International Journal on Customer Relations
7 (2) 2019, 27-33
http://publishingindia.com/ijcr/

AN EXPLORATORY STUDY OF CUSTOMER PERCEPTIONS OF USAGE OF CHATBOTS IN THE HOSPITALITY INDUSTRY

Mihir Dash*, Suprabha Bakshi**

Abstract: *This study examines the customer perceptions of the usage of chatbots in the hospitality industry. The focus of the study is on hotels, specifically chain hotels, so that the chatbots become integrated with CRM solutions, facilitating the hotels and the customers to gather information from a single source. In other sectors of the hospitality industry, such as restaurants, there is a lack of exposure of highly automated systems, leading to the failure of customers to grasp the idea of automated processes. One of the biggest challenges identified is that many players in the hospitality industry still do not understand artificial intelligence and how it can redefine the future of the industry. Younger customers were more open to use of technology and expected technology to be involved in at least one aspect of any service being provided, and generally preferred conversing with virtual assistants such as iPhone Siri and Google Assistant rather than agents, unless complex solutions were required; in the last instance, however, most customers expected service at hotels to be provided through personnel, lacking the knowledge of how technology can serve as a personal concierge.*

Keywords: *Artificial Intelligence, Chatbots, Hospitality Industry*

INTRODUCTION

Artificial intelligence (AI) is an area of computer science that focuses on the activities performed by smart machines, that is, they mimic human activities and reactions. Some of the activities performed through AI include speech recognition, learning, planning and problem-solving. A chatbot is a smart device in the AI spectrum, which is designed with the specific purpose of meeting its user's requests. Chatbots understand exactly what the request entails by inferring different information, such as focusing on certain keywords, from the conversation between the bot and each individual user. It requires planning and completion of a task before the chatbot can move onto its next task. It needs to identify the sequence of actions to complete its primary functions when it comes to complex tasks.[1]

There are three basic types of chatbots. The simplest type of chatbot is the scripted chatbot. Discussions with such chatbots can only take predetermined sequences. At each progression of the conversation, the user should select from the limited choices provided to reach the next stage of the conversation. How the options are available to the user depends on the platform being used and the way the chatbot has been designed, i.e., voice command, touch command and so on. A more advanced form of chatbot is the intelligent chatbot. A conversation with such chatbots is more user-friendly in the sense that they provide a wider acceptance range of user inputs. The user can input commands in the form of phrases or sentences via text or voice. This kind of chatbot also gets smarter after each conversation, learning over time how to provide better solutions. However, its intelligence is limited to the way the chatbot had been designed. It is extremely difficult to get a bot to 'understand' context or ambiguity. Another type of chatbot is the application chatbot, which is used with a specific set of predetermined graphical interface instructions, which builds on the scripted and intelligent chatbot functions. There is a misconception that less the effort a device requires from human commands, more intelligent it is believed to be; however, irrespective of how intelligent a system is, it would still require human control at some point to make sure it is functioning in the intended way.[2]

[1] https://botpress.io/learn/what-why

[2] https://www.marutitech.com/heres-need-know-chatbots/

* Associate Professor and Area Chair - GM, Alliance University, Bengaluru, Karnataka, India. Email: mihir@alliance.edu.in
** Assistant Professor, Department of General Management, School of Business, Alliance University, Bengaluru, Karnataka, India. Email: suprabha.bakshi@alliance.edu.in

Chatbots offer several significant advantages. The first advantage is that the chatbot is available 24/7 to offer service. Another advantage is that the customer waiting time is eliminated, so that customers can receive service at their own convenience. For example, in the hospitality context, customers do not have to wait in queue for basic functions like booking a room; chatbots can give them a visual representation of the available options, their tariffs and help them make reservations. Another advantage is personalisation; chatbots act as virtual assistants that can sustain client information to the agent continuously so that the operator can give the client better information and solutions based on current needs and earlier conversations. Thus, they help hotels to customise customer experience at every phase of the visitor cycle, from the pre-arrival stage to the post-departure stage. This increases brand loyalty and chances of repeated visits. Chatbots can also help manage the internet traffic and ensure customers get the right kind of information and assistance, improving conversions and reducing bounce. This is particularly important for businesses which depend mainly on online marketing. Chatbots can also be used to build customer relationships; for example, a chatbot can be designed to wish a customer on his/her birthday as well as send offers to encourage a visit. Such gestures allow businesses to enhance customer experience while performing marketing tasks.[3]

