

Consumer Acceptance towards AI-enabled Chatbots; case of Travel and Tourism Industries

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Abstract

Various industries and service providers employ Artificial Intelligence-based intelligent tools to improve customer service. The systems aim to ease the work of humans employed by reducing the redundant tasks to support the customers more focused on their needs. Commonly used and widely accepted use of one such artificial intelligence system is chatbots. Chatbots have become the primary system where the users interact when the user needs to know some information from any customer support application. This paper aims to study the different types of chatbots and their usefulness based on their adoption in the travel and tourism industry. The paper reviews the survey results to identify the customer acceptance of chatbots in the travel and tourism industry. The study includes how the customers have accepted the AI-based chatbots and how well and efficiently the chatbots are helpful for the travel and tourism industry customers, as per the survey conducted among the IT industry professionals in the city of Pune, India, who are frequently using various online services to plan their vacation trips. From the study, we could identify that the majority of the respondents favored the use of AI-enabled agents and concluded that the AI agents enabled in the various websites and applications help them solve their queries and concerns and meet their customer requirements service. They also feel that using these technologies could serve their fears better. However, most of them concluded that the chatbots need to be more intelligent and keep learning about the various scenarios as they fail to provide the best solutions to the customers.

Keywords: Artificial Intelligence, Natural Language Processing, Chatbot, Travel and Tourism Industry, Consumer Perception, Machine Learning, Customer Acceptance, Technology.

1 Introduction

Artificial Intelligence (AI) enabled Chatbots are trained to simulate human conversations with the help of voice commands, text chats, or both. Some commonly used chatbots include websites that answer frequently asked questions (FAQs). In today's society, most sectors are moving towards digitalization and automating most of their daily activities; this helps the industries grow better with greater efficiency [1]. In this context, chatbots, embedded in websites, interactive voice response (IVR) based tools are commonly used in various sections to minimize the people's work and improve the efficiency of the business by helping them serve the customers in a better way. An excellent alternate is organizations' advent of chatbots to complement human

patron support within this context. Chatbots are available to serve the customers in textual or voice-based interactions, to understand their problems. The motive of these intelligent bots is to simulate human communication in reaction to herbal language entered via textual content or voice.

An excellent alternative is the organization's advent of chatbots to complement human patron support within this context. Artificial intelligence applications are often defined as computer science subjects that discuss how robots can imitate human intelligence [7]. The development of AI is inextricably linked to the advancements in modern computer technology; AI-based studies are defined as "the scientific study of the computational principles underlying ideology and intelligent behavior"

[8]. At the same time, other studies deal with how machine and human intelligence interact with each other. In general, AI can be categorized into three categories: Weak AI, which can substitute humans on few occasions; Strong AI, which has a high level of insight into the external entities with automated learning competencies; and Artificial Super Intelligence, which represents systems that has super intelligence that vastly outnumbers human intelligence. AI can also be explained differently by marketing and commercial uses rather than underlying technology. Consumers benefit from AI since it allows them to have a more personalized buying experience. AI provides manufacturers and retailers with more accurate forecasting tools, making better business decisions. The AI tools are employed in the various stages of the business to facilitate the company in a better way; the dependency on AI-based tools is common in all the new age industries and service providers; the AI tools are employed in automating and performing risky and tedious tasks with much more precise and handle them properly.

The researchers attempt to comprehend it by applying network science understanding. Tourism, they feel, is a dynamic and complicated system. This system is explored as a holistic unit, provided with the impossibility of understanding their dimensions as composites of individual features and actions [9]. Gunn was one of the pioneers to suggest the idea of a working tourism model that is made up of two parts: demand and supply. Some academics look at the tourist industry from the supply side, focusing on the competitiveness of tourism locations on a smaller scale. They assume that the destination may be defined as a sophisticated system, with local players accommodating public and private organizations serving as nodes and relationships serving as links. The travel and tourism industry, being a significant and widespread industry, have to do their customers in a better way to keep them with them, thus studying the customer experience in employing the various technologies and their success in serving the customers have to be taken in with appropriate concern to serve the customer better. The study of the customer experience for the usage of AI tools is studied with the help of interviews and questionnaires to analyze various factors that relate to measuring the

customer expectations and feedback. The study primarily focuses on analyzing the customer experience of IT professionals using chatbots while using multiple travel and tourism services. The sample that we have chosen for the study is inclined towards the knowledge of chatbots, and they will have the rough outline knowledge with how the same works. Thus, this sample is efficient for the survey with the effectiveness and acceptance of using intelligent platforms like chatbots while planning their vacation.

