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Customers' Purview of Ai-Driven Banking Services in U.P. Region: Transforming Banking Transactions through Implementation of Artificial Intelligence Assistants

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ABSTRACT

The transformation of banking is being driven by artificial intelligence (AI)by boosting productivity, elevating customer satisfaction, and increasing security. Advanced virtual generation has made a massive revolution inside the banking sector. After embracing technological advancements, the arena has gotten rid of the endless queues and limitless paper works to an amazing extent. The banking enterprise is thriving with AI integration touching nearly each aspect, from the virtual KYC verification procedure to calculating credit score scores. AI uses data analytics to recommend banking products, investments, or savings plans based on individual customer profiles. This specific research article intends to analyze the role and applications of AI in the Indian banking industry and to study the customers' point of view regarding AI practices being used by banks in U.P. region. The study employs primary data along with certain secondary data to investigate the goals. A structured survey was distributed to gather feedback from bank clients.

INTRODUCTION

The Indian banking sector's digital transformation has completely changed everyday banking for customers.

In 2015, the government initiated its 'Digital India' campaign to aid the nation in competing globally. Though the digital revolution has affected all industries, the banking sector has led this change. Banks are

prioritizing operational and cost transformation as they face a challenging environment of economic strain, increased competition, and swiftly changing customer demands. Facing narrower profit margins and growing regulatory requirements, banks are adopting digital technologies, automation, and AI to optimize operations, decrease expenses, and improve service provision. Still, numerous banks find it challenging to achieve their transformation goals. Advanced virtual generation has made a massive revolution inside the banking sector. After embracing technological advancements, the arena has gotten rid of the endless queues and limitless paper works to an amazing extent. The banking enterprise is thriving with AI integration touching nearly each aspect, from the virtual KYC verification procedure to calculating credit score scores. But to fulfill the needs of the consumer base aware of the ease of virtual tools, the industry desires to set up extra AI tools. With the arrival of gigantic technological facilities in banking services, customers have commenced waiting for a positive stage of customization. Therefore, within side the coming years, there could be a want to restructure conventional banking products and services to healthy every customer`s precise desires through specializing in them individually. In order to perform this, the enterprise desires to apprehend the heartbeat of clients. Their spending sample and funding portfolios facilitates the banks to construct relevant, personalized messages and allows them to offer their services and products throughout the numerous platforms. This is whilst AI involves the scene. It can supply fee through developing a sole supply of fact from an ever-growing wealth of records inside and out of doors the enterprise. Though AI can't absolutely update the bodily branches, the era could be capable of offer easy get entry to banking services. In rural regions wherein clients are greater willing to go to branches in preference to accept as true with technologies, those businesses want to stability era and human intervention to construct accept as true with of their era and persuade them that the era-primarily based totally transactions are secure and secure.

Artificial intelligence is the game changer which can fundamentally bring changes in all kinds of industries. Banking is no exception. It is transforming the banking sector as financial institutions utilize the technology to enhance customer-facing chatbots, prevent fraud, and speed up time-consuming tasks such as writing code, preparing drafts of pitch books, and summarizing regulatory documents. “The McKinsey Global Institute (MGI) estimates that “across the global banking sector, gen AI could add between $200 billion and $340 billion in value annually, or 2.8 to 4.7 percent of total industry revenues, largely through increased productivity.” (McKinsey Report , June 2023) AI can assist banks offer real-time categorization of each clients and businesses which might be partnered with the financial institution - this will assist the financial institution provide extra customized gives and offerings within side the classes recognized through the AI. By analyzing the data, banks can see what their clients can also

additionally want and need and the way their companions can assist them offer what they want, giving the financial institution aggressive edge.

Drawing from a recent survey involving 228 banking leaders worldwide and backed by insights from KPMG's international network of banking experts, this report merges data, expertise, and insights to offer bank leaders and decision-makers a clear and value-focused perspective on success.

