

Artificial Intelligence (AI) In Hotel Industry and Future Development: an Extensive In-Depth Literature Review and Bibliometric Analysis

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Submitted: 10/09/2022

Accepted: 20/12/2022

Abstract: In 21st century the digitalization and modernization are taken over all the industry. Artificial Intelligence enhances the performance of industry and make a better experience and smarter the businesses. This study identifies the role and challenges of artificial intelligence in the hotel industry, as depicted in the recent literature review. An in-depth literature review was conducted between 2019-2022 published articles. In this study we focused on 34 articles, critically analyzed and identified through the content analysis including themes “artificial intelligence” and “hotel industry”. The study provides the bibliometric analysis of the author, keywords, journals, and citation analysis. The findings of the study are to provide future developments and challenges of artificial intelligence in the hotel industry. It also provided novel models to the small hotel through using of AI.

Keywords: artificial intelligence, hotel industry, in-depth literature review, bibliometric analysis, content analysis.

1. Introduction

In a technological advancement era, AI has much importance in all industries across the business world. AI improves the industry to run their work smoothly and provide better customer service even if they are not around the city. It helps customers to easily access things from remote areas and looks at things closer. AI does things better than a human beginning with the usage of technological advancement. Since the existence of the technology 1950s. it makes things easier and more reliable to customers. Today AI provide technological advancement like understanding issues faced by customers, personalizing their interest, advancing problem-solving, and providing better service. In the modern era, AI plays a vital role in the hotel industry, wherein human factor involvement has taken over industries, like

- Robotics system adoption
- 24*7 service provider
- 360-degree customer experience
- 3-Walk-through version and fast VR enables
- Geo location-based service and marketing app

Nowadays industry started using AI to progressive to enhance the customer experience and make the business stronger and smarter even. It helps to maintain big data analysis and automation to carry out the task.

According to (9) consumer preferences in the covid-19 situation are a different perception when servicing the customers through robots or human interaction, but in this study, the author

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examines the in covid-19 situation consumers want robot services best because of health criteria. Consumer preferences are playing a moderating role for robots-staffed hotels.

According (2) overview of how artificial intelligence and robotics are used in the hospitality industry and a glance of how they are going to be used in 2030. Major findings are like the adoption of robots and artificial intelligence in a disruptive paradigm.

A customer-centric approach combined with effective use of customer intelligence is the best way for hotels to build brand value, increase bookings, and improve ROI. Many hotel giants and industry experts have been noticing that mature-service hotels are growing in popularity due to their real-looking AI robot concierge services as well as their attractive interiors. In recent years, hoteliers have succeeded in bridging the gap between machines and people by becoming at ease using voice assistants both at home and while traveling. Therefore, this technology is being viewed by the hospitality sector as digital concierge services “[The Evolution of Artificial Intelligence \(AI\) in Hotel Industry | by Chatbot News | Chatbot News Daily](#)”. (13) Several hotel tasks, including escorting guests to certain locations, delivering specific products to guest rooms, and carrying certain items that guests wish removed from the guest rooms, could be replaced by robots. It is important to properly plan the capacity and operation design before implementing the robot logistics system in the hotel business. Depending on the time of day, different amounts of room service may be needed. As a result, it could be challenging for organized robots to complete all duties if there are too many occupations that occur during a given unit cycle. Because of this, it is intended to create a real-time dispatching model employing artificial intelligence to implement this system more successfully.

The following are the main purpose and objectives of the study.

- Provide an extensive review of artificial intelligence in the hotel industry.
- Provide the bibliometric analysis of the author, keywords, and citation analysis for visualization of the research.
- Provide the evolution of artificial intelligence in the hotel industry.
- Suggest future agenda for hotel industry managers and customers.

It is clear that, as opposed to social sciences, sectors like engineering, computer science, and health and clinical research are where AI is most frequently investigated. As a result, the current study intends to close this gap in the tourist and hospitality industry and give both academics and practitioners some valuable insights into the potential of AI. Additionally, this study offers an AI viewpoint on the complicated issues in the social realm.

The current study divides into 3 sub-sections first part includes an introduction of the study. Second part literature review of ai and hotel industry. The third section includes the methodology of the study. The fourth part presents the future direction of the study. The final part addresses the implications, limitations, and conclusion of the study.

2. Literature Review:

Evolution of Hotel Industry:

In the 1980s United Nations, World Tourism organized and announced the concept of traveling to other leisure cities and staying. Traditionally people used to travel and find their accommodation. The facilities provided in that era were very poor compared to the 21st century. People travel across the world for different purposes vacations, business meetings, etc. In the early days, only Lodging facilities were only available.

19th century- There was a development in the hotel industry to Indulgence of Luxury. The concept of lodging was changed to bedding, resting, and later own started providing food and beverages during the stay. Even the concept of a hotel has emerged in the 19th century with proper dining facilities. Provided more multistore hotel buildings with beautiful exterior work, stand out the hotel for more customer attraction.

20th century- The concept of the Modernized Hotel industry era: Where it become a part of the culture and emerged big business opportunities, innovations, and well-decorated ceiling and other facilities provided to attract the customer to stay there, like Swimming pools, bedding, resting, food and beverage. So, the hotel industry also entered a competitive industry. Gradually the concept of “Motel” has come up, which is more convenient and affordable to the customer.

21st century- Technological intervention in Hotel Industry: During the 4th industrial revolution the concept of technology usage in hotels and other domains increased. The organization started providing services AI, VR, AR, and Big data analysis services to customers and a real-time view even if they are in a remote area. Easily accessible of things from all over the world.

AI:

The artificial intelligence concept was developed in the 1950s. artificial intelligence refers to work done by machines with superior performance. In the travel and tourism sector, AI plays a major role to provide services to customers effectively. The ability of a machine to generate logical behavior from outside inputs is the subject of the vast computer science field known as artificial intelligence (AI). Making systems that can carry out

activities that would otherwise require human intelligence is the aim of artificial intelligence (AI). Artificial intelligence (AI) is present in everyday life through ride-hailing services, virtual assistants, and search prediction technologies([Artificial Intelligence \(AI\) - Overview, Types, Machine Learning \(corporatefinanceinstitute.com\)](https://www.corporatefinanceinstitute.com/terms/artificial-intelligence/)). 22)Industry 4.0 introduces many changes in society like the introduction of artificial intelligence and robotic technologies were more supportive of organizational development. Service automation is a future robot in substitute for airport management to provide services to customers in terms of guest registration and room services, catboats, and voice virtual assistance. The current state of work profiles, hours worked, relationships between employees and their supervisors, and remuneration models will be impacted by technological advancements in AI, automation, and robotics (15). Businesses are more likely to adopt new AI-based technologies because the greater deployment of these cost-cutting mechanisms could boost economic growth by improving workplace efficiency.

