BANKING ON ARTIFICIAL INTELLIGENCE: A STUDY OF TOP FOUR COMMERCIAL INDIAN BANKS

[1]Mariamma P Varghese, [2]Jyothis T

[1]M. Com Student, [2]Assistant Professor

Post Graduate and Research Department of Commerce

St. Thomas College, Kozhencherry

Pathanamthitta, Kerala.

ABSTRACT

This paper seeks to explore the phenomena of the emergence of the use of Artificial Intelligence in banking sector.Technology has changed the businesses are done and over the last couple of years.There is a growing need to use Artificial Intelligence (AI) and the Indian banking Sector is gradually shifting itself towards using AI. The concept of Artificial Intelligence helps to create an enhanced customer support and increases operational productivity and quality of services. If one talks about the banking sector,the adoption has been gradual,when compared to other sectors.This can be due to the fact that banking is still a manpower-led sector, with operations that require human involvement. Yet the Indian Banking sector understands the need to cut down the cost and the expenditure on redundant tasks.The Indian banking sector is exploring the ways by which it can tackle the power of AI to improve the processes and enhance the Customer Service in the long run.This paper seeks to explore the areas where the AI is being used in the Banking Sector and its implication in the top banks in India especially SBI,HDFC,ICICI and Axis Bank.

Keywords: Artificial Intelligence, banking sector, Customer services.

1.INTRODUCTION

What is artificial intelligence? Broadly, it refers to the development of machines or systems that can perform complex tasks normally considered to require 'intelligence' and thus thought to be the preserve of humans. In simple language, it can be defined as: a computer system that can sense, comprehend, act and also learn. Artificial intelligence (AI) is defined as intelligence exhibited by an artificial entity. Such a system is generally assumed to be a computer.In other words, a system that can perceive the world around it, analyse and understand the information it receives, take actions based on that understanding, and improve its own performance by learning from what happened. And by enabling machines to interact more naturally – with their environment, with people and with data – the technology can extend the capabilities of both humans and machines far beyond what each can do on their own. Artificial Intelligence (AI) is fast evolving as the go-to technology for companies across the world to personalise experience for individuals. The technology itself is getting better and smarter day by day, allowing

more and newer industries to adopt the AI for various applications. Banking sector is becoming one of the first adopters of AI. And just like other segments, banks are exploring and implementing the technology in various ways.

Application of AI and ML (machine learning) to different functions within the banking industry has enabled them to offer a far more personalised and efficient customer service. By achieving that, banks have also been able to gain better insights into their customers' preferences and expectations from the bank. Accordingly, automation of back-end workflows has shown better outcomes. Banks are reaping the benefits of banking on Artificial Intelligence through use of Chatbots, Robots in various areas of banking. Artificial Intelligence,in simple terms, is the simulation of Human Intelligence by machines. AI has had a tremendous spurt in growth this year. Wherever you belong to, management, finance, design, development, marketing & sales or support you will have the fear of AI posing a threat. Let us dive into AI to understand it in a better way. There are some features which make humans different from machines viz. taste, odour, thought, vision, speech, hear and feel. They can enhance our work and make it simpler by way of automation, prediction and increased efficiency of work in terms of speed as well as accuracy.Here are some examples:

Thought-Facebook uses artificial neural networks. It has algorithms that mimic the structure of the human brain for facial recognition. It suggests a tag if someone uploads a photo which has your face in it in line with Privacy Settings.

Speech and hearing -Google Assistant, Siri, Alexa, Cortana, Bixby

Vision - Industry surveillance, capturing traffic violations.

The oldest (and still existing) use of AI is the Autopilot in Flights that dates to 1914! In the early stage of aviation, aircraft required a pilot to constantly pay attention in order to fly safely. Flights of many hours led to serious fatigue for pilots. An autopilot system is designed to perform some of the tasks and assist pilots thereby reducing the workload. Modern autopilot monitors performance, sensors, collision avoidance and takes in data from pilots to make changes.The term Artificial Intelligence was initially put forth by John McCarthy in 1956 when he held the Dartmouth Conference, which was the first academic conference on the subject.Unsurprisingly, research firms are bullish on the potential of AI in banking. According to Fintech India report by PwC in 2017, the global spending in AI applications touched $5.1 billion, up from $4 billion in 2015. There is a keen interest in the Indian banking sector as well.

2.OBJECTIVES OF THE STUDY

1. To study the areas where artificial intelligence is being used by the banks.
2. To study about the application of Artificial intelligence in Banking Sector .
3. To study about the applications of AI in use in the leading commercial banks in India:SBI, HDFC, ICICI and Axis.