AI can be used to improve customer support services in several ways. From the point of view of agents, AI can recommend classifications, recommend solutions and help the agent understand what the issue is, thereby making the agent smarter, and giving the best reply to customers. From the point of view of the customer, AI can deflect cases by answering questions such as what can be done on the website to help customers find the better solution. It can suggest how the solution can be delivered faster to the customer. AI, clubbed together with chatbots, helps in responding to customers queries faster and more accurately based on data analysis in real time. From the point of view of operations, AI can help to predict the close time of a customer issue, so that agents can be allocated to customers based on the nature of their requirements in an optimal way.[4]

A very popular chatbot is Alexa (Amazon Echo), a virtual personal assistant developed by Amazon. She is capable of voice interaction, playing music, preparing to-do lists, alarm setting, playing audio files, podcasts, providing information on weather, traffic and catering to all sorts of real time information. She can also control several smart devices using herself as a home automation system. Users can extend her capabilities by installing 'apps' (additional functionality developed by third-party vendors), such as weather programmes and audio features.

Fig. 1: Alexa, Amazon Echo

The set-up process for chatbots in hotels involves training them for the hotel website as well as the Alexa for each individual room. In particular, the training included the use of certain keywords, teaching the chatbots the number of ways a guest can be expected to ask information that entails these keywords. This is followed by validation, in order to make sure that the chatbot correctly identifies the words and responds accordingly. Finally, in case the chatbot fails to understand what the customer wants or could not provide the help required due to its limitations, it should forward the connection to an employee who can close the deal and increase customer retention.

Chatbots have slowly started to take over simple jobs that used to be performed by employees. They have access to a large collection of data that can be presented to the user when requested without much delay. They are smarter at collecting information, in terms of both accuracy and time span. They also eliminate the waste of time and effort when dealing with spam users. According to Oracle, 80% of businesses are looking forward to deploying chatbots by the year 2020. Orbis Research projected that the global chatbot market would grow at CAGR of 37.11% until 2021. Juniper Research suggested that chatbots are expected to cut business costs by US$8 billion by 2022.

Technology and the Indian Hospitality Industry

India is one of the most digitally advanced travelling nations in terms of digital tools being used for planning, booking and experiencing a journey. In 2017, India accounted for 3.7% of the global digital travel sales and became the third largest

[3] https://chatbotsmagazine.com/whats-this-buzz-about-chatbots-how-are-chatbots-affecting-the-hospitality-industry-92f28f3b102

[4] https://www.marutitech.com/chatbots-in-hospitality-and-travel-industries/

market in terms of value in the Asia-Pacific region. This feat was made possible because of the country's snowballing disposable incomes and the growth of the middle class which have contributed to the growth of both outbound and domestic tourism. Additionally supplementing these factors is the widespread usage of is smartphones, internet and technology-driven tools and platforms that serve as a catalyst for swift digitisation of the hospitality and travel sector. Online sale of travel bookings in India is expected to increase at a CAGR of 14.8% annually from US$22.3 billion in 2017 to US$38.7 billion by 2021.

Technology plays a vital role in attracting and retaining guests, and in today's tech-savvy world, particularly with the Millennial generation, this means that hotels need to invest heavily in modern solutions to create a more personalised experience. Most of the services that once served as key points for customer delight are now a regular expectation. Reservations must be effortlessly made through smart devices, guestrooms must encourage any sort of content, networks must be strong and secure and information should be available at moment's notice without delay.

