A Study On Artificial Intelligence Towards Customer Relationship In Private And Public Banks In Thrissur District, Kerala

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Abstract

There have been ground-breaking changes in the banking business, with a clear focus on meeting customer needs. Customers, especially those who are tech-savvy and used to the newest innovations, expect banks to provide smooth services. To meet the needs for digital money, e-banking, and real cash transfers, financial institutions have grown beyond their usual areas of expertise. They now work with retail, IT, and telecom. These improvements have made it easier for people to use banking services around the clock, but they have also come with some costs for the financial sector. A lot of thought went into this study about the pros and cons of using AI in Indian banks. It looks at how artificial intelligence is used in banking services and how that affects relationships with customers in a detailed way. The information comes from a questionnaire that was filled out by 106 customers of state and private banks in Kerala's Thrissur district.

Keywords: *Artificial intelligence (AI), Banking industry, Customer relation.*

Introduction

In a time when technology is always getting better, the banking industry is one of the first to use new ideas to improve relationships with customers and make operations run more smoothly. Artificial Intelligence (AI) has become one of these technology marvels that has the power to change everything, including traditional banking around the world. In India, where banking is a very important part of the economy, adding AI will have huge effects on how customers deal with banks, how services are provided, and how the industry works as a whole.

It has become easier to use AI tools like natural language processing, prediction analytics and machine learning, They have given financial institutions new ways to look at huge datasets, simplify tasks, and provide personalised services. These advancements have sparked a paradigm shift in the way Indian banks engage with their customers, from personalized product recommendations to efficient query resolution.

The chief goal of this analysis is to look into the many ways that AI has changed customer relationships in the Indian banking industry. As customers increasingly demand seamless and tailored experiences, banks are compelled to leverage AI-driven solutions to meet these expectations. Understanding the nuances of this transformation is not only imperative for financial institutions striving to remain competitive but also for policymakers and regulators keen on fostering a robust and technologically resilient banking ecosystem.

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The key goal of this analysis is to look into how AI is used in the Indian banking business and how it affects interactions with customers, their happiness, and their loyalty. Additionally, it will look into the problems and chances that come with using AI, such as worries about data privacy, security, and the way that AI might replace traditional banking jobs. By looking at these aspects, the study hopes to give information that can help people in the Indian banking sector deal with the changing world of AI-driven customer interactions. As AI continues to change the banking industry, it's important to understand how it affects customer interactions in order to promote long-term growth and make sure that technology and human-centered banking can work together in India. The goal of this study is to add to the current conversation about how AI will affect customer relationships in Indian banks in the future.

Statement of the problem

Artificial Intelligence (AI) is being quickly used in Indian banks, which has opened up new opportunities and challenges. As financial institutions increasingly leverage AI technologies to enhance customer relationships, a critical research problem emerges: How does the adoption of AI influence customer satisfaction, trust, and loyalty in the background of the Indian banking industry?

Objectives of the Study

1. Investigating the association between Artificial Intelligence on Customer Support within the public and private sector financial intuitions.
2. Exploring the relationship between Artificial Intelligence implementation and Database Management Systems in public and private sector financial institutions.
3. Study the differences between Artificial Intelligence on Privacy and Security in the public and private Banking industry.

Hypothesis of the study

H0: There is no significant difference in the mean performance of the Customer Support System between private and public sector banks.

H1: There is a significant difference in the mean performance of the Customer Support System between private and public sector banks.

H0: There is no relationship between Artificial Intelligence implementation and Database Management Systems in public and private sector banks.

H1: There is a relationship between Artificial Intelligence implementation and Database Management Systems in public and private sector banks.

H0: There is no significant differences between Artificial Intelligence on Privacy and Security in the public and private Banking sector.

H1: There is a difference between Artificial Intelligence on Privacy and Security in the public and private Banking sector.