3.SCOPE OF THE STUDY

The scope of the study is limited and it covers the technological development in Indian banking sector especially the use of Artificial Intelligence.

4.RESEARCH METHODOLOGY

The research is purely descriptive in nature with qualitative method of data collection and analysis from authentic and reliable sources. Data have been collected from various secondary sources such as published reports and websites of various banks and journals.

5.LITERATURE REVIEW

Srihari subudhi (2019) conducted a study "Banking on Artificial Intelligence :Opportunities and Challenges for banks in India." The objective of the study was to understand the areas where the AI is presently being used by the banks in India, to study the challenges faced by the banks in India in adapting to new AI culture and to appreciate the Global Best Practices in AI, particularly chatbots in India.The study was descriptive in nature.The study reveals that AI in banks is bringing in more efficiency to their back-offices and even reducing fraud and security risks.

6.FINDINGS OF THE STUDY

6.1 Areas where artificial intelligence is being used by the banks.

Banks and other financial institutions have been showing interest in the adoption of AI or machine learning. It has a huge impact on the business and commerce of the banking industry.The technologies have been successful in equity capital market and help the organizations in the enhancement of their organizational structure. The implementation of the AI in the banking helped in the payment efforts and reduced complex process through simple chatbots conversation to continue operations without any hassles. Some leading banks also used the AI technology in the field of intelligent virtual assistant to improve their customer services. While some financial institutions have been using to prevent fraud and monitor potential threats to customers in commerce.

- Personalized Financial Services

Personalized connection will reach new heights as automated financial advisors and planners provide expertise in making financial decisions. They analyze market temperament against the user's financial goals and personal portfolio, and offer recommendations regarding stocks and bonds.

● Smart Wallets

Digital wallets are touted as the future of real-world payment technologies, with major players like Google, Apple, Paypal and others, jumping on the bandwagon and developing their own payment gateways. This decreases the dependence on physical cash, thereby expanding the reach of money to greater levels.

● Underwriting

The insurance sector is also coming up with a storm as they are moving towards congruent automation. By utilizing AI systems that automate the underwriting process, the organizations come armed with more granular information to empower their decisions.

● Voice Assisted Banking

Physical presence is slowly fading away as technology empowers customers to use banking services with voice commands and touch screens. The natural language technology can process queries to answer questions, find information, and connect users with various banking services. This reduces human error, systemizing the efficiency.

● Data-driven AI applications for lending decisions

Applications embedded in end-user devices, personal robots, and financial institution servers are capable of analyzing a huge volume of data, providing customized financial advice, calculations and forecasts. These applications can also develop financial plans and strategies through research, regarding various customized investment opportunities, loans, rates, fees, etc and track the progress.

6.2 AI applications within banking sector

The basic applications of AI include bring smarter chat-bots for customer service, personalising services for individuals, and even placing an AI robot for self-service at banks. Beyond these basic applications, banks can implement the technology for bringing in more efficiency to their back-office and even reduce fraud and security risks.

● Fraud detection: AI has the ability to identify fraudulent activity in the real time behavior i.e. while it is happening, as well as identify what the next pattern of suspicious behavior will be by using location services.Anomaly detection can be used to increase the accuracy of credit card fraud detection and anti-money laundering.

● Customer Support and Helpdesk: Humanoid Chatbot interfaces can be used to increase efficiency and reduce cost for customer interactions.

- Risk Management: Tailored products can be offered to clients by looking at historical data, doing risk analysis, and eliminating human errors from hand-crafted models.

- Security: Suspicious behaviour, logs analysis, and spurious emails can be tracked down to prevent and possibly predict security breaches.

- Digitization and automation in back-office processing: Capturing documents data using OCR and then using machine learning/AI to generate insights from the text data can greatly cut down back-office processing times.

- Wealth management for masses: Personalized portfolios can be managed by Bot Advisors for clients by taking into account lifestyle, appetite for risk, expected returns on investment, etc.

- ATMs: Image/face recognition using real-time camera images and advanced AI techniques such as deep learning can be used at ATMs to detect and prevent frauds/crimes.

6.3 AI applications in use in the leading commercial banks in India: State Bank of India, HDFC, ICICI and Axis

State Bank of India (SBI)

SBI, which is India's largest public-sector bank with 420 million customers, is embarking on its AI journey from the point of view of both employees and customers. To fuel its AI mission, this year, SBI launched a national hackathon, "Code For Bank", for developers, startups and students to come up with innovative ideas and solutions for the banking sector, focusing on technologies such as predictive analytics, fintech/blockchain, digital payments, IoT, AI, machine learning, BOTS and robotic process automation.

