

A Survey Analysis on Artificial Intelligence used in Hospitality Management

Dhruv Dinesh Furiya¹, Shaikh Mohammad Bilal N²

¹*Dept of Computer Science
Somaiya Vidyavihar University
Mumbai, India*

²*Assistant Professor, Dept of
Computer Science
Somaiya Vidyavihar University
Mumbai, India*

¹dhurv.furiya@somaiya.edu, ²mohammadbilal@somaiya.edu

Abstract

Artificial Intelligence is the present-day trend in technology that is being implemented progressively in our daily life. Artificial Intelligence has been applied in many business to enhance and enrich customer experiences. The Hospitality industry is exploring opportunities to embrace this technology in their business. To date, Artificial Intelligence is being used as an in-person customer care as well as the front desk concierge, a chatbot in the form of online reservation system, and data analysis running in the background. By collecting feedback or customer reviews on selected hotels, we can analyse the business and customer rating impact of implementing different AI technology in hotels as each application of AI is different in how it is demonstrated and how it will influence the end-user.

Keywords: *Artificial Intelligence, technology, chatbot, Hospitality Industry, feedback, reviews.*

1. Introduction

Hospitality, which was rather a part of culture, emerged as a huge business opportunity which has developed very dynamically since the beginning of the 21st century [12]. The hospitality industry has contributed to a great extent in terms of revenue for any healthy economy of a country. The Hotel Industry has become more competitive than ever before. Hence at the present intensely competitive environment, innovation can be defined as the vital component of the co-operate plan of a hotel agency, as it provides direction to its evolution. Artificial Intelligence is referred as “the revitalisation of human Intelligence in machines that are programmed to think like humans and imitate their actions”[11]. The perfect application of new technology such as Artificial Intelligence, leads to game changer and unparalleled experience in tourism and hospitality for providing prime assistants especially in tourism destinations that are facing problems such as mass tourism or lack of tourist’s interest. Artificial Intelligence systems learn from the inaccuracy or the tasks performed and endeavour to adapt themselves to perform particular task in a better way. Contriving client experience with prominent service quality is crucial for customer satisfaction and visit repetitions. The research paper escalates research on the role of AI in

the hotel industry and makes some prognosis about the application of Artificial Intelligence in the future also this paper aims to survey the application of Artificial Intelligence in the hotel industry, and to find its influence on hotel service quality and development.

2. Existing System

Significant hotel enterprises have been working with big technology firms to create their own AI concierge and social robots that interacts with human. In 2014, Aloft hotels became the first company to start using robot technology [13]. In 2016, Hilton and International Business Machines announced an alliance to pilot „Connie“ [15]. In 2020, the Yotel chain will open a property called YotelPad, which will feature a robot that can speak multiple languages and many essential service robot features [16]. These AI chatbots can learn and extend their knowledge base from every conversation they’ve had, which can give guests a more personalized service in future[3]. Concierge robots assists respective tourist guests to check-in and performs tasks such as provide information about tourist spot, hotel services, dining facilities, weather forecasts and etc.

In 2018, San Gabriel in Los Angeles showcases their TUG Robots, these robots deliver your luggage and provide room service. They will also give you a personal tour of the Hotel, these robots are 4-foot-tall and can open doors and elevators also they maneuver around tight corners[4]. In 2015, Silicon Valley’s Crowne Plaza Hotel introduced a robot made by local startup Savioke, which delivers snacks, toothbrushes, and other amenities to guests in their respective rooms[5].



Figure 1. Connie, Hilton’s new Robot Concierge

3. Literature Review

Sr. No.	Author	Research Paper	Advantages	Disadvantages
1.	Linh Lu	Opportunities of AI in Hospitality Industry for Innovative Customer Services – 2019 [2].	The evolvement of AI in Hospitality industry can effortlessly help the task done with nearly perfect hygiene rates.	Applying AI in hotels might be challenging due particular reasons such as Financial Capacity and Size of Hotels.
2.	Georgina Lukanova	Robots, Artificial Intelligence and Service Automation in Hotels – 2019 [6].	The application of AI in the service process allows the elimination of the Language barrier, which facilitates the Service.	Customers and employees perceive Robots as an attraction rather than as a necessity.
3.	Siwen Wang	Application of AI in Hotel Management and its effect on Customer Ratings – 2020 [1].	Whether it's because of pure Entertainment value or just overall usefulness and efficiency of robots, having AI technology on-premise thus gives customers one additional reason to leave a consistent Positive Review.	Since AI is still a relatively new technology, it is still unclear how travellers will interact with such service robots or chatbots and the effect it will bring to business ratings.