As in most other sectors, social media has been instrumental in changing travellers' decision on hotel preferences. A key source of information that helps a guest make decisions is that of reviews, on travel websites such as tripadvisor.com and expedia.com, as well as on platforms such as Facebook and Twitter. Further, travel websites offer a wide variety of tourism products/services, from travel itineraries to customized menus, and they allow customers to compare products/services from other tour operators/hotels, facilitating a more informed decision. According to Ady and Quadri-Felitti (2016), 95% of travellers looked at travel reviews prior to booking. In particular, leisure travellers reported reading an average of six/seven reviews prior to booking and business travellers reported reading an average of five reviews prior to booking. Further, leisure travellers spent an average of 30 minutes reading reviews prior to booking a hotel, with 10% of travellers spending more than 1 hour reading reviews prior to booking.

Mobile phones are now a significant part of the customer journey. From travel research and hotel reservations to checking in and requesting services while on the property, mobile phones and tablets are rapidly turning into the favoured method of communication. It is estimated that about 60% of all travel-related searches are carried out on mobile phones. In fact, mobile technology help hoteliers sell their ancillary services more easily to the customers. Using mobile technology, hoteliers can stay connected to their customer not only during the duration of stay but also during pre-arrival and post-arrival as well. This allows them to gear customer attention to their hotels and increase conversions. Ady and Quadri-Felitti (2016) found that 72% of travellers agreed that summarised review content was mobile-friendly, while 61% preferred to see only summarised review content when booking on a mobile device.

This study mainly focuses on AI and how it impacts the hospitality industry, specifically the hotel business, along with the tourism industry. Technology has played a huge role in shaping and changing how such industries work. The concept of AI is still a very nascent concept in India, and due to budget constraints, technology adoption in different aspects of the business is prevalent only in higher-end hotels. Further, customers still have a long way to go to completely adapt and trust this technology. This study explores how Indian consumers have responded to these changes, while comparing with other countries.

LITERATURE REVIEW

Traditional applications of information technology have become obsolete and have been substituted by new technologies such as robotics and AI, which have the capacity to influence economy and society (Fernald, 2015). It is also visualised with conviction that robots and computers will create innovative products and amenities and that these novel product innovations will result in unimaginable new professions and employment (Mokyr et al., 2015). The replacement of labour with AI will enhance growth rates (Fernald and Jones, 2014).

Chatbots were originally designed as means of entertainment. A chatbot is a program which uses typed conversation and aims at making users think that they were communicating with another individual.[5] Chatbots are computer programs developed using AIML scripts (Satu and Al-Mamun, 2015) that communicate with users using natural language and engages in a conversation with users by generating natural language as output (Griol et al., 2013). Speech interaction has a major role in humanising machineries in future (Yang, 2004). Speech is viewed as the most important facet of communication with regards to humans. Speech carries a lot of information and this is utilised for AI. One manner of extracting information from speech is conversion of speech to text by means of Automatic Speech Recognition (ASR) and excavating speech information (Lee, 2004). Chatbots can answer with appropriate messages, provide recommendations and customers can use them for shopping purposes by a product carousel, all of which are located in the messenger user interface. A chatbot can recognise the buyer's intent and refine offerings based on the buyer's choices and preferences. It can then facilitate the sale, order and delivery process (Van Manen, 2016). Chatbots use the messenger infrastructure and the usage of apps is not

[5] http://www.simonlaven.com

a necessity (Van Manen, 2016; Amir, 2016). The usage of AI as an agent of conversation is more cost-effective than human-aided support (Mott, Lester and Branting, 2004).

Many studies have investigated the acceptance levels of customers towards AI, particularly in developed economies. According to Gaines-Ross (2016), there was great variation in the understanding of AI among consumers, particularly high among Chinese consumers, and there was a good level of exposure to AI, particularly through social media. Further, most consumers were willing to trust AI in their daily lives, for example, in handling medication reminders, travel directions, entertainment, targeted news, manual labour, and mechanics, and most consumers perceived AI's impact on society to be positive.

