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# Customers' Attitude towards Chatbots in Banking Industry of India

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***Abstract:*** ***This research investigates the customer's attitude towards the chatbots in Banking Industry of India. The author used correlation analysis to determine and understand the attitude of customer for acceptance and adoption of chatbots in banking industry. Data is collected through Primary survey. 100 people were targeted, out of which 72 responded. The study concludes a positive correlation between the attitude and the adoption of chatbots. As part of the conclusion author made some suggestions and recommendations discussing the implementation of chatbots in the banking industry of India.***

***Keywords: perception, chatbots, utility, ease, attitude***

## I. INTRODUCTION

New technologies are the flavour of the season. In order to grow and flourish it is imperative for the organizations to invent and adopt the new technologies. Deep Kalra, Founder & CEO, Make My Trip says, "Several new things are going on, but we are most excited about our technology as we have launched new chatbots. Chatbots also called as bots, or chatterbots are the computerized application for conversation. These talkbots mimic the human conversation using auditory or textual method. Further it can be explained as conversing using the natural language processing using artificial intelligence. One of the earliest applications of machine learning was the development or we can say introduction of 'ELIZA' at MIT computer science laboratory. This was the first invention; latter to this many advancements have taken place. Currently chatbots refers to the machines engaging in the dialogues with the human beings in natural language. With the help of Artificial intelligence and machine learning there have been many more advancements the concept of chatbots like speech recognition, face recognition and motion recognition. In past few years there has been a remarkable growth in the voice assistance like Siri in 2010, Cortana in 2015, Google Assistant in 2016 and latest is the Alexa.. Even Social media platforms are on the way. Facebook, Twitter and many other messenger services are on board. For any business to grow customer interface becomes an important aspect. On the same lines banking industry is also piloting the application of chatbots for customer interface. Basic task such as balance enquiry, information about credit and debit cards, cheque book issue, loan queries and account related information can be answered by bots. More and more banks are leveraging on this solution meeting the needs of customers more efficiently reducing time and cost.

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According to a report released by Juniper, it is explained that chatbots will be able to do tremendous cost savings by the year 2022. Therefore we say that there are many reasons motivating the banking industry for the application of chatbots. These motivation are like cost saving, ease of use, 24/7 support and conversational interface. But along with all these motivating factors there are some limitations also like, dialogue compatibility, accent and the language, chat bots may not be able to answer multiple-le question at one time furthermore all the customers may not be familiar or comfortable with the application of chatbots. Henceforth study aims at researching the consumer behaviour for the adaptation of chatbots in banking industry. Attitudes and perception are important factors to influence the behaviour of the customer.

Question that guide the research are investigating the perception and attitude of customer for the use of chatbots in banking industry, how relevant are the bots for the customer and the banks, factors influencing the attitude of customer towards the chatbots in the chosen industry .The focus of the research is on investigating the perception and attitudes of Indian customers for adoption of chatbot in banking industry. In order to establish the conceptual framework explanation from various theories of consumer behaviour, perception, attitudes, innovation, and technology acceptance is drawn. It is an exploratory study where hypothesis are designed and tested using correlation analysis. Primary study is conducted collecting data from various Indian banks (nationalised banks as well as the private banks) and the customers of the banking services with respect to their opinion on the application and use of chatbots. Sample size is considered to be 50 (service provider as well as the service availed). Questionaries' will be distributed through Facebook groups, Instagram and Watsapp. Findings are focussed towards determining the impact of perception and attitude of a consumer towards the adoption of chatbots in banking industry. Furthermore efforts would be made suggesting the companies in the banking sectors with the advantages and disadvantages for the implementation of chatbots.

## II. LITERATURE REVIEW

Gone are the days where people have to stand in queues to avail the banking services. Artificial intelligence is dramatically changing the world. It is leading to better experience and assistance to the customer. As a result marketers understand the importance of those applications which helps in conversing with the customers and helps in providing better assistance. Chatbots have begun to mark their presence in the Indian banking sector.