Technology, innovation, and workforce evolution are transforming the banking sector. These forces are prompting significant change, and banking executives must choose whether to be trailblazers, adapt quickly, or risk being left behind. To envision a more promising future and capture opportunities for growth, banks must concentrate on evolving their workforce and operations. Having a clear vision for the future, banks can reshape their trajectory by prioritizing people within their organization, utilizing advanced technologies to assist them, and fostering rapid and extensive innovation. Banking executives must demonstrate outstanding flexibility to navigate transformation. Achievement will result from a well-rounded implementation of strategic short-term initiatives, combined with investment in personnel, alongside transformation and growth strategies that create lasting value.

Artificial Intelligence in Banking Service

To boost efficiency, people have constantly created newer devices. Reflect on how bicycles and later automobiles fundamentally transformed human movement, enhancing both the distance and speed at which people could travel. These devices were constructed with internal combustion engines and wheels, both of which served as general-purpose technology. Artificial intelligence (AI), the latest general purpose technology, is transforming the banking sector and commercial economics, similar to how computers and the Internet once did (Accenture).

The rise of artificial intelligence is creating a major upheaval in the financial services sector, as numerous banks aim to innovate through AI-driven technology to improve existing business operations. For example, AI is transforming our interactions with technology and shifting some cognitive responsibilities from humans to machines. Nowadays, you can likely just ask Google, Siri, or Alexa, while in the past we needed to know what to do and where to go to complete a task.

Significant progress has been made in a number of areas as a result of the use of AI applications in banking:

1. Customer service: AI chatbots in Indian banking and virtual assistants offer round-the-clock assistance, quickly answering questions and raising client happiness.
2. Fraud Detection: In Indian banks, AI fraud detection uses machine learning algorithms to examine transaction patterns in real time and spot irregularities that stop fraud.

3. Data Analytics: AI banking solutions in India analyze enormous volumes of data to provide individualized financial services and products that meet the demands of each client. AI is transforming banking in many ways, but two stand out: increasing income and controlling costs. In terms of revenue, banks are using AI to boost lead generation, enable hyper-personalization, and venture into new markets like digital currencies and fintech ecosystem collaborations.

REVIEW OF LITERATURE

(Saloni Tripathi, 2022) presents the dynamics of AI platforms in the banking sector and how they are becoming a significant disruptor. Banks encounter difficulties due to modern technologies that utilize smart algorithms to substitute for human labor. Businesses must incorporate AI into their strategies and operations to remain competitive.

The exploration paper entitled - "Job of computer based intelligence in Banking" clarifies how in a quickly digitizing world, Man-made brainpower has arisen as the eventual fate of banking, engendering the force of cutting edge information examination to endure deceitful exchanges and further develop yielding. In order to make banking easier, it combines machine learning, predictive analytics, and deep learning.(Remesh VP, 2021)

(Neeraj Gupta, 2020) As discussed here, various financial institution specific factors such as size, capital ratio, risk, price-to-earnings ratio, investment price, sales diversification, labor productivity, age, etc. are analyzed to discuss their impact on the performance of financial institutions. The findings also show that the major factors influencing the performance of Indian commercial banks are size of financial institution, share of non-emergency mortgage loans, and sales diversification of financial institutions. Moreover, the influence indicates that the size of the financial institution, its age, employee productivity, and sales diversification significantly affect the overall performance of Indian banks during times of crisis.

“The Emirates NBD which is the first gulf bank and Emirates Islamic Bank has adopted digital banking services with the help of advanced technology to bring potential transformations in the traditional banking practices. It has helped the bank to provide better ATM services, cash deposits, secure transactions and personalized service to the customers. The provision of all these facilities has certainly increased the satisfaction level of the customers and encourages them to use digital modes of financial transactions increasingly” (Ghurair, 2018).

"The influence of artificial intelligence on the credit score evaluation procedures used by banks and other financial institutions" is examined in this article (Hickam Sadok, 2022). The certification of AI algorithms and bank-used data is a new era of economic law that is based on these limitations.