The current study(23) examines customer satisfaction and loyalty can be influenced by artificial intelligence and employee service quality, The study was conducted in Portugal from various hotels.(11) Most of the hotels that were contacted want to advance and build a reputation as 5G smart hotels by deploying an end-to-end 5G network with integrated terminals and cloud apps. These hotels will be able to offer more ground-breaking services in the future, such as integrating their loyalty program with AI face recognition to recognize guests upon arrival, sending electronic room keys to the visitor's smartphone, and sending service robots powered by 5G to direct visitors to their rooms.

The study examines (20)Along with outlining the challenges of data analysis in hospitality, this study demonstrates the value of utilizing ML to improve the quality of data, features, and algorithms. Additionally, this study compares the usage of a robot for hotel customer service against automated machine learning techniques. (Motto et al., 2021a) Although they are not yet fully developed and able to accomplish everything, new developing technologies like artificial intelligence (AI) and service robots have enormous potential for enhancing efficiency, service quality, and the development of new customer experiences. Companies are expected to embrace them cautiously after carefully weighing the costs and advantages. Avoid both overwhelming enthusiasms as well as extreme opposition to these new technologies.

More and more hotel companies are realizing that providing excellent customer service and effectively utilizing client knowledge is a key to raising brand value. Some concepts have quickly materialized, and we have already begun to observe intelligent robot concierges operating in hotels and powered by AI.

Take Hilton's robot concierge as an illustration, which is transforming the visitor experience. Connie is the most amiable robot there are thanks to IBM's Watson AI technology. Others, including the robot front-desk staff at the Japanese Henna Hotel, followed the trail. Speech recognition skills allow them to connect with visitors by answering questions from visitors, checking visitors in or out, and more. According to(1) This study's goal is to investigate how AISMM has affected Saudi Arabian SMEs' new venture performance. Therefore, the current study is crucial for Saudi Arabian SMEs looking to improve their

marketing results using AISMM techniques. The performance of these businesses as a whole will improve and different marketing-related problems will be reduced. Additionally, by studying how AISMM procedures can improve SMEs' performance, this study made a substantial contribution to the body of knowledge (SMEP). This ground-breaking study looked at how AISMM may support efficient company management in SMEs in Saudi Arabia. This study also contributed by emphasizing the importance of good business management in mediating performance promotion.

In this article, (14) proposes an inventive application of ambient technology to the tourism and leisure sectors in order to raise the standard of hospitality services. This project aims to create a non-intrusive ambient ecosystem that analyses its surroundings and changes its behavior in real time, while also offering personalized services to guests staying in the room. In order to accomplish that, the suggested system attempts to eliminate the drawbacks of being away from home while providing a distinctive user experience.

According to (24) The rapid change in services is being driven by technical advancements in Big Data, Robotics, and Artificial Intelligence (AI), which have created new research opportunities. By examining the benefits and drawbacks of using service robots in the hospitality sector, as well as by outlining the technological and architectural features of a fully automated plant based on an applicable instance, our goal is to add to the literature. In order to do so, this article performs a comprehensive literature review in order to provide a comprehensive assessment of the state-of-the-art, define the unit of analysis, and set forth new research directions.

Hotel industry in AI

During the Fourth Industrial Revolution, the technological advancement of the industry has been raised and customers started using the latest technologies for daily day life. As a major economic activity throughout the world, hotel activity is now considered to be one of the most important and developed. The hotel industry provides diversity and advancement in the hotel industry from traditional. The introduction of AI in the industry started producing more big data analysis and all kinds of information promptly. According to (10) Another technological advancement for the hospitality sector is artificial intelligence, however, its future function is not yet clear. This study's main objective was to investigate how hotel staff perceived AI and its effects by recognizing the important roles played by job instability, job engagement, and intention to leave the job through a practical method. (10) A quantitative study with an explanatory sequential mixed-methods design was carried out. A qualitative investigation using a case study approach is used after an empirical survey method. The quantitative study's findings showed that perceived job insecurity had a significant impact on perceived job engagement and that it had an indirect impact on turnover intention through the intermediate variable of perceived work engagement.

According to (28) Understanding the roles, advantages, and problems associated with the advancement of business intelligence (BI) in the hotel industry is the study's goal. The goal of this study is to identify the uses of BI in hotel reservations and lodging. Investigation areas include hotel operations, customer satisfaction, and guest experience. A dynamic technology framework that is combined with AI and a big data resource is implemented to facilitate the acquisition of suitable BI, as shown

by the research. In such a system, AI enables the extensive collection of client data in conjunction with a higher technological standard. For data identification and collection, the study uses a qualitative technique.

According to (7) Technology interactions, such as the use of artificial intelligence (AI) in-service duties, are drastically changing the hotel sector. The pattern of service delivery based on human interaction has altered to include digital engagement as a result of this shift. This expanded the hotel sector's options and solidified its competitive advantage. However, there was still a knowledge vacuum, particularly in poor nations, in both literature and real-world application. The purpose of this article is to investigate the usage of AI in hotels for service-related tasks.

The study examines (9) The tourism sector is increasingly utilizing robots and artificial intelligence (AI) technologies. The alternatives available to consumers today include both human and robot encounters. Several experimental experiments were conducted. Four studies showed that when COVID-19 was salient, guests had a more favourable opinion of robot-staffed hotels than human-staffed ones. The findings diverged from earlier research that was carried out before the COVID-19 epidemic. The respondents' preference for hotels with robot personnel was related to the global health problem since perceived threats had a strong moderating effect on consumer preference.

(21) Find out what effects the use of artificial intelligence (AI) and the internet of things (IoT) may have on how multisensory the brand experiences of visitors to 4- and 5-star hotels. The reason is that the hotel industry's focus on digital experiences has grown significantly. Simultaneously, a growing number of upscale hotels have created sophisticated multisensory marketing plans to give their visitors multisensory brand experiences while they are there.

