A Paradigm Shift in the Banking Sector Operations with the Introduction of Artificial Intelligence (AI) – A Survey on Customers' Awareness and Experiences on AI-Backed Banking Operations

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Abstract

Artificial Intelligence (AI) is rapidly advancing, and the Banking industry is one of the sectors profoundly affected by this technological revolution. Banks are actively embracing technology, machine learning and automation to enhance productivity, reduce costs, drive innovation, and gain a competitive edge so as to grow faster than their peers. This paper explores how Indian banks are utilizing AI and the challenges they encounter. It explores the opportunities that arise from incorporating AI, such as the proliferation of digital payments and banking and for monitoring and responding to consumer behavior. By leveraging AI, banks can tap into these opportunities, improve their services, and stay ahead in the market. To gather valuable insights into customers' perspectives on the use of Artificial Intelligence (AI), we conducted extensive primary research through a robust questionnaire. Additionally, our data collection process encompassed secondary sources, including thorough literature reviews, previous research studies, as well as reputable books and journals. By combining these primary and secondary sources, we have compiled a comprehensive dataset that offers a holistic understanding of customers' viewpoints regarding the application of AI.

Keywords: *AI – Artificial Intelligence, Banking Operations, Customization, Consumer Satisfaction, Technological Intelligence, Customer Awareness.*

Introduction

Artificial Intelligence (AI) involves computer or computer-controlled robots performing tasks that typically necessitate human intelligence and discernment, thereby simulating human-like intelligence and behavior in machines. Its applications span across diverse industries, encompassing finance, healthcare, and more.

In the banking sector, AI is transforming operations by enabling the detection of fraud, addressing customer queries, tracking customer behavior, and providing personalized services. This integration of AI technology is reshaping the industry, making banks more appealing to customers. Traditional banks are increasingly leveraging AI to automate processes, make informed decisions, and efficiently handle customer support while also offering online services. AI's role in risk management is critical, as it enables real-time detection and prevention of fraud and money laundering. By harnessing the power of AI, banks can enhance operational efficiency, improve customer experiences, and strengthen their overall risk management capabilities, safeguarding both customer interests and the institution's integrity. The advancement of AI in banking presents a significant opportunity for institutions to remain competitive and deliver innovative solutions that cater to the evolving needs of their customers.

Artificial intelligence (AI) has revolutionized the banking industry, driving it towards greater development and meeting the needs of modern-day consumers. Banks actively embrace cutting-edge technologies to enhance their offerings and services, future-proofing their operations in areas such as accounting, sales, contracts, and cybersecurity. Through the integration of AI, banks optimize their performance and maintain a competitive edge by leveraging data analytics, blockchain, and machine learning. AI enables banks to enhance the overall customer experience by tracking and analyzing customer behavior, facilitating the provision of personalized and tailored services. By utilizing AI algorithms to analyze client credit histories, banks can proactively anticipate potential risks associated with loan allocation, enabling informed decision-making processes. The strategic implementation of AI

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technologies positions banks to navigate the dynamic financial landscape and meet the evolving demands of their customers.

Artificial Intelligence (AI) has transformed traditional practices in the Indian banking system, emerging as a transformative force that paves the way for unprecedented advancements. This paper explores the impact of AI in the Indian banking system, examining its applications, benefits, challenges, and implications for the future of banking in India. By understanding the role of AI in the Indian banking sector, policymakers, regulators, and banking institutions can navigate this evolving landscape and harness the potential of AI to drive sustainable growth and financial inclusion.

The implementation of AI in the banking sector extends beyond these examples, encompassing a wide range of applications that enhance operational efficiency, risk management, and customer satisfaction. As banks continue to harness the power of AI, they are poised to achieve significant advancements and drive innovation in the industry. One notable development in the banking industry is the emergence of AI-powered chatbots, which have become highly valuable assets. These chatbots excel in providing 24/7 customer service and delivering precise answers to inquiries. What sets them apart is their ability to offer users personalized experiences, thereby enhancing service quality and strengthening the bank's position in the market. By leveraging AI chatbots, banks can effectively engage customers and provide tailored financial services that cater to their specific needs. This integration of AI technologies in customer interactions has transformed the banking landscape, fostering improved customer engagement and satisfaction. Several key areas within the banking sector can benefit from the integration of Artificial Intelligence: Individualized Banking Services, Tech-driven Wallets, AI Voice Banking / Chatbots, Revenue Enhancement, Client Assistance, Virtual Banking, Cost Optimization, Risk Management.

Incorporating AI capabilities in these areas empowers banks to deliver personalized services, optimize operations, reduce costs, mitigate risks, and drive revenue growth, ultimately enhancing their competitiveness in the evolving banking landscape.

Literature Review

Adrian Lee (Jan 23, 2017) Banking on artificial intelligence - The purpose of this article was to determine the most prominent forms of AI within the banking industry. AI-driven customer service, real-time fraud prevention and risk management-it's the last one that might appeal most to those interested in industry disruption.

Emmanuel Mogaji, Taiwo O. Soetan, Tai Anh Kieu 2020 -The implications of artificial intelligence on the digital marketing of financial services to vulnerable customers. This paper examines the relationships between AI, digital marketing, and financial services in relation to vulnerable customers, highlighting key implications in the collection, processing, and delivery of information, as well as the importance of human connection for optimal customer experience and engagement with financial services providers. Understanding ethical implications, as well as data and modelling challenges, is necessary for the successful deployment of AI. This study provides a theoretical framework to financial services providers, AI developers, marketers, policymakers, and academics, aiding the understanding of the precarious conditions facing vulnerable customers, and the ways in which they can more effectively be reached.

Singh and Pathak (2020a) argued that an emerging country such as India is not very focused on digitalization so the distribution channels are very important in the context of the buying and selling process of investment for financial tools and assets. The research study also discussed about the the measures implemented by Reserve Bank of India (RBI) in the context of COVID-19 pandemic but also about Securities Exchange Board of India also known as SEBI and the volatility of stock prices.

Noreen et al. (2023) suggested that the banking industry can use suitable methods based on artificial intelligence in order to improve the quality of customer services as well as the banks' performance indicators. Karbassi Yazdi et al. (2022) argued that service industry is essential for a sustainable the economic development, especially because unlike traditional sectors the dependence on conventional resources is much reduced and it is open to the application of new and innovative business models. Birau et al. (2021) also suggested that the banking system is a vital mechanism in terms of reaching a sustainable level of development of the global economy.

Singh and Pathak (2020b) defined the concept of artificial intelligence such as "the ability of machines to think on their own and do a task without the help of human beings".

The banking industry represents a data - intensive domain very compatible with artificial intelligence or machine intelligence and its such as the following: the field of machine learning (ML), Natural Language Processing also known as NLP, Deep Learning, interactive voice response (IVR), Speech Recognition or speech- to- text, image analysis and many others.

Mhlanga (2020) investigated the effect of Artificial Intelligence on the process of digital financial inclusion, while highlighting the importance of aspects

such as: chatbots, fraud detection and cybersecurity in the context of improving the quality of services provided to bank customers.

Mehdiabadi et al. (2022) suggested that the concept of banking 5.0 is based on the architecture of an industrial revolution generated by artificial intelligence. Moreover, Samartha et al. (2022) examined the impact of mobile-banking applications and online transactions using "Unified theory of acceptance and use of technology" (UTAUT) modified model based on a case study for India which is an emerging country.

AI Applications in the Banking Sector

Artificial Intelligence (AI) has revolutionized the banking sector by enabling institutions to automate processes, enhance customer experiences, improve risk management, and make data-driven decisions. This is more in line with banking system based back-office improvements that are mostly not immediately visible to the customer but creates an overall improvement in the organization and also in the sector as a whole. The following are some key applications:

- Individualized Banking Services: AI enables banks to provide tailored financial services based on individual customer needs and preferences, enhancing the customer experience and satisfaction.
- Tech-driven Wallets: AI-powered smart wallets streamline payment processes, offer personalized financial recommendations, and provide real-time insights into spending patterns, allowing users to manage their finances more efficiently.
- AI Voice Banking: Voice assistants integrated into banking platforms allow customers to perform transactions, access account information, and receive support using voice commands, providing convenience and accessibility.
- Revenue Enhancement: By leveraging AI technologies to analyze customer data, banks can gain valuable insights for targeted marketing, cross-selling, and upselling, thereby increasing revenue streams.
- Client Assistance: AI chatbots offer prompt and accurate customer support, addressing queries, assisting with account-related tasks, and resolving issues effectively, thereby reducing customer wait times and enhancing customer satisfaction.
- Virtual Banking: AI facilitates the digitalization of banking processes, reducing the reliance on traditional branch visits and enabling customers to access services conveniently through digital channels.
- Cost Optimization: AI implementation in areas such as automation and fraud detection helps banks reduce operational costs by streamlining processes and minimizing manual intervention. Risk Management: AI algorithms can analyze vast amounts of data to identify patterns and anomalies, enabling banks to detect and mitigate potential risks such as fraudulent activities and financial crimes.
- Automation of Routine Tasks and Operational Efficiency: AI technologies, such as robotic process automation (RPA) and machine learning, have been widely employed to automate repetitive and time-consuming tasks in banking operations. This includes tasks like data entry, document processing, and transaction verification. By automating these processes, banks can significantly reduce operational costs, improve efficiency, and free up human resources to focus on more complex and strategic activities.
- Enhanced Customer Experiences through Personalized Services: AI-powered systems, including chatbots and virtual assistants, have transformed customer interactions in the banking sector. These intelligent systems can understand natural language and provide instant responses to customer queries, offer personalized product recommendations, and even assist in transactional activities. By leveraging AI, banks can provide round-the-clock customer support, deliver tailored services, and create seamless, personalized experiences for their customers.
- Risk Management and Fraud Detection: The banking sector faces numerous risks, including credit risk, market risk, and fraud. AI-based algorithms can analyze vast amounts of data, identify patterns, and detect anomalies that may indicate fraudulent activities or potential risks. Machine learning models can continuously learn from new data, adapt to evolving fraud patterns, and improve the accuracy of fraud detection systems. By leveraging AI for risk management, banks can minimize losses, enhance security measures, and ensure regulatory compliance.
- Improved Decision-Making Processes with Data Analytics: Banks generate enormous volumes of data daily, ranging from customer transactions to market trends. AI-powered data analytics tools can analyze this data in real-time, identify insights, and provide valuable information for decision-making. By leveraging predictive analytics and machine learning algorithms, banks can assess creditworthiness, develop personalized pricing models, optimize investment portfolios, and make data-driven decisions that enhance profitability and mitigate risks.

- Chatbots and Virtual Assistants for Customer Support: AI-driven chatbots and virtual assistants have become essential components of customer support in the banking sector. These conversational agents can handle customer inquiries, provide account information, guide users through banking processes, and offer personalized recommendations. By deploying chatbots, banks can provide instant support, reduce waiting times, and deliver consistent service experiences across multiple channels, including websites and mobile applications.
- Data Analytics and Insights The banking sector deals with massive volumes of data, and AI facilitates data analytics to extract valuable insights. AI algorithms analyze customer data, transaction records, and market trends to identify patterns, predict customer behavior, and make data-driven business decisions. This enables banks to offer targeted financial products, optimize pricing strategies, and develop personalized marketing campaigns.

In summary, the integration of AI technologies in the banking sector has led to significant advancements in automation, personalized customer experiences, risk management, and decision-making processes. By harnessing the power of AI, banks can streamline operations, enhance customer satisfaction, mitigate risks, and gain a competitive edge in the rapidly evolving financial landscape. The next section will explore the impact of AI on emerging economies, uncovering its potential for financial inclusion and economic growth.

Banking Products that are client facing using AI Direct client related or front-end improvements that are directly visible to a client who approaches the bank or is approached by the bank with a prospective service or deal in view can be looked at below:

- General enquiries: These refer to any specific or non-specific enquiries in all the areas of banking that are handled by Commercial Banks and chat bots can specifically be trained to respond intelligently to any of these areas that include the ones below, and may also include new areas in the future, that are yet not a part of the domain of banking.
- Money Transfers: Instituting checks and balances in all the steps of each process of money transfersfoolproof and being able to sense any breaches of security, as well as achieving speed in transfers to preferably real time levels will certainly be augmented by Artificial Intelligence so that the customer service levels are improved several fold over time.
- Loan Applications: Handling a loan application in a smooth and effective manner is often a key element that results in the conversion of a possible loan requirement to a fund disbursal.
- Credit Score Monitoring: Credit Score monitoring as well as data analysis of current and prospective clients will improve fund deployment levels as well as asset quality management, thus improving the bank's profitability over a period of time. Increasing the data processing
- Financial Advice: Financial advice to banking clients, whether retail or corporate, is a critical part of the banking function and brings into ambit several parts of a bank which could involve the addressing of the requirements of the client, which when translated into the profit and loss account or the balance sheet of the client could be suggestive of several methods of solving the problem being faced by the client, out of which, the best one could be chosen by the client either unilaterally or in discussion with a financial advisor.
- Risk Management and Fraud Detection: AI plays a crucial role in enhancing risk management practices in the banking sector. Machine learning algorithms analyze vast amounts of data to detect patterns and anomalies, enabling banks to identify and mitigate risks effectively. AI-powered systems can identify fraudulent activities, such as unusual transactions or suspicious behavior, in real-time, thereby strengthening security measures and minimizing financial losses.
- Customer Service: AI has revolutionized customer service in the banking sector by providing personalized and seamless experiences. Chatbots and virtual assistants powered by natural language processing enable banks to interact with customers in real-time, addressing queries, providing account information, and even assisting with financial planning. AI algorithms analyze customer data to offer personalized product recommendations, improve customer satisfaction, and streamline customer onboarding processes.
- Account Management: In the case of large clients with a large Net Account Value for the bank, banks used to earlier assign Account Managers in the case of these entities similar to a Wealth or Investment Manager. These individuals would thenbe taken care of in a proactive and continuous manner in order to maintain their accounts or portfolios, suggest better products, or deals available for their investment or fund management requirements and ensure that they remain sticky or continuous clients of that particular bank. These can today be handled by AI since hiring a Wealth or Portfolio Manager can be expensive, and in many

cases, it was seen that the client was more faithful to the Manager than the bank, leading clients to switch when a manager left the bank for another one.

- Insurance Claims: Automation of insurance claims, especially when being handled by the bank or an Insurance Company in conjunction with the bank can be greatly automated, and such claims can be either approved or rejected as the case may be in real-time and with a proper justification by an automated process, reducing human error in critical cases.
- Financial Planning: Management of the financial planning of a particular client effectively over a period of time with continuous monitoring and data updation of financial events during a client's dealings also greatly improve the predictability and the matching of a client's requirements with financial products or services that the client would find is applicable to them leading to an appreciative and closer relationship to them.
- Regulatory Compliance and Security: AI assists banks in adhering to regulatory frameworks and ensuring robust security measures. AI-powered systems monitor transactions and customer behavior to detect suspicious activities, aiding in compliance with anti-money laundering (AML) and know-your-customer(KYC)regulations. Additionally, AI algorithms enhance data security by identifying potential vulnerabilities, protecting sensitive information, and preventing cyberattacks.
- By leveraging these key applications of AI, banks can significantly transform their operations, enhance customer experiences, and drive operational efficiency. The integration of AI technologies has the potential to revolutionize the banking sector and provide a competitive edge to financial institutions in emerging economies.

Objectives

1. To study the significance and application of Artificial Intelligence in Indian Banking System.
2. Customers' review on AI operations through survey
3. To highlight some future prospects of AI on the basis of current assumptions.

Research Methodology

To evaluate the customer experience with AI applications in the Indian banking sector, we have specifically designed a questionnaire. We have conducted quantitative research by surveying with thethe aid of a structured questionnaire and collecting responses from the middle-aged group, as they are frequent users of AI.

The project framework has been established in order to engage with customers and gather their perspectives on the utilization of AI. To achieve this objective, we are conducting a descriptive study involving a sample size of 100.

For the study, we employed the simple random sampling technique to select respondents. The sample design data is then presented using various tables and diagrams.

Data analysis and Interpretation

Table 1: Test of Reliability

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.969	.975	5

In our survey process, the initial step involves conducting a reliability test to determine the degree of trustworthiness associated with scores obtained on that particular test. To assess the reliability of variance among the variables, we typically utilize Cronbach's alpha. The reliability test score ranges from 0 to 1, with higher values indicating a greater level of survey reliability. According to Table 1, we obtained a score of 0.969, which is close to 1. This indicates a high level of reliability and internal consistency.

Table 2: Reliability of varianceamong the variables

Descriptive Statistics			N
	Mean	Std. Deviation	100
Level of_Preference	1.64	.848	100
Safety & Security	1.36	.658	100
Financial_goal_risk	1.32	.568	100
Alert	1.64	.848	100
Customization	1.45	.671	

The initial outcome of the analysis is a descriptive statistics table that encompasses all the variables being investigated. This table (Table 2) typically includes the mean, standard deviation, and the number of respondents (N) who participated in the survey. The mean value represents the characteristicsof the most frequent response within the dataset. Hence, there is no specific minimum value requirement. Upon reviewing the mean values presented in Table 2 above, it can be inferred that the variables "Level of Preference" and "Alert" have the highest influence on customers' preference for AI in banking operations. The subsequent parameters that follow in importance are the process of customization, safety and security, as well as adequate information regarding financial goals and probable risks.

Table 3: Levels of preference

Correlation Matrix[a]						
		L_Preference	Safety & Security	F_goal_risk	Alert	Customization
Correlation	L_Preference	1.000	846	.845	1.000	.890
	Safety & Security	.846	1.000	.950	.846	.902
	F_goal_risk	.845	.950	1.000	845	.852
	Alert	1.000	.846	.845	1.000	.890
	Customization	.890	.902	.852	.890	1.000

In relation to the correlation matrix, if the value between any pair of variables is less than 0.5, it is advisable to consider dropping one of them from the analysis. However, in our test, all paired variables exceed the prescribed value. Therefore, based on the above table (Table 3), we can conclude that all variables are highly correlated, indicating their importance from consumers' perspective regarding AI operations in a positive manner.

Table 4: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.866
Bartlett's Test of Sphericity	Approx. Chi-Square	3698.604
	df	36
	Sig	000

The KMO (Kaiser-Meyer-Olkin) measure evaluates the adequacy of sampling, determining whether the responses obtained from the sample are sufficient. For satisfactory factor analysis to proceed, the KMO value should be close to 0.5. According to Kaiser's recommendation in 1974, a minimum value of 0.5 is barely acceptable, while values ranging from 0.7 to 0.8 are considered acceptable, and values above 0.9 are considered superb. In the provided table(Table 4), the KMO measure is 0.866, which is close to 0.9 and can therefore be considered highly acceptable

Table 5: Adequacy of the responses

Communalities		
	Initial	Extraction
L_Preference	1.000	.924
Safety & Security	1.000	.908
L_Preference	1.000	.924
F_goal_risk	1.000	.887
Alert	1.000	.924
Customization	1.000	.905
Extraction Method: Principal Component Analysis.		

Based on the above table of commonalities (Table-5), it indicates the extent to which the variance in the variables is explained by the extracted factors. To be considered for further analysis, the communality value should be greater than 0.5; otherwise, these variables should be removed from subsequent steps of factor analysis. For example, more than 92.4% of the variance in "Level of preferences" is accounted for, while 88.7% of the variance in "Financial Goal and Risk" is also explained by the extracted factors.

Table 6: Variance among variables by extracted factors

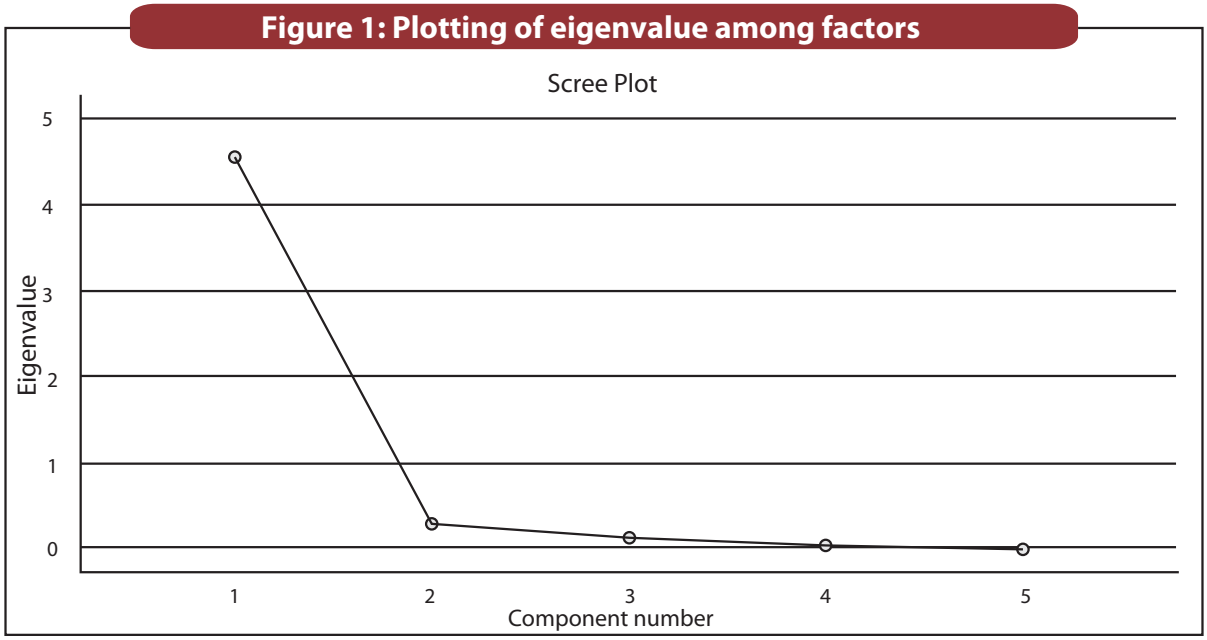
Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.547	90.947	90.947	4.547	90.947	90.947
2	.284	5.671	96.618			
3	.131	2.627	99.245			
2	.038	.755	100.000			
3	1.205E-16	2.411E-15	100.000			
Extraction Method: Principal Component Analysis.						

The Eigenvalue reflects the number of extracted factors, and the sum of eigenvalues should be equal to the number of items subjected to factor analysis. The subsequent item presents all the factors that can be extracted from the analysis, along with their respective Eigenvalues. The Eigenvalue table (Table 6) has been divided into three sub-sections:

1. Initial Eigen Values
2. Extracted Sums of Squared Loadings
3. Rotation of Sums of Squared Loadings.

For analysis and interpretation purposes we are concerned only with Initial Eigenvalues and Extracted Sums of Squared Loadings. The requirement for identifying the number of components or factors stated by selected variables is the presence of eigenvalues of more than 1. Table 6 herein shows that for 1st component the value is 4.547 > 1. Thus, the stated set of 5 variables with 100 observations represents one component. Further, the extracted sum of squared holding % of variance depicts that the first factor accounts for 90.947% of the variance features from the stated observations. Thus, 1 component is effective enough in representing all the characteristics or components highlighted by the stated 5 variables.

Figure 1: Plotting of eigenvalue among factors



The scree plot graph (Diagram-1) illustrates the eigenvalue plotted against the factor number, which corresponds to the values in the first column of the table above. After the second factor, the line on the plot becomes nearly flat, indicating that each subsequent factor explains a diminishing amount of the overall variance.

The scree plot graph (Diagram-1) illustrates the eigenvalue plotted against the factor number, which correspAs per the above table (Table-7) one component has been extracted as a principle one. It represents the total set of variables with consistent manner.

Table 7: Method of Extraction

Component Matrix[a]	
	Initial
	1
L_Preference	.961
Safety & Security	.953
F_goal_risk	.942
Alert	.961
Customization	.951
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

Discussions

We have collected 100 responses as sample for our study. It shows that mostly respondents are from 18-35 years age group customers and have more knowledge about AI in banks because they are always looking for new innovative ideas. We are trying to take responses mostly from the educated group as they know more about this and they are do more search about and use this for their daily banking transactions to avoid the waste of time. Nowadays AI implemented in banks and it helpful to the customer for their transaction and it

it impacted positively to the bank because it reduces the complication of banking transactions. As per the survey it shows that AI is easy to access and simplify the banking transaction, everyone easily access and the information relates to how to use everything are available through the search engines. It helps to reduce the error as compare to manual transactions. It gives clear statement about any banking related transactions. AI reduces the work compare to before and as well it save the time of the customer, because any query can solve through the Chatbots no need to visit bank and solve it. AI provides personal suggestion to the customer about the loan insurance and capital bases it helps the customer that what kind of loan is good for them. As a result it shows that AI based mobile applications are safer and quick for the banking transaction; it is even easy for the transaction, and convenience for 71 everyone. As a result it shows that regular updates about the financial position of the banks are available and that is easy for the customer to invest feel safe to do the banking transactions. In our survey through Cronbach's Alpha value we have proven the reliability of the survey as it is .969. From interpretation-1 we have shown that User preference and Alert information message are two most important variable for the AI preference with value of 1.64. Interpretation-3 have shown there is high degree of correlation between all the variables as all of them are above 0.5. So a customer's experience is good enough with respect to implementation of AI as AI providing all facilities like safety and security, financial goal and risk analysis, Alerting customers if any unexpected things happened in any point of time in banking process and customization of all processes for better delivery of services. Interpretation 4 and 5 highlighted the strong bonding of all variables. Interpretation 6, 7 and 8 shows customers' preference of AI all the aspects of operations.

For this survey, we gathered responses from 100 valid participants who predominantly fell within the age range of 25 to 45. This group was selected based on their likelihood of possessing higher knowledge about AI and its application in various fields. The five factors we focused on are the preference level of AI operation, safety and security options, provision of adequate information regarding financial goals and potential risks associated with banking operations, alerting customers about banking fraud, and customization of the AI structure .

Based on the feedback received from the survey and various tests conducted, it is evident that AI is highly preferred and deemed useful for banking operations. The implementation of AI has significantly reduced work pressure compared to the pre-AI era, resulting in time savings for banking customers. The survey results

can be a costly endeavor. indicate that AI-based mobile applications offered by different banks are secure and provide ease of operation. Furthermore, the results demonstrate that customers have easy access to regular updates regarding their financial positions and investment plans at their fingertips.

The results reveal that the survey has a high level of reliability, indicated by a value of 0.969. All interpretations suggest a cohesive correlation among the five variables, indicating that these variables were selected in a preferred manner to fulfill the second objective. Furthermore, the findings demonstrate a positive response towards the adoption of AI in operational fronts. The banking industry is undergoing a rapid transformation fuelled by the emergence of Artificial Intelligence (AI). Among the 100 responses received, 70 were from customers and 30 were from the perspective of bankers. The findings revealed that a significant number of young individuals are aware of the implementation of AI in banks. While it is generally perceived as easy to operate, it also requires a deeper level of knowledge. The responses from bankers indicated that implementing AI in banks can be costly; however, it effectively reduces work pressure and minimizes unwanted errors. Overall, the implementation of AI in banks has proven beneficial for a majority of respondents.

The integration of AI in the Indian banking sector offers numerous benefits, such as improved operational efficiency, enhanced customer experiences, effective risk management, and accelerated financial inclusion. However, it also presents challenges, including data privacy concerns, ethical considerations, and the need for robust regulatory frameworks to ensure responsible AI adoption. The Indian banking sector continues to explore AI's potential and collaborate with technology providers to further advance its implementation and impact.

Suggestions

To keep pace with evolving trends and prevent potential fraud, customers are advised to proactively consider transitioning to digital transactions. It is crucial for customers to stay updated about new developments in the banking industry and adapt their practices accordingly. When banks incorporate AI technologies, they should prioritize raising awareness and educating customers about these advancements. This proactive approach promotes increased adoption of AI in banking, even among individuals who may initially be hesitant or unfamiliar with the changes. By providing comprehensive knowledge about AI implementation, banks can encourage its adoption and ensure a successful integration.

The implementation of AI in banks, particularly for private institutions, can be a costly endeavor. To

facilitate this transition, governments can allocate funds to support AI implementation in banks, as it contributes to the overall economic development of the country. Private banks should also prioritize the integration of AI into their operations. Despite the expenses involved, AI implementation offers advantages such as reducing human error, providing accurate transaction information, and enabling effective communication of bank-related changes to customers.

Proper training is essential for bank employees involved in the AI implementation process. Without adequate training, challenges may arise during transactions, and customers may not fully benefit from the AI systems. Hiring specialized personnel for this purpose can also entail additional costs. It is crucial to have the necessary technological infrastructure in place and employ experts who can install and maintain the AI systems. Despite the expenses associated with AI implementation, the reduction in errors and the ability to provide timely information to customers outweigh the costs involved .

