

# CREATING PERSONALIZED GUEST EXPERIENCE JOURNEY IN LEISURE HOTEL

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**Abstract:** *With advancements in technology, the use of Virtual Reality (VR) and Artificial Intelligence (AI) in the hospitality industry has become common. New technologies have changed the guests expectations and their journey. Therefore, the purpose of this paper is to provide a comprehensive conceptualization of the personalized guest experience journey in leisure hotel i.e. the way front-line employees creates personalized and pro-active guest experience that the intelligent use of data and technology support. The paper provides systematic literature review of VR and AI as support tool for front-line employees while creating personalized guest experience during each of the five stages of the guest cycle: pre-arrival, arrival, stay, departure, post-stay. This paper is theoretical, so empirical studies are necessary to validate or reject the proposed concept.*

**Keywords:** *Guest experience journey, Virtual reality, Artificial intelligence, Front-line employee.*

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## 1. INTRODUCTION

Today's digitally advanced consumers expect more technologically driven products and personalized experiences. They are empowered through technology, well informed, they research and form an impression, cultures are diverse, speed is of the essence, decision making is experiential, they demand a stay which is tailor-made to their expectations and personalized to their needs. They want to be captivated from their first thought of travel to their return home with memories that will last a lifetime. They share and compare a hotel experience with unique experiences they and their network had with any industry (Ruel and Njoku, 2020). This finding is especially true for millennial guests equipped with smartphones, wireless connectivity, and digital literacy (Femenia-Serra, Perles-Ribes, Ivars Baidal, 2018).

In response to customers' expectations and as a means to improve customer experience management, many hospitality businesses have started to adopt new approaches to service experience that involve service automation, mobile applications, artificial intelligence (AI), and even the involvement of service robots (Ivanov and Webster, 2018; Ivanov, Webster, and Berezina, 2017). Those IT innovation capability has been widely recognized as being a source of competitive advantage as it enhances interactions between customers and front-line employees (Ottenbacher and Gray, 2004; Sipe, 2016).

Virtual reality (VR) is an important technology in the provision of high-value tourism propositions (Yung and Khoo-Lattimore, 2017). In VR experiences users are immersed in 3D virtual environments, where they can navigate and, possibly, interact, which triggers sensory

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stimulation (Guttentag, 2010). In the hospitality context, it delivers important information to potential customers in a way they can experience it. Rather than reading through descriptions, which may or may not be trustworthy, it offers customers the chance to experience things for themselves. With affordable VR support device (e.g. Google Cardboard) or available VR contents (e.g. 3D maps or content, web or mobile-based applications) customers can experience a realistic presentation of the hotel or one of the nearby attractions (Tussyadiah, Wang, Jung, and Tom Dieck, M., 2018). Essentially, this allows the hotel industry to benefit from the type of “*try before you buy*” marketing that has been commonplace within the food industry for decades (Zhang, Chen, Huang, and Wan, 2019).

Another technology that can improve and enhance operational efficiency and the customer experience in hotel operations is artificial intelligence (AI) (Bowen and Morosan, 2018; Ivanov and Webster, 2017; Naumov, 2019; Prentice, Lopes, and Wang, 2019). Artificial intelligence (AI) refers to computational agents that act, respond or behave intelligently (Poole and Mackworth, 2010). AI is manifested in humanoid and non-humanoid forms (e.g. automated services) that can mimic or perform human tasks and solve problems through learning, analysing, and interpreting data (Mellit and Kalogirou, 2008). It can be effectively utilised in reasoning, explaining, modelling, predicting, and forecasting. Most hotels use AI services such as chatbots, concierge robots, digital assistants, voice-activated services, and travel experience enhancers. Hilton has adopted in operation AI robot called “Connie” which interacts with guests and provides necessary information. Even though AI brings value to the business, it may cause human talent to be replaced by technology in some cases (Ivanov and Webster, 2017; OECD, 2018; Cain et al., 2019; Prentice et al., 2020). Such findings and claims impact employees’ responses within the workplace (Li et al., 2019). On the other hand, McKendrick (2018) and Wirtz et al. (2018) claim that AI can only replace certain tasks, not jobs. Only low-skill and low-wage jobs are likely to be automated and replaced by robots. Wirtz et al., (2018) indicated that customers prefer to deal with “people”, not AI-powered robots. In that sense, hospitality businesses are challenged to find the right balance between human touch and technology while providing personalised guest experience.