In-person customer service:

Using AI to provide in-person customer service is known as artificial intelligence in the hospitality sector. Artificially intelligent robots are already being created, and there is a lot of room for this technology to advance. It already can handle common customer-facing circumstances.

The AI robot named "Connie" that Hilton adopted is the best example of this so far. Customers who interact with the robot can get information about local attractions. Most amazingly, it can adjust to different people and learn from human speech. In the end, this means that it will improve the more customers use it.

Chatbots and messaging

For individuals working in the hotel industry, providing front-line customer service may be the most obvious application of artificial intelligence. The technology has shown to be especially useful when it comes to direct messaging and online chat services, which react to straightforward questions or demands. Customers can ask inquiries and receive solutions nearly immediately, 24 hours a day, seven days a week, thanks to the use of AI chatbots, for instance, on social media platforms. This is extremely helpful to hotels since it offers the kind of response times that are nearly hard to sustain with face-to-face communication.

Content analysis:

Apart from customer service, data analysis is another area in which AI is being used in the hotel business. In this function, technology can be used to quickly sort through vast volumes of

data and make significant judgments about current or potential clients.

The hotel company Dorchester Collection, which makes use of the Metis AI platform, serves as an illustration of this. Using this technology, the business has been able to sort through information gathered from surveys, online evaluations, and other sources, and the AI has been able to analyze this information to make judgments about overall performance.

Systematic because AI can perform traditionally human tasks whenever it wants, it is becoming more and more crucial in the management of the hospitality industry. This may allow hotel operators to significantly reduce costs, do away with human mistakes, and provide better service.

Since service robots have not yet been integrated to the point where they can provide desirable levels of service, the hospitality sector is considered intimately related to empathic intelligence (25). The question will arise as to whether AI will allow the complete eradication of humans in our world in favour of robots capable of fulfilling our essential cognitive and emotional functions. or, if that doesn't seem like a viable solution, investing in balanced capacities by fusing human and robot systems.

18) article describes an action research study that resulted in the use of the humanoid robot "Pepper," which has an AI system for supervised machine learning, at the front desk of an Italian hotel to assist guests with information. This allowed investigation of the function performed by this agent and the implications for how customers and frontline employees (FLE) are changing their roles. Based on results, FLEs' roles may primarily evolve into those of enablers - of their customers and technology - as well as innovators and coordinators as a result of this technology, whereas customers may play an increasingly prominent role in enabling technology..

According to (4)With the help of Vroom's expectation theory of motivation and a grounded theory method, this study aims to understand why young customers choose to utilize artificial intelligence (AI) products for purchasing, such as chatbots, voice assistants and augmented reality. The study has significant implications for retailers in developing nations, which are considered emerging markets for retail and have just adopted AI techniques. Retailers will benefit from understanding why customers use AI tools or purchase the way they do according to Vroom's expectation hypothesis.

The study examines (19) even though artificial intelligence (AI) has steadily been incorporated into several businesses, there is still a lack of research on consumer attitudes and behaviors regarding the use of artificial intelligence. Flow, customer-brand identification, and customer advocacy are the three areas to be examined in the current study. It is grounded in the theories of flow and social identity. Additionally, it is proposed that employee reactivity modifies how AI quality affects the flow and customer brand identification. Customer advocacy and AI quality are greatly mediated by flow and customer-brand identification. According to (12)The majority of information technology (IT) applications in the hospitality sector are used to address the common operational issues that arise during hotel management. The hotel business has already come under fire for not utilizing IT to its full potential. The recent study conducted in Hong Kong hotel on IT applications are reported and examined in this paper.

The study argues (27.)article is to learn how AI techniques are being used in the Egyptian hotel industry and to look into how the staff members feel about employing AI tools in the hospitality industry. This study identified the benefits and drawbacks of implementing AI from the perspectives of two key employees. In addition to categorizing employee perceptions of AI, this study provides examples of AI techniques used in the Egyptian hotel industry. Managers may find this information useful in developing policies and strategies to rebuild their technological capabilities and infrastructure as well as to put the best AI tools into practice. Their performance is enhanced as a result, and they also save time and money. 25)The findings also indicated that the expensive nature of robotics technology might make it difficult to use. The use of robots in various hotel departments should be encouraged through government backing, according to one of the primary recommendations. This calls for educating hotel owners and managers about the concept of using robots in their establishments. by emulating Egypt Vision 2030, which concentrates its efforts and investments on using innovative technology in several industries.

In the tourism sector, providing excellent customer service is very important because how guests are treated may make or break a hotel. With artificial intelligence, there are countless ways to enhance this component, from more individualized services to specialized recommendations. Literatures related given in Table No:1, below

Author	Theme	Methodology	Findings
(Samara et al., 2020) (26)	Systematic literature review on big data and artificial intelligence (BDAI) in the tourism sector	Data was collected from all the databases. 102 articles were used for this study. Data collection (1984-2017)	ICT adoption in tourism sectors, challenges of artificial intelligence and big data in the tourism sector.
(Doborjeh et al., 2022) (5)	Artificial intelligence, A systematic review of hospitality and tourism methods and applications	The data is collection from 2020-2021.	Artificial intelligence development for smart tourism.AI methods for tourism sectors.
(Lima, n.d.) (16)	Review of AI in the hospitality industry	Data collection span from 15 th January 2022 to 10 th April 2022.	AI impacts job opportunities and the workforce environment.
(Guerra-Montenegro et al., 2021) (6)	Systematic review and challenges in Computational intelligence in the hospitality industry	160 published articles are taken for the study. (1998-2018)	CI in hospitality and tourism industry challenges and future taxonomy.

(Chi et al., 2020) (3)	Artificially intelligent devices in service delivery in the hospitality industry.	63 articles are reviewed for the study.	Artificial intelligence devices used for the tourism sector; types of AI devices used in the hospitality sector.
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Table No:1 (Existing article in area)

3. Data collection and Methods:

An in-depth literature review is based on what the author proposed. Firstly, the problem from the study is how artificial intelligence is used in the hotel industry and the challenges of the small hotel industry followed by the data collection and evolution and conclusion. An in-depth review is a specialized process that locates existing research, chooses and assesses contributions, analyses and synthesizes data, and reports information in a way that allows for reasonably unambiguous judgments about what is and is not known. In contrast to a regular literature review, an in-depth review is an independent research study that uses data from previous studies to examine a clearly defined issue that is typically drawn from real-world issues. Data analysis using r software package for bibliometric analysis and Vos software used for the analysis process. Data collection through Scopus database with the title of artificial intelligence in the hotel industry.

