographies. Rob Law has the most co-citation links (21,502), followed by Dimitrios Buhalis (13,715) and Dogan Gursoy (14,091). The map in Figure 7 identifies three distinct groups (the lines indicate co-citations between authors). The color coding is generated automatically by the VOSviewer software, allowing different networks to be distinguished from one another. The largest network (in red), led by Rob Law, includes Yifeng Liu, Yanan Li, Yuanhua Wang, and Haoyu Song. All 18 of Rob Law's publications are collaborative. Rob Law has written 18 books, and they all work with other people. The group studies things that are similar, like artificial intelligence and robotics in hospitality, big data and advanced analytics, new ways to use technology in service, operational performance and cost management, consumer behavior and experience, sustainability and green practices, and how to handle a crisis during the COVID-19 pandemic.

The main idea behind the cluster is sustainable operations and AI-driven efficiency in the hospitality industry. Dimitrios Buhalis, Dogan Gursoy, Stanislav Ivanov, Craig Webster, and Ulrike Gretzel are some of the researchers in the second group (in green). These people have similar views and interests when it comes to generative AI, robotics and service automation, big data and predictive analytics, sustainability and digital responsibility, and customer experience and personalization. The main idea of cluster 2 is how AI and people interact with robots to come up with new ways to do things. The third network (blue) comprises five main authors: Marko Sarstedt, Joseph Franklin Hair, Christian M. Ringle, Heesup Han, and Seoki Lee. These authors share common research interests in data-driven decision-making and competitive strategy.

**Fig. 8.** Co-occurrence analysis in AI and Hospitality Research



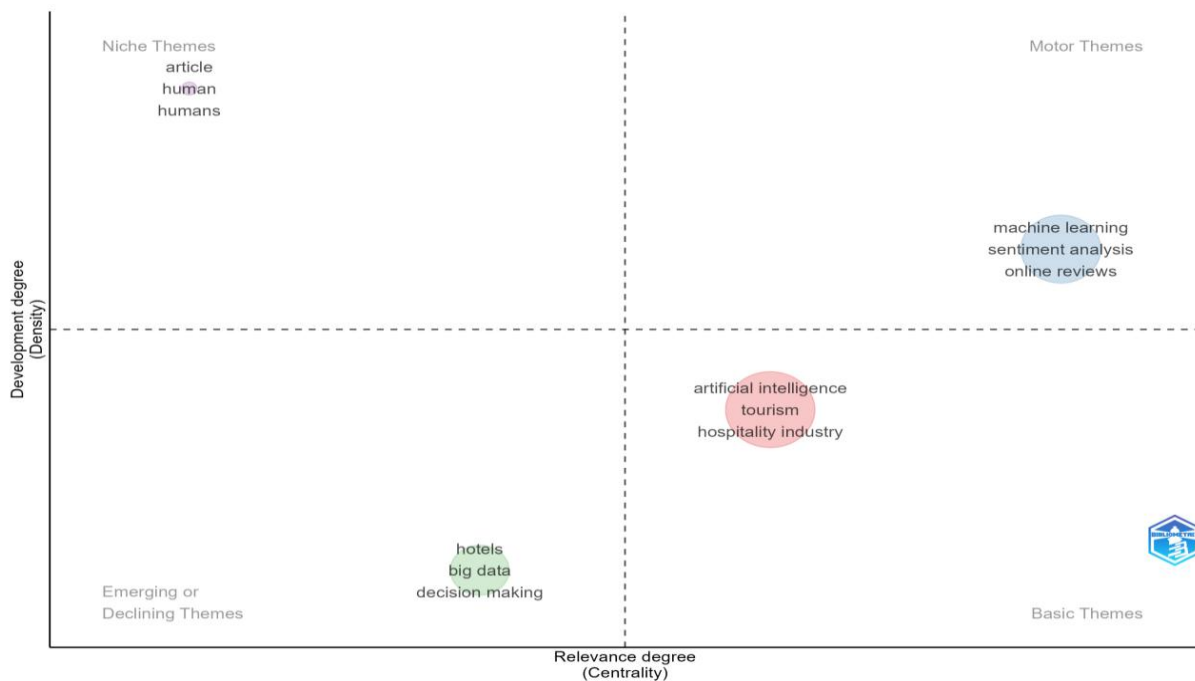
Cluster 1, which relates to using AI technologies in tourism and hospitality, is the biggest and most central cluster. The expression artificial intelligence has the highest betweenness centrality (95.579) and PageRank (0.054), which indicates that it is highly effective in connecting other nodes. In addition, other influential keywords like tourism, hospitality industry, and hotel industry make up the structural part of this cluster. Technology-oriented