Hence, the purpose of this study is to provide a comprehensive review of research on VR and AI in travel, tourism, and hospitality. Second, based on the analysis of available literature, this paper will identify research gaps and create the conceptual model of personalized and proactive guest experience that the intelligent use of data and technology support. Specifically, the paper aims to address the following questions:

- Q1. What are the main developments in VR and AI research in hospitality between 2017 and 2020?*
- Q2. What directions in research would advance the current understanding of VR and AI as supporting tool for creating personalized guest experience in leisure hotel?*

A thorough understanding of what has been done and how VR and AI have performed in the hospitality industry could assist researchers and practitioners in revealing research gaps and creating more personalised guest experience in leisure hotels.

The paper is structured as follows: the below section describes the research methods following the results of a systematic literature review. Based on the research findings, the conceptual model is proposed together with an explanation of the terms that make up personalized guest experience journey in leisure hotel. The paper closes with its contribution and implications for research and practice.

## 2. METHODOLOGY

The systematic quantitative approach employed in this paper is adapted from Khoo-Lattimore, Mura, and Yung (2017) to map, analyse and synthesise the existing literature on VR and AI as supporting tool for hotel front-line employees while creating personalized guest experience. The five-step process includes: (1) defining the research aim and objectives; (2) identifying searched keywords, databases and establish literature selection criteria; (3) searching databases, screening searched outcomes against the selection criteria, and refining the inclusion and exclusion criteria; (4) extracting relevant materials from eligible searched outcomes and structure summary table; and (5) synthesising findings and presenting conceptual model.

The intention was to gather as comprehensive as possible a picture of English-language academic research linking the study. The data collection was conducted between August and September 2020. All articles from four top-tier hospitality journals (*Cornell Hospitality Quarterly (CQ)*, *International Journal of Contemporary Hospitality Management (IJCHM)*, *International Journal of Hospitality Management (IJHM)* and *Journal of Hospitality and Tourism Research (JHTR)*) were gathered and analysed to present a comprehensive review. The four journals were selected because they are the top academic journals for hospitality and tourism as ranked by researchers in those domains (Gursoy and Sandstrom, 2016). They were gathered from three online databases, namely:

1. ScienceDirect ([www.sciencedirect.com](http://www.sciencedirect.com))
2. Emerald Management eJournals ([www.emeraldinsight.com](http://www.emeraldinsight.com)); and
3. Sage Journals (<http://online.sagepub.com>)

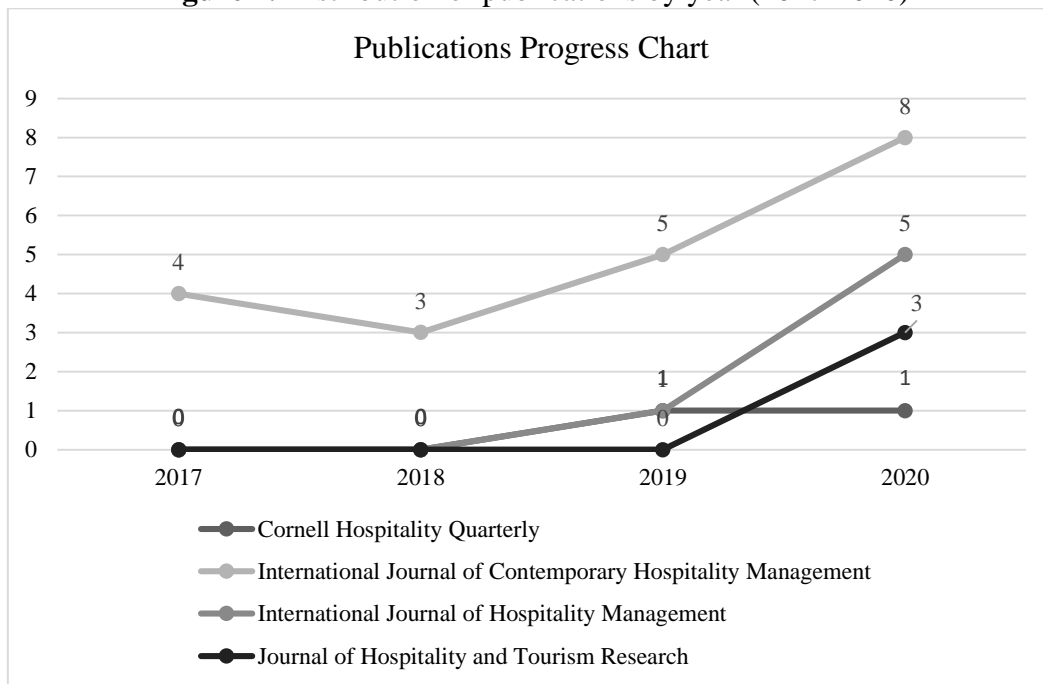
The authors implemented extensive searches in those databases by using a combination of the following search words in the title, abstract, and keywords of the publications: virtual reality, artificial intelligence, guest experience, hospitality. Two selection criteria were applied. First, only full-length papers published in referred hospitality journals were included in the analysis. Research notes, literature review studies, book reviews, and editor prefaces were excluded. The exclusion of non-journal publications has been a regular occurrence in systematic reviews (Kim and Cuskelly, 2017; Thomson et al., 2018; Yang et al., 2017). Second, only papers published in the period from 2017 to 2020 were retrieved to ensure the information analysed and presented was current. Selected journal articles were directly exported to the free reference manager Mendeley which helped the authors organize the research. The authors read the title and the abstract of every publication displayed in the search results to initially assess whether it, indeed, has a focus on VR and AI in hospitality. If the paper was considered relevant for the research, the full text was obtained. At the end of the data collection process, a final sample of 31 papers was generated for analysis. Each publication was further scrutinized closely following the content analysis during which subthemes emerged (cultural context, citation, nature of work, key findings). Based on these findings the conceptual model and conclusions are drawn throughout the paper.