Data source	Scopus
Search strings	TITLE (“artificial intelligence”, “hotel industry”)

Table:2 (Source Table)

For data collection, the Scopus database was used in September. After filtering the period taken for the study is 2019-2022. The publication stage is final and duplicate data was removed from these criteria. Document taken for the study is only “article” excluding remaining like conference papers, conference reviews, and book reviews. Articles that are taken from reputed

journals. Language is also taken for only in English, remaining languages are excluded from these criteria. Keywords and subject areas are taken from all there is no exclusion in these criteria.

The inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Period year	2019-2022	<2019;
Publication stage	Final	Article in press
Document Type	Article	Conference paper Conference review Book
Keyword	All	None
Language	English	Chinese, Spanish
Country	All	None
Funding transfer	All	None
Subject area	All	None

Table No: 3 (inclusion and exclusion criteria)

The systematic literature version of Prisma software is used for the data collection table. Which will be more useful to show in a flow chart. In this, the current study identifies the overall 131 articles in all fields later excluding the duplicates removed from 29 articles, we have taken only open access journals because some of the articles don't have access so we need to exclude 66 articles. Later language and years and affiliations (Figure No: 1).

Prisma software

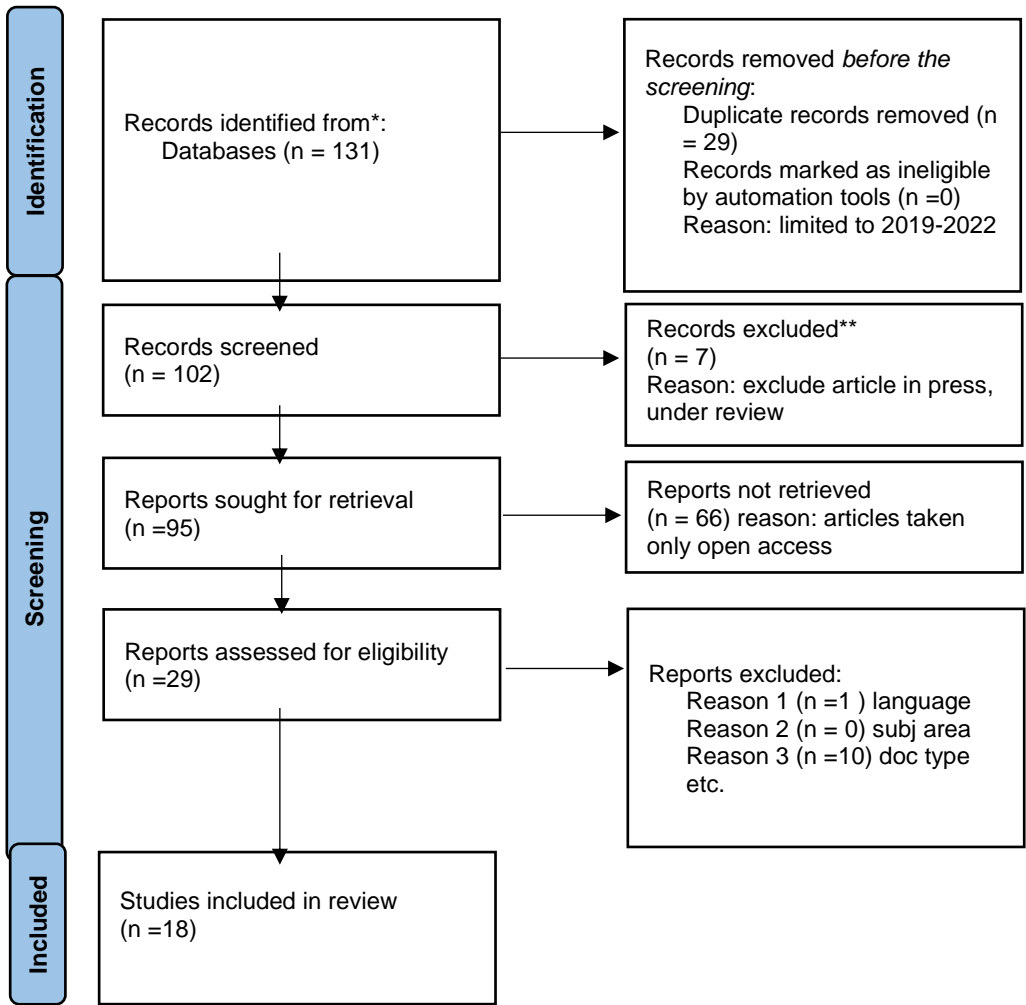


Figure No:1 – (Prisma Flow Diagram)

Document by Year

In 2019, 13 articles were published. In 2020, the number of articles published increased to 27, with the rate of production also rising and the ability to publish in highly referenced

journals. In 2021, the number of papers published increased to 35. There is more room to publish in this field in the future—the rate of articles published in august 2022 is 27 (Figure No:2).

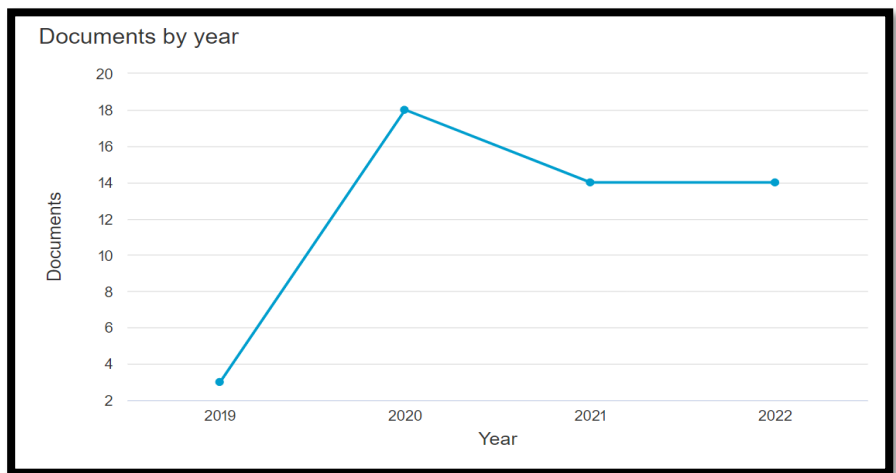


Figure No: 2 (Document by Year)

➤ **Journal- Citation analysis:**

International journal of hospitality management has 127 citations, it does have highest number of publications. The international journal of contemporary hospitality has 125 citations in the hotel industry. Tourism management has 91 citations and the journal of business research has 41, the journal

of marketing has 33, sustainability 28, annals of tourism research 26, the overall citations from these two elements do have the highest citation report from 2019-2022 (Figure No:3). In the future, there is good citation scores from this study.