Research Methodology

A mixed-methods approach was used for this study, which means that both quantitative and qualitative methods were used. Primary data is pooled through a survey using a questionnaire, while secondary data is sourced from various available resources such as websites, journals, and books. The research focuses on the target population and is sampling-based in Kerala, with respondents drawn from both Public and Private sector

financial institutions in Thrissur district, and specific customers of these banks. A total of 110 questionnaires were distributed, with 106 respondents providing responses.

Convenience sampling is utilized as the sampling technique in this research. Descriptive statistics are employed to depict the sample, presenting numbers and percentages within categories. Analysis of variance is applied to identify statistically significant differences in means among two or more groups. Additionally, correlation analysis is utilized to assess the extend of relationship between variables. For data analysis and interpretation, SPSS and MS Excel are the tools of choice, serving both data coding and transcription purposes.

Data gathering from respondents - The research study revolves around the examination of the consequences of Artificial Intelligence on customer relationships in the Indian financial institutions industry. The study is both descriptive and exploratory in nature. The data collection sources encompass both primary and secondary methods. Primary data is acquired through a survey, while secondary data is derived from various authenticated sources such as websites, books, journals, articles, business magazines, and brochures.

The researcher utilizes the survey method to collect primary data, aiming to understand the perceptions and experiences of respondents. Additionally, secondary data is harnessed to delve into various applications of artificial intelligence in the banking sector, exploring how AI contributes to the enhancement of banks' performance. The study's scope is centered on analyzing diverse applications of AI in Indian banks and assessing the potential ways in which AI can positively impact their overall performance.

Review of literature

(Firdoos Jahan et al., 2023) The study looks at the pros and cons of using AI in banks and how they might work together. This study looked at related literature, trade magazines, and survey data from 203 people to find out how AI is being used in banking. Our research shows that AI is causing big changes in the financial services business. Virtual Assistants as well as Chatbots driven by artificial intelligence (AI) are helping banks give better, more personalised service to customers at the same time also rushing reply times and making customers happier. Banks are also using AI systems to find and stop fraud. This is done to progress security measures and protect customer assets by finding pattern and oddities in real time. How AI is used in risk management and safety is also picking up speed. Modern AI models can look at huge amounts of financial data and make accurate predictions. They can also spot possible risks. This helps banks follow the rules set by regulators and make smart choices. Credit scoring and loan underwriting systems that are run by AI are also making the lending process better.

(Sheth et al., 2022) Banking services mostly use artificial intelligence (AI) to mechanize processes. But this ecosystem doesn't work in emerging markets where people need to be involved and infrastructure issues are a problem. A lot of research has been done on AI-mediated banking services, but the talks that have already been held are time-consuming, and there aren't many studies on how AI can be used in emerging markets to improve banking services. Also, the talks that are still going on are mostly about improved markets where computerization in banking functions is common and understood. Through this research, the authors stress how important AI mediation is in developing markets and how AI could be used to make banking services more personalised.

(Articulated fig. n. i.g. e.n.c.e. in i.n. d ia n b a n k i n g s e c t o r: a g a m e c h a n g e r, n.d.) This study tries to give an overview of the idea of AI in the Indian Banking industry, including its gains, how it is used now, and the changes that banks will have to deal with in the future. This research also looks at how artificial intelligence is being used now and how it might be used in the future, since this type of banking is the "new normal" in modern times. The study talks about the possible ways that artificial intelligence could be used in banks to make it grow and work better. The study is

mostly about the different ways AI can help the banking industry and how it is used in Indian banks. An increasing number of Indian banks are using AI in their daily work and to get ahead of the other banks in the country. With artificial intelligence, both employees and customers can gain. It can lead to higher profits and more engaged and happy employees and customers.

("looking into how artificial intelligence can be used and how well it works in the Indian banking industry," 2023)This study looks at how artificial intelligence (AI) is being used more and more in Indian banks. With the rise of new know-how and huge amounts of data, That's because AI is making banks more efficient, cutting costs, and generally making the customer experience better. This essay looks at AI-based banking services, how they are used and how well they work in the Indian banking business. It also compares the performance of HDFC bank and ICICI bank. AI could totally change the Indian banking industry, according to the study. This is because it would allow banks to use their data assets to provide more personalised services and better customer experiences, all while making their operations more efficient and cutting costs.

