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A Study on the Role of Artificial Intelligence in Enhancing Customer Service in the Banking Sector

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ABSTRACT: The banks in India are rapidly evolving in the area of technologies employed by them, and AI becomes a central piece of this revolution. Considering the customers' high demands in fast processing time and 24*7 availability but also a certain intolerance to errors, the banks started using chatbots, fraud detection tools and even advice coming from the artificial intelligence regularly. In this study, we aim to explore whether this approach makes an actual difference for the bank's clients. To achieve our aim, we have carried out a structured survey involving 40 respondents who represented students, professionals and businessmen. We have concluded that although the customers used to employ the AI-based services in order to perform simple tasks, they remained sceptical of them in terms of reliability and answering complicated questions.

KEYWORDS: Artificial Intelligence, Banking Sector, Customer Service, Chatbots, Machine Learning, Digital Transformation

I. INTRODUCTION

When one compares banking in today's world to the banking scenario that prevailed only fifteen years ago, the gap becomes quite obvious. Visiting a bank branch, filling up forms, standing in queue — all such activities were once considered par for the course when it came to handling finance matters. Today, one can set up an account in ten minutes using a mobile application, receive fraud alerts instantly, or even talk to a chatbot in the middle of the night without any effort from the concerned employees of the bank. All of this would not have been possible without the use of Artificial Intelligence.

Use of AI in banking comes in several forms and varies according to the specific needs of individual banks. Chatbots seem to be the most obvious application of artificial intelligence in banking. A great many customer questions can be dealt with by chatbots without the involvement of an actual human employee – from balance inquiries to resetting of passwords. The security aspect is ensured via the fraud detection system which checks every single transaction performed in banking and spots possible issues. In addition, loan processing has been speeded up considerably due to the ability of modern credit scoring programs to analyse many aspects related to a particular client within a few minutes.

It hasn't taken Indian banks too long to capitalize on the opportunities that lie here. With the advent of iPal, AI-based assistant from ICICI Bank, EVA by HDFC Bank, and moves towards automation of some of its helpdesk functions even from SBI, the trend is clear enough. What this all comes down to is that in an ecosystem where the products offered and the interest rates are pretty much the same for all players in the banking business; customer experience differentiates one bank from the other. That's what this paper attempts to explore truthfully.

II. LITERATURE REVIEW

John McCarthy (1956), whose name is sometimes associated with the first usage of the term 'Artificial Intelligence' in a modern-day context, defined AI as getting computers to do what would otherwise require intelligence from humans. Even though this definition seems to be too general, it perfectly describes what banking AI applications have been doing for a long time now. Similarly, according to Russell and Norvig (2010), an intelligent system can be referred to as a rational agent that perceives its environment and makes choices with the goal of maximizing its performance.



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Winer (2018) was one of the first researchers to explore the phenomenon of bots. His research showed that it is easier to predict the results than anything else: people feel satisfied about the interaction they have had with companies if a problem is solved at ten at night instead of having to make calls in the morning.

Accenture Banking Technology Vision Report of 2020, it became apparent that banks were not using artificial intelligence for answering only basic questions. Rather, the best banks in the field had started using machine learning in order to understand consumer behaviour and provide them with offers prior to any request made by the consumer. On the other hand, McKinsey and Company provided some additional insight into the issue in their report of 2021 by emphasizing the significance of reducing financial crimes through the use of AI technologies.

Deloitte (2022) concluded their study by addressing these topics from the perspective of operations. The findings indicated that automation of account management, loan approval, and regulatory checking processes was efficient not only because it minimized mistakes on the part of humans, but also because it greatly accelerated these procedures. All these studies demonstrate that the general idea remains the same across all the literature: banks that use AI offer a better customer experience overall. At the same time, it should be noted that researchers do not hesitate to point out drawbacks of using AI technology as well. Privacy issues related to handling sensitive data, decision-making process opacity, and impersonality of such services remain unsolved.

Objectives of the Study

- To analyze the extent of awareness and use of artificial intelligence-powered banking services by customers.
- To gauge the satisfaction levels of customers with particular AI applications like chatbots, fraud warnings, and personalized suggestions.
- To analyze the effect of AI on different aspects of services offered by banks, such as speed, availability, accuracy, and personalization.
- To find out about the various difficulties faced by customers while utilizing AI-powered banking services.
- To determine the customer preferences for AI or human interventions in banking services.

III. RESEARCH METHODOLOGY

Research Design: - In the research design, the use of descriptive as well as analytical methodology of consumer behaviour is done.

Data Collection: - Primary data was gathered from a questionnaire that could be used on google forms.

Sample Size: - 40 respondents

Tools for Analysis: - Percentage and frequency analysis

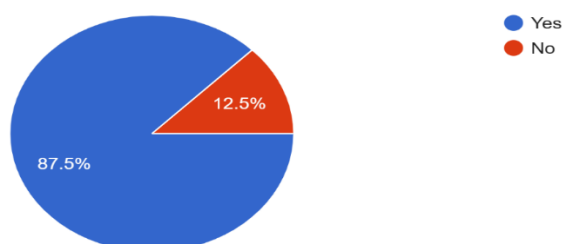
Variables Investigated: AI-driven customization, application of chatbots, AI awareness in banks, trust, and data privacy issues as independent variables affecting the adoption of the service and customer satisfaction, while demographic variables like age, gender, and occupation are regarded as control variables.

Data Analysis and Interpretation

The results of the survey conducted have been depicted using several graphs, which have been made based on the data collected. The following is an analysis that is made after every graph that is made, which explains the meaning of the result obtained.

Graph 1

Are you aware that banks use Artificial Intelligence (AI) in customer service?
40 responses





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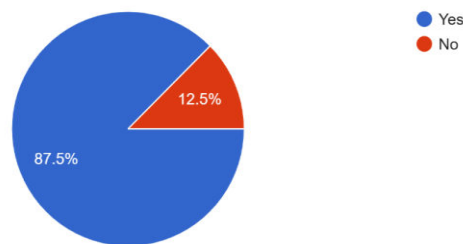
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Interpretation:

In total, out of the 40 surveyed individuals, 35 people (87.5%) stated that they know about the usage of AI by banks, whereas 5 people (12.5%) responded in the negative. This is an impressive number of respondents who have some information about AI technology being used by banks, indicating that it has reached visibility levels where most customers would at least be aware of its existence.

Graph 2

Have you interacted with AI-based services (such as chatbots or virtual assistants) in your bank?
40 responses

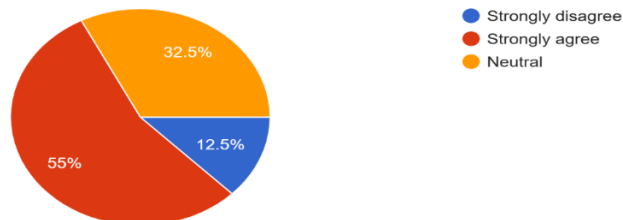


Interpretation:

While the first graph is indicative of knowledge of AI applications in banking, the second graph demonstrates the actual use of AI in banking applications. Approximately 87.5% of individuals indicated that they have at least used one of the applications that make use of AI. On the other hand, 12.5% indicated that they had never used any such application.

Graph 3

AI-based services provide faster responses compared to human support.
40 responses

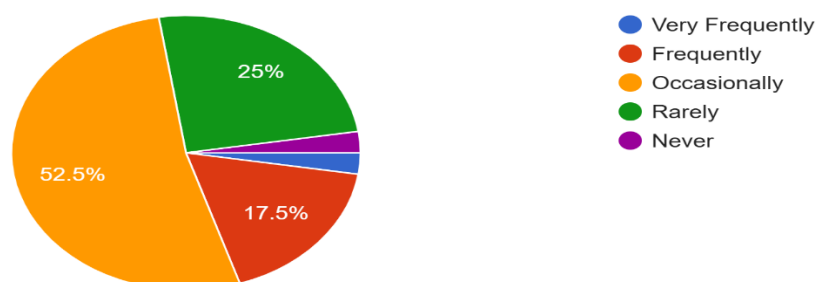


Interpretation:

- 55% strongly agree
- 32.5% neutral
- 12.5% disagree

Graph 4

How frequently do you use AI-based banking services?
40 responses





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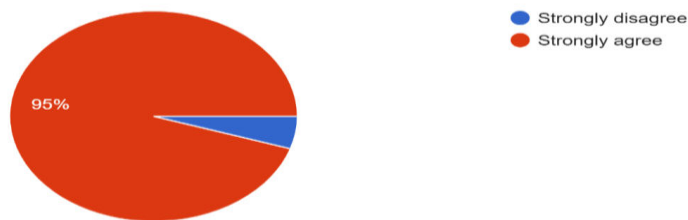
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Interpretation:

- 52.5% use occasionally
- 25% rarely
- Few use frequently

Graph 5

AI services are available whenever I need assistance (24/7 support).
40 responses

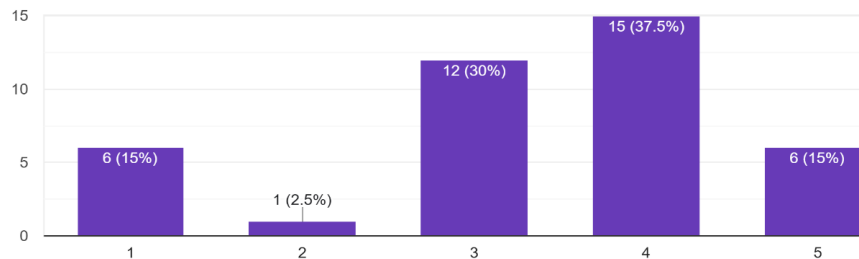


Interpretation:

- 95% strongly agree
- Very few disagree

Graph 6

I feel comfortable interacting with AI systems in banks. Scale Label: 1 = Strongly Disagree 5 = Strongly Agree
40 responses

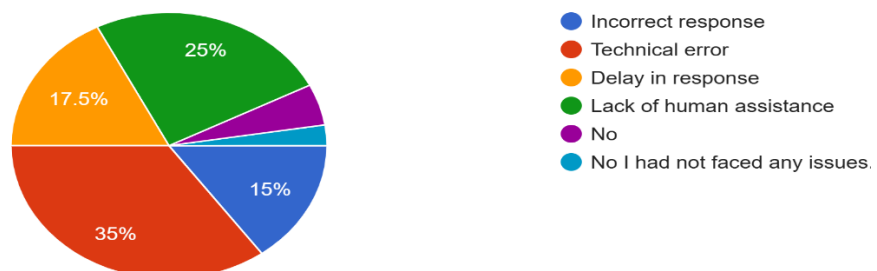


Interpretation:

- Most responses are 3 (30%) and 4 (37.5%)
- Few are uncomfortable

Graph 7

If yes, what type of issues did you face?
40 responses





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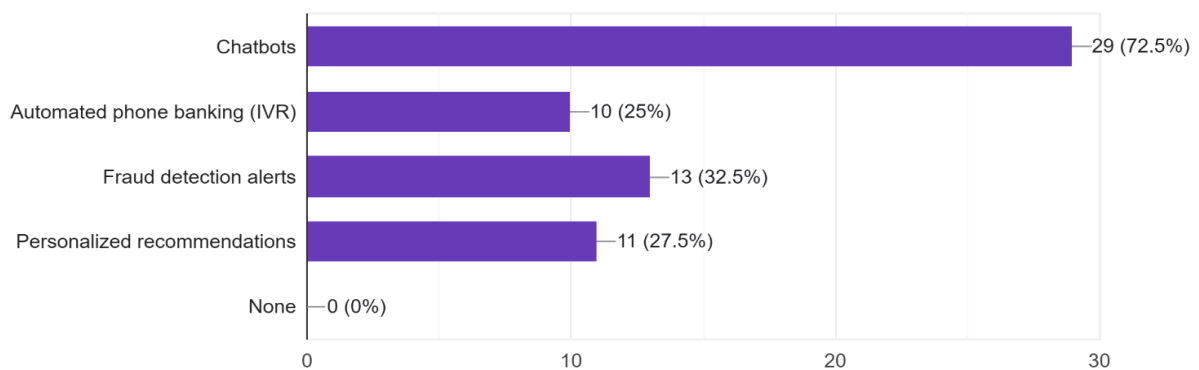
Interpretation:

- Technical errors: 35% (highest)
- Lack of human support: 25%
- Delay: 17.5%
- Incorrect response: 15%

Graph 8

Which AI-based services have you used?

40 responses



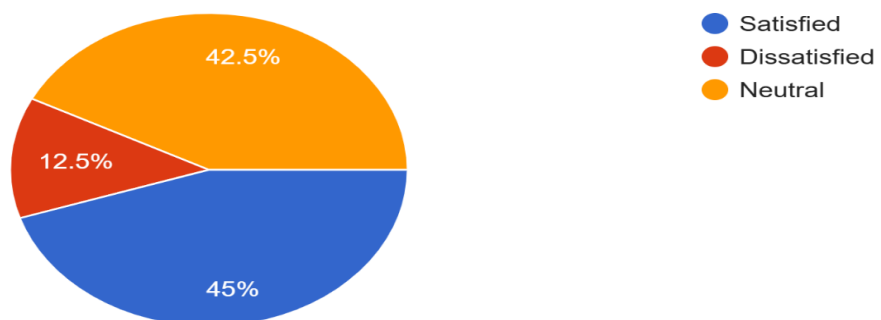
Interpretation:

- Chatbots: 72.5% (highest usage)
- Fraud alerts: 32.5%
- Personalized recommendations: 27.5%
- IVR: 25%

Graph 9

How satisfied are you with AI-based customer service in your bank?

40 responses



Interpretation:

- 45% satisfied
- 42.5% neutral
- 12.5% dissatisfied



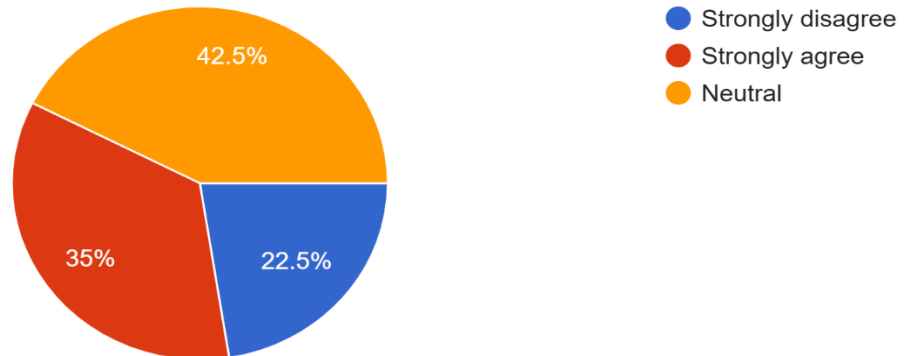
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Graph 10

I prefer AI support over human customer service representatives.

40 responses



Interpretation:

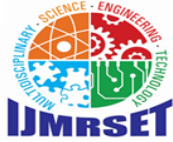
- 42.5% neutral
- 35% prefer AI
- 22.5% prefer human

IV. KEY RESULTS AND FINDINGS

- The single greatest thing about AI banking that customers liked about it was its availability at all times. An overwhelming 95% of people surveyed indicated their agreement that AI banking was accessible round-the-clock, eliminating the hassle of being restricted to banking hours.
- As for the matter of speed, the majority opinion turned out to be positive yet inconsistent. While the largest number (55%) believed strongly in the efficiency of AI compared to conventional services, 32.5% found themselves neutral in the matter, indicating that while AI is definitely quicker for many, it still fails to impress some others.
- Chatbots, without a doubt, are the leading among all AI products. The highest percentage among the surveyed people who used AI banking was that of chatbot utilization, accounting for 72.5%.
- When it comes to matters of security, AI received the strongest support. About 85% of those surveyed were confident that AI technology had truly enhanced the process of detecting fraud and made transactions safe. It was in this context that people seemed most likely to trust AI, which also happens to be the field where the implications are the most serious.
- Even though people regularly interacted with AI, their level of trust was extremely low. Only 27.5% of the respondents expressed full trust towards AI systems. Over half of them were unsure about it, while another 17.5% said they don't trust it at all. This can be considered the most important conclusion in the entire analysis, as it proves that even enhancing the performance of AI would not help here.
- More than 60% of the respondents claimed they have faced some difficulties when working with AI banking services. The number one problem mentioned was technical mistakes that accounted for 35% of the cases. Lack of the option to contact a person came second with 25% of responses, then slow response time – 17.5%, and incorrect answers – 15%.
- Generally, overall customer satisfaction levels for the use of AI technology within bank service provision were found to be moderate. Approximately 45% of those surveyed expressed a sense of satisfaction with their experiences using AI in banks, while 42.5% of participants were neither satisfied nor dissatisfied, and 12.5% experienced dissatisfaction with their experience. This suggests that AI technology is effective at present, although still not memorable.

V. CONCLUSION

On analysing the data in its totality, it can safely be concluded that AI technology has had an impact on the banking industry in India at least on basic grounds. Close to 88% of the sample population was acquainted with AI technology, and they were also making use of AI tools. The 24/7 availability and security from frauds emerged as important factors



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for customers. In this respect, the technology lived up to expectations since it enhanced speed, convenience, and security in banking without the presence of human agents.

However, when one takes a closer look at the statistics, things appear to be more complicated than they seem. In total, only 27.5% of participants admitted having trust in AI technologies, despite the fact that they all regularly used them. It appears that people utilize AI technologies not because they trust them, and believe that they can take care of their personal information and successfully cope with complex problems. In light of the results, which show that 62.5% of participants were faced with some problem connected with the utilization of AI technologies, the latter does work but cannot stand alone yet.

Some individuals also stated some improvements that they would like the AI system to make. Among these were being more emotionally aware – that is, recognizing when someone is upset and that not all situations fit into the script and letting go of the case and transferring it to a person without forcing the customer to repeat themselves again. Another issue that was often mentioned was the need for transparency regarding why the AI responded in a certain way or decided something about the account in question. This is certainly no small list of demands and it highlights precisely the type of difference between acceptable and trustworthy technology.

The interesting thing was that 33 out of 40 participants (82.5%) did not feel that artificial intelligence could ever replace human employees in the banking industry. This response says a lot, in terms of what customers themselves think of AI. Yes, there may be instances where a lot of paperwork and tedious tasks need to be done in a short span of time. In such cases, artificial intelligence may be the right answer. But then there is always that situation when a customer walks into the bank because he/she is having trouble repaying a loan and feels depressed about it. Or, perhaps, you have been called for an interrogation regarding some sort of fraud and are worried sick. In all these situations, you need to interact with a human being.

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