## 3. DESCRIPTIVE RESULTS

This section presents the most relevant results of the literature review on VR and AI technology in selected hospitality journals. As shown in Figure 1, publications on this topic began to appear in 2017 and have been growing in number ever since, suggesting an increase in interest in this subject. A total of 31 articles were published during the year 2017-2020, with 2020 (n=17) as the peak year. From the same table is evident that two hospitality journals *International Journal*

of *Contemporary Hospitality Management* (n=20) and *International Journal of Hospitality Management* (n= 6) included most VR and AI publications between 2017 and 2020.

**Figure 1.** Distribution of publications by year (2017-2020)



Source: authors

In terms of the cultural context within which the extant research is conducted, this study found that most of the extant VR and AI research has been done in the USA (Table 1), specifically for AI research (n=16). The same Table 1 shows that most of the research has studied AI technology (n=25) while only four of them VR technology. The other two studies are research papers on AI technology without a defined cultural context.

**Table 1.** Country-wise distribution of articles

Country	VR	AI	Total
USA	3	16	19
USA and Japan	-	1	1
India	-	2	2
Korea	-	2	2
Taiwan	-	1	1
Australia	-	1	1
China	1	-	1
China and UK	-	1	1
London, UK	-	1	1

Source: authors

The most cited articles are shown in Table 2. Out of 31 selected papers in this study, 22 have citations in Web of Science. Table 2 presents the most cited articles in *Web of Science*. Articles with AI research have the highest number of citations which confirms the interest and quality of papers in this subject.

**Table 2.** Articles with the greatest number of citations in Web of Science

Article	Technology	Citation
Tung and Au (2018)	AI	52
Kuo, Chen, and Tseng (2017)	AI	50
Tung and Law (2017)	AI	48
Sarmah, Kamboj and Rahman (2017)	AI	23
Park and Huang (2017)	AI	14
Beldona, Schwartz and Zhang (2018)	AI	10
Jung, tom Dieck and Chung (2018)	AI	10
Choi, Liu and Mattila (2019)	AI	10
Leung, Lyu and Bai (2020)	VR	5

**Source:** authors

In the following tables, a chronological summary of identified literature on VR and AI is presented. In total, out of 31 research papers, only 4 of them research VR while 27 of the AI technology. Only one paper has included both VR and AI in their discussion. The empirical papers were broken down by method with first qualitative methods (n = 3), then quantitative methods (n = 28) from which 4 of them are mixed methods.