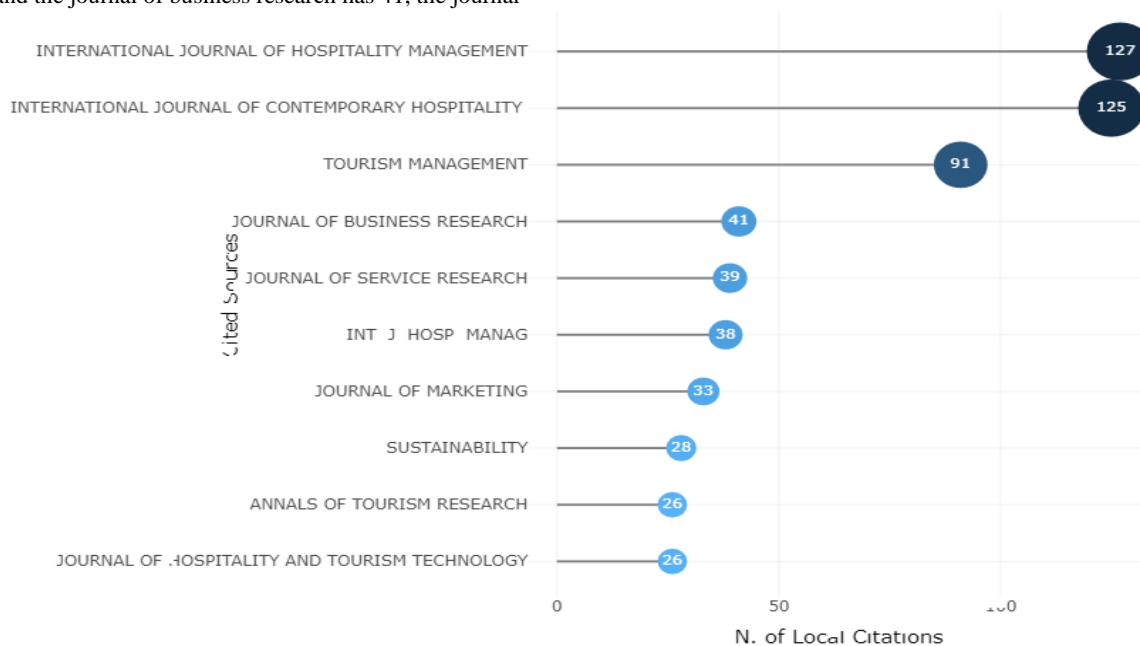


Figure No: 3 (Citation for articles)

➤ **Keyword Analysis- Tree map:**

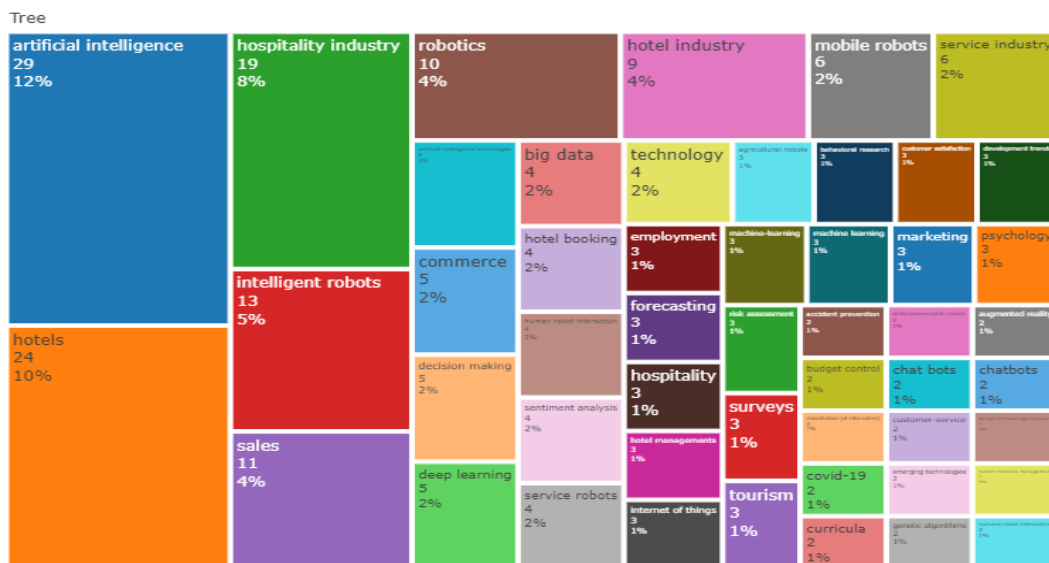


Figure No: 4 (Keywords analysis)

According to a systematic literature review, there is a 12% frequency to obtained from these articles. artificial intelligence has more scope and in hotels, there is a 10% frequency getting

from these reviewing articles. the hospitality industry does have an 8% frequency from the above analysis. The remaining keywords are showing the frequency understandable format (Fig No:4).

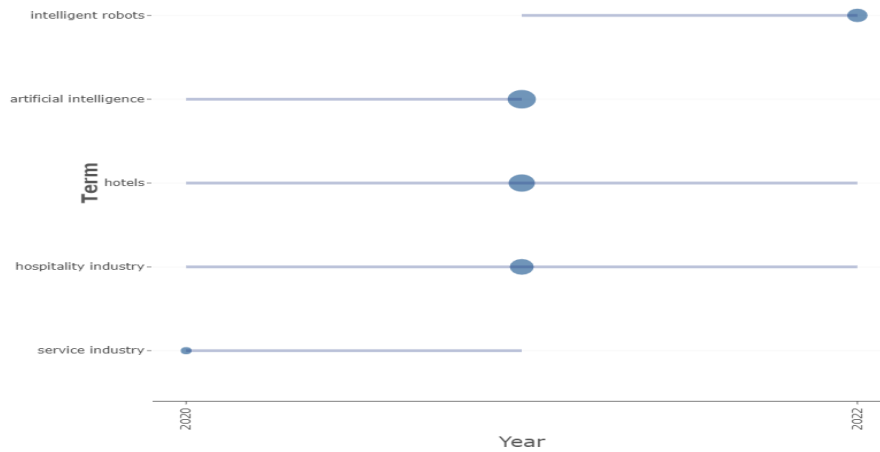


Figure No: 5 (Most used Keyword during Year)

In the above Figure, artificial intelligence progress is very high. The analysis was taken from 2019-2022 (Figure No:5). So intelligent robots have good scope for future research also. But especially in the hotel industry, intelligent robots have a more prominent role to find future directions also. Artificial

intelligence is not only for a specific area to develop in all the sectors it does have good scope for study. The hotel and hospitality, service industry also has more scope for future study.