SBI is currently using an AI-based solution developed by Chapdex, the winning team from its first hackathon. SBI has also launched SIA, an AI-powered chat assistant that addresses customer enquiries instantly and helps them with everyday banking tasks just like a bank representative. SIA was developed by Payjo, a startup based in Silicon Valley and Bangalore. According to Payjo, since its launch, the chatbot has responded to millions of queries from thousands of customers

Deployment of this size is arguably the first of its kind in India and even across the world. SBI claims that SIA continuously learns with each interaction and gets better over time. Currently, SAI can address enquiries on banking products and services. It is trained with a large set of past customer questions and is said to aptly handle frequently asked questions.

HDFC Bank

HDFC Bank has developed an AI-based chatbot, "Eva", built by Bengaluru-based Senseforth AI Research.Eva (which stands for Electroni Virtual Assistant) has addressed over 2.7 million customer queries, interacted with over 530,000 unique users, and held 1.2 million conversations.Eva can assimilate knowledge from thousands of sources and provide simple answers in less than 0.4 seconds, the bank said. Within the first few days of its launch, Eva has answered more than 100,000 queries from thousands of customers from 17 countries across the globe.By using Eva the customers can get information on its products and services instantaneously.It removes the need to search, browse or call.HDFC is also experimenting with in-store robotic applications.HDFC's IRA (stands for "Intelligent Robotic Assistant")

ICICI Bank

ICICI Bank, India's second-largest private sector bank has deployed software robotics in over 200 business processes across various functions of the company. ICICI seems to be referring to what is often referred to as "robotic software" – a kind of software generally focused on automating office work.

The bank said it is the first in the country and among a few globally to deploy this technology, which emulates human actions to automate and perform repetitive, high-volume and time-consuming business tasks.software robots have reduced the response time to customers by up to 60 percent and increased accuracy to 100 percent thereby sharply improving the bank's productivity and efficiency. It has also enabled the bank's employees to focus more on value-added and customer-related functions."

ICICI Bank launched its AI-based chatbot, named iPal. Since its launch, the chatbot has interacted with 3.1 million customers, answering about 6 million queries, with a 90 percent accuracy rate.The bank is also considering the process of integrating iPal with existing voice assistants such as Cortana, Siri and Assistant.

Axis Bank

Axis Bank, India's third-largest private sector bank, launched an innovation lab called "Thought Factory" to accelerate the development of innovative AI technology solutions for the banking sector.The innovation hub located in Bengaluru, has an in-house innovation team and an accelerator program through which the bank engages with startups in a 3-month program. Shortlisted startups are then put in a structured mentorship program for fine-tuning, validating and scaling their business.

Recently,Axis Bank launched an AI & NLP (Natural Language Processing) enabled app, Conversational Banking, to help consumers with financial and non-financial transactions, answer FAQs and get in touch with the bank for loan other products.Currently available on Facebook and the Axis Bank website, it will soon be extended to mobile banking channels.The intent is to provide 24×7 assistance, instant gratification and convenience to our customers in an intuitive and native way.

7.CONCLUSION

A digital boom is certainly taking place across all segments of industry especially banking, especially after demonetization .The traditional banking has evolved and more and more banks are adopting new technologies like AI, Cloud, block chain to cut down their operating expenses and improve efficiency.

Through this research we identified that the four leading commercial banks in India,in collaboration with fintech startups, are using AI to improve the customer experience, reduce costs and improve efficiency.The study has concluded that Chatbots seems to be the primary AI use-case at Indian banks today, with all four banks investing in conversational apps – mostly focused on customer service. In some cases, like in SBI, we have also seen the use of AI-powered smart cameras that captures facial expressions of customers to offer real-time feedback on their experiences.

The banks seem to be competing with each other to launch their AI solutions and stay ahead in the technology adoption curve. While none of the banks quantified an investment figure, it's evident that a large percentage of the digital transformation budget is being geared toward AI and related technologies and the spend is only going to increase in the future.

Bibliography

[1]Srihari subudhi, july 2019, Banking on Artificial Intelligence-Opportunitiese and challenges for banks in india, International joural of research in Commerce, Economics and Management, volum:9, Issue:07, ISSN 2231-4245

[2]M. Bhuvana, P. G. Thirumagal and S .Vasantha,August 2016, Big Data Analytics - A Leveraging Technology for Indian Commercial Banks, Indian Journal of Science and Technology, Vol 9 (32)

[3]https://www.financialexpress.com/industry/banking-finance/sbi-turns-to-artificial-intelligence-powered-chat-assistant-here-is-what-you-get/870752/

[4]https://sg.inflibnet

[5]www.livemint.com

[6]https://www.fintectnews.org