Table 1. Literature Review Table

4. The Application of AI in Hospitality Management

Customer experience includes all the aspects that a hotel company is offering – Quality of Service, Service Feature, Friendly Staff, an Idealistic marketing expectations about service, Always-available live customer support, Easy-to-access resource, Reliability. AI is playing an important role in hospitality industry especially because of its ability to carry

out Human functions at any point. This means that Hotel owners can significantly Eliminate human error and Deliver top-quality service.

4.1. In-person Customer Assistance:

The previous decade has witnessed the tremendous rise of Artificial Intelligence. The technology has made an impact in almost every sector, including the hotel industry. The ability for this technology to grow is boundless, it is already able to deal with a basic customer-facing situation [7]. The suitable example for this is AI robot called „Connie“, adopted by Hilton, the concierge robot is able to assist the tourists with information about tourist spot, hotel services and etc. The more guests interact with Connie, the more it learns, adapts and improves its suggestion.

4.2. Chatbots and Messaging:

The technology has been shown to be significantly effective when it comes to Direct Messaging and Online Chat Service, responding to simple requests and queries. Perhaps In-Person Customer Service is the most prominent way AI can be deployed within Hospitality Sector [9]. AI chatbots have been utilised on Social Media platforms, allowing customers to ask questions and get instant response, as customers can't fully rely on support agents for 24x7 support.

4.3. Data Analysis:

The technology can be used to quickly sort through the large amount of Data from Database and draw important conclusions about customers or potential customers. The Dorchester Collection Hotel chain uses the Metis AI platform to sort through data collected via surveys and Online reviews and the AI system is able to analyse these details and draw conclusions about Overall Performance [8].

4.4. Online reputation management:

Artificial Intelligence will play a crucial role in monitoring social media platforms and other customer review forums and platforms. With overwhelming feedbacks and reviews that business companies receive on these platform it is essential to have an advanced monitoring tool, this ensures that the company's reputation is not defiled online [10].

4.5. Tailored Content Recommendations:

After keeping a track on social media platforms, customer review forums, collecting data from surveys and etc. has resulted in curating useful data to be stored and analyse for the specific needs and interests of potential customers. With the help of AI, Machine Learning and IoT the hospitality industry can use this data for business growth and revenue.

5. Result and Analysis

Artificial Intelligence and are changing our lives in many ways. Be it education, finance, business or marketing; AI is bringing significant change everywhere. With every passing year, the presence of Artificial Intelligence in tourism industry is enhancing. Due to increasing application of innovative technology, it is contemplated that the tourism industry will reach unbelievable heights in the future. As per recent research study, the global travel technology market which encompasses AI is expected to grow more than 9 per cent during the period 2010 and 2023 [14]. The pie charts and table 1 summarizes the results of the factors identified through secondary data while analysing the impact of AI in hospitality management.

Artificial Intelligence in Hotel /
Hospitality Industry sounds
Interesting?

97 responses

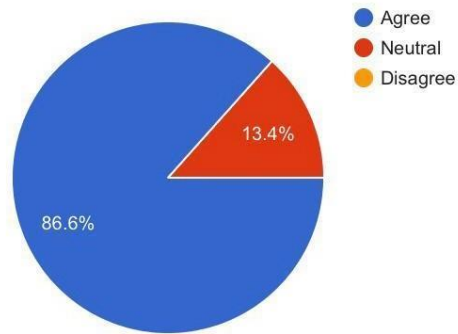


Figure 2. Artificial Intelligence in the Hotel / Hospitality Industry sounds Interesting?

Should AI-based Robot services
be implemented in Hotels?

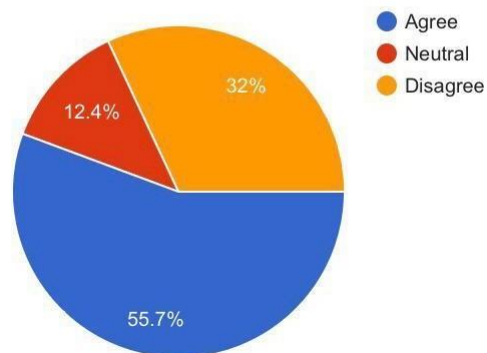


Figure 3: Should AI-based Robot services be implemented in Hotels?

Will AI play an important role in
future distinctly in Hotel
Industry?

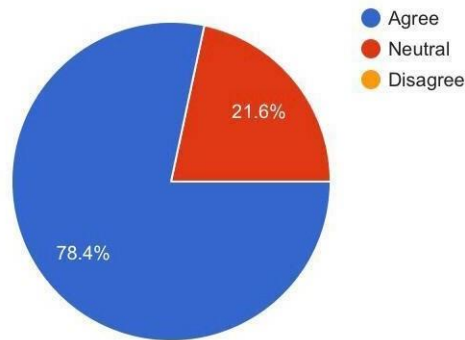


Figure 4: Will AI play an important role in the future distinctly in the Hotel Industry?