➤ **Thematic map of Keyword and its inter-relationship between other Variables:**

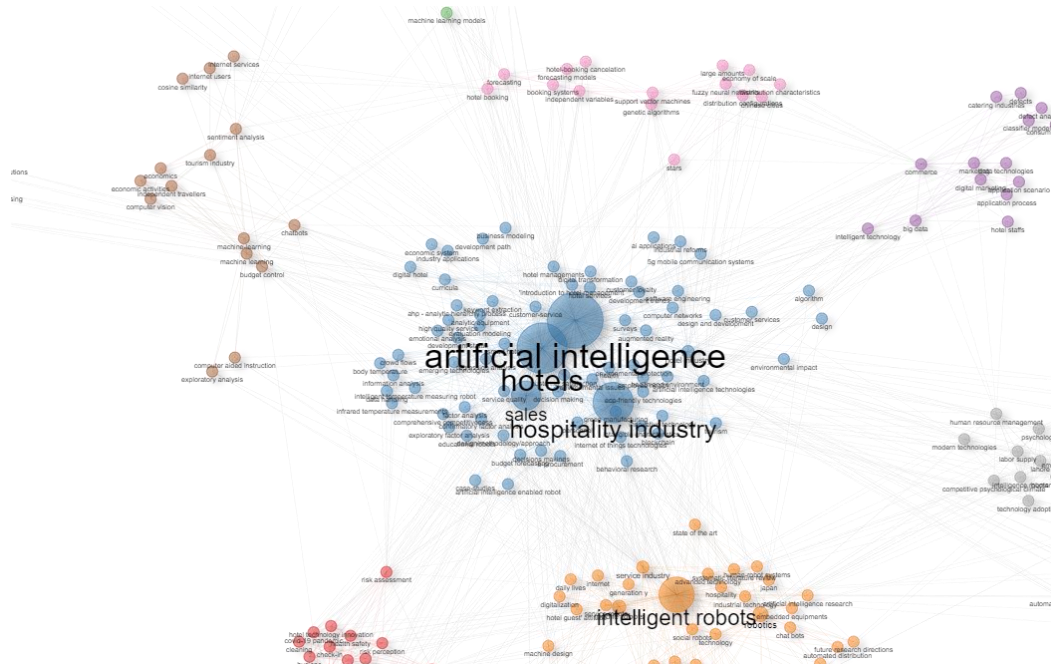


Figure No: 6 (Keywords and interrelation with another variable)

Thematic map

The thematic map provides information about the connections between different areas and the subject connects by providing the pieces of information. Artificial intelligence in the hotel industry has good connections with one another, which can provide the keyword occurrences details. Intelligent robots also have a good area to develop new conceptual frameworks. In future map provides good connections like intelligent robots in service sectors challenges and opportunities for the future perspective. Its is shown in Figure No:6.

➤ **Most cited countries:**

The United States of America is the country with the most citations in the above graph, receiving 333, followed by China with 239, Hong Kong with 211, Australia with 122, FIJI with 23 citations, Portugal with 21 citations, Korea with 20 citations, Singapore with 17 citations, Thailand with 14 citations, and Ethiopia with 10 (Figure No:7). Researchers should concentrate on emerging countries to produce more articles that will have high citation counts since developing countries have more room to improve artificial intelligence in the hotel business while developed countries use it extremely well.

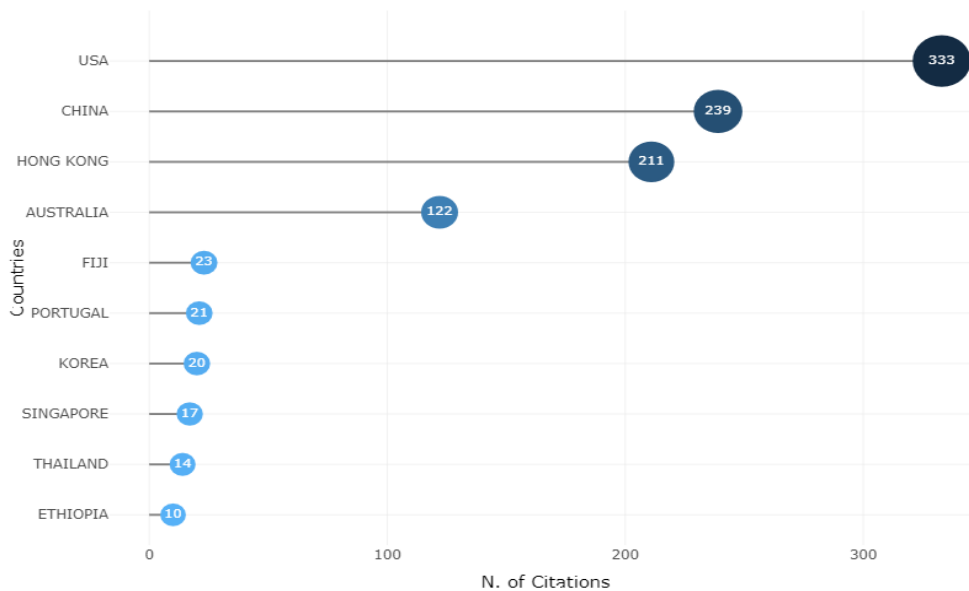


Figure No: 7 (Cited Countries)