terms belong to this cluster as well, such as robotics, service robots, virtual reality, and augmented reality, which show lower centrality, however. Also present are keywords on service outcomes and managerial aspects, such as service quality, customer perception, and marketing. The cluster’s peripheral themes include sustainability, COVID-19, and technology adoption, all are relevant to AI-driven applications in tourism and hospitality.

Cluster 2 deals mostly with analytics & customer intelligence in hotel research. The nodes, hotels, and machine learning nodes, because of their very high betweenness centrality (73.36 and 55.346, respectively) have relatively high PageRank scores too, reflecting their centrality within the cluster. Other relevant nodes are opinion or sentiment analysis and online reviews. Keywords linked to analytical techniques, natural language processing, deep learning, data mining, and text mining, as well as outcome-oriented decision-making, sales customer satisfaction are closely linked. The closeness centrality values are rather homogeneous, indicating that the inter-nodal path lengths are shorter, signifying the closeness of themes. Thus, Analytical hotel-related data using machine learning-based analytics falls under Cluster 2.

Cluster 3 is smaller and mostly revolves around big data and social media. In this group, the node big data is in the centre of this group with a betweenness centrality and PageRank of 18.382 and 0.034, respectively. Social media and big data analytics, along with other nodes, have low centrality. Closeness centrality was almost the same for most nodes. This is why big data and its connections to online data sources and analytics are one of the most important three concepts. In contrast to Cluster 3, Cluster 4 addresses human-centered and contextual aspects of AI. Human and article nodes have more betweenness centrality and PageRank values. This means the nodes are vital in the cluster. Keywords like Internet of Things, China, and humans have lower centrality scores. The closeness centrality score was uniform, indicating that the nodes were quite close to one another. Cluster 4 stresses the importance of human factors and context for AI applications in hospitality.