Kotak Mahindra Bank is the first to ever launch the voice chat bot named "Keya". Bank of Baroda has also deployed chatbot to handle consumer queries. HDFC Bank's EVA (electronic virtual assistance) is largest artificial intelligence powered chatbot. EVA has already answered 5 million queries with 85% accuracy.

Chatbots can analyse and understand not only the content but also the context of the customer's questions. As the research topic involves various terms like chatbots, perception and attitude it becomes imperative to explain each of them. Chatbots are defined as an artificially conversational agent which is enough intelligent to initiate and simulate human-like conversation. The chatbots are designed as bots that analyse the content typed by the user and relate it to the database that contains possible answers (Crutzen, et al., 2011). Instagram, various messengers, Whatapp are some examples of messengers' apps. Marketers use concept of chatbots to market their products on these applications. The history of chatbot stated with "Elisa", the first ever developed chatbot in 1966. It was a very basic bot providing some basic information related to entertainment, sports and price regulation of stock markets as well. With the development of the smartphones and the applications these chatbots have turned all the more smart. With the progression of Artificial intelligence and voice recognition the application of chatbot is increasing.

The paper investigates the perception and attitude of customer towards acceptance of chatbots. Consumer perception is a marketing concept that express consumers 'thought process and awareness towards a company and its s offering. Hentschel, (1986) explains Perception as a phenomenon that is influenced by experiences. Attitude is closer to the perception. Eagly and Chaiken (1993) explains attitude as a psychological feeling which is expressed by evaluating some disfavour. Attitude is defined as an opinion about the surroundings which are already perceived by the customers. Vallerand & Pelletier, (1992) explains attitude as the mind-set of the consumer.

## III. RESEARCH METHODOLOGY

### A. Data and the variables:

Data is collected through primary survey. Questionnaire is used for the primary survey. The questionnaire was sent through e-mail, Facebook or WhatsApp to around 100 people. Out of those, 72 people responded. After collecting the results, the author has done the data analysis using statistical technique of correlation analysis. Later, all the incomplete questions from the data collected have been cleaned using Microsoft Excel.

There are nine questions which are used to measure the factors described above that effect adoption of chatbots in banking industry such as observed utility, observed accessibility and observed threat and awareness.

Designed questions are described below:

- There are three questions which are designed to aim observed utility.
- Three questions are designed to aim observed accessibility.
- Three questions are designed to aim observed threat and awareness.

Observed Utility

- I think using chatbots is easy to use
- I think learning how to use chatbots is easy process
- I think chatbots supports to get involved with various customer services

Observed Accessibility

- I think using chatbots helps me to do basic banking transactions easily
- I think using chatbots is a speedy process. There is no waiting time
- I think I feel free to ask questions to chatbots

Observed Threat and Awareness

- I think using chatbots is less risky in terms of data security and privacy.
- I think I want to use chatbots for social awareness
- I think I want to use chatbots because my friends or family is using it

Attitude

- Using a chatbot seems curiosity
- Using a chatbot seems convenience
- Using a chatbot is something to consider for the future technology.

### B. Conceptual Framework

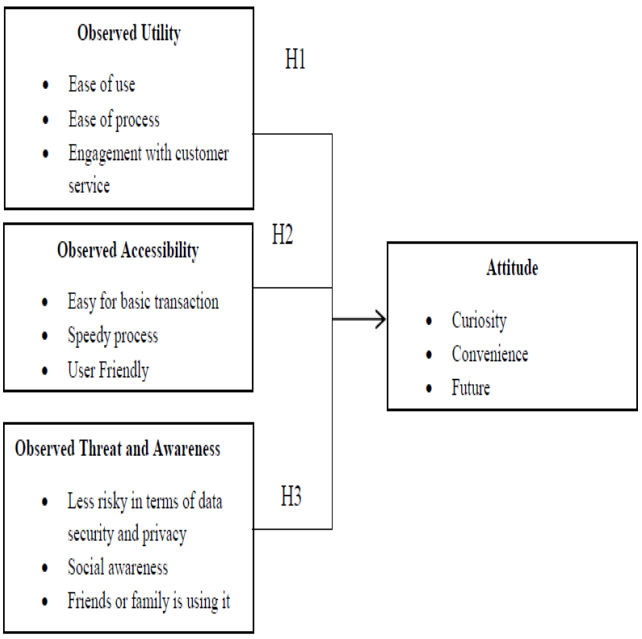


**Fig. 1. Conceptual Framework**

A Likert scale is used to know how consumers' adoption towards chatbot is influenced in banking industry. The responses obtained from the questionnaire are then changed into numerical scale (see table 1 below).

TABLE I: Conversion of Likert Scale into Numerical Scale

| Likert Scale | Number |
|---|---|
| Strongly Disagree | 1 |
| Disagree | 2 |
| Neutral | 3 |
| Agree | 4 |
| StronglyAgree | 5 |

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### C. Hypothesis

*H1: A positive relationship between observed utility and the attitude of consumers towards chatbots.*
*H2: A positive relationship between observed accessibility and the attitude of consumers towards chatbots.*
*H3: A positive relationship between observed threats and awareness and the attitude of consumers towards chatbots.*

## IV. FINDINGS

Research is able to diagnose that Chat bots have been receiving increasing acceptance and attention. Looking at the robust inspiration for the usage of chat bot, ease of use is found to be strongest.

### A. Testing Hypothesis I

The first hypothesis states the following:
*A positive relationship between observed utility and the attitude of consumers towards chatbots .*
From the data collected, author has considered values that are equal to 3, 4 and 5. Less than 3 values are eliminated from the data as they are of less relevance for this research. Following table shows the values and percentage from Q1, Q2 and Q3 of observed utility.
TABLE II: Observed Utility

| Observed Utility | | | | | | |
|---|---|---|---|---|---|---|
| 4,5 | | | 3,4and5 | | 5 | |
| | Value | Percentage | Value | Percentage | Value | Percentage |
| Q1 | 50 | 69.4444444 | 68 | 94.444444 | 20 | 27.77778 |
| Q2 | 58 | 80.5555556 | 68 | 94.444444 | 22 | 30.55556 |
| Q3 | 47 | 65.2777778 | 66 | 91.666667 | 19 | 26.38889 |

Following table shows the customers' attitude towards chatbots based on curiosity, convenience and future use.

TABLE III: Customers' attitude towards chatbots

| Consumers' Attitude Towards Chatbots | | | | | | |
|---|---|---|---|---|---|---|
| 4,5 | | | 3,4and5 | | 5 | |
| | Value | Percentage | Value | Percentage | Value | Percentage |
| Curiosity | 36 | 50 | 60 | 83.333333 | 13 | 18.05556 |
| Convenience | 53 | 73.611111 | 65 | 90.277778 | 23 | 31.94444 |
| Future | 60 | 83.333333 | 69 | 95.833333 | 29 | 40.27778 |

Following table shows the correlation between observed utility and positive attitude.

TABLE IV: Correlation between observed utility and positive attitude

| Correlation between Observed utility and Positive attitude | | |
|---|---|---|
| | Observed utility | Positive Attitude |
| Observed Utility | 1 | 0.911013143 |
| Positive Attitude | 0.911013143 | 1 |

As per the above table 4, there is value of r = 0.911. This value proves that there is positive correlation between observed utility and attitude of customers towards chatbot usage. Therefore, the first assumption is proved.

### B. Testing hypothesis 2

The similar task is performed for testing second hypothesis for other determinants such as observed risks and observed threats and awareness. The second hypothesis states that:
*A positive relationship between observed accessibility and the attitude of consumers towards chatbots.*

TABLE V: Observed Accessibility

| Observed Accessibilty | | | | | | |
|---|---|---|---|---|---|---|
| 4,5 | | | 3,4and5 | | 5 | |
| | Value | Percentage | Value | Percentage | Value | Percentage |
| Q4 | 37 | 51.38888889 | 66 | 91.66667 | 13 | 18.05556 |
| Q5 | 52 | 72.22222222 | 65 | 90.27778 | 23 | 31.94444 |
| Q6 | 46 | 63.88888889 | 68 | 94.44444 | 13 | 18.05556 |