The literature review shows that hotels use different images of physical environments to attract customers and assist them in their decision-making process, resulting in the purchase of hotel stays. Slevitch, Chandrasekera and Sealy (2020) emphasized in their paper that guest's purchase decisions can be based on the visuals and reviews available on hotels' websites. How hotel companies communicate their image, design, and service before the booking or purchase often becomes a competitive advantage issue. Various types of intelligence technologies such as virtual reality (VR) have transformed the traditional ways that people choose their travel destination and hotel stay. Through the digitally accommodated environment, VR allows customers to experience products, services, or places before they purchase (Chung et al., 2015; Tussyadiah et al., 2018)

There are several definitions of virtual reality (VR) in the academic literature based on a range of technologies, concepts, and theories. This study has focused on VR definition used by Slevitch, Chandrasekera and Sealy (2020) in the hospitality journal. In that study, Steuer (1992) defined VR as a "simulated environment in which a perceiver experiences telepresence. Telepresence refers to "the sense of being present in the remote environment" (Steuer, 1992). It explains customers' indirect, virtual experiences through the website (Li et al., 2002). Table 3 lists the latest empirical studies regarding VR in the hospitality industry. Prior VR research in the hospitality and tourism industry investigated which factors influenced customers' VR acceptance and how VR technology shaped their experiences. Findings of this research highlight that VR can be a great marketing tool for hospitality companies by generating more traffic and drawing customers' attention to the hotel. In that sense Touni, Kim, Choi, and Ali, (2020) point out that the use of digital communication technologies increases guest engagement. Moreover, the VR quality factors are key motivators that affect customers' use of VR to maximize their experience and increase their future visit intention to the destination. However, Leung, Lyu, and Bai (2020) research indicates that VR commercials are effective only in influencing customers' immediate decisions, as this influence does not seem to last long. The same study demonstrates that consumers remember details but forget brand names. The use of virtual reality visualizations as a promotional tool might not be more effective than traditional photos (Slevitch, Chandrasekera and Sealy; 2020). Therefore, hotels need to embed more brand messages in VR commercials to increase brand recall in the long run.



Another innovative technology that is changing the way the hospitality industry presently operates is artificial intelligence (AI) which refers to computational agents that act, respond or behave intelligently (Pool and Mackworth, 2010 in Prentice, Weaven and Wong, 2020). It is manifested in humanoid and non-humanoid forms (e.g. automated services) that can mimic or perform human tasks and solve problems through learning, analysing, and interpreting data. Table 4 below presents the latest findings of AI in hospitality journals. In customer service, AI (e.g. robots and chatbots) are extensively used to engage customers and enhance the service experience by providing convenience and flexibility (e.g. 24/7 automated services, concierge robots, chatbots) (Walchuk, 2019 in Prentice, Weaven and Wong, 2020). Such self-service technology creates entertainment and emotional worth (Xu, Jeong, Baiomy and Shao, 2020). Chatbots are artificial intelligence-based service robots designed to provide human-computer interaction via natural conversation language (Chung, Joung and Kim, 2018 in McLean, Frimpong, Wilson and Pitardi, 2020). Because of machine learning and intelligent software algorithms, they provide human-like conversations that are more engaging to the customers (SAP, 2018 in Pillai and Sivathanu, 2020). The earlier versions of chatbots were simple response platforms, whereas the current AI-based chatbots are much more sophisticated, powerful, and capable, increasing the human-technology interaction (Rajan and Saffiotti, 2017 in Pillai and Sivathanu, 2020). They are used for travel planning and customer booking (Bowen and Morosan, 2018 in Shin and Jeong, 2020). Besides the use of the mobile device for hotel booking, AI provides guests the possibility to do check-in and check out without the need to stop by the reception. The guest's mobile device is used as a room key and as a place from which guests can control lights and temperature before even entering the room. (Pillai and Sivathanu, 2020). Some hoteliers are using service robots in various areas, including front desk, guest service, room service, and housekeeping. Hilton hotel chain, for example, implemented a humanoid robot, Connie, to support guests at the front desk (Statt, 2016 in Shin and Jeong, 2020).

