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# Aspects of Powered Banking in India using Artificial Intelligence

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**ABSTRACT**

Artificial Intelligence refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. It is imparting human intelligence into machines. Artificial Intelligence has become a very fast developing technology in the world and is getting better and smarter day by day. The applications of Artificial Intelligence can be seen in almost every sector including Education, Banking, Healthcare, Entertainment, Social Media, Date Security, Gaming etc. This paper focuses on the concept of AI in Banking sector, how this technology has brought changes in this field ad what are the opportunities and challenges ahead.

**Key Words:** Artificial Intelligence, AI application in banks, Banking Technology, Intelligence

**INTRODUCTION:**

Artificial Intelligence is becoming widespread in the current market. It is becoming better day by day and allowing various industries to adopt AI in various applications. Banking sector has become an early adopter of AI. Over the past decades, banks have adapted new technologies that have helped them improve customer experience. In the 1960s banks introduced ATMs followed by electronic card-based payment system in 1970s. At the beginning of the century users learned about online banking and later in 2010 came to know about mobile banking. And with the growing digital age the banks have now adopted the use of AI in a variety of tasks. The use of AI in banking sector has helped in improving customer interactions and automation. But the application of AI in banks is vast and can change the entire functioning of banks in a manner that will not only be user friendly but also will enhance the working pattern of banks.

**Present scenario of AI application in Banks:**

AI Powered Chatbots: Chatbots are software applications that use artificial intelligence to carry out on-line chat conversation via text-to-text with customers in lieu of direct contact with a human agent. These bots are designed to understand what a human wants and guide them to their desired outcome. These chatbots help the customers resolve their queries in no time, thus providing a friendly customer experience.

An example of AI enabled Chatbot is Ceba Chatbot launched by the Australian Commonwealth Bank. With the help of this Chatbot, about half a million customers were able to solve about two hundred banking issues: activate their cards, check account balances, withdraw cash etc. [1]

Personal Assistants: With the rising popularity of virtual assistants like Alexa and Siri, Banks have come up with personal assistants for their customers. These are application programs that understand natural language voice commands and complete the desired task. This enhances the user experience to another level.

For example, Royal Bank of Canada has included Siri in its IOS app. Now, to send money to another card, it's enough to say something like: "Hey, Siri, send $30 to Lisa!" - and confirm the transaction using Touch ID. [1]

Data Accumulation and analysis: Mobile banking apps with AI based features collect useful data from the users to enhance the learning process and user experience. After collecting and analysing data, the experience can be made more personalised. The data regarding financial transaction helps banks understand the expenditure pattern of customers which helps in granting loans or detecting fraud.

Robotic Automation: AI reviews and transforms processes by applying Robotic Process Automation (RPA). This enables automation of about 80% of repetitive work processes, allowing knowledge workers to dedicate their time in value-add operations that require high level of human intervention.[2]

**Future development of AI in Banks:**

AI is a growing technology which is developing very fast. With development in the technology, banks need to adapt the new changes that will help them in better functioning and reduce workload. Some of the innovations that can be done through AI in the Banking sector are:

Automated Transactions: Paying bills has now become simple with mobile baking services and in order to make it more effective banks can make use of AI to help the customers pay the bill on time. Mobile bank apps can be integrated with automation technology which will help the users to program the payment for regular bills. On the scheduled date, the amount will automatically get transferred, relieving the users worries regarding payment of bills on time.[3]

Financial Planning: Financial Planning is one of those tasks where customers of almost all ages struggle the most. But with the use of AI, the customers can get advice on their financial planning journey ahead. Mobile banking apps can integrate AI that will analyse the customer's financial behaviour and provide them with personalised suggestions regarding optimal usage of their money. It will also suggest the customers with different plans that would be according to their budget and would also help meet their needs. Thus, these Ai based mobile apps will help the customers in their wealth management requirement and would also help shape financial intelligent customers.[3]

Fraud Detection: Fraud detection is an area where machines are "genuinely superior to people". Banks can make use of AI to defeat fraud application by detecting illegal activities early in the process. AI use algorithms that can look for connections between applications for credit cards and loan applications, as well as monitor newly opened accounts to stop financial damage before it occurs. AI can also help in detecting anti-money laundering by monitoring the spending and depositing patterns over time and alerting the staff to anomalies and block the transactions before completion. Algorithms can pull from a variety of data points, from transaction origination to the end destination and more, to identify deviations from normal patterns.