Several articles are reports have discussed the benefits and challenges of chatbots in the hospitality industry. According to the State of Chatbots Report (2018),[6] the three top benefits of chatbots were uninterrupted 24/7 service, instant responses and quick answers to simple questions; however, the potential blockers for chatbots were preference for real-life assistant and fear of it making a mistake. Further, according to Statistica, chatbot acceptance was highest for online retail (34%), followed by healthcare (27%), telecommunications (25%), banking & financial services (20%), insurance (15%), car dealership (15%) and government (10%). According to the Chatbot Adoption Report (2018),[7] 65% of technical content professionals planned to use chatbots for technical support. The chatbots have to be designed to interact in a conversational manner with consumers, often playing the role of a digital content tour guide, directing customers towards the content they need; this in turn drives engagement and satisfaction among customers. Chatbots can also be instructed to do work on behalf of customers-e.g., some chatbots can set up a website for a customer in less than two minutes. The challenge still is that the vast majority of technical content is not ready for conversational delivery. Campbell (2017)[8] reported that Holiday Inn was the first major hotel chain in Japan to adopt the latest AI chatbot concierge, Bebot, following hospitality giants such as Hilton and the Cosmopolitan Las Vegas. Chatbots can enhance visitor engagement, delivering personalised offers or options instantly and directly to the guest via chat at any point before, during or after their stay, ultimately improving customer experience and loyalty. According to World Hotels,[9] chatbots was one of the most significant trends in hospitality in 2017, and are expected to be the future of marketing and customer support. The use of chatbots in the hospitality industry is still in its nascent stage, encompassing a wide range of services, from hotel bookings and customer service inquiries to pre/post-stay inquiries and general travel advice. Asokan (2019)[10] observed that the hospitality industry has been one of the biggest adopters of chatbots, for a variety of operations, including hotel booking to flight schedules. Chatbots support the hospitality processes through enabling customer and employee engagement, removing language barriers, building trust through personalised service, and increasing reach and profitability of hotels.

METHODOLOGY

The objectives of the study were to find out to what extent customers can be satisfied using AI, to understand the impact of the new technology on the hospitality industry and to identify the limitations/challenges of the new technology in the hospitality industry.

A survey was conducted on a sample size of 100 respondents, consisting of individuals who are likely to travel and use online hotel services. The data were collected using a structured questionnaire consisting of questions about AI. The survey was exploratory in nature, considering the following questions:

- Are you aware of the chatbot feature leading hotels have deployed? Have you used it?
- To what extent do you know about artificial intelligence (AI)?
- While staying at a hotel, would you like to be served by robots and/or chatbots from check-in to check-out?
- While availing help from customer services like Airtel or Amazon helpline, do you prefer a virtual assistant or a real person?
- Do you think technology plays a role in the level of satisfaction customers receive from service?

If a customer had a negative service experience from the employees of a hotel, do you think the customer would be willing to give the hotel another chance if the same service is offered by intelligent systems like chatbots or robots?

Do online reviews and photographs play a role in your hotel booking decisions?

The questionnaire was distributed through different social media platforms to reach a wider sample. In terms of gender, 62% of the respondents were male, while 38% were female.

[6] https://chatbotsmagazine.com/chatbot-report-2018-global-trends-and-analysis-4d8bbe4d924b

[7] https://medium.com/@scottabel/2018-chatbot-adoption-report-widespread-adoption-of-chatbots-to-deliver-product-information-aa-506ce3825a

[8] https://www.hotelspeak.com/2017/06/impact-of-chatbots-hotel-industry/

[9] https://www.worldhotels.com/articles/chatbots-the-impact-on-the-hotel-industry

[10] https://www.analyticsindiamag.com/top-five-ways-in-which-chatbots-are-improving-hospitality-sector/

In terms of age group, 5% of the respondents were in the age group 15-20 years, 30% in the age group 20-25 years, 53% in the age group 25-40 years and 12% in the age group 40+ years.

FINDINGS

It was found that only 6% of the respondents knew about chatbots and had used them. In fact, 60% of the respondents had not even heard of chatbots, 4% of the respondents had heard of them but were not sure what they were and 30% of the respondents knew about chatbots but had never used them. Thus, there was a general lack of awareness about chatbots among respondents.

It was found that only 13% of the respondents were aware of AI. Further, 65% of the respondents had a vague idea of AI, and 22% of the respondents were not at all aware of AI. Most of the respondents in the age group 25-40 years had a vague idea about AI. Thus, again, there was a general lack of awareness about AI, except among the younger respondents.

