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A Literature Review on Usage of Artificial Intelligence in Banking Sector with Special Reference to Indian Banks

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ABSTRACT

Artificial Intelligence is a fast-developing technology across the world. The banking sector is becoming one of the first adopters of artificial intelligence. The purpose of the LR is to evaluate the usage and challenges faced by the banks in handling operations linked with Artificial Intelligence with special reference to SBI Cantonment Branch. The LR focused on operations of banks handling with Artificial Intelligence such as cybersecurity and fraud detection, customer services, financing and credit decision, process automation etc. Analysis was made by the use of statistical tools like. This LR clearly shows the usage and challenges faced by the banking handling the Artificial Intelligence with operations of the bank.

Keywords: Customer service, Fraud and cybersecurity, Chatbot, Artificial Intelligence.

Ⅰ. INTRODUCTION

1.1 Artificial Intelligence:

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving.

The ideal characteristic of artificial intelligence is its ability to explain and take actions that have the best chance of achieving a specific goal. A subset of artificial intelligence is machine learning, which refers to the concept that computer programs can automatically learn from and adapt a new data without being aided by humans[13]. Deep learning techniques enable this automatic learning through the engagement of huge amount of unstructured data such as text, images or video.

In the context of banking, Accenture defines AI as, "A computer system that can sense, comprehend, act and learn. A system that can perceive the world around it, analyze and understand the information it receives, take actions based on that understanding, and improve its performance by learning from what happened[1]. And by allowing machines to relate more naturally – with their environment, with people and with data – the technology can spread the capabilities of both humans and machines far elsewhere what each can do on their own.

1.2 Components of AI:

The components of Artificial intelligence are as follows:

- Programming
- Data structures
- Algorithms
- Pattern recognition
- Machine learning
- Physics
- Numerical methods
- Psychology

1.3 Role of AI in Banking Industry:

- Artificial Intelligence is the future of banking as it takes the power of advanced data analytics to contest fraudulent transactions and improve compliance.
- AI algorithm achieves anti-money laundering activities in few seconds, which otherwise take hours and days.
- AI also allows banks to manage huge volumes of data at record speed to derive valuable perceptions from it. Features such as AI bots, digital payment advisers and biometric fraud detection mechanisms lead to higher quality of services to a wider customer base [14].
- All this explains to increased revenue, reduced costs and boost in profits.

Ⅱ. AI TECHNOLOGY SYSTEMS IN BANKING SECTORS

Artificial Intelligence technology systems used in banking sectors are

- Robotics
- Computer vision
- Language
- Virtual agents
- Machine Learning

2.1. Reasons for adoption of AI in banking Sectors:

- To improve operational efficiency.
- To recognize fraud and security risk.
- To accomplish large volume of data.
- To make decision successfully.
- To assist the customer for their queries.
- Easily find the credit worthiness of an individual and a company.
- Generates compliance report for fraudulent transaction.
- Easily capture the data from KYC document using OCR Technique.

2.2. Areas of Artificial Intelligence in Banks:

Many areas where banks are utilizing AI to efficient the processes:

- Fraud and Cybersecurity
- Customer service
- Compliance
- Financing and Loan (Credit Assessment)
- Business process management
- Marketing

2.3. Banks using AI in India:

Some of the banks I will refer which are

- State Bank of India
- Canara Bank
- HDFC
- ICICI
- Axis Bank
- Bank of Baroda
- Andhra Bank
- Kotak Mahindra Bank

State Bank of India (SBI):

State Bank of India (SBI) is the largest public sector banking services provider in the country. To deliver effective banking services, the bank capitalizes on artificial intelligence. SBI Intelligent Assistant (SIA), an AI-powered smart chat assistant, addresses customer enquiries instantly and helps them with everyday banking tasks like a human does. Developed by an AI banking platform Payjo, this smart chat assistant is equipped to handle nearly 10,000 enquiries per second or 864 million in a day, which is almost 25% of the queries are processed by Google each day, reports noted[12].

Canara Bank:

It launched Mitra; a humanoid robot developed by Bengaluru based Inventio Robotics which helps customers navigate the bank. Another one Candi, which is slightly smaller than Mitra is supplementing the human resource[12].

HDFC:

HDFC is another Indian banking and financial services firm that uses AI. The bank's smart chatbot called 'Eva' works with Google Assistant on millions of Android devices to solve customers' queries and provides them with better services. HDFC also has an AI-enabled chatbot, On Chat, which launched on Facebook Messenger in 2016[12].

ICICI:

ICICI Bank, a leading private sector bank in India, has applied software robotics in over 200 business processes across diverse functions of the company. Through this, the bank became the first in the country to deploy an AI system at a large scale in various processes[12].

Axis Bank:

Axis bank allows its customers to talk about their banking issues anytime, anywhere through an AI-powered bot. India's third-largest private sector bank in July 2020 unveiled a conversational interactive voice response (IVR) system, called AXAA[12].

Bank of Baroda:

Bank of Baroda is another public sector lender advancing banking services and reducing the cost of managing accounts while focusing on improving customer service through AI. The bank uses advanced gadgets like an artificial intelligence robot named Baroda Brainy and Digital Lab with free Wi-Fi services. It also has a chatbot named ADI (Assisted Digital Interaction)[12].

Andhra Bank:

Andhra bank is a medium-sized public sector bank of India that merged with Union Bank of India in April 2020. As the bank has a network of branches, with numerous satellite offices in the country, it has adopted advanced technology. The bank uses an AI interactive assistant named "ABHi" to address customer queries immediately and effectively. This AI chatbot, developed by Floatbot, is integrated with Core Banking Servers (CBS) of Andhra Bank and will automate customer support for five crore account holders of the bank[12].

Kotak Mahindra Bank:

Kotak Mahindra uses a smart AI-enabled chatbot to power millions of Kotak customers with quick and available to answer banking queries round the clock. The chatbot, named Keya, is a bilingual voice Bot that comes integrated with Kotak's phone-banking helpline and will augment the traditional interactive voice response (IVR) system[12].

Ⅲ. APPLICATIONS

- Chatbot
- Fraud detection and Cybersecurity
- Loan and Credit decision
- Process Automation
- Tracking Market trends

Chatbot:

Chatbots is a form of artificial intelligence (AI). This tool helps convenience for customersthey are automated programs that interact with customers like a human.

In banking sectors, Chatbots allow customers to manage requests quickly and efficiently while acting as a listening network so that banks can better understand user behaviours, customer actions and deliver personalized offers and facilities.

Fraud detection and Cybersecurity:

Fraud detection is a set of actionsaccepted to prevent money or property from being obtained through false act.

In banking, fraud may include forging checks or using stolen credit cards.

Types of techniques used to detect fraud:

- Data mining classifies, groups and segments data to search through millions of transactions to find patterns and detect fraud.
- Neural networks learn suspicious-looking patterns and use those patterns to detect them further.
- Machine learning automatically identifies characteristics found in fraud.
- Pattern recognition detects classes, clusters and patterns of suspicious behaviour [15].

Cybersecurity:

AI system can help detect zero-day malware, prioritize threats and take automated remediation actions.

It safeguards the client's assets.

AI uses technology, procedures and methods designed to prevent network, programs and data from attack, damage, virus, hacking, data theft or unauthorized access.

Loan and Credit decision:

Credit scoring, AI banks can capture data by analysing mobile phone activities, social media usage etc to capture a more accurate assessment of creditworthiness.

AI use Machine learning algorithm to predict credit default with more accuracy than the traditional methods.

Process Automation:

RPA- Robotic Process Automation algorithm.

RPA helps the employees to focus on critical tasks in banks with related to customer needs.

RPA can make the process easier by capturing the data from the KYC documents using Optical Character Recognition technique (OCR).

Tracking Market trends:

AI helps to process large volume of data to forecast the market trends, currency fluctuation and stock.

Robotic advisor assists the merchants in the account opening process and advises them on financial planning.

V .CHALLENGES FACED BY THE BANK USING ARTIFICIAL INTELLIGENCE:

- Many banks face the challenge of an unwillingness to improve or adapt to new methods.
- Lack of commitment required to upskill their labour force and human resources skills.
- Lack of supporting data to implement operational changes, the banking sector is facing a disconnect between the need and response from customers.
- Lack of training witnessed in the existing workforce associating with the advanced tools and applications of the use of AI in banking.
- Lack of awareness about the AI in front of the customers.
- Lack of skilled workforce to handle the AI tools.
- Not understand the customer's way of language such as texting or voice.

VI. CONCLUSION

Artificial Intelligence is gaining acceptance day by day and banks are discovering and executing this technology in changing the way customers are supported. So, the future of Artificial Intelligence in banking sector is very bright, it makes it even easier for a customer to do transactions from any place and at any time without waiting in lengthy queues at the bank. Hence, the aim of Artificial Intelligence is to provide personalized and high quality of customer fulfilment along with effective and time saving services.

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