➤ **Keyword analysis:**

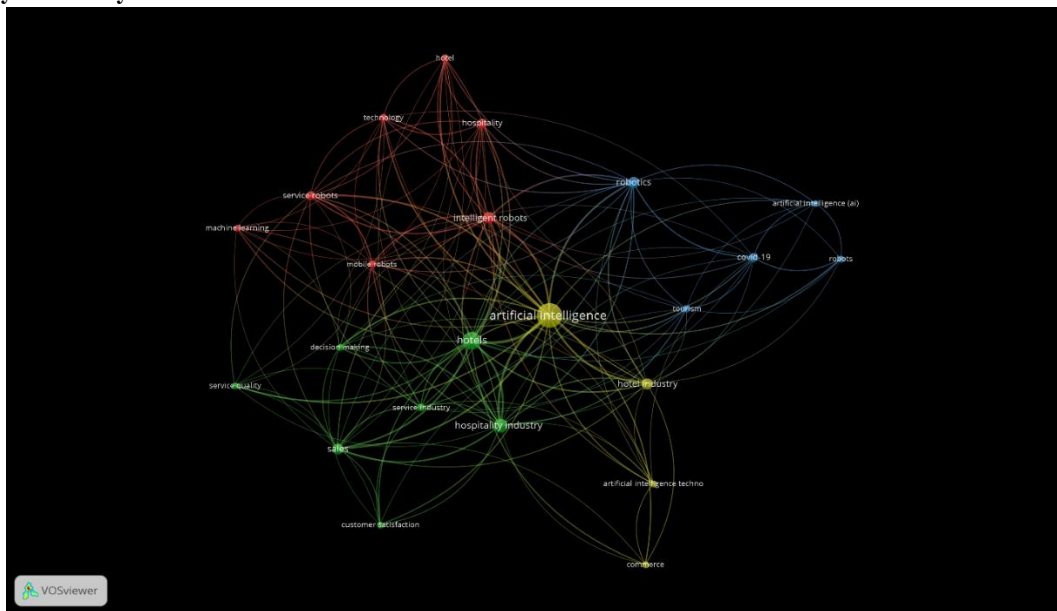


Figure No:8 (Most frequent keywords)

Most frequent keywords are "artificial intelligence" and "Hotels" these are keywords most frequently used and it does have a connection from one node to another node. The hospitality industry and artificial intelligence have more scope to study because in China there is a higher number of studies providing the role of artificial intelligence in the hotel industry. Robotics and its impact on the hotel industry and its problems were provided to the firm.

4. Results and discussion:

The following are systematic literature reviews about artificial intelligence in the hotel industry. There are 18 articles are taken for the literature review which will be published in A and A* category journals. The literature depicts the following table including the findings and methodology author and themes are given. (Table No:2)

Author	Theme	Variables	Methodology	findings	Future study
(Li et al., 2019) [15]	Hotel employees' artificial intelligence and robotics awareness and its impact on turnover intention.	<ul style="list-style-type: none"> AI and robotic awareness Perceived organizational support Competitive psychological climate Turnover intension 	<ul style="list-style-type: none"> Sample: 468 five-star hotel employees in China. Hierarchical linear Modeling software 7.0 for data analysis 	Ai and robotic awareness were significantly associated with employee turnover intentions.	In future studies boutique hotels, and resorts. The study focuses to use mutual trust as a moderator variable.

(Bowen & Morosan, 2018) [2]	Beware the hospitality industry: robots are coming	<ul style="list-style-type: none"> AI ROBOTICS 	Over view and a glimpse of 2030	Service delivery system through robots is increasing the hospitality industry's growth.	Restaurants and small hotels need to be implemented in the 2030 period.
(Kim et al., 2021b) [9]	Preference for robot service or human service in hotels? Impacts on covid-19 pandemic	<ul style="list-style-type: none"> Safety and social distancing Subjective perceived threat High risk of covid-19 Robot-staffed hotels 	Survey: 150 US adults. ANOVA method.	Technological acceptance in the covid-19 pandemic period.	In the future use more service robots. In future use of other perceived preference moderator variables
(Pelet et al., 2019) [21]	IoT and AI in the hotel industry: which opportunities for sensory marketing?	<ul style="list-style-type: none"> Sensory marketing Customer guest experience AI IOT 	Survey:224 respondents Exploratory study and confirmatory study. 4& 5-star hotels.	To provide the opportunities and threats of AI in the hotel industry.	In future applications of pre-stay and post-stay customer digital sensory experiences.
(Nguyen et al., 2022) [19]	The effect of AI quality on customer experience	<ul style="list-style-type: none"> Customer Advocacy Employee responsiveness Flow Brand identification Ai system quality AI information quality 	350 guests from Vietnam hotels. Paper-based survey.	To invest in AI tools for customer expectations to improve the perception of hotel services.	To use more AI quality dimensions in the future.
(Mingotto et al., 2021b) [18]	Challenges in re-designing operations and jobs to embody AI and robotics in services.	<ul style="list-style-type: none"> AI supervisor Technology Customers 	2 Italian hotels with consist of 400 rooms.	Pepper equipped supervisor machine learning in hotels for customer experience.	AI supervisors among FLEs.
(Koo et al., 2021) [10]	Impact of artificial intelligence on hotel employees through job insecurities perspective.	<ul style="list-style-type: none"> Perceived job engagement Turnover intension 	Qualitative with case study method.	AI algorithms in the hotel industry.	Influence of AI in hotel employees.
(Leonidis et al., 2019) [14]	An intelligent hotel rooms.	<ul style="list-style-type: none"> Ubiquitous environment Smart hotels Ambient intelligence 	Exploratory study.	Personalized services provided to the customers through AI	In future studies advanced technologies
(Prentice et al., 2020b) [23]	Impact of artificial intelligence and service quality on customer satisfaction and loyalty.	<ul style="list-style-type: none"> AI service quality Customer satisfaction Customer loyalty Employee service quality 	Survey: Portugal with 15 hotels.	Financial implication for the hotels and provide optimal resource allocation.	Future studies were AI service with customer response, AI services with organizational performance, and customer-related outcomes.
(Lau, 2020) [11]	New technologies used for business survival in the covid-19 pandemic.	<ul style="list-style-type: none"> Information system New technologies AI 	Interview with 9 well-known hotels in China	Role of 5g technologies used in the hotel industry in pandemic situations	Self-service apps and kiosks are deployed to attract more customers.