It was found that 74% of the respondents were open to be served by robots and/or chatbots, 10% of the respondents were not open to be served by either and 16% of the respondents were not sure. Thus, though customers are generally unaware of chatbots, there was a general willingness to learn more about the new technology. This is particularly the case for younger respondents, who were born into an era where technology is ubiquitous, making it easier for them to adapt to a technology-driven culture. On the other hand, the older respondents were unsure or strongly opposed to robots and/or chatbots, due to lack of trust when it comes to how well AI can make experiences more personalised. Their main concern seems to arise from the belief that AI has been designed to only understand certain accents; thus, it may fail to cope with a multilingual country like India.

It was found that 69% of the respondents preferred a real person for availing customer service, 4% preferred a virtual assistant, 12% preferred both and 15% said that it depended on the situation. Thus, even though customers regularly use virtual assistants on their phone, when the problem seems personal, they prefer having a real person to deliver customer service over AI. This could be due to the customers' desire to have familiarity of human contact in case of difficulties when receiving service.

It was found that 34% of the respondents felt that technology played an important role in the level of satisfaction of the service, 9% of the respondents thought that a combination of technology and personal touch was required, 29% thought that it depended on the service context, whereas 28% thought that technology played no role in the level of satisfaction. Thus, the reaction to technology in service was mixed. For the largest segment of respondents, technology enhanced service satisfaction by bringing new service experiences. Another segment of respondents welcomed technological innovations in service but was not automatically satisfied by them. The third segment was against technological innovations in service, perhaps wary of the lack of personal touch in service.

It was found that only 15% of the respondents were willing to try AI in case of service failure, while 48% were not willing to try AI and 37% felt that it depended on the service context. Thus, particularly in the case of service failure, customers are largely not comfortable with service automation, preferring the human factor.

It was found that 54% of the respondents perceived online reviews and photographs of the hotel rooms and facilities to be important to a great extent, 39% to some extent, 2% not at all and 5% were not sure. This represents an opportunity, as chatbots can be instructed to allow users to view pictures and reviews of previous customers to provide a better understanding of the kind of serviced they will receive. Since the impact is greater, it can be assumed that those who still feel hesitant about receiving services from AI systems would have a change of mind from positive reviews and honest pictures.

DISCUSSION

AI is expected to change the way the hospitality industry works. Customer expectations for more personalised service experience have been increasing rapidly. The only way to meet such expectations is through advanced technology. However, even if some hotels want to adopt the new technology, they face a dilemma because of the high cost involved, but the long-run benefits do outweigh the costs and maintenance hassles. As a first step, hotels need to develop an internet presence, specifically on social media, to gain trust in the consumers' minds.

The main finding of the study was that customers' lack of awareness and knowledge about AI makes them wary of using its service. In order to make customers more comfortable with AI applications in the hotel industry, the leader hotels should focus on making customers more aware of what AI can do. A possible approach would be to provide tutorials on chatbots and to how to use them. The leader hotels should also promote awareness on the benefits of investing on AI technology to the follower hotels, as this would lead to a more widespread usage of AI in services, which would in turn lead to greater acceptance on the part of customers.

Another interesting series of findings was with respect to willingness to adopt technology. The results of the study

suggest that the younger customers were more open to use of technology and expected technology to be involved in at least one aspect of any service being provided. Also, customers generally preferred conversing with virtual assistants such as iPhone Siri and Google Assistant rather than agents, unless complex solutions were required. Despite this, most customers expected service at hotels to be provided through personnel, lacking the knowledge of how technology can serve as a personal concierge.

Thus, the two major perceived limitations of AI applications in service are the lack of exposure and understanding on the part of customers on how chatbots work, and customers' concern of language/accent recognition issues, due to which India is still lagging behind in implementing the technology.

There were several limitations inherent in the study. The sample size for the study was relatively small, so that the results may not be generalisable. Also, the study was exploratory in nature, so that the findings must be examined in greater detail, particularly the contradictory finding that customers are willing to interact with chatbots, but are unwilling to receive service through chatbots, preferring personnel instead.