2 Related Work

Chatbots are artificial intelligence tools developed explicitly for interacting with people via herbal language [2]. These chatbots help simulate human communication in reaction to herbal speech entered via textual content or voice [3]. In Norway, numerous banks have brought textual content-primarily based chatbots. Clients are invited to immediately cope with their customer support inquiries to the chatbot. For instance, a patron of a financial institution could also enable the customer support chatbot to initiate the loan process for younger adults and conduct the pre-requisite formalities via chat. Though chatbots are examples of the latest hobby surge, chatbot studies and improvement dates returned to the 1960s [4]. The new pursuit can in large part be attributed to 2 trends. The trends inside system gaining knowledge of and synthetic intelligence have made chatbots less challenging to educate and implement because of bolstered abilities for figuring out customers' intents and sentiment and stepped forward herbal language processing [6].

Chatbots have received renewed hobby because of modifications and the famous uptake of messaging platforms. These intelligent bots satisfy their audience by fulfilling their expectations every time and everywhere. These bots communicate through their respective platforms or other social media platforms such as Facebook, Slack, SMS, WhatsApp, or WeChat. As they increase their dependencies on various messaging platforms and other virtual assistants through high integrations, using chatbots is regularly becoming part of people's everyday lives [7]. Chatbot integration is widely made available in various online e-commercial websites to provide the correct information and shipping services. There was

an enormous increase within the improvement of chatbots for customer support and marketing. According to various online surveys, 95% of all patron interactions are currently expected to be dealt with through AI-based tools by 2025, including stay phone and online conversations [7]. Analyzing the perceived user experience from the concerned users, the expected effects of chatbots and AI tools in customer support services will depict the quick developing alternate that makes it essential to know the facts.

Despite the early predictions regarding the release of chatbot technology, social media giants such as Facebook, Microsoft, and other theorists have referred to customers' adoption of chatbots as much less enormous than hoped [10]. The ability of chatbots has now no longer been found out as anticipated through the generation industry. This is because most chatbots available in the marketplace haven't fulfilled the customers' desires by way of excessive frequency of meaningless responses, uncertain functions, or bad usability [11]. Lack of personal recognition via builders appears to be very common. For a brand-new generation, chatbots have to be modified and used in direction through generation organizations and carriers, essential customers must accept as accurate within the airline. Trust has been argued to be a crucial fulfillment element in an internet environment [12].

Furthermore, the human-like features of chatbots and their herbal language interaction may also be considered accurate with mainly essential [13]. The idea of taking precise as with is extensively implemented while discussing people and society. More currently, accepted as actual, which has been hooked up as an essential idea in research of machines and generation. The concept of discussing take as accurate with when it comes to generation may also appear controversial [14]. Nevertheless, researchers, an increasing number, do not forget it is applicable to research customers accept as accurate with unique technology. Trust has been proven essential for customers' uptake of recent technology.

The uptake of chatbots amongst customers relies on customers' accurate acceptance. Without acceptance as true, the ability in chatbots might not be found out. Although

many studies have been performed on buy as accurate within the interpersonal and societal area, and on customers accept as accurate within diverse technology, research addressing accept as true within chatbots is scarce. The loss of studies means there may be a know-how hole regarding the effect of people using chatbots. As the foundation for accepting as accurate within customer support chatbots, an applicable version on taking as accurate within web sites became offered [12]. In their performance, drawing upon the previous acceptance as accurate with literature, ease of use, risk, and four credibility elements (honesty, expertise, reputation, predictability) have been questioned as the primary aspects influencing customers' acceptance as accurate within websites. As a preliminary step closer to the wanted know-how on customers accepts as accurate within chatbots, it became on this take a look at taken into valuable consideration to goal chatbots inside one unique area. It became determined to scope it to customer support chatbots due to three reasons: (1) customer support is a crucial area to be used of chatbots, (2) customer support represents a website have been people probably will get replaced through machines, and (3) it's for asked know-how for practitioners.