DATA ANALYSIS AND INTERPRETATIONS

Reliability test

Reliability, as described by Nunnally (1967), pertains to the degree to which measurements exhibit consistency when the same person uses different measures to assess the same attributes. According to Nunnally (1967) and Peter (1979), the presence of quantity mistake imposes a boundary on the potential validity of an tool. However, even in the complete deficiency of measurement error, validity is not guaranteed. Reliability is characterized as an indicator of an instrument's effectiveness, deemed necessary but insufficient for any form of validity (Nunnally, 1967; Peter, 1979). One commonly utilized reliability coefficient is Anne Anastasi wrote in 1976 that Cronbach's alpha is a way to figure out how reliable a test is by looking at how closely the items on it are related on average.

Framework	No of items	Cronbach's Alpha
Customer assistance platform	10	.990
Confidentiality and safety	10	.958
Database supervision system	10	.988
Artificial Intelligence Implementation	10	.990

OBJECTIVE 1: Investigating the association between Artificial Intelligence on Customer Support within the public and private sector banks.

H0: There is no significant difference in the mean performance of the Customer Support System between private and public sector banks.

H1: There is a significant difference in the mean performance.

Group Statistics					
	bank type	N	Mean	Std. Deviation	Std. Error Mean

Custo mer support	1.00	52	4.7115	.82454	.11434
	2.00	54	4.4259	.79151	.10771

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Customer support	Equal variances assumed	1.384	.242	1.820	104	.072	.28561	.15696	-.02565	.59688
	Equal variances not assumed			1.818	103.356	.072	.28561	.15709	-.02592	.59714

Interpretation:

The t-tests evaluate whether there is a significant difference in the means of the two groups (assumed and not assumed equal variances).

In both cases, the p-value (0.072) is greater than the conventional significance level of 0.05, suggesting that there is not enough evidence to reject the null hypothesis of equal means.

The mean difference of 0.28561 indicates the average difference between the two groups in the variable "Customer Support "

The 95% confidence interval provides a range within which we can be 95% confident that the true mean difference lies.

Conclusion:

Based on the output, there is no strong facts to suggest a significant difference in the means of the two groups for the variable " Customer Support " either when assuming or not assuming equal variances. The decision not to reject the null hypothesis is supported by both t-tes

OBJECTIVE 2: Exploring the relationship between Artificial Intelligence implementation and Database Management Systems in public and private sector banks.

H0: There is no relationship between Artificial Intelligence implementation and Database Management Systems in public and private sector banks.

H1: There is a relationship between Artificial Intelligence implementation and Database

Management Systems in public and private sector banks

Correlations

		Data management system	AI Implementation
Data management system	Pearson Correlation	1	.973**
	Sig. (2-tailed)		.000
	N	106	106
AI Implementation	Pearson Correlation	.973**	1
	Sig. (2-tailed)	.000	
	N	106	106

Interpretations

The correlation coefficient between "Data management system" and "AI Implementation" is .973. This value is very close to 1, indicating a strong positive linear relationship between the p-value associated with the correlation coefficient is .000, which is less than the conventional significance level of 0.05. This suggests that the correlation is statistically significant for two variables.

OBJECTIVE 3: Study the differences between Artificial Intelligence on Privacy and Security in the public and private Banking sector.

H0: There is no significant differences between Artificial Intelligence on Privacy and Security in the public and private Banking sector.

Group Statistics

Privacy and security	bank type	N	Mean	Std. Deviation	Std. Error Mean
	1.00	52	4.4231	1.01026	.14010
	2.00	54	4.3704	.99615	.13556

H1: There is a difference between Artificial Intelligence on Privacