

## APPLICATION OF ARTIFICIAL INTELLIGENCE IN IMPROVING BANKING CUSTOMER SERVICES

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### ABSTRACT

*The rise of Artificial Intelligence (AI), which refers to the reproduction of human intellect in machines, has become significant and is now playing a crucial role in the modern banking era. This study aims to explore how "AI is being used to enhance customer services in the banking industry."*

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**Keywords:** Banking Sector, AI Technology, Customer Services, Chat Bots.

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### Introduction

Artificial Intelligence, Block chain technology, and 4G & 5G Internet of Things are emerging technologies that are impacting various aspects of human life. These technologies have the potential to disrupt the way we do interact with each other, operate our businesses, and even how governments work for their citizens. The word Artificial intelligence (AI) describes computer programs that are capable of reasoning, decision making and problem solving, among other sophisticated function that were previously limited to humans only. The use of AI by organizations and governments, and its deployment in improving customer experience, operational efficiency, fraud detection and cyber security is on the rise across the world. One such industry that has embraced AI across geographies is banking. In the banking industry in particular, Artificial Intelligence (AI) is revolutionizing customer service and the way business function and engage with their clientele. Banks can now provide their clients with individualize, accurate, and speedy service thanks to AI-powered solutions, which eventually increase client loyalty and happiness.

Developing AI infrastructure in India is a key priority for the Indian Government. In the year 2018, NITI Aayog (which is a policy resource center of the Government of India) framed the 'National Strategy for AI'. Emphasizing the importance and vision for the development of AI in India, Prime Minister Narendra Modi said, "It is essential to create artificial intelligence in India and ensure artificial intelligence serves India." Huge benefits can be reaped from AI by banks and financial institutions. Overall customer experience can be significantly improved, better-informed decisions regarding credit underwriting can be made, quicker identification of frauds and defaults can take place, collection processes can be improved, or employee productivity can be enhanced; all by revolutionizing the banks of India through AI. Issues related to fintech and digital banking for India were undertaken by the Inter-Regulatory Working Group constituted by the Reserve Bank of India. According to this report, digital transformation of the Banking and Financial sector is going to be based on three fundamental pillars: blockchain, AI, and IoT.

- **Use case of AI in Banking and Finance:** Artificial intelligence has already permeated our society, and banks have started incorporating this technology into their offerings. In the banking sector, some important AI applications include the following.

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- **Chat Bots:** One of the most broadly deployed AI application across business, chat bots offer a very high return on investment in terms of cost saving. The most regularly used tasks, such as balance check, generate mini statement, money transfer, etc., can be efficiently handled by chatbots. This helps reduce the work load from back end departments such as call centers, internet banking team, etc.
- **Robo Advice:** Robotic advice is one of the most debated subjects in the financial services sector. A robo-advisor tries to understand a customer's financial strength by studying financial figures shared by them, as well as their transaction history. Based on this breakdown and goals shared by the client, the robo-advisor will automatically able to give suitable asset recommendations, sometime even exact product or equity.
- **Predictive Analysis:** Broadly applicable predictive analytics and general-purpose semantic and natural language applications are among the most popular use case for AI. AI is able to identify certain patterns and links in data that were previously impossible for legacy technologies to pick up on. These leanings may point to new cross-selling or sales prospects, or even operational data indicators that have a direct result on revenue generation.
- **Cyber security:** The effectiveness of cyber security systems benefits greatly from AI which uses historical threat data to recognize patterns and indicators that don't initially appear related to anticipate and block attacks. AI protects against external threats by monitoring internal risks and breaches to recommend corrective measures which stop data theft and abuse.
- **Credit Scoring / Direct Lending:** The application of AI assists alternative lending institutions to generate credit scores based on a combination of conventional and alternative data analysis to determine customer approval decisions. Lenders gain the ability to build advanced lending solutions supported by an effective credit scoring system for customers who have minimal credit history.

#### Problem Statement

Modern Indian banks actively use AI technology in their operations even though numerous institutions still confront difficulties in implementing this practice. The main purpose of this study is to investigate how AI impacts banking operations for enhancing customer service quality.

Research questions answered in this paper:

- Which Banking operations integrated with AI Support technology?
- The level IT architecture requirements to develop AI Support?
- The challenges against banking sector to integrate AI in their operations.

#### Objectives

This research paper investigates AI solutions employed by the leading four Indian banks through case studies to address the following questions:

- To study the Artificial Intelligence in the banking industry and its effect on consumers.
- To study how AI applications might help banks save money, time and effort.
- To Study future hold for AI in the Indian banking sector.

#### Review of Literature

A Study on Artificial Intelligence (Ai) In Banking and Financial Services by A.Geetha (2021). This study highlights AI in banking and financial services in area of Chennai to manage the use for clients. The data collected as secondary from literature review, along with structure questioner to collect primary data toward AI application. The result of the study represents that various AI services used by Private Banks for customer benefits and satisfaction to improve service in effective manner.

Artificial intelligence (ai) in banking industry and customers perspective by Dr. G. Nagarajan, Dr.R. Arunadevi, Dr. Rafiya Banu, Dr.Umesh U, Dr.A.Sulthan Mohideen, M.Raja Lakshmi 2023. This research paper study the customer prospective on adoption of AI based banking services in Asian countries (Pakistan, China, Iran, Saudi Arabia and Thailand). Data collection from secondary source as questioner and Sentimental study technology of AI used to forecasts customer sentiments, moods and replies. The findings represent that implementation of AI is worthy in taking strategic decision by banks to generate more revenue, and AI technology enhance client offering and client feel secure at time of financial transactions.

Ritu Tuli, Sameer Salunkhe, 2019. The function of AI in customer services with particular reference to SBI and HDFC bank. This paper covers improvement of customer service through Artificial Intelligence used by HDFC and SBI Bank. The research gap identifies as more research on customer satisfaction require to be carried out. This study is per performing on exploratory research, with primary and secondary data. The conclusion of study identify as banks are doing huge investment in AI technology, but the acceptance, security and data theft is there as challenges in banking industry.

AI's effect on the Banking Industry with Particular reference to Indian Private Banks, by Sharan Kumar SHETTY, Cristi SPULBAR, Ramona BIRAU, Robert Dorin FILIP, 2023. This study analyzes the process of implementation of AI in banks and its impact on customer service and to bankers. Both primary and secondary data collected for empirical study. The conclusion suggests that AI will definitely help banks into business grow and customer satisfaction.

### Research Methodology

#### Data Collection

The data collection is from back-office operatives and front desk operatives in the bank. There is primary data through interviews of bank staff related to higher executives and IT head / team members. Secondary data through literature reviews and theories.

#### Questions: Front desk Customers

- What features of AI that, you regularly come across in your banking?
- How you find the AI tools w.r.t. enhancement of customer experience?
- According to you, what features of AI that your bank should implement in coming future?
- What are the potential threats against AI in Banking?

Secondary data were being collected and analyzed as a previous work done by other researchers through websites.

Sampling Unit: Customers who are regularly use online banking platforms.

Sampling Techniques: Convenient Sampling

Samples Size: 108

Demographics: Students – 51%, Service/ business – 45%, others- 4%

Majority students belongs from higher studies, 45% are employed. In other categories generally retired peoples are covered. Based on AI Assistance in banking, following banking services influence,

- **Customer Experience:** AI generates quick response to the customer's inquiry ex. SMS related to Balance, statements, etc. It also helps to notify feedback of customers.
- **Loan Decisions:** AI suggest customized solutions for customer loan decision
- **Transactions:** AI helps to drive multiple accounts and manage financial transactions ex. Auto Payments with filled details
- **Payment:** AI helps to make payments related to phone, corporation, electricity, etc.
- **Reminders:** AI also generates reminders about Credit card and Debit card Transaction patterns including card and transaction history

AI Services	Highly Important	Somewhat Important	Important	Not Important	Can't say
Customer experience	35	25	20	15	13
Loan Decision	27	32	26	10	13
Transaction	40	26	30	5	7
Payment	43	29	24	4	8
Reminders	38	34	20	8	8

#### Weighted Score

AI Services	Highly Important (5)	Somewhat Important (4)	Important (3)	Not Important (2)	Can't say (1)
Customer experience	170	100	60	30	13
Loan Decision	135	128	78	20	13
Transaction	200	104	90	10	7

Payment	215	116	72	8	8
Reminders	190	136	60	16	8

Calculation of RII (Relative Important Index) N= 5 Number of Cases

Total/ (A\*N)

AI services	Total	N	A*N	RII
Customer experience	373	108	540	0.6907
Loan Decision	374	108	540	0.6925
Transaction	411	108	540	0.7611
Payment	419	108	540	0.7759
Reminders	410	108	540	0.7592

#### Calculation of Ranks

AI services	RII	Ranks
Customer experience	0.7759	1
Loan Decision	0.7611	2
Transaction	0.7592	3
Payment	0.6925	4
Reminders	0.6907	5

#### Findings

The use of AI in banking sector involves

#### The Possibilities

- Improved Customer Involvement: AI technologies such as chat bots and virtual assistants permit banks to deliver tailored made and efficient customer service by handling most first-level client inquiries, improving overall customer experience and engagement.
- Scam Discovery and Prevention: AI systems process huge volumes of data rapidly in order to find patterns which help sense fraudulent activities. AI system provide banks with timely fraud alerts, protecting them from monetary losses, damage to their reputation, and loss of consumer safety.
- Risk Management and Assessment: AI systems can rapidly judge solvency and evaluate risks associated with advances and deposit. This will help banks to make more well-versed lending decisions and manage risks efficiently.
- Process Computerization: Traditional manual operations, like data entry, document verification and authentication, now can be automated-with a view to improving the overall speedy process, minimizing human mistakes, and banking operations efficiency.
- Statistics Investigation and Insights: AI powered analytics tools could throw some direction toward some important insights for banks. Such insights will help banks in identifying customer behavior, predicting trends in the market, and potential strategies for product development, marketing, and risk management based on appropriate data.
- Compliance and Regulatory Assistance: AI systems also help in the identification of non-compliance by the banks. This decreases the risk of non-compliance and ensures that adherence to the requirements of the corresponding regulatory frameworks is secured.

#### Challenges in Applying AI

- Data Secrecy and Safety: Banks must safeguard robust data secrecy measures and stringent safety protocols within their folds to keep sensitive customer data from any unauthorized access, not only data breaches.
- Ethical Considerations: In order to maintain the customers trust and to avoid unintended algorithmic bias, bank must Banks draft and implement transparent and ethical policy.
- Regulatory Framework: The industry needs regulatory protocols along with guidelines which establish proper use standards and mitigate its special operational challenges.
- Legacy System connection: For a smooth installation and seamless connection with current legacy system and infrastructure, bank must make investment in updating their IT infrastructure and ensuring compatibility with cutting edge AI features.

- Transformation Organization: In order to effectively implement AI powered banking services, it is essential to train staff members, promote an innovative culture, and facilitate a seamless transition.

### **Conclusion**

The application of AI in the Indian banking industry will completely change how financial institutions conduct business across the country. All institutions have various opportunities available to upgrade customer satisfaction levels and boost operational effectiveness and manage risks while actively pursuing innovative initiatives. Data privacy issues along with skill deficiencies, ethical concerns, regulatory hurdles, integration problems and management of organizational change remain the significant hurdles to overcome.

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