Inattention to advances in ICTs, AI appears like the subsequent degree of the tourism industry [15][16]. AI is thought of for its state-of-the-art computing skills as it could cope with complicated relations and troubles amongst unique concepts and might effortlessly work with a large number of records [17]. An AI machine senses outside information, is familiar with it, acts in flip to reap given desires, and learns from personal experiences [18]. AI capabilities are much like a human mind because it thinks, knows, makes decisions and inferences via given records using sensible machines. The main motive of AI is to allow machines to finish responsibilities automatically with no need for a human mind [19].

Since the overdue 1990s, AI research was implemented in tourism research to forecast inn occupancy and tourism demand [20][21]. Afterward, researchers used AI in one kind type of inquiry such as aid control in tourism companies [22], analyzing social media facts and online reviews [23][24], forecasting

traveler float and arrivals [25], comparing traveler delight via facial features recognition [26], and making intelligent recommendations [27]. AI fashions are increasingly utilized in tourism research because those fashions have an awful lot of extra flexibility. They may be used to estimate non-linear relationships without the boundaries of conventional methods [28]. Although AI guarantees absolutely opportunity answers for ability and potential troubles of tourism, with its superior computing and problem-solving skills, there's a loss of instructional studies on AI in the context of tourism [26]. Therefore, this study focuses on the tourism industry's AI-induced chatbot.

"A chatbot is software that conducts a conversation using aural or textual methods." Text message-based chatbots and voice-based chatbots are the two primary forms of chatbots. Chatbots that respond to clients' questions via text messages are text message-based [29]. Voice-based chatbots respond to client inquiries by sending voice-based messaging. Chatbots are primarily computer software devices pre-programmed to react to common client questions [30]. Chatbots have built-in systems that recognize the keywords in queries that cause many responses to a single topic. Chatbots are known for sending out many answers to a single inquiry simultaneously. Chatbots are available 24 hours, 365 days a year. These crucial characteristics allowed chatbots to take the position of employees.

Travel chatbots are used by some businesses to provide a unique experience. Travelers can ride the automobile without a guide, and the concerned chatbot embedded in the car will continue to direct them and brief them about each location. This technique is known as an audio tour, and it is preferred by people who want to go along with their family and have privacy [32]. Every hotelier wants its visitors to have a positive experience. Guests will invariably require some information regarding the hotel's amenities. This is where Chatbots come in handy. Marketers must incorporate personalization into their services as a significant component. Voice-based chatbots, in particular, deliver a high-profile personalized service to their customers. It provides services to consumers such as ordering food, cab services, reading messages, scheduling chores, and appointments, setting up alarms, room

services, housekeeping services, and updating hotel amenities, among others [26]. Overall, it serves as a personal helper to the visitor. Chatbots can even save a guest's previous data from recommending previous purchases and behaviors. These voice-based chatbots are explicitly designed for improving hospitality, which boosts customer engagement and experience even more [31]. Chatbots for hospitality can help you provide an excellent guest experience. Marriott, Hyatt, and GRT hotels are among the hotels that use chatbots [26].

3 Materials and Methods

The methodology primarily focuses on identifying the following factors from the users. The factors are recognized as a result of the literature review. These factors help us understand the user behavior and perception towards using new technologies like chatbots.

3.1 Factors of study

3.1.1 Perceived ease of use

Perceived ease of use refers to how confident a customer is in utilizing the given technology without any troubles and is straightforward in assisting the customers' requirements. This factor can assess the behavioral intention to employ tourism-related technology [33] [34] [35]. According to the tourism app adoption study, perceived ease of use does not affect chatbots [36]. Tourists will continue to seek the assistance of chatbot technology if they consider it valuable and straightforward while planning and traveling to their favorite spots as chatbots are built and meant to be simple to the targeted ones.