The goal is twofold: first, AI can help ensure that payments are being made willingly by the individual. And second, AI can help reduce false positives that could occur with traditional fraud detection methods.[4]

AI for ATMs: AI can be for predictive maintenance of ATMs. It can be used in identifying the issue, searching and retrieving the likely cause of the issue from historical data, automatically preparing a repair-plan, or prompting technicians with relevant instruction manuals. [5]

AI can also be used for detecting any suspicious activities in the ATMs. AI based software can be used to analyze the footage from surveillance camera using deep learning-based vision system in real time on camera itself, send alerts, and create analytics for ATM security.[5]

Credit Decisions: AI can be used in making effective credit decisions by bank. As we know that humans are tend to make mistakes but machines if programmed intelligently can out power the thinking abilities of human. Credit scoring algorithms, integrated with data about borrowers, such as employee data (from EPFO), legal dispute data (from court's databases) and news sentiment analysis can be used by banks for intelligent credit decision making. Machine Learning driven risk scorecards can also be used to evaluate groups of connected promoters and broader industry parameters such as regulation or consolidation. The workflows of underwriting, including analysis of collaterals ad assets, can also be automated.

Automated credit decisioning and risk intelligence will not only improve efficiency of the process and customer experience but also reduce human error (or bias) and operating costs.[6]

Blockchain Technology in Banking: Blockchain is distributed, decentralized and digital ledger. It is digital information (block) stored on public database (chain). Blockchain is used to store encrypted data and Artificial Intelligence is the brain or engine to enable decision making and assists in analysis of data collected. Blockchain technology can be applied to solve multiple issues related to digital transactions such as data security, fraud prevention etc. Blockchain is the future of inter-bank transactions, cross border remittances, crypto banking, record storing, KYC, loan syndication, increased transparency etc. [7]

## RISKS & CHALLENGES IN IMPLEMENTATION OF AI IN BANKS:

AI is one of the emerging technologies which increase the risk of its implementation as new technologies are immature and have been in action for a limited time. The risk of using AII gets compounded by the fact that it is evolving very quickly.

In addition to the advantages AI can offer to the banking sector, companies must also consider the following challenges in its implementation:

AI Bias: AI bias is an anomaly in the output of machine learning algorithms. These could be due to the pre-conceived assumptions made during the algorithm development process or prejudices in the training data. These biases can be magnified when the model is deployed, sometimes with troubling results.[8]

Explain ability and ethics: Banks operate under certain rules and regulations that require them to issue explanations for their credit issuing decisions to potential customers. This makes use of AI for credit decision making challenging, as it operates on algorithms that study the correlations between thousands of variables that are typically incomprehensible to the human brain.[8]

Cost: AI being a developing technology is expensive. Its often seen that there is a lag between the time a algorithm is created I lab and when it is deployed, simply because it is too expensive to run it. The cost of using AI has resulted may companies to switch off certain algorithms as the benefit gained from running them did not outweigh the cost of running them.[8]

Customer Mistrust: In addition to complying with regulations, Banks also need to be mindful bout customer trust on AI tools. Customers often do not have trust over AI tools like chatbots that are built to enhance their experience due to the thought that machines may make a mistake and misguide them for their financial planning or transactions.[8]

## ARTIFICIAL INTELLIGENCE INDIAN BANKS:

State Bank of India: SBI, India's largest public-sector bank, is embarked on its AI journey from the point of view of both employees and customers. To

fuel its AI mission, SBI launched a national hackathon, "Code For Bank", for developers, start-ups 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 has launched SIA, an AI –powered chatbots that addresses customer enquiries instantly and helps them with everyday banking tasks just like a bank representative claims that SIA continuously learns with each interaction and gets better over time.

SBI is currently using a n AI based solution developed by Chapped, the winning team from its first hackathon.[9]

HDFC Bank: HDFC Bank has developed a AI-powered Chat assistant," Eva (Electronic Virtual Assistant)". Eva is designed in a manner that it can assimilate knowledge from thousands of sources and provide answers in less than 0.4 seconds. With the use of Eva, the customers can get information its products and services instantly. The bank has also claimed that in future Eva would be able to handle real banking transactions ad will complement the existing platforms of the bank enhancing user experience. The bank is also experimenting with in-store robotic applications called IRA (Intelligent Robotic Assistant).[9]

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. The software generally focused on automating office work is claimed to be first I the country which emulates human actions to automate and perform repetitive, high-volume and time-consuming tasks.[9]

The bank has also launched its AI-based chatbots, named ipal. The chatbots services are divided into three categories. The fist category involves FAQs which are simple questions that are frequently asked by the customers, the bot provides the customers with simple, structured answers for these questions. The second category involves financial transactions, which include bill payments and fund transfer from person-to-person. The third category focuses on helping customers discover new features. It helps them with simple how-to-tasks such as how to rest ATM pin.[9]

The bank is currently in the process of integrating ipal with existing voice assistants such as Siri and Cortana.[9]

Axis Bank: Axis Bank, India's third largest private sector bank has launched an AI and LP (Natural Language Processing) enabled app for conversational banking, to help customers with financial and on-financial transactions, answer FAQs and get in touch with the bank for loan and other products.

To help reduce the turnaround time (TAT), the bank has implemented AI across 125+ processes and cognitive automation across 90 processes, which needed repetitive manual labour.[9]

Canara Bank: Canara Bank has launched Mitra and Candi robots. Mitra, a humanoid robot developed by Bangalore-based Inventor Robotics ad named after the Vedic god of friendship, could well be the poster child for cooperation in artificial intelligence (AI) between India and China. Mitra greets customers in Kannada and helps them navigate the bank's head office on JC Road.[10]

CANDI is Canara Bank's fully digital banking branch in Bangalore and the first of its kind in India, has come up with a revolutionary concept; the entire process of opening a new bank account using Aadhaar can be completed within seven minutes. Biometric authentication, iris scan, or an OTP is used to authenticate the on boarding process. Mobile and Internet banking services are activated instantaneously with e-pins and at the end of the on boarding process, the customer receives a personalized bank card (Master, Visa, or Rupay) customized with an image of their choice. [11]

City Union Bank: City Union Bank's Lakshmi is India's first robot response service in a bank. It operates on Artificial Intelligence platform that provides information regarding day to day banking transactions, including interest rates. It is capable of responding to voice-based interactions and can follow and respond to four languages- English, Tamil, Telugu and Hindi.[12]

Bank of Baroda: Bank of Baroda has set up a hi-tech digital branch equipped with advanced gadgets like AI robot named Baroda Brainy and Digital Lab with free Wi-Fi services.[13]

## CONCLUSION:

Artificial Intelligence is a booming technology with may benefits I the banking sector. Artificial Intelligence is changing the face of modern-day banks, it improving the customer experience as well as efficient handling of office work.

incorporation of AI in banks can provide banks with advantages such as fraud detection, credit decision making, financial planning etc. The application of AI in banking sector comes with a few risks but the benefits of AI implementation can overweigh the challenges. The digitalization is pushing banks to adopt new technologies and move forward from traditional operating patterns. The adoption of AI in banking has resulted in a greater number of customers being attracted, helping the banks to grow. The application of AI in banks is not only limited to retail banking services, the back ad middle office of investment banking and all other money related supervisions are gaining by AI. Thus, AI introduction in banks has helped banks move a step forward in this new era of digitalisation.

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