In conclusion, the successful implementation of AI in the banking sector necessitates comprehensive training for employees and educating customers about the advantages and functioning of AI systems. Taking a proactive approach in this regard will facilitate the seamless integration of AI, ultimately enhancing banking operations and improving customer experiences.

Future Outlook

It is difficult to predict what role AI will play in the distant future as it is evolving very fast, from year to year and month to month. Some aspects of AI which could be dominant in the immediate future:

- Generative AI is predicted to revolutionize all aspects of banking including Corporate Banking, Retail Banking and Investment Banking.
- Chatbots will continue to become increasingly human as AI advances and speech recognition, responses to human speech and other such features keep getting increasingly refined over time.
- The ability to predict the requirements of a client and to proactively suggest the requirements that a client would find to be to their preference would continue to improve over time and this would lead to an increasingly synchronous functionality of the systems that are incorporated in banking

  At the end of the day, it has been predicted that AI will increasingly become more human like and will continue to lead to lesser brick and mortar operations, automated banking which is available at one's fingertips and ease of functionality in the future.

Conclusion

AI technologies are revolutionizing multiple facets of banking, including core operations, operational performance, customer support, and analytics. This paradigm shift expands the scope of banking beyond physical branches, ushering in a new era of modernized banks. The introduction of innovative banking services enables institutions to extend their reach and stimulate growth.

Technology plays a pivotal role in enhancing accessibility to banking systems, improving cost-effectiveness, and facilitating small-scale transactions. The effective utilization of technology significantly impacts the growth and development of banks. Integrating AI not only attracts more customers but also fosters further expansion. AI applications in banking encompass not just retail services but also the back and middle offices of investment banking and other financial operations. By adopting AI, banks empower themselves to enhance the customer experience and enable seamless, round-the-clock customer engagement.

The potential of AI in banking is extensive, transforming various aspects of financial supervision and management. It represents a significant opportunity for banks to embrace advanced technologies and capitalize on their potential for growth and innovation.

References

- Birau, R., Spulbar, C., Karbassi Yazdi, A., ShahrAeini, S.A. (2021) Critical success factors for CRM implementation in the Iranian banking sector: A conceptual analysis, Revista de Științe Politice. Revue des Sciences Politiques, No. 69, 32 – 45.
- Karbassi Yazdi, A., Spulbar, C., Hanne, T. & Birau, R. (2022) Ranking performance indicators related to banking by using hybrid multicriteria methods in an uncertain environment: a case study for Iran under COVID-19 conditions, Systems Science & Control Engineering, 10:1, 166- 180, DOI: 10.1080/21642583.2022.2052996.
- Mehdiabadi, A., Shahabi, V., Shamsinejad, S., Amiri, M., Spulbar, C., Birau, R. (2022) Investigating Industry 5.0 and Its Impact on the Banking Industry: Requirements, Approaches and Communications, Applied Sciences, 12(10):5126. https://doi.org/10.3390/app12105126.
- Mhlanga, D. (2020) Industry 4.0 in Finance: The Impact of Artificial Intelligence (AI) on Digital Financial Inclusion International Journal of Financial Studies, 8(3):45.

Financial Studies, 8(3):45. https://doi.org/10.3390/ijfs8030045.

- [5] Noreen, U., Shafique, A., Ahmed, Z., Ashfaq, M. (2023) Banking 4.0: Artificial Intelligence (AI) in Banking Industry & Consumer's Perspective. Sustainability, 15(4):3682. https://doi.org/10.3390/su15043682.
- [6] Samartha, V., Shenoy Basthikar, S., Hawaldar, I.T., Spulbar, C., Birau, R., Filip, R.D. (2022) A Study on the Acceptance of Mobile-Banking Applications in India—Unified Theory of Acceptance and Sustainable Use of Technology Model (UTAUT). Sustainability, 14(21):14506. https://doi.org/10.3390/su142114506.
- [7] Singh, T., Pathak, N. (2020a) Yes Bank Debacle: Whom To Blame For Investor Destruction; 74 Securities Exchange Board Of India (SEBI) Or Reserve Bank Of India (RBI), Journal Of Critical Reviews, ISSN- 2394-5125, 7(16), 1459- 1471.
- [8] Singh, T., Pathak, N. (2020b) Emerging Role Of Artificial Intelligence In Indian Banking Sector, Journal Of Critical Reviews,