
AI AND ITS SIGNIFICANCE ON PUBLIC AND PRIVATE SECTOR BANKING IN INDIA

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ABSTRACT

In the current Resrach Paper Emphasis made for the effective use of AI for bringing revolutionary changes in CRM in the both Private and Public Sector Banking Structure.

Research on chatbots and artificial intelligence persisted in the 1970s and 1980s, Parry was created in 1972 and Jabberwaky was created in 1988 but progress was sluggish because of a lack of data and a restricted processing capacity. But the Internet and improvements in computer technology in the 1990s made it possible for chatbots to become smarter.

Chatbots gained popularity in the 2000s as social media and instant messaging expanded. Businesses are now using chatbots to provide information and answer customer questions. Chatbots are currently widely employed across many sectors, including e-commerce, healthcare, and banking. Using A.I. and machine learning algorithms, they are getting smarter and more capable of handling more challenging tasks.

A.I. chatbots have progressed from simple rule-based systems to more complex AI-powered virtual assistants. Today, chatbots play a significant role in many industries. A recent development of chatbot is ChatGPT developed by Open AI based on Generative Pretrained Transformer (GPT).

INTRODUCTION

Artificial Intelligence (AI) based chatbots are the virtual assistant that the banks have adopted. A chatbot is a computerised program developed due to a drastic improvement in the languages like Machine Learning, Neural networks, Natural language Processing, and Artificial Intelligence. (Gupta et al., 2020).

The first chatbot was developed in the year 1966 and named ELIZA. ELIZA was performing Physiotherapist operations by giving the responses to the users. But the drawback of ELIZA was limited knowledge. ELIZA became the source of inspiration to develop other chatbots with improved versions. Later on, many chatbots were created with new features of voice assistant name as Apple (Siri), Google Assistant, Microsoft (Cortana), Amazon (Alexa), and so on. (Adamopoulou & Moussiades, 2020)

Later on, banks also developed virtual assistance to replace human aid to resolve the general queries of customers in daily life. SBI was the first public sector bank to introduce a chatbot service named SIA in 2017. Later, other public and private banks started adopting AI Chatbot technology and introduced their chatbots to customers. A few named as HDFC (EVA), ICICI (iPAL), Kotak Mahindra Bank (Keya), Axis Bank (Axis Aha), and so on. (Srihari Subudhi, 2019)

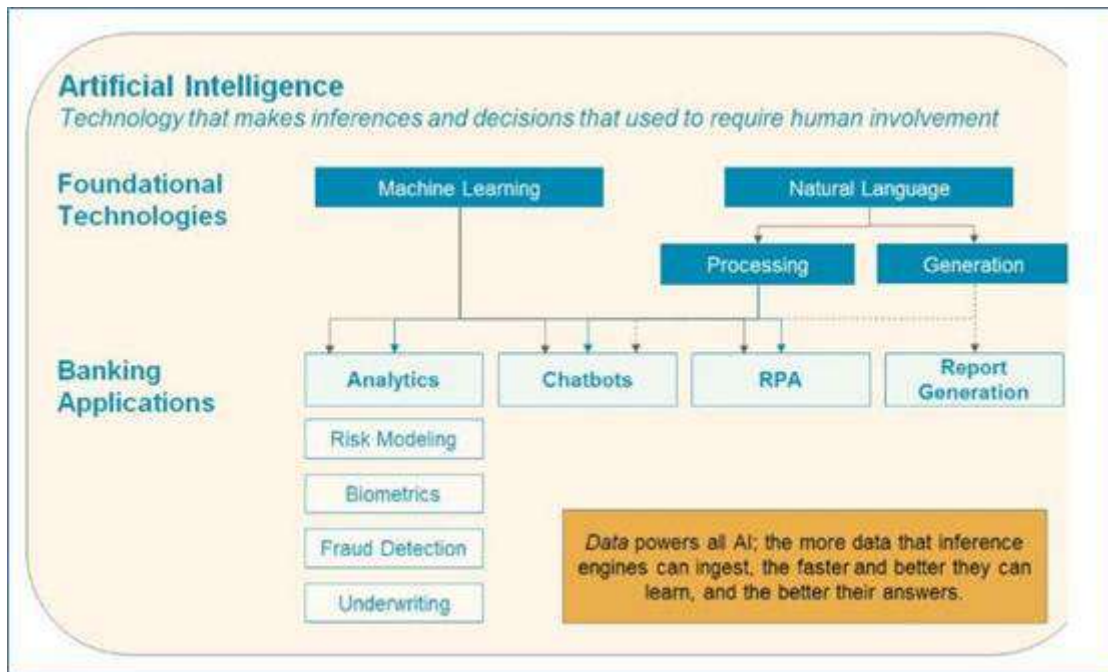
Artificial intelligence is the study and development of intelligent machines and software that can learn, gather knowledge, communicate, manipulate, and perceive objects. In 1956, John McCarthy coined this term to describe a branch of computer science concerned with making computers behave more like humans. The study of computation makes it possible to perceive reason and act.

Artificial intelligence (AI) Chatbot, can assist customers without needing a customer service agent on the other end. The chatbot is designed to provide relevant and contextual responses to customers' queries and even helps make transactions on the chat window itself.

Chatbots can range from simple to highly intelligent, depending on how they are programmed. A rules-based chatbot can only handle particular commands, while a chatbot that uses machine learning will get smarter with each interaction.

The banking bot project was built using artificial algorithms that analyse users' queries and understand users' messages. The system is designed for banks, where users can ask bank-related questions like loans, accounts, policies, etc. The banking bot application was developed for web users. The system will recognize the user's query, understand what he wants to convey, and answer it appropriately. Even if the user does not frame a sentence properly system will understand the query and answer accordingly. There is no specific format the user must follow to ask questions. The built-in artificial intelligence system realizes users' requirements and provides suitable answers to the user

Artificial Intelligence (AI), Foundational Technologies and Banking Applications



Source: (Latimore, 2018)¹⁰ by Celent analysis

The above figure 1.2, gives the details of various foundational technologies on which banking applications were built. The foundational technologies include Machine learning and Natural language. Natural language further classified into Processing and Generation.

Machine learning is the branch of computer science and Artificial Intelligence which mainly focuses on the way human learns by handling the data and algorithms. There are mainly six real-life examples of how machine learning is used. The six real-life examples are Image recognition, Speech recognition, Medical diagnosis, Statistical arbitrage, Predictive analytics and Extraction.

Natural language is the language used by machine to process and understand human language into a machine form. Natural language is also a subcategory of Artificial Intelligence (AI). Once it understood the human language, can perform the same task repetitively without human instructions example spell check, ticket classification etc.

There are three banking applications which can be performed using Artificial Intelligence (AI) machine learning i.e., Analytics, Chatbots and RPA (Robotic Process Automation).

1.1 Overview of Banks under study State Bank of India



State Bank of India (SBI), with one-fourth of the market share, ranks among the Fortune 500 is the largest public sector bank among all other banks. Its headquarters in Mumbai and operates as an Indian multinational and statutory financial services body. SBI was established in 1955 and took over all of the former state-associated banks in 1959 as per the SBI (Subsidiary Banks) Act, which was passed and later named SBI and Associates.

The State Bank of India is the number one public sector bank in technology and innovation. In 2017, SBI launched its virtual assistant, SIA. Later on, in 2019, SBI came up with new technology to assist its customers, naming it as SBI Yono, with the tagline "Lifestyle and Banking Yono." Recently, SBI also launched the Grahak Setu app, a business product assistant for getting business and product information, interacting with senior officials, and resolving queries and grievances.

Union Bank of India

Union Bank of India (UBI) is a listed entity that was registered as a limited company in 1919. Its headquarter is in Mumbai. Recently, a merger occurred in which Andhra Bank and Corporation Bank amalgamated into Union Bank, which started operations on April 1, 2020. Union Bank of India is the largest public sector bank that has implemented core banking solutions and been recognized for its skills in digital banking, technology implementation, financial inclusion, micro, small, and medium-sized enterprises (MSME), and the development of human resources. It has more than 16,100 business correspondent points and serves millions of customers through branchless banking services. It has three overseas branches in Hong Kong, Dubai, and Sydney.

Bank of Baroda

Bank of Baroda (BoB) the second most prominent bank in India after the State Bank of India (SBI), headquartered in Vadodara, Gujarat, and was founded in 1908 by Sayajirao Gaekwad

III. Vijaya Bank and Dena Bank merged with the Bank of Baroda and started their operations on April 1, 2020.



ICICI was started in 1994 in Vadodara and joined the ICICI group. The main goal of the ICICI Bank was to set up a development financial institution that would help Indian businesses finance medium- and long-term projects. Through its group companies and other channels, it sells a wide range of banking products and financial services to both individuals and businesses.

Axis Bank Ltd.