There are certain challenges that service robots may pose such as high costs, skill deficits, and significant changes to the organizational structure and culture of hotels (Xu, Stienmetz and Ashton, 2020). Furthermore, the quality of service robot interaction depends on guest engagement (Cha, 2020). Even the guests have favourable attitudes toward robot concierges, guests prefer human employees because of humans 'sincere and genuine interactions. Human interaction in hospitality is mandatory to create personalized service (Sarmah, Kamboj and Rahman, 2017, Pillai and Sivathanu, 2020, Mclean et al., 2020, Zemke, Tang, Raab, and Kim, 2020). Robots can enhance the productivity of hospitality operations but cannot replace human interaction and quality of experience (Tung and Law, 2017). Similar findings Susskind and Curry (2019) noted in the restaurant industry; therefore, it is hotelier's responsibility to create personalized and memorable guest experience which will satisfy the new technology-minded guest.

#### **4. CONCEPTUALIZATION OF PERSONALIZED GUEST EXPERIENCE IN LEISURE HOTEL**

Personalized guest experience is a complex process that is accomplished by any direct or indirect interaction of the customer with the hotel before, during, and after his or her stay at the hotel (Chen and Chen, 2010). Memorable experiences are pivotal in becoming and remaining competitive in the marketplace, especially in the service industry. Sthapit and Coudounaris (2017) point out in their study that memorability is a more appropriate predictor of future behavioural intentions such as revisiting a place or providing a word-of-mouth recommendation than satisfaction. Today's technology-driven, digitally advanced guests

expect personalized experiences at every point of their journey. The framework of this study recommends the application of VR, and AI in leisure hotels as supporting tool for front-line employees while providing personalized guest service during each of the five stages of the guest cycle: prearrival, arrival, stay, departure, and post-stay.

The first stage of the hotel guest cycle is the “pre-arrival” stage during which two main operations are carried out by the potential customer: gathering information and booking. The potential customer initially searches for information about the accommodation options in the destination that interests her/him. He examines different hotel types, compares services, amenities, and prices. At this stage, the hotel needs to be as visible as possible for the potential customer. VR and AI can be applied to engage consumers during all stages of the customer journey (Bec et al, 2019; Flavian et al., 2019) and offer valuable overall experiences. Such technologies used in hospitality can increase customer loyalty, enhancing customer interactions and customer experience (Howell and Hadwick, 2017). In the pre-arrival stage, VR might inspire potential guests by conveying a realistic preview of how the real experience would, in the event, turn out (Neuburger et al., 2018), thus reducing the perceived uncertainty and risk of purchasing the hotel product (Bogicevic et al., 2019). Furthermore, by adding AI to hotel digital concierge service, called chatbots hotel gets in touch with the customer in the earliest stage and creates customized offer. After making a hotel reservation, the guest can use the hotel mobile apps to inform the hotel about her/his preferences such as room lighting, room temperature, extra pillows, food, and beverage order. Moreover, with just one click, guests can order an airport transfer and do the check-in at their convenient time. Such service eliminates much of the administrative work for the front-line employees and thus gives more opportunity for human interaction and the creation of personalized guest experience while the guest is in the hotel. During their stay, modern guests want to remain connected to the Internet (Sarmah, Kamboj and Rahman, 2017) and by using the hotel mobile application they can control room light and temperature, set up a wake-up alarm, turn on the TV, pull the curtains, make a room service order, request spa services and so on. Additionally, through chatbot technology, they can discover information related to the hotel and the attractions and restaurants near the hotel. Even though the chatbots provide reliable information, guests still prefer concierge service face to face (Pillai and Sivathanu, 2020). They are the ones who will add value to the guests’ overall experience. Some hotels use robots for room service and room cleaning. Moreover, robot service can assist with administrative tasks during the departure stage, such as payment and ordering help for the luggage, call an Uber driver, or similar. Finally, guests might record 360-degree videos of their hotel experience and later share it with others who might, thereafter, view it in a VR pre-experience and, as a result, opt for that specific hotel. In order to stay in a touch with guests, hotel management needs to stay active on social media, respond accurately to guest’s reviews, and gather all information for future promotion. AI offers great opportunities in the field of data analysis. AI platforms track numerous guest reviews from different channels - bookings, transactions, satisfaction surveys, third parties, and so on. Therefore, hotel companies should use this information to create personalized offers and enhance the guest experience in all stages of the guest cycle.

Besides all these advantages, it is very important to emphasize that robot’s knowledge and service quality improves with every interaction with guests. If guests do not use them often, the level of provided service quality will be low. Hence, hotel managers must ensure that front-line employees are there for the guest when they need them and trained to excel in the human side of hospitality. In that sense, Bahadur, Azizi and Zulfiqar (2018) and Marković (2019) affirmed that employees play a major role in customer satisfaction and loyalty.

## 5. CONCLUSION

This study presents a systematic literature review of VR and AI technology in hospitality journals in the period from 2017 to 2020. A total of 31 full-length journal papers were retrieved and thoroughly reviewed. A detailed report for the progress on the research methodologies and findings of VR and AI technologies in hospitality journals over the last four years is presented (Tables 3 and 4). The major research has been done in the last 12 months probably due to COVID 19 situation which forced both scientists and practitioners to find the best way for creating personalized experience in the hotel while practicing COVID 19 restrictions such as social distance. In that sense, Jiang, and Wen (2020) emphasized that implementation of AI and VR together with hygiene and health care have become important hotel marketing and management practices during the COVID 19 pandemic. Although more and more hotel companies have started implementing service robots and chatbots in their operations, some research indicated that guests prefer human employees because of humans' sincere and genuine interactions (Thung and Law, 2017; Shin and Jeong, 2020; Pillai and Sivathanu, 2020). Zemke et al. (2020) pointed out that implementation of robot service in operation is more present for routine tasks in Quick service restaurant industry.

Therefore, the conceptual model of this study contributes to hospitality management because it proposes a strategic tool for creating personalized guest experience during the whole guest's journey. AI and VR technology are supporting tools for front-line employees and if they are used appropriately, they can improve guest experiences.

For future studies, it is important to note that the selection of hospitality journals had a high influence on the review process. While this review paper followed the approach recommended by Gursoy and Sandstrom (2016) and their selection of four top-tier hospitality journals (*Cornell Hospitality Quarterly(CQ)*, *International Journal of Contemporary Hospitality Management (IJCHM)*, *International Journal of Hospitality Management (IJHM)* and *Journal of Hospitality and Tourism Research (JHTR)*), future research may consider other journals and databases such as EBSCOhost's Hospitality and Tourism Complete and Scopus when the access is available. The review performed in this study also revealed that more than half of the empirical VR/AI research published between 2017 and 2020 represents USA contributions, therefore some more research should be done in European and Asia countries. Furthermore, this paper is theoretical, so empirical studies are necessary to validate or reject the proposed concept in the hotel and some other service settings such as restaurants, museums, entertainment parks.

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## APPENDIX

**Table 3. A Summary of key research findings VR**

No	Authored work (Year)	Nature of work	Technology	Key findings
1	Lee (2018)	Empirical	VR	<i>Hotel's website is viewed as an important platform that helps develop customers' pre-consumption experiences before customers' onsite experiences.</i>
2	Slevitch, Chandrasekera and Sealy (2020)	Empirical	VR	<i>The use of virtual reality visualizations as a promotional tool might not be more effective than traditional photos.</i>
3	Touni, Kim, Choi, and Ali (2020)	Empirical	VR	<i>Use of digital communication technologies increases guest engagement</i>
4	Leung, Lyu, and Bai (2020)	Empirical	VR	<i>Virtual reality commercials are effective only in influencing customers' immediate decisions, as this influence does not seem to last long. Traditional commercials appear to improve brand attitudes in the long run.</i>
5	Lee, Lee, Jeong and Oh (2020)	Empirical	VR	<i>The VR quality factors are key motivators that affected customers' use of VR to maximize their experience and increase their future visit intention to the destination.</i>