3.2 Perceived Usefulness

Perceived usefulness is the magnitude to which a customer assumes that employing a given system will improve job or task performance [37]. Recent studies on self-service hotel technology, business-to-consumer airline websites, tourist apps, lonely planet websites, travel search engines [38] show that technology impacts customer acceptance [30]. Chatbots, for example, are making tourism easier and more convenient for the customers to plan and sort out problems on the spot, and book hotels, pickup facilities, and other essential arrangements. Travel support is also provided by tourism chatbots 24 X 7.

3.3 Technological Anxiety

Technological anxiety is the degree to which a consumer experiences dread or apprehension while using technology [39]. Technological anxiety is one of the critical variables that has been explored as an essential psychological antecedent of technology adoption [39]. Because of the task performance confusion, technological anxiety may impair motivation. According to the study, individual technological anxiety can lead to people avoiding using specialized tools and can be a barrier to new technology adoption [40] [41]. As a result, it has a detrimental impact on technological adoption [42]. Chatbots are a new technology in the tourism business that consumers utilize in various ways for travel planning [43].

3.4 Perceived Trust

Trust refers to a consumer's confidence in executing an online activity with a service provider. In addition, trust is defined as the consumer's readiness to accept risk. Creating confidence in online service enablers is critical in innovation research. The information system gives perceived trust. Trust depicts consumer expectation of privacy protection, information quality, and security has a positive effect on behavioral intention to adopt self-service hotel technology [44], smartphone apps [45], online travel purchase [46], an online website providing information through live chat assistants [47], and emerging technologies in tourism [38s]. The perception of privacy protection, security, and quality of information and services given by chatbots are all factors

that influence trust. Travelers reveal their personal information with chatbots to plan and schedule their trips, making them wary of using them.

3.5 Adoption Intention

The perceived likelihood of an individual engaging in a particular behavior is measured by Adoption intention [48]. Behavioral intention aims to understand and predict how consumers react to new technologies [47]. Chatbots assist customers with the advancement in technology [49]. The current study on new technology adoption confirms the link between adoption intention and customer behavior. The influence of adoption purpose on the customers of tourist technology is supported by existing studies [45]. A chatbot is a new tool that customers can use to arrange their trips. Even though they want to deploy this new chatbot technology, the likelihood of its customers is still unknown.

3.2 Dataset Description

The data set is the collection of responses from the questionnaire that has been placed across the IT professionals in Pune, India. The general description of the data is as follows. The small study conducted over the topic will outline the expected customer behavior of the people in the segment and a broader perspective. The study is carried out in a population with different gender, age group, and professionally qualified respondents.

Demographic Profile of the Respondents.

SI No	Classification	Category	Frequency	Percentage
1	Gender	Male	295	72.0
		Female	111	28.1
		<i>Total</i>	406	100.0
2	Age	20 - 30	84	20.5
		31 - 40	77	19.8
		41 - 50	89	21.7
		51 - 60	83	20.2
		61 - 70	73	17.8
		<i>Total</i>	406	100.0
3	Qualification	Graduate	206	50.2
		Post - Graduate	200	49.8
		<i>Total</i>	406	100.0

From the above table, it is evident that Male respondents (72%) are more when compared to female respondents (28%). The age of the respondents is equally distributed among the different age groups except for the age group of 31 – 40 and 61-70. Two hundred of the respondents had their educational qualification as graduates, and 200 respondents had their educational qualification as Post Graduation. This gives a general outline of the population studied.

3.3 Ranking using relative importance index (RII)

Using the relative importance index (RII), ranking describes the specific factors contributing to IT professionals' user acceptance of chatbots in the travel and tourism industry. We have identified the various subfactors under perceived ease of use, preserved usefulness, technological anxiety, perceived trust, and adoption intention using the liquid scale of 5 scales. The higher value of the index of the relative index is the critical

subfactor across the selected attributes and is determined by the equation that follows:

$$\text{Relative Important Index} = \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{A * N}$$

Where:

n_5
= Number of respondents for Strongly Agree

n_4 = Number of respondents for Agree

n_3 = Number of respondents for Neutral

n_2
= Number of respondents for Strongly Disagree

n_1
= Number of respondents for Strongly Disagree

A (Highest Weight) = 5

N (Total number of respondents) = 406

The result of the Ranking using the relative importance index is as given below:

3.3.1 Perceived Trust

Perceived Trust	RII	Ranks
I found this chatbot credible	0.71083744	2
I do not think this chatbot will act in a way that	0.69014778	3
Is disadvantageous to me.	0.61970443	4
I am skeptical of this chatbot	0.57684729	5
The chatbot appears to be misleading.	0.49753695	6
I feel confident in this chatbot.	0.73103448	1

3.3.2 Perceived ease of access

Perceived Ease of Access	RII	Ranks
The chatbot appears to be knowledgeable	0.74137931	2
The content of the chatbot was according to my expectation	0.74137931	2
It was easy for me to learn how to use this Chatbot	0.72167488	4
My dialogue with this chatbot was clear and understandable	0.75812808	1
This chatbot will be flexible to interact with all	0.72906404	3

3.3.3 Adoption Intention

Adoption Intention	RII	Ranks
The chatbot is well regarded by others	0.71970443	1
The chatbot has a good reputation	0.71871921	2
I've heard others be critical of this chatbot	0.62857143	3

3.3.4 Perceived usefulness

Perceived Usefulness	RII	Ranks
The chatbot appears as natural	0.67832512	4
The chatbot appears to be human	0.61724138	5
The chatbot appears to be lively	0.7270936	3
The chatbot is accommodative	0.75221675	1
The chatbot is employed rightly to cater all the queries	0.73546798	2

3.3.5 Technological anxiety

Technological Anxiety	RII	Ranks
My typical approach is to rely on new technology	0.73891626	4
In general, I trust new technology until it gives me a reason no to	0.7955665	1
It's easy for me to rely on new technology	0.71330049	6
I prefer using the chatbot	0.73349754	5
I think my interest in chatbots will increase in the future	0.78916256	2
I would recommend others to use chatbots	0.76945813	3

3.3.6 Staying with traditional agents

Staying with traditional agents	RII	Ranks
By using chatbots like this I will get faster responses to my questions	0.70738916	4
By using chatbots like this I will get answers to my questions more effectively	0.70394089	5
Using chatbots like this increases my productivity	0.72463054	3
Chatbots like this will make it easier for me to get answers to my questions	0.74039409	1
I find chatbots like this useful in customer service.	0.73152709	2

From this and the other analysis conducted for the study of customer acceptance, the study could conclude that the users are ready to accept the usage of chatbots in the industry. They feel the chatbots are able to meet their expectations.

4 Results and Discussions

From the study, it is evident that the future of the Travel industry is AI-driven. With the implementation of AI-based chatbots, a massive changeover is awaiting the Travel and Tourism Industry. The research questions of the study were answered through the analysis performed. The following findings were identified after the completion of this study:

- The Ai based chatbots will revolutionize the Travel and Tourism Industry in the upcoming years.
- Most people responded that they love to use a chatbot, and it is user-friendly.
- A few respondents expressed technological anxiety regarding losing

their data and other credentials to the open world.

- The adoption intention by the general public is more as the AI will be replacing the human workforce shortly.

5. Conclusion

The application of artificial intelligence-based tools and technologies have a broad scope of usage in the Travel and Tourism industry; the study we conducted on the customer acceptance of the use of AI-enabled chatbot with particular reference to the travel and tourism industry but focusing on the small population from the IT professionals indicate that the customers are satisfied with the current applications of AI-based tools, especially the usage of chatbots. However, with the study, we could conclude that the people who participated in the survey said that the scope of AI is vast. As the study of customer acceptance concludes, the AI-enabled chatbots will be more successful in the future, and the human-centric force will be reduced, especially for the Travel and Tourism Industry.

However, we could identify many applications of artificial intelligence-based tools in the industry for serving and giving the customers a better service. Some of the respondents to the study also feel that the current technology is fine. Still, the technology needs to be reformatted and made effective so that their results will be more precise. Up to the mark, this is because the AI tools were not able to help the people continually, as it is heavily dependent on the way we teach the system to function; people felt that this limitation of chatbots and other AI agents is one of the areas which requires significant innovation and development. From the study, few respondents also think that the AI systems and the humans should go in tandem, where there should be an oversee of the human presence over the machines, which will help the systems serve the customers effectively.

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