(Parvez, 2020) [20]	High-tech innovations in the hospitality industry	<ul style="list-style-type: none"> • Technology • Machine learning • Tourism industry 	A descriptive research approach, provide extensive knowledge about AI in tourists.	Using machine learning to predict the current trends and challenges of tourists in the hotel	Machine learning techniques for customer experience in hotels.
(Lee et al., 2020) [13]	Optimal capacity of robotic logistics for the hotel industry	<ul style="list-style-type: none"> • Logistics robots • Artificial intelligence • Capacity planning • Operations research 	Exploratory study Mathematical modelling techniques were used.	By using optimization techniques in hotels minimizing total investment cost.	Development of logistic robots in all hotels because they successfully provide positive results.
(Prentice et al., 2020a) [22]	Emotional intelligence or artificial intelligence: an employee perspective.	<ul style="list-style-type: none"> • Emotional intelligence • Employee retention • Internal service performance • External service performance • AI service quality. 	60-star rating hotels. Online survey Location: Portugal	Emotional intelligence is a significant effect on employee performance	Future research should be on resorts and family daba, restaurants in generality.
(Basri, 2020) [1]	Impact of artificial intelligence-assisted social media marketing on the performance of SMEs.	<ul style="list-style-type: none"> • Effective business management • SME performance • Artificial intelligence assisted social media marketing. 	Sample size 78, 100 questionnaires were sent to the employees. location: Saudi Arabia pls-sem model	Role of artificial intelligence in a start-up business in Saudi Arabia.	Social media marketing can increase the profitability AI using firms.
(Hussein Al-shami et al., 2021) [7]	Artificial intelligence toward hotels' competitive advantage	<ul style="list-style-type: none"> • Room service • Reception service • Tour planning 	Exploratory study Interviewing with hotel managers in UAE.	Finding 4 key drivers: AI infrastructure flexibility, strategic alignment, market share, and customer satisfaction.	Key drivers of AI performance in UAE hotels.
(Shahini, 2020) [28]	Business intelligence in the hotel industry.	<ul style="list-style-type: none"> • Business intelligence • Hotel performance 	Exploratory study	Strategies to implement business intelligence applications.	New technologies are implemented in the hotel industry from an employee perspective.

Table No: 2 (Systematic Literature of 16 articles)

Research question 1: What are the challenges to implementing artificial intelligence in small hotels?
Overly optimistic expectations for AI could be dangerous. Artificial intelligence isn't without its limits. Small business owners frequently install AI-based technologies with great expectations. The features of that solution fall short of what a small business owner may expect given the buzz around AI. Lower your expectations in order to reduce the risk. In this manner, AI may easily coexist with constraints while still generating value for a company. The cost is very high to implement artificial intelligence in the hotel industry.

Research question2: Why artificial intelligence in the hotel industry? What is the novelty of implementing ai in the hotel industry?

Artificial intelligence provides a more significant role to increase the profitability of the hotel industry. While increasing technology development hotel industry increases customer experience. The novelty part is through chatbots and guest

experiences through smart rooms and cloud-based systems are very efficient moves to increase the growth rate of the firm.

Artificial intelligence from an employment perspective:

Artificial intelligence plays an important role in the hotel industry. With the help of artificial intelligence, hotels are better able to respond to customer concerns and offer support in a much more effective and efficient way, lessening the workload on staff and boosting customer satisfaction in the process. Artificial intelligence is already drastically lowering the workload of human customer service agents at a growing number of large hotel chains. Up until recently, the staff at one significant hotel chain had trouble keeping up with the tens of thousands of support tickets it was receiving annually. Its numerous support mechanisms were operating at full capacity. The company's reputation was at danger since responses to guest questions were frequently incomplete or delayed.

5. Future developments:

AI will enable hotels to provide even more individualized and customized experiences, which will revolutionize the workforce in the hospitality sector.

AI is a tool for businesses that enables owners and managers to evaluate a huge amount of the information and data they generate every day throughout their whole organization. Therefore, hoteliers should be open to utilizing AI and putting AI-based strategies into place to increase revenue and maintain cost and product competitiveness in the long run.

- Reputation management
- Personalization
- Revenue management
- Sales & marketing

The use of AI in the hospitality sector is only getting started. Future "hospitality" experiences for consumers and employee activities in front and back of the house are both being disrupted by the emergence of the AI era. The development of the Metaverse, a virtual world that emphasizes social connections, is one obvious example. This platform has the potential to emerge as a new booking channel that will provide customers with immersive experiences and enable them to tour rooms and properties even before they reach their destination. The industry needs to investigate this brand-new area of AI application right away.

Last but not least, the sector needs to be aware that new varieties of AI are on the horizon that goes beyond our present technological grasp. The industry could be further disrupted by these new technologies, so to stay competitive, all industry participants will need to embrace AI.

6. Limitation:

Last but not least, this bibliometric analysis has certain drawbacks. The current study has based on documents included in the Scopus database. The future research may choose to use Google Scholar as a source for data. Second, the study's data source was restricted to documents only connected to travel. Future studies might look at how AI is developing in other areas or compare the evolution using inclusive bibliometrics across many subjects. It is possible to conduct systematic reviews and content analyses of the most cited publications in order to gain a deeper understanding of AI in many domains and to take into account the limitations of bibliometrics. Finally, keywords were the subject of this investigation. As a result, evaluating AI using various bibliometric methodologies in other languages could be quite useful.

7. Conclusion:

This bibliometric investigation offers a thorough analysis of AI in tourism research. Reviewing the most read publications, partnerships, research hotspots, and achievements, demonstrates the scientific proliferation of AI. It is the first study of its kind to explore and demonstrate the development of AI in the tourism industry, according to the authors. By illuminating the key facets of AI, this work fills this knowledge gap. Since McCarthy et al. first proposed the idea of AI in 1955, much has changed since then. As a result, it can be claimed that AI has recently finished its incubation stage and is now prepared to revolutionize civilization.

➤ A systematic literature review provides an overview of articles published in highly cited journals, which will include the

future direction of the study. There are many studies that provide variables to research in that area.

➤ The bibliometric analysis provides the citation report and author and keyword analysis in this study. This will clearly mention which area needs to focus more and which country and productions and clusters need to work more all the details are clearly mentioned in this study.

➤ Provide future direction for the development of artificial intelligence in the hotel industry. Network analysis provides a clear picture of the artificial intelligence importance.

➤ Some developing countries need to more use artificial intelligence in this area. Need for artificial intelligence in the service industry.

Author contributions

R Manigandan¹: Conceptualization, Methodology, Software, Field study **Dr. Naga Venkata Raghuram^{*2}**: Data curation, Visualization, Investigation, Writing-Reviewing and Editing.

Conflicts of interest

The authors declare no conflicts of interest

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