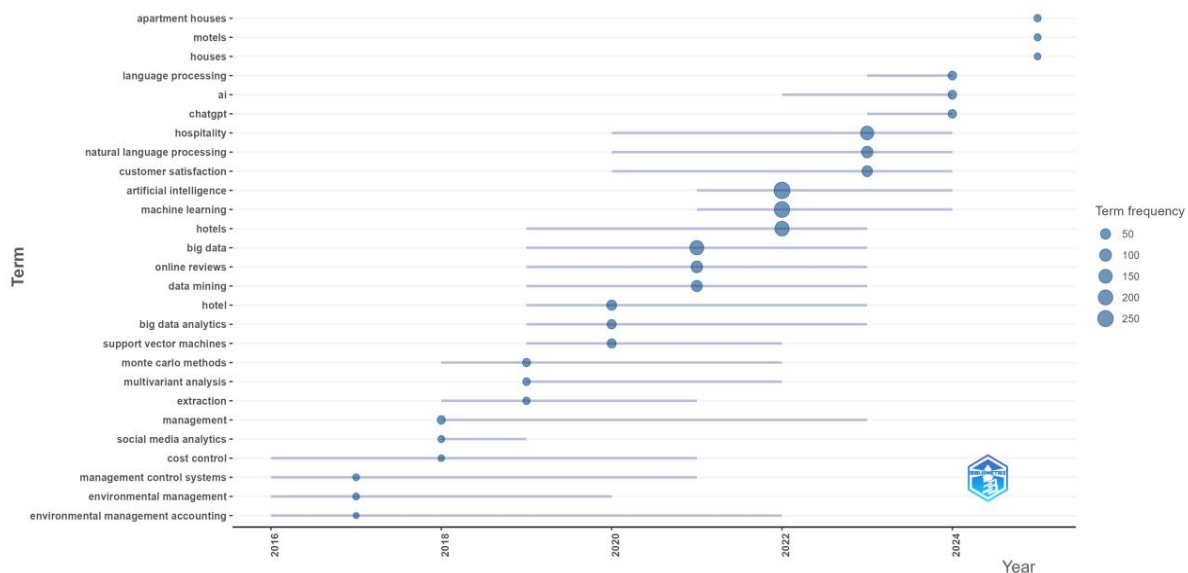
Fig. 9. Thematic Map Analysis



Based on their degrees of centrality (relevance) and density (development), the thematic map identifies four distinct clusters that organize research on AI in the travel and hospitality sector. Cluster 1 is located in the basic themes quadrant and focuses on the tourism, hospitality, and artificial intelligence industries. Its moderate density suggests that this cluster remains conceptually underdeveloped, despite its relatively high centrality, which indicates strong relevance to the field. It stands for a fundamental but still developing research core that combines technological applications with contexts unique to particular industries. Cluster 2, which focuses on online reviews, sentiment analysis, and machine learning, emerges as a motor theme with high density and centrality. This suggests a highly influential and well-developed research stream. It is essential to the advancement of empirical and analytical methods, especially when it comes to comprehending consumer behavior and digital feedback in the tourism ecosystem.

The emerging or declining themes quadrant contains Cluster 3, which includes hotels, big data, and decision-making. Its low density and centrality are indicative of a growing but still dispersed field of study. Although it emphasizes the increasing significance of data-driven decision-making in hotel management, it is still poorly understood and lacks theoretical coherence. Lastly, Cluster 4 is classified as a niche theme because it contains generic terms like article, human, and humans. Its low centrality indicates little impact on the field's larger intellectual framework, despite its comparatively higher level of internal development (density). It is an example of less integrated and peripheral research contributions. In conclusion, the thematic map emphasizes both a pertinent but still developing artificial intelligence domain within tourism and hospitality, as well as a robust and well-developed methodological core powered by machine learning. While more conceptual and empirical development is required, new research on data-driven hotel management points to promising directions.

**Fig. 10.** Trends topics in Hospitality Research



The research on hospitality and hotels is moving from management-focused to AI-related over the years. In the first phase of 2016-2018, the studies have mainly focused on management control and sustainability. Keywords such as environmental management, management control systems, and cost control show foundational interests in internal governance and environmental responsibility in the hospitality organization. The further

period (2018-2020) witnessed a strengthening in the methodology through the use of more sophisticated means, such as the Monte Carlo method and SVM, and data mining. At the same time, social media analytics and online reviews indicate the growing importance of unstructured, externally-produced digital information in hospitality research.

Since 2019, literature has been subjected to a data boom. Terms including big data, big data analytics, and hotel-specific applications became prevalent (median years 2021–2022) and shifted to reflect monitoring performance, customer behavior, and operational optimization. AI and machine learning started becoming the dominant paradigms in 2021. The use of NLP techniques made it easier to carry out an analysis of content created by customers, while generative AI concepts like ChatGPT appeared sharply in 2023–2024. It showed the beginnings of research into conversational agents and human–AI interactions in hospitality contexts. The emergence of accommodation-specific terms such as apartment houses, motels, and houses in 2025 signals an expansion of research foci beyond hotels.