Would customers prefer self-
service management through AI
service

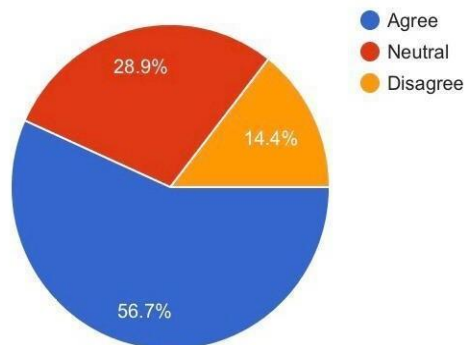


Figure 5: Would customers prefer self-service management through AI service

Will implementation of AI services Improve the ratings of Hotels?

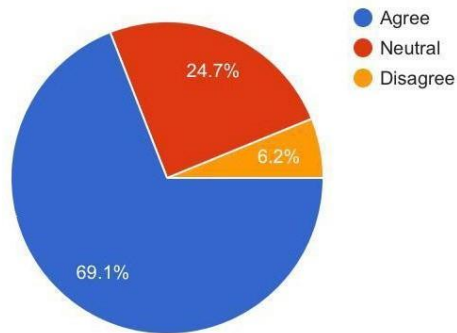


Figure 6: Will implementation of AI services improve the ratings of Hotels?

Reimagining the travel and hospitality trends will AI service have an impact particularly in India?

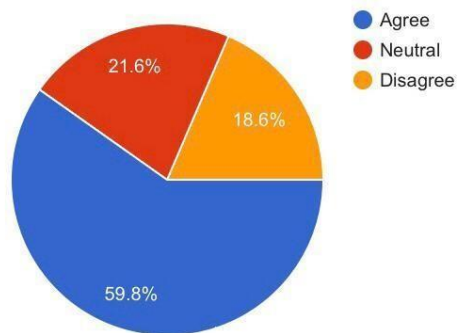


Figure 7: Reimagining travel and hospitality trends will AI service have an impact particularly in India?

Sr. No.	Questions	Agree	Neutral	Disagree
1	Artificial Intelligence in the Hotel / Hospitality Industry sounds Interesting?	86.6%	13.4%	-
2	Should AI-based Robot services be implemented in Hotels?	55.7%	12.4%	32%
3	Will AI play an important role in the future distinctly in the Hotel Industry?	78.4%	21.6%	-
4	Would customers prefer self-service management through AI service?	56.7%	28.9%	14.4%
5	Will implementation of AI services improve the ratings of Hotels?	69.1%	24.7%	8.2%
6	Reimagining travel and hospitality trends will AI service have an impact particularly in India?	59.8%	21.6%	18.6%

Table 2. Result and Analysis Summary

The total number of respondents is 97. The above table shows that 86.8% of respondents feel use of Artificial Intelligence in Hospitality industry fascinating. A Majority of the respondent - 55.7 % acknowledge the fact to implement AI-based Robot service in Hotels on the other hand, 32 % had a contradictory perspective. Artificial Intelligence and are changing our lives in many ways, hence a major percentage- 78.4% of respondents believe that AI will play a vital role in the future distinctly for Hotel industry and 21.6% are uncertain pertaining to this question. The possibilities with AI in hotel industry is vast hence there are options of Chatbots and messaging system, Concierge Robots to be implemented. Therefore 56.7% respondents agreed that customers prefer self-service management through AI service and a limited amount of respondents 14.4% disagreed. AI is playing an essential role in hospitality industry substantially because of its ability to carry out Human functions. Significantly Eliminates human error and Deliver top-quality service although 69.1% of the respondents accepted that implementation of AI services improve the ratings of Hotels, still 8.2% respondents

believe that it won't make a difference and 24.7% of the respondents are uncertain. India is a developing country and considerable amount of respondents 59.8% think that AI- service have an impact i particularly in India in upcoming decade, while 18.6% of the respondents disagree and 21.6% respondents are not sure.

6. Conclusion

Possibilities with AI are huge. Artificial Intelligence is changing conventional standpoint to hotel services with its potential to streamline processes provide valuable cognizance, improve guest experiences. As use of AI in our Daily life is increasing Business Organizations are moving away from rote, towards rules-based automated solutions such as Chatbots, and intelligent cognitive agents that process unorganised data, engage in more Human-like interactions, and progressively study from those interactions. By integrating Artificial Intelligence and modern analytics principles, travel and hospitality industry can secure personalised customer service giving rise to superior value and momentous experience to customers.

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