A study provided us with deeper insights into how theoretical studies and literature surveys are conducted for various international and Indian financial institutions interested in leveraging AI to enhance internal banking operations and customer engagement. The primary metric for evaluating chatbot applications within banking frameworks is customer experience. Practical and theoretical implications: In light of the comprehensive view of AI's integration with banking functions, emerging Indian banks should pinpoint as many prominent use cases as possible to attract clientele. This connection between chatbot applications may also assist established Indian banks in expanding their business. (Chandrima Bhattacharya, 2022)

OBJECTIVES OF THE RESEARCH

This particular research paper deals with the following two objectives:

1. To study the role and applications of AI in the Indian banking industry.
2. To study the customers' point of view regarding AI practices being used by banks in U.P. region.

RESEARCH METHODOLOGY

Hypothesis: Following hypothesis has been formulated:

H01: There is no relation between gender and awareness about AI.
H1: There is a relation between gender and awareness about AI.

Research Steps: The research utilizes primary data and some secondary data to explore the objectives. A structured questionnaire was floated to collect responses from bank customers. The sampling method adopted for the study is Convenience sampling. Various statistical tools and techniques have been used to analyze the data and SPSS 20 has been implemented to carry out the analysis part. . A data of 346 respondents has been collected through Google form survey questionnaire.

ANALYSIS AND DISCUSSIONS

The upcoming era of banking relies on artificial intelligence, which employs advanced data analysis to combat fraud and enhance compliance. AI significantly impacts the banking sector by boosting

efficiency, enhancing customer experience, reinforcing security, and facilitating improved decision-making.

AI aims at revolutionizing banking in 5 directions, namely:

I. **Efficiency:** Automation of routine tasks reduces processing time and operational costs.
II. **Accuracy:** AI minimizes human errors, enhancing the accuracy of transactions and data analysis.
III. **Security:** Advanced algorithms improve fraud detection and cybersecurity measures.
IV. **Customer Satisfaction:** Personalized services and 24/7 support improve the overall customer experience.
V. **Innovation:** AI drives innovation in financial products and services, keeping banks competitive.

Applications of AI In Banking: The future of banking is on artificial intelligence, which uses sophisticated data analytics to prevent fraud and increase compliance. Artificial intelligence, which leverages advanced data analytics to reduce fraud and boost compliance, is the wave of the future for banks. AI has a broad range of applications in banking, enhancing efficiency, improving customer experience, and ensuring security. Here are some key applications:

1. Customer Service

- **Chatbots and Virtual Assistants:** Provide 24/7 customer support, answer FAQs, assist with transactions, and offer personalized advice.
- **Personalized Banking:** Tailor recommendations and offers based on individual customer data and behavior.

2. Fraud Averting- Detect atypical trends and actions that could signal fraudulent conduct.

3. Risk Management

- **Credit Scoring:** Use machine learning algorithms to assess credit risk more accurately.
- **Risk Assessment:** Analyze large datasets to predict and mitigate potential risks.

4. Compliance and Regulation

- **Regulatory Technology (RegTech):** Automate compliance processes, monitor regulatory changes, and ensure adherence to laws.

- **Anti-Money Laundering (AML):** Detect and prevent money laundering activities through advanced data analysis.

5. Investment and Wealth Management

- **Robo-Advisors:** Offer automated, algorithm-based financial advisory services requiring little human involvement.
- **Portfolio Management:** Optimize investment portfolios using AI-driven insights and predictions.

6. Operational Efficiency

- **Process Automation:** Streamline back-office operations such as account opening, loan processing, and document verification.
- **Predictive Maintenance:** Anticipate and address system failures before they occur.

7. Customer Insights and Marketing

- **Customer Segmentation:** Segment customers based on behavior, preferences, and needs for targeted marketing campaigns.
- **Sentiment Analysis:** Analyze customer feedback and social media to gauge customer sentiment and improve services.

8. Loan and Credit Services

- **Loan Underwriting:** Automate the loan approval process by analyzing a vast array of data points.
- **Dynamic Pricing:** Adjust interest rates and loan terms based on real-time data and risk assessment.

9. Security

- **Biometric Authentication:** Enhance security through facial recognition, fingerprint scanning, and voice recognition.
- **Behavioral Biometrics:** Monitor users' behavior patterns to detect and prevent unauthorized access.