One of the third largest private sector banks in India. It was started in 1993 in the city of Ahmedabad, offering individuals and businesses many financial services. Axis Banks' headquarters is in Mumbai, Maharashtra. From 1993–2007, Axis Bank formerly known as the Unit Trust of India (UTI) Bank. In 2022, Axis won many awards, like the Red Hat APAC Innovation Award for digital transformation and cloud-native development, the Middle East

1.2 Statement and Rationale of the Study

Few studies on strategies for Customer Relationship Management in banks was available. But no study based on impact on Job Performance and Customer Relationship Management after implementation of Artificial Intelligence (AI) Chatbots in banks is available.

1) There was no study based on three parameters i.e., Awareness, Utilization and Satisfaction of Artificial Intelligence (AI) Chatbots among bank customers. Though some study is available on one or the other parameters.

1.3 Objectives of the study

The following are the broad objectives of the study:

1) To study the awareness of Artificial Intelligence (AI) Chatbots among bank customers.

- 2) To understand the utilization of artificial intelligence (AI) Chatbots by bank customers.
- 3) To determine the level of satisfaction among customers regarding the use of Artificial Intelligence (AI) Chatbots.
- 4) To study the impact on customers before and after the implementation of Artificial Intelligence (AI) Chatbots for CRM services of the banks
- 5) Comparative study of Artificial Intelligence (AI) Chatbots in Nationalized, Private and Foreign Banks.
- 6) To find out the barriers for adopting Artificial Intelligence (AI) Chatbots in Banks.
- 7) To study the strategies used by banks to create awareness among customers and educate them about Artificial Intelligence (AI) Chatbots.
- 8) To understand the nature of operations/ functions performed by Artificial Intelligence (AI) Chatbots in banks.
- 9) To study the impact on performance of bank employee before and after implementation of Artificial Intelligence (AI) Chatbots in banks.
- 10) To find out the level of improvement in Customer Relationship Management of banks after the implementation of Artificial Intelligence (AI) Chatbots.

1.4 Statement of Research Questions

This research work will be conducted by using the following research questions based on the research problem to achieve the objectives of the study

1.4.1 Opinion on Manual Banking Vs E-Banking

1.4.2 Level of Awareness and Frequency of utilization

1.4.3 Level of Awareness and Use of (AI) Chatbot services by customers

1.4.4 Level of Awareness and use of (AI) Chatbot after COVID 19

1.4.5 Use of (AI) Chatbot services and level of satisfaction of customers

1.4.6 Impact of Performance of employees after implementation of (AI) Chatbot services

1.5 Scope of the study

The study is exploratory and descriptive in nature. Wherein researcher has tried to explore the concept of Artificial Intelligence (AI) Chatbot and Identified Awareness, Utilization & Satisfaction of AI Chatbot among Bank customers & Bank Employees. The scope of the present study is restricted to Public, Private and Foreign banks

1.6 Significance of the study

This research study is useful to bankers and their customers dealing with virtual bank assistance i.e., Artificial Intelligence (AI) Chatbots. Bankers in the study included was bank officials and employees at various level on different hierarchy of the banks and the bank customers.

1.6.1 Significance of the study with regard to Bank Officers/Employees:

- 1) Understanding bank officials / Employees' awareness about Artificial Intelligence (AI) Chatbot technology
- 2) Determining bank employees' level of adoption of Artificial Intelligence (AI) Chatbot technology which may enhance employees performance
- 3) Artificial Intelligence (AI) Chatbot technology adoption may improves CRM of bank employees with its customers.
- 4) Understanding customers' awareness and satisfaction level of the use of Artificial Intelligence (AI) chatbots will help banks plan for effective functions and overcome the bottlenecks in the day-to-day operations.
- 5) It will also help the banks to formulate strategies for spreading awareness among customers about Artificial Intelligence (AI) Chatbots

1.6.2 Significance of the study with regard to Customers:

- 1) It will create awareness among customers about Artificial Intelligence (AI) Chatbots, which will help them resolve their queries quickly.

- 2) Customers do not have to be in the bank queue to get common information related to bank products and services. So, the utilization of Artificial Intelligence (AI) Chatbots will increase.
- 3) Information like deposit schemes, Loan schemes, the Interest rate on various products, procedure and documentation involved in any process is easily accessible from the Artificial Intelligence (AI) Chatbots

1.7 CONCLUSION

In this chapter researcher has mentioned the structure of Indian banking system, Artificial Intelligence (AI) and Artificial Intelligence (AI) Chatbot, Areas of Artificial Intelligence, History of Chatbots, Components of Chatbots, Overview of Banks under study, Chatbot services of the banks, Banks under study with its chatbots services, Chatbot view of banks under study, Customer Relationship Management, Customer Relationship Management in Banks, Statement and Rationale of the Study, Objectives of the study from the customers perspective and from the bank official perspective, Statement of Research Questions.

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