### **5. Potential directions for future research work**

The recent progress of Artificial Intelligence (AI) in hospitality research seems to cover up for various conceptual, methodological, and empirical gaps as revealed by a bibliometric and thematic analysis study, leaving immense space for future research. Efforts must be made towards deeper theoretical integration. The existing literature on the topics is neither rich nor consolidated, with most of it being technology-first, especially on the emerging ones. In the future, researchers should attempt to have artificial intelligence (AI) applications grounded in the theories of management control, organizational behaviour, service-dominant logic, and socio-technical systems. Future research must be supervised and detailed using better methodologies, along with measuring plans and scientific evaluation.

In most cases, predictive tools have a huge amount of empirical work consisting of machine learning and NLP mechanisms. Even if AI affects managerial decision-making, control mechanisms, accountability, and goal alignment, these issues are left aside. Utilizing longitudinal designs, quasi-experiments, and mixed-method approaches can improve long-term impact assessment of research types. Furthermore, we need to investigate the human-centric and moral aspects of AI. Human and contextual factors are situated at the edges of the network, meaning they are studied less. In the future, researchers need to focus on many things, including employee–AI interaction, manager trust in algorithmic systems, skills adjustment, algorithmic bias, transparency, and ethical governance, which is especially important in the service-intensive hospitality industry. Future studies should consider broader empirical contexts, as a fourth step.

Research on current studies is mainly focused on hotels and a few countries. The impact of external validity could be improved by comparative and cross-cultural research as well as investigations of alternative accommodation types (apartments, motels, platform-based lodging), which would reflect structural diversity in the sector. The recent rise of generative AI and conversational agents is set to open a crucial future research stream. Researchers must investigate how tools like ChatGPT can influence management control systems, customer interactions, service customization, and strategic decisions. To maximize AI's potential in hospitality management and control, future research must prioritize theory-driven, human-centric, and context-sensitive approaches as central strategies for advancing the field.

## 6. Conclusion

This study employs a bibliometric approach to analyze recent literature on artificial intelligence and management control within the hotel industry. The analysis of publication trends, leading authors, institutions, countries, and journals, together with the intellectual structure of the literature as revealed by keyword co-occurrence, prevailing and emerging themes, and interdisciplinary research streams, provides a comprehensive overview of the current knowledge base. The study also identifies relevant areas for future research. Over the past three years, there has been a substantial increase in publications addressing artificial intelligence and management control within the hotel industry. Consistent with RQ2, the analysis confirms that the leading journals (IJCHM, IJHM, TM, SS, and JHTT) play a central role in advancing the field of hospitality management.

Some of the most important scholars are Marcello Mariani, Rob Law, Dimitrios Buhalis, Mehrbakhsh Nilashi, and Stanislav H. Ivanov. Some of the most important schools are Hong Kong Polytechnic University, Kyung Hee University, Griffith Business School, ISCTE–University Institute of Lisbon, and several major schools of management. China, the US, the UK, India, and Spain are the most productive countries. Analyses based on network and content indicate that the field of AI-related research in hospitality is both well-established and fast-growing. The co-citation analysis of authors suggests a hierarchical intellectual structure mainly led by Rob Law, Dimitrios Buhalis, and Dogan Gursoy, built on three major streams of knowledge. They are (1) AI-enabled operation efficiency and sustainability in hospitality management, (2) Service innovation through human-robot interaction and automation, and (3) adoption of a data-driven approach to decision-making in hospitality management and competitive strategy.

Analysis of keyword co-occurrence indicates that artificial intelligence is the main integrative concept linking tourism, hospitality, technological applications, and managerial outcomes. Machine learning and analytics, especially sentiment analysis, online reviews, and other NLP-based techniques, are transversal methodological bases, while smaller clusters show the growing importance of big data, social media analytics, and human-centered aspects of AI adoption. According to the thematic map, artificial intelligence represents a mature core theme, machine learning exhibits methodological keyness, and hotel-related AI applications constitute an emerging yet underdeveloped research stream. Trend analysis clearly indicates a temporal shift from management control and sustainability-related research to data-intensive and AI-driven ones, followed most recently by an exciting rise in NLP and generative AIs. The evolution of the AI core has undergone a maturing process, which continues to broaden the research spectrum within the hospitality domain.

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