**Source:** authors

**Table 4.** A Summary of key research findings AI

No	Authored work (Year)	Nature of work	Technology	Key findings
1	Park and Huang (2017)	Empirical	AI	<i>The hotel mobile purchasing process needs to be simple, easy to understand and provide customer options to control transactions personally.</i>
2	Kuo, Chen and Tseng (2017)	Empirical	AI	<i>The six-dimensional service innovation model using service robots is an innovative model, which can generate a strategy for the sustainable competitiveness of hotels.</i>
3	Sarmah, Kamboj and Rahman (2017)	Empirical	AI	<i>Use of smartphone application add a value in hotel service innovation.</i>
4	Tung, and Law (2017)	Conceptual paper	AI	<i>Robots can enhance productivity of hospitality operations but cannot replace human interaction and quality of experience.</i>
5	Beldona, Schwartz, and Zhang (2018)	Empirical	AI	<i>Hotel guest technologies should be of a higher standard than those at home, for guests to be satisfied with them. Satisfaction with guest technologies has a relatively stronger impact on customer satisfaction in mid-scale and economy hotels compared to that in upscale and luxury hotels.</i>
6	Tung and Au (2018)	Conceptual paper	AI	<i>Guests and robots can co-create novel experiences and special relationship</i>
7	Morosan and DeFranc (2019)	Empirical	AI	<i>Hotel interactive technology (HINT) improves communication and experience during the whole guest's journey.</i>
8	Kang and Namkung (2019)	Empirical	AI	<i>The mobile app provides personalized services to the customers which can build strong customer relationships, but at the same time increase potential risks, such as privacy concerns.</i>
9	Suarez, Berezina, Yang and Gordon (2019)	Empirical	AI	<i>Customers of quick-service and midscale restaurants were more likely to adopt tablet-based menus compared to those of upscale establishments where direct employee service is required.</i>
10	Ineson, Čomić, and Kalmić (2019)	Empirical	AI	<i>The psychological and physical in-room needs of individual hotel guests are safety, security and control emerge. Some practical suggestions to complement, expand and enrich guests' in-room experiences are virtual travels from the</i>



				<i>room via electronic media, the accumulation of souvenirs and others.</i>
11	Choi, Liu and Mattila (2019)	Empirical	AI	<i>Straightforward and clear information (i.e. literal language) provided by frontline employees and technology-empowered service encounters improves service encounter evaluation.</i>
12	Lei, Wang, and Law (2019)	Empirical	AI	<i>Use of mobile technologies in hotel marketing and operation adds value.</i>
13	Susskind and Curry (2019)	Empirical	AI	<i>Use of tabletop technology add value to the restaurant experience but it does not replace it. It also reduces the amount of service labour needed for the table.</i>
14	Tuomi, Tussyadiah, and Stienmetz (2020)	Empirical	AI	<i>The degree to which service robots were used to automate service operations seemed dependent on the desired business model.</i>
15	Pillai and Sivathanu (2020)	Empirical	AI	<i>Chatbots provide reliable information to the guest but personal attention is missing.</i>
16	Cha (2020)	Empirical	AI	<i>Service robots in the hospitality industry require more customer interaction.</i>
17	Xu, Jeong, Baiomy and Shao (2020)	Empirical	AI	<i>Self-service technology is an instrument that can create entertainment and emotional worth.</i>
18	Jiang and Wen (2020)	Conceptual paper	AI	<i>Artificial intelligence (AI) and robotics, hygiene, cleanliness and health care have become important hotel marketing and management practices during the COVID 19 pandemic</i>
19	Shin and Jeong (2020)	Empirical	AI	<i>Even the guests have favourable attitudes toward robot concierges, they prefer human employees because of humans 'sincere interactions.</i>
20	McLean, Osei-Frimpong, Wilson and Pitardi (2020)	Empirical	AI	<i>Communication with a human live chat assistant positively influences customer attitudes and trust towards the website as well as on increased purchasing intention.</i>
21	Xu, Stienmetz and Ashton (2020)	Empirical	AI	<i>Even though the service robots are anticipated to increase efficiency and productivity of hotel activities, they may also pose challenges such as high costs, skill deficits and significant changes to the organizational structure and culture of hotels.</i>

22	Zhu and Chang (2020)	Empirical	AI	<i>Robotic chefs with human appearance and actions enhance customers' food quality prediction.</i>
23	Zemke, Tang, Raab and Kim (2020)	Empirical	AI	<i>Robots have become more and more implemented into Quick Service restaurant industry, but customers still believe that human touch is critical to maintain in some way.</i>
24	Ho, Tojib, and Tsarenko (2020)	Empirical	AI	<i>Service robots create higher customer satisfaction than human frontline employees after the exactly similar service failure.</i>
25	Prentice, Weaven, and Wong (2020)	Empirical	AI	<i>Services provided by machines or robots can contribute to service quality perception, customer satisfaction and engagement in hospitality business.</i>
26	Sun, Lee, Law and Hyun (2020)	Empirical	AI	<i>Hotel employees with less than three-year hotel work-experience are more optimistic of the perceived usefulness of hotel technology.</i>

**Source:** authors