10. Financial Forecasting

- **Predictive Analytics:** Forecast market trends, customer needs, and financial outcomes using historical data and AI models.
- **Stress Testing:** Simulate various economic scenarios to assess the bank's resilience.

Analysis of Data:

The hypothesis (H01) is tested using the Chi-Square Test, which determines the relationship between categorical variables like gender of the respondent and the awareness regarding use of AI in banking. The chi-square statistic says that the p-value is less than 0.05 thus null hypothesis is rejected and alternate is accepted that gender and whether customers know about AI being used in banking are related to each other. A data of 346 respondents has been collected through Google form survey questionnaire. The profile of the respondents clearly shows that it is a mixed blend of demographic characteristics. The table clearly shows that the largest proportion of respondents (38.4%) belonged to the age category of over 26-40 years. The gender distribution of the analyzed sample reveals an equal ratio of males and females.

age of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	116	33.5	33.5	33.5
	26-40	133	38.4	38.4	72.0
	41-60	85	24.6	24.6	96.5
	60 above	12	3.5	3.5	100.0
	Total	346	100.0	100.0	

gender of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	171	49.4	49.4	49.4
	Female	175	50.6	50.6	100.0
	Total	346	100.0	100.0	

type of bank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Public	147	42.5	42.5	42.5
	Private	104	30.1	30.1	72.5
	Both	95	27.5	27.5	100.0
	Total	346	100.0	100.0	

Table1

The study's sample comprises individuals from various age demographics and gender identities. The table above (Table 1) illustrates the distribution of ages and genders within the sample being analyzed. According to the table, the respondents represent a range of age brackets from under 18 to 60 and older. All categories of bank clientele—from youth to seasoned adults—are reflected in the sample. Furthermore, the data reveals that the largest segment of respondents (38.4%) falls within the age range of 26-40 years, while the second largest group (33.5%) is aged 18-25. This indicates that a significant portion of the population involved in the study comprises individuals aged 26-40, suggesting that the respondents are both mature and experienced. Such characteristics are crucial for assessing attitudes towards AI in banking products and services. Additionally, a substantial portion of the sample is made up of females, accounting for 50.6%.

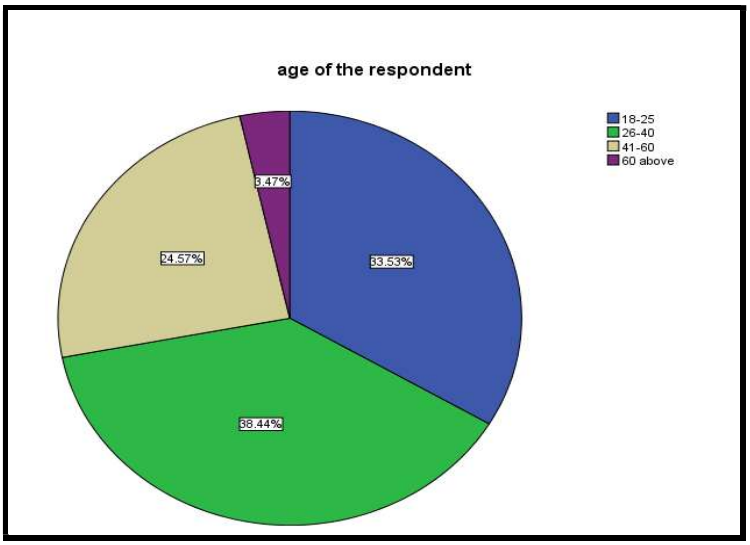

Figure 1

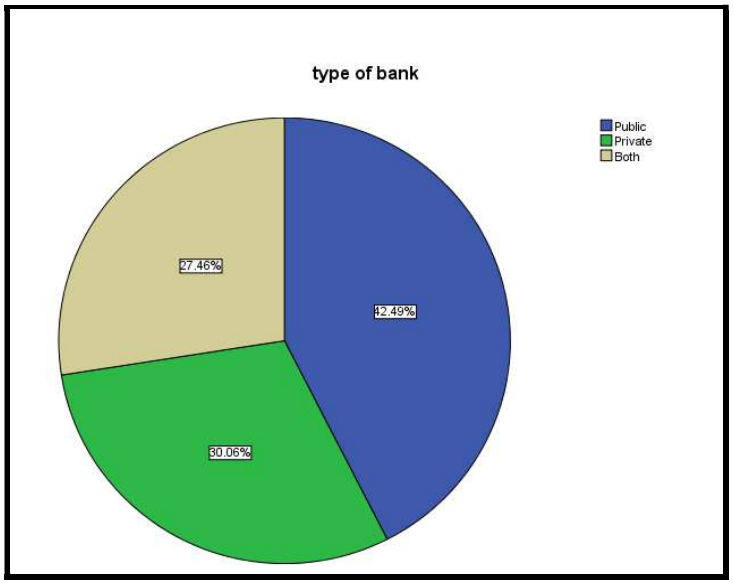

Figure 2

Type of bank is an important factor in the study. In the research sample, respondents are from public and private sector banks. This pie chart represents the distribution of different types of banks. Here are the percentages for each type: Public: 42.49%, Private: 30.06%, Using both type of banks: 27.46%. Public banks make up the largest portion of the pie chart, indicating that they are the most prevalent type of bank in the dataset. This dominance suggests a significant presence and perhaps a larger market share or more widespread accessibility compared to other types.

area of residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	urban	266	76.9	76.9	76.9
	rural	30	8.7	8.7	85.5
	semi urban	50	14.5	14.5	100.0
	Total	346	100.0	100.0	

education level of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Intermediate	24	6.9	6.9	6.9
	Graduate	90	26.0	26.0	32.9
	Post graduate	185	53.5	53.5	86.4
	Others	47	13.6	13.6	100.0
	Total	346	100.0	100.0	

Table 2

The table above show the distribution of respondents based on their area of residence and education level. A small portion of respondents have intermediate education, indicating a lower representation of this education level in the sample. More than half of the respondents have post-graduate degrees, indicating a highly educated sample with 53.5% The majority of respondents live in urban areas, which could indicate a higher population density or better access to services in these regions.(76.9%)

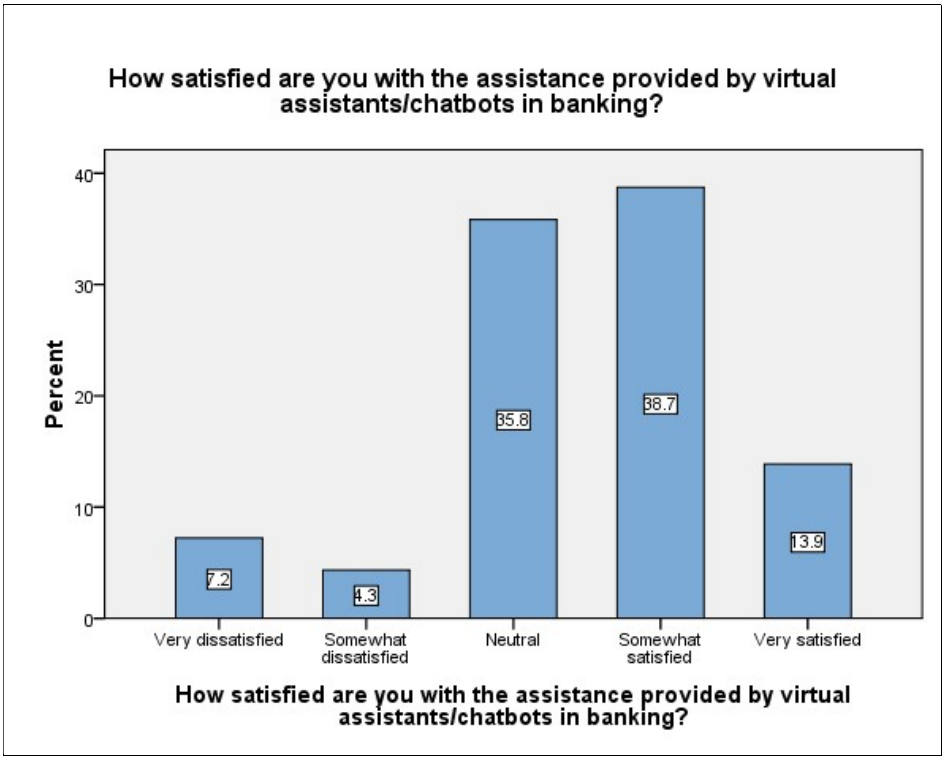

Figure 3

This chart shows the percentage distribution of user satisfaction with virtual assistants/chatbots in banking. The majority of users fall into the "Somewhat Satisfied" or "Neutral" categories, indicating general acceptance but room for improvement in chatbot performance. Here are some key insights:

- Very Dissatisfied: 7.2% of respondents
- Somewhat Dissatisfied: 4.3% of respondents
- Neutral: 35.8% of respondents
- Somewhat Satisfied: 38.7% of respondents (the largest group)
- Very Satisfied: 13.9% of respondents

The majority of respondents feel positively about the assistance provided by virtual assistants/chatbots in banking. A significant portion is neutral (35.8%), indicating that a large number of users neither strongly appreciate nor dislike these chatbots, suggesting potential for improvement to shift these users towards satisfaction. Only 11.5% of respondents expressed dissatisfaction (7.2% very dissatisfied, 4.3% somewhat dissatisfied), showing that negative experiences, while present, are a minority. The 11.5% dissatisfaction rate signals challenges:

1. Poor user experience, such as unhelpful responses or inability to solve complex queries.

2. Lack of personalization or adaptability to specific banking needs.

3. Technical glitches or difficulty in navigation.

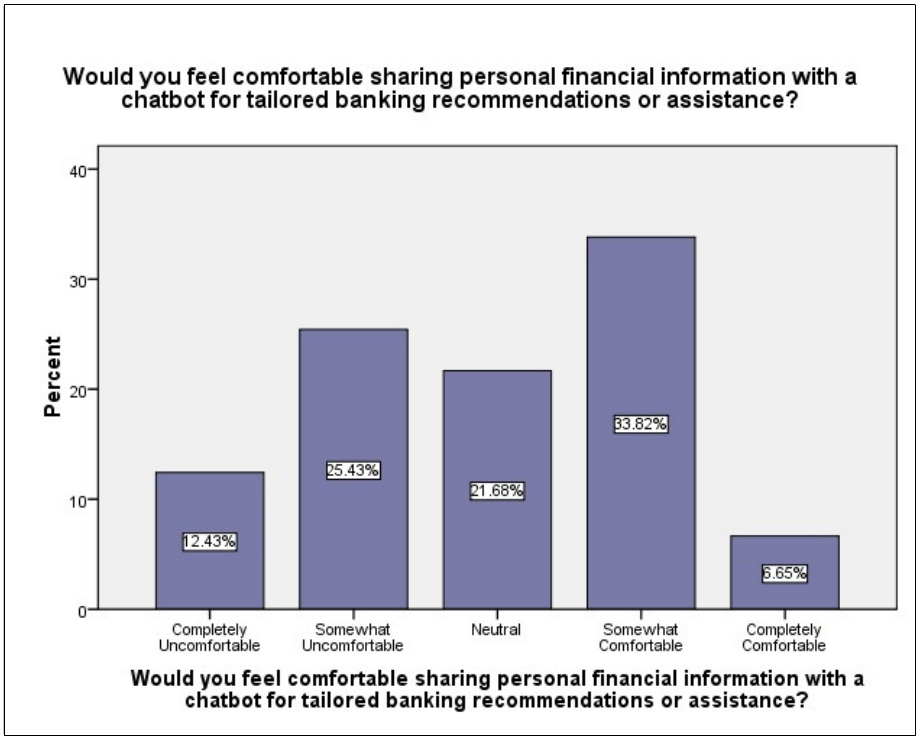

Figure 4

This chart visualizes survey responses to the question: "Would you feel comfortable sharing personal financial information with a chatbot for tailored banking recommendations or assistance?" The largest group (33.82%) feels somewhat comfortable, indicating mild trust in chatbots for this purpose. A significant percentage (25.43%) feels somewhat uncomfortable, showing concerns about privacy or reliability. Neutral responses (21.68%) indicate hesitation or mixed opinions. A smaller number (6.65%) are completely comfortable, while 12.43% are completely uncomfortable. 37.86% of respondents (sum of "Completely Uncomfortable" and "Somewhat Uncomfortable") feel hesitant about sharing financial information. This highlights a need for organizations to prioritize transparency, data security, and privacy to build user trust.

Implementing measures like end-to-end encryption, secure authentication, and clear privacy policies could address these concerns. With 40.47% (sum of "Somewhat Comfortable" and "Completely Comfortable") feeling comfortable, there is already a significant segment willing to use such services. Companies can leverage this as a starting point to expand adoption.

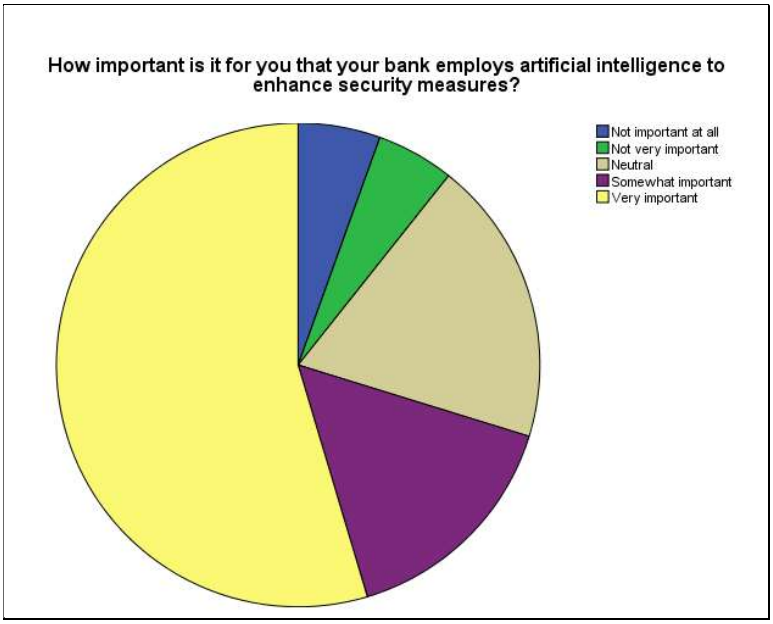

Figure 5

The pie chart illustrates the importance respondents place on their bank employing artificial intelligence (AI) to enhance security measures. The largest section of the pie chart is "Very important", suggesting that most respondents highly value the use of AI in banking security. A notable portion of respondents chose "Somewhat important", indicating a level of importance but with less intensity than the majority. There is a clear preference for advanced technology like AI in banking security, likely due to increasing concerns about cyber threats and fraud. Neutral or negative opinions are significantly smaller, suggesting that skepticism or indifference about AI's role in banking security is limited. The chart underscores the growing importance of AI-driven security measures in banking, reflecting customer priorities for enhanced protection of financial data and transactions. Banks may want to leverage this trend to build trust and improve customer satisfaction.

CONCLUSION

AI will not only empower banks by automating their knowledge workforce, but it will also enhance the automation process to smartly mitigate cyber risks and Fintech competition. Artificial intelligence is crucial to the bank's processes and operations, continually evolving and improving over time with minimal human intervention. Artificial intelligence will enable banks to optimally utilize human and machine abilities to enhance operational and cost efficiencies, while providing tailored services. These benefits are no longer a futuristic goal for banks to attain. By modifying artificial intelligence, innovators in the finance sector have already taken steps with a reasonable degree of effort to capitalize on these

benefits. Studies on Fabricated intelligence (AI) within the banking sector emphasize its revolutionary influence on various aspects of the industry, such as customer interaction, executional productivity, risk assessment, and product development. AI is notably reshaping banking services in India, with organizations embracing cutting-edge technologies to improve efficiency, customer satisfaction, and risk oversight.

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