TABLE VI: Customers' attitude towards chatbots

| Consumers' Attitude Towards Chatbots | | | | | | |
|---|---|---|---|---|---|---|
| 4,5 | | | 3,4and5 | | 5 | |
| | Value | Percentage | Value | Percentage | Value | Percentage |
| Curiosity | 36 | 50 | 60 | 83.3333333 | 13 | 18.05556 |
| Convenience | 53 | 73.6111111 | 65 | 90.2777778 | 23 | 31.94444 |
| Future | 60 | 83.3333333 | 69 | 95.8333333 | 29 | 40.27778 |

Following table shows the correlation between observed utility and positive attitude.

TABLE VII: Correlation between observed accessibility and positive attitude

| Correlation between Observed Accessibility and Positive attitude | | |
|---|---|---|
| | Observed Accessibility | Positive Attitude |
| Observed Utility | 1 | 0.945734946 |
| Positive Attitude | 0.945734946 | 1 |

From the table above, it can be observed that attitude and ease of use are strongly correlated as the value of r is 0.945. Thus, it is concluded that consumers who find chatbot easy to use have a positive attitude towards this technology.

### C. Testing hypothesis 3

The third hypothesis is:
*A positive relationship between observed threats and awareness and the attitude of consumers towards chatbots.*
The outcomes obtained from the questionnaire associated to observe threats are coded in reverse manner as that of observed utility and accessibility. Therefore, strongly disagree has given value 5 and strongly agree as 1.


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TABLE VIII: Observed Threats and Awareness

| Observed Threats and Awareness | | | | | | |
|---|---|---|---|---|---|---|
| 4,5 | | | 3,4and5 | | 5 | |
| | Value | Percentage | Value | Percentage | Value | Percentage |
| Q7 | 28 | 38.888888 | 52 | 72.22222 | 4 | 5.555556 |
| Q8 | 24 | 33.333333 | 51 | 70.83333 | 7 | 9.722222 |
| Q9 | 30 | 41.666666 | 57 | 79.16667 | 16 | 22.22222 |

TABLE IX. Customers' attitude towards chatbots

| Consumers' Attitude Towards Chatbots | | | | | | |
|---|---|---|---|---|---|---|
| 4,5 | | | 3,4and5 | | 5 | |
| | Value | Percentage | Value | Percentage | Value | Percentage |
| Curiosity | 36 | 50 | 60 | 83.3333333 | 13 | 18.05556 |
| Convenience | 53 | 73.6111111 | 65 | 90.2777778 | 23 | 31.94444 |
| Future | 60 | 83.3333333 | 69 | 95.8333333 | 29 | 40.27778 |

Following table shows the correlation between observed utility and positive attitude.

TABLE X: Correlation between observed accessibility and positive attitude

| Correlation between Observed threat and Positive attitude | | |
|---|---|---|
| | Observed accessibility | Positive Attitude |
| Observed threat | | 0.912245431 |
| Positive Attitude | 0.912245431 | |

In the table above, the value of r is 0.9122 which states that there is a positive correlation between risk and consumers' attitude towards chatbots. Thus, it proves third hypothesis.

## IV. CONCLUSION AND DISCUSSION

The present study analyse the factors influencing the attitude for chatbots in banking industry of India. An extensive literature review suggests the scope and acceptance for chat bots are increasing. The foremost factors on which the attitude for chatbots relates to the observed utility, observed accessibility and observed threats. The important points that can be concluded from the study are that there is positive correlation between the positive attitude for chatbots and the utility, accessibility and threats. Thus, it is possible to conclude that consumers in banking industry are keen to adopt the chatbots as a result to curiosity, convenience and technology advancement. As a result, it can be concluded that banks should start testing and using chatbots as an important tool to interact with their clients. It is very much possible with the advancement of technology and the upgrading of consumers knowledge more and more communication will occur with the help of chatbots. Henceforth banking companies should be ready for this shift.

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