

“Banking in the Digital Age: An Exploration of Customer Perceptions and Performance Shifts with Artificial Intelligence”

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Abstract:

This research was conducted to determine whether or not artificial intelligence (AI) really facilitates work or transactions and how the use of AI in banks has affected bankers and customers. To achieve the objectives of providing useful suggestions that would help the consumer have a smooth transaction and the banker has less work to do, a number of hypotheses were generated and tested. This research delves into the multifaceted realm of AI in banking, specifically focusing on customer perspectives and the resultant shifts in performance metrics. As per customer point of view total 150 primary data were collected for the study. The research employs advanced statistical tools, with a particular emphasis on utilizing SPSS software for rigorous analysis. Key statistical methods, including Pearson Chi Square, Correlation, and Regression analyses, were applied to extract meaningful insights from the dataset. The findings of this research contribute valuable insights into the intricate dynamics between AI, customer perceptions, and banking performance.

Keywords: Artificial Intelligence, Private Banking, Digital Age, Digital Transaction.

INTRODUCTION

In an era characterized by rapid technological advancement and ever-evolving customer expectations, the private banking sector is undergoing a transformation of unprecedented magnitude. As the financial services industry embraces digitization and data-driven decision-making, one of the most influential catalysts in this transformation is the integration of Artificial Intelligence (AI). The fusion of AI with private banking has far-reaching implications for the customer experience, revolutionizing how customer interact with their financial institutions, access personalized financial advice, and navigate the complexities of wealth management.

The private banking sector has long prided itself on delivering exclusive, personalized, and high-touch services to a discerning clientele. However, with the introduction of AI technologies, private banks are at an inflection point. AI, encompassing machine learning, natural language processing, and predictive analytics, has the potential to enhance every facet of private banking, from client onboarding to investment advisory, risk management, and

compliance. The integration of AI algorithms, chatbots, and data analytics empowers banks to harness the power of big data and deliver tailored solutions that cater to the unique needs and preferences of each client.

This study delves into the profound and multifaceted impact of artificial intelligence on customer experiences in private banking. It explores the ways AI is redefining traditional banking paradigms, shaping the interactions between clients and wealth managers, and ultimately, driving the sector towards more efficient, personalized, and customer-centric solutions. We aim to shed light on the profound implications AI has on both the providers and consumers of private banking services and the broader financial landscape. This study embarks on an exploration of the transformative journey that private banking is currently undertaking through the integration of AI. We endeavor to provide insights that shed light on the numerous ways in which AI is redefining the customer experience in this sector, as well as the broader implications for the financial industry. By understanding the multifaceted impact of AI on private banking, we hope to contribute to the informed decision-making of financial institutions and policymakers as they navigate this new frontier of banking innovation.

REVIEW OF THE LITERATURE

Indian Banks' Association (2023), released a survey report titled "AI in Indian Banking: A Survey Report" in 2023. The report surveyed 47 banks in India to assess the adoption and impact of artificial intelligence (AI) in the Indian banking sector. The report found that AI adoption is still in its early stages in the Indian banking sector, but it is growing rapidly. Over 80% of the banks surveyed have already adopted AI in some form, and most of them plan to increase their AI investments in the next few years. The report concludes by stating that AI has the potential to revolutionize the Indian banking sector. However, it is important to address the challenges mentioned above in order to accelerate the adoption of AI.

Patel and Patel (2021), examine the role of artificial intelligence (AI) in transforming customer experience in the Indian private banking sector. They argue that AI has the potential to revolutionize the way banks interact with their customers, by providing more personalized, efficient, and convenient services. Research study has concluded that AI has the potential to have a significant positive impact on customer experience in the Indian private banking sector. However, they also caution that banks need to carefully address the challenges associated with AI implementation in order to fully realize this potential.

Hurd and Stein (2020), suggests that the use of robo-advisors has led to more cost-effective wealth management services, enabling clients to access professional investment advice at a lower cost. This not only improves customer experiences but also attracts a wider range of clients. The use of AI-powered robo-advisors has gained prominence in private banking. Robo-advisors utilize AI algorithms to optimize investment portfolios and execute trading decisions autonomously.

Rodriguez and Hall (2020), highlights the importance of addressing these concerns to ensure that AI adoption is not at the expense of customer trust and confidence. The implementation of AI in private banking also raises concerns about data privacy and ethics. As AI systems handle sensitive client information, safeguarding privacy is paramount.

Garicano and Rossi-Hansberg (2019), these personalized experiences have not only improved customer satisfaction but have also increased customer loyalty and retention in private banking institutions. AI technologies, such as machine learning algorithms and natural language processing, have enabled private banks

to offer highly personalized services to their clients. AI can analyze vast datasets of customer information to create tailored investment strategies and financial plans.

Smith and Johnson (2019), suggests that chatbots have improved the overall efficiency of private banking operations, leading to quicker issue resolution and improved customer experiences. AI-powered chatbots and virtual assistants are increasingly used for customer interaction and support in private banking. These chatbots can efficiently handle routine customer inquiries, providing quick and accurate responses.

Chen and Wu (2019), the use of AI for regulatory compliance not only enhances the transparency and integrity of private banking but also contributes to a more reassuring customer experience. Private banking is a highly regulated industry, and AI has proven valuable in assisting banks to adhere to these regulations. AI can analyze and interpret complex regulatory requirements, ensuring that private banking operations remain compliant.

Li and Wang (2018), indicates that AI-based fraud detection systems have led to a reduction in fraudulent activities and subsequently improved the trust and confidence of private banking clients. AI systems are proficient in analyzing financial transactions and identifying anomalies. This capability has been instrumental in enhancing security measures in private banking.

STATEMENT OF THE PROBLEM

When doing a banking transaction, a visit to the bank is required. If you have any questions, you must visit the bank to get the answers, which results in additional mistakes and time wasted. Artificial intelligence (AI) implementation decreases transaction time and error, but adversely raises unemployment.

OBJECTIVES OF THE STUDY

- To study the Artificial Intelligence in the banking sector and how it impacted to the customers.
- To examine the performance of banking sector post implementation of Artificial Intelligence.
- To assess the challenges of bankers in the implementation of AI.

RESEARCH METHODOLOGY

This research, which is descriptive in nature, broke an enormous issue up into smaller ones. Focuses on specific topics and emphasizes the finding of new concepts and understandings. Based on the 150 samples gathered for the research, private bank customers in India.

SOURCE OF DATA COLLECTION

Primary Data

In this research, the required primary data were obtained utilising a structured close ended questionnaire from private bank customers via Google Form.

Secondary Data

The researcher used a variety of secondary data sources, including newspapers, research journals, and unpublished reports, websites, and search engines, in order to perform a condensed and critical assessment of the literature of previously completed research studies and published research papers.

SAMPLE SIZE

A sample of 150 people who responded was taken from private bank customers.

SAMPLING PROCEDURE

To choose the respondents for the research, the random sampling approach was used. Data collection was done using the primary method. The questionnaire was divided into two sections. Demographic information is in Part A, while conceptual questions are in Part B.

SAMPLING DESIGN

For this research work, the researcher employed a non-probability sampling design. For this research, convenient sampling methodology was used to collect representative samples.

DATA ANALYSIS AND DATA INTERPRETATION

Pearson Chi-Square Tests

Table 1: Crosstabulation of Implementation of AI in Banks increases the safety in transaction and AI gives better experience beyond the customer expectation.

		AI gives better experience beyond the customer expectation.					Total
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Implementation of AI in Banks increases the safety in transaction.	Strongly disagree	3	1	0	4	1	9
	Disagree	2	6	7	3	3	21
	Neutral	0	3	19	19	2	43
	Agree	1	5	13	32	5	56
	Strongly agree	0	0	2	3	16	21
Total		6	15	41	61	27	150

Table 2: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	101.817 ^a	16	.000
Likelihood Ratio	81.136	16	.000
Linear-by-Linear Association	29.527	1	.000
N of Valid Cases	150		

a. 14 cells (56.0%) have expected count less than 5. The minimum expected count is .36.

The results suggest a significant association between the perception of AI's impact on transaction safety and its ability to provide a better customer experience. The p-values from all tests are extremely low, indicating a strong relationship. This implies that customers' perceptions of AI in banking are interconnected concerning safety in transactions and exceeding expectations.

Table 3: Symmetric Measures

	Value	Approx. Sig.
Nominal by Phi	.824	.000
Nominal Cramer's V	.412	.000
N of Valid Cases	150	

Both Phi and Cramer's V values are close to 1, indicating a substantial and statistically significant association between the perception of AI's impact on transaction safety and its ability to provide a better customer experience.

The p-values associated with these measures are both 0.000, which is less than the conventional significance level of 0.05. This suggests that the observed association is unlikely to have occurred by chance.

Table 4: Crosstabulation of AI Service motivates the customers to do digital transactions and AI gives better experience beyond the customer expectation.

		AI gives better experience beyond the customer expectation.					Total
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
AI Service motivates the customers to do digital transactions.	Strongly disagree	4	1	0	1	0	6
	Disagree	0	5	3	2	1	11
	Neutral	1	4	17	9	3	34
	Agree	1	3	15	42	3	64
	Strongly agree	0	2	6	7	20	35
Total		6	15	41	61	27	150

Table 5: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	144.788 ^a	16	.000
Likelihood Ratio	91.020	16	.000
Linear-by-Linear Association	43.765	1	.000
N of Valid Cases	150		

a. 15 cells (60.0%) have expected count less than 5. The minimum expected count is .24.

The table shows a clear pattern: as the perception of AI giving a better experience increases, there is a corresponding increase in the agreement that AI service motivates customers to do digital transactions.

The p-values from all tests are extremely low (0.000), indicating a statistically significant association between the two variables. The results strongly suggest that there is a significant association between the perception that AI gives a better experience beyond customer expectations and the belief that AI service motivates customers to engage in digital transactions. The high chi-square values and low p-values support the idea that these two aspects are closely related in the respondents' perceptions.

Table 6: Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.982	.000
	Cramer's V	.491	.000
N of Valid Cases		150	

The value of 0.982 is very close to 1, suggesting an almost perfect association. This means that the perception of AI giving a better experience beyond customer expectations is highly related to the belief that AI service motivates customers to engage in digital transactions.

The value of 0.491, being close to 0.5, also indicates a substantial association. It reinforces the strength of the relationship between the two variables. The symmetric measures provide additional evidence that the perceived relationship between AI giving a better experience and AI service motivating customers for digital transactions is not only statistically significant but also practically substantial.

Table 7: Crosstabulation of Gender and AI implementation in banking sector has impacted positively.

	AI implementation in banking sector has impacted positively.					Total
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
Gender: Male	9	5	28	26	12	80
Female	0	1	30	30	9	70
Total	9	6	58	56	21	150

Table 8: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.836 ^a	4	.019
Likelihood Ratio	15.505	4	.004
Linear-by-Linear Association	4.263	1	.039
N of Valid Cases	150		

a. 4 cells (40.0%) have expected count less than 5. The minimum expected count is 2.80.

Both the Pearson and Likelihood Ratio Chi-Square tests indicate a significant association between gender and the perception of AI impact. The Linear-by-Linear Association suggests a linear relationship, indicating a trend in the association.

The results suggest that there is a statistically significant association between gender and the perception of the impact of AI implementation in the banking sector. The p-values from the chi-square tests are below the conventional significance level of 0.05, indicating that the observed association is unlikely to have occurred by chance. This implies that there may be gender-based differences in how individuals perceive the positive impact of AI in the banking sector. Further analysis and exploration could be conducted to understand the nature of these differences.

Table 10: Crosstabulation of AI implementation in banking sector has impacted positively and AI Service motivates the customers to do digital transactions.

		AI Service motivates the customers to do digital transactions.					Total
		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
AI implementation in banking sector has impacted positively.	Strongly disagree	5	0	1	3	0	9
	Disagree	0	0	2	3	1	6
	Neutral	0	7	22	22	7	58
	Agree	1	4	9	29	13	56
	Strongly agree	0	0	0	7	14	21
Total		6	11	34	64	35	150

Table 11: Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	105.289 ^a	16	.000
Likelihood Ratio	69.476	16	.000
Linear-by-Linear Association	35.021	1	.000
N of Valid Cases	150		

a. 18 cells (72.0%) have expected count less than 5. The minimum expected count is .24.

The results strongly suggest that there is a significant association between the perception of AI implementation in the banking sector having a positive impact and the belief that AI service motivates customers to engage in digital transactions. The high chi-square values and low p-values support the idea that these two aspects are closely related in the respondents' perceptions. The findings could have implications for understanding how positive perceptions of AI implementation may influence customer behavior in digital transactions.

Table 13: Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.838	.000
	Cramer's V	.419	.000
N of Valid Cases		150	

The high values of Phi and Cramer's V further support the notion of a strong association between these two aspects in the respondents' perceptions. These results suggest that those who perceive a positive impact of AI implementation in the banking sector are more likely to believe that AI services motivate customers to engage in digital transactions.

Correlation

Descriptive Statistics

	Mean	Std. Deviation	N
AI-based mobile applications can make the transaction quicker & safer.	3.767	.9927	150
Chatbots helps to solve the queries immediately.	3.560	1.0329	150

Table 15: Correlations

		AI-based mobile applications can make the transaction quicker & safer.	Chatbots helps to solve the queries immediately.
AI-based mobile applications can make the transaction quicker & safer.	Pearson Correlation	1	.482**
	Sig. (2-tailed)		.000
	Sum of Squares and Cross-products	146.833	73.600
	Covariance	.985	.494
	N	150	150
Chatbots helps to solve the queries immediately.	Pearson Correlation	.482**	1
	Sig. (2-tailed)	.000	
	Sum of Squares and Cross-products	73.600	158.960
	Covariance	.494	1.067
	N	150	150

** . Correlation is significant at the 0.01 level (2-tailed).

The positive Pearson correlation coefficient of 0.482 indicates a moderate positive linear relationship between the perception that AI-based mobile applications can make transactions quicker & safer and the belief that

chatbots help solve queries immediately. The p-value of 0.000 is less than the significance level of 0.01, indicating that the correlation is statistically significant. This suggests that there is a reliable association between the two variables.

The results of the correlation analysis suggest that individuals who believe that AI-based mobile applications can make transactions quicker & safer are more likely to also believe that chatbots help solve queries immediately. The positive correlation implies that as one perception increases, the other tends to increase as well. This information can be valuable for understanding how users perceive the interconnected benefits of AI in both mobile transactions and query resolution through chatbots.

Regression Analysis

Table 16: Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Chatbots helps to solve the queries immediately. ^b		Enter

a. Dependent Variable: AI-based mobile applications can make the transaction quicker & safer.

b. All requested variables entered.

Table 17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.482 ^a	.232	.227	.8728

a. Predictors: (Constant), Chatbots helps to solve the queries immediately.

Table 18: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.078	1	34.078	44.729	.000 ^b
	Residual	112.756	148	.762		
	Total	146.833	149			

a. Dependent Variable: AI-based mobile applications can make the transaction quicker & safer.

b. Predictors: (Constant), Chatbots helps to solve the queries immediately.

Table 19: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.118	.257		8.257	.000
Chatbots helps to solve the queries immediately.	.463	.069	.482	6.688	.000

a. Dependent Variable: AI-based mobile applications can make the transaction quicker & safer.

The model summary table provides the R value. The R value is 0.8728 which indicates a high degree of correlation. Here the regression value is less than 0.05 that is 0.000, so we can reject hypothesis and it shows the high level of correlation between the variables. The regression results suggest that the presence of chatbots helping to solve queries immediately has a statistically significant positive effect on the dependent variable, which is the perception that AI-based mobile applications can make transactions quicker and safer. The standardized coefficient (Beta) of 0.482 indicates the direction and strength of this relationship.

FINDINGS AND SUGGESTIONS

Consumers have to think about moving to digital transactions since the trends of today are changing and it's important to keep up with them. Additionally, consumers should seek out and monitor any new developments that come around in order to stay safe from fraud. When artificial intelligence (AI) is utilized in a bank, the bank should also educate the public about it. As a result, more people are using this, and even those who are resistant to change, ignorant of how to use it, or afraid of it will learn about its introduction in banks, which will enable the banks to use AI more widely in the banking industry. This contributes to the success of using AI in banking as well. The cost of using AI in banks is quite high, and private banks find it challenging. Because AI boosts the nation's economy, the government must provide funding for its deployment in banks. The use of AI in banks is given greater weight by this private bank.

The result suggests that artificial intelligence is among the priciest due to the technological components involved. Therefore, in order to properly apply AI in banks, workers must get training; otherwise, transactions may be complicated and clients may not profit. Additionally, hiring specialists in that field and placing them in banks comes at a high cost. When adopting AI in a bank, appropriate technological changes must be made; professionals must install the system, and employers must get technical training. In order to successfully use AI in the banking industry, employees need get the necessary training, and customers should be informed about how it is used in banks.

CONCLUSION

In conclusion, embracing digital transactions is crucial for consumers to keep up with evolving trends. Vigilance against fraud and staying informed about advancements in artificial intelligence (AI) are essential. Banks employing AI should prioritize public education to broaden its acceptance. While the high cost of AI implementation poses a challenge, government funding can support its integration, fostering economic growth. The study underscores the importance of training bank staff and educating customers for the effective and secure utilization of AI in the banking sector. Overall, successful AI integration requires strategic investments,

continuous training, and transparent communication to ensure both employees and customers benefit from this transformative technology.

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