The results of the study have implications in terms of explaining technology acceptance of chatbots for the hospitality industry. The technology acceptance model of Davis (1989) suggests that two important factors influence a potential user's decision to use a new technology: perceived usefulness and perceived ease of use. However, the results of the study suggest that willingness to use chatbots to avail customer service in hotels may be affected by several other variables, particularly including perceived risk/uncertainty of outcome, incidence of service failure, complexity of service, familiarity with technology in general and awareness/familiarity with AI. Perceived risk would adversely affect perceived usefulness of the technology, as would service failure, leading to decreased willingness to use the technology. On the other hand, familiarity with technology in general and awareness/familiarity with AI would positively affect perceived ease of use of the technology, increasing willingness to use the technology. Further, complexity of the service would adversely affect both perceived usefulness and perceived ease of use, decreasing willingness to use the technology. In fact, complexity of service would also affect perceived risk and incidence of service failure. Thus, the results of the study suggest that the technology acceptance model for chatbots in the hospitality industry should be expanded to include perceived risk/uncertainty of outcome, incidence of service failure, complexity of service, familiarity with technology in general and awareness/familiarity with AI, along with other external variables. There have been no studies on technology acceptance with respect to chatbots in the hospitality industry, so this would be an important contribution to the literature.

REFERENCES

Ady, M., & Quadri-Felitti, D. (2016). *Consumer research identifies how to present travel review content for more bookings*. Trust You and New York University Joint Study.

Amir, A. (2016). The rise of chatbots: Why brands are embracing conversation. *Marketing Tech News*. Retrieved from http://www.marketingtechnews.net/news/2016/jun/07/rise-and-rise-chatbots-why-brands-are-embracing-conversation/fb

Crutzen, R., Peters, G.-J. Y., Dias Portugal, S., Fisser, E. M., & Grolleman, J. J. (2011). An artificially intelligent chat agent that answers adolescents' questions related to sex, drugs, and alcohol: An exploratory study. *Journal of Adolescent Health, 48*(5), 514-519.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-339.

Fernald, J. G. (2015). Productivity and potential output before, during, and after the Great Recession. Parker, J. A. and Woodford, M. (Eds.), *NBER Macroeconomics Annual 2014*. Chicago: University of Chicago Press, 1-51.

Fernald, J. G., & Jones, C. I. (2014). The future of US economic growth. *American Economic Review, 104*(5), 44-49.

Gaines-Ross, L. (2016). What do people - Not techies, not companies - Think about artificial intelligence?. *Harvard Business Review (Digital Version),* 2016/10.

Griol, D., Carbó, J., & Molina, J. M. (2013). An automatic dialog simulation technique to develop and evaluate interactive conversational agents. *Applied Artificial Intelligence, 27*(9), 759-780.

Lee, C.-H. (2004). From knowledge-ignorant to knowledge-rich modeling: A new speech research paradigm for next generation automatic speech recognition. In *Proceedings of the International Conference on Spoken Language Processing (ICLSP)*, 109-111.

Mokyr, J., Vickers, C., & Ziebarth, N. L. (2015). The history of technological anxiety and the future of economic growth: Is this time different?. *Journal of Economic Perspectives, 29*(3), 31-50.

Mott, B., Lester, J., & Branting, K. (2004). Conversational agents. *The Practical Handbook of Internet Computing*.

Satu, M. S., & Parvez, M. H. (2015). *Review of integrated applications with AIML based chatbot*. First International Conference on Computer & Information Engineering,

Department. of CSE, Rajshahi University of Engineering & Technology, Rajshahi, Bangladesh.

Shawar, B. A., & Atwell, E. (2002). *A comparison between Alice and Elizabeth chatbot system*. University of Leeds, School of Computing Research Report No. 2002/19.

Yang, Y.-P. (2004). An innovative distributed speech recognition platform for portable, personalised and humanised wireless devices. *Computational Linguistics and Chinese Language Processing, 9*(2), 77-94.

Van Manen, T. (2016, April 14). Bot or not: dit is waarom Facebook inzet op chatbots. Marketingfacts [Web log post]. Retrieved from http://www.marketingfacts.nl/berichten/chatbots-facebook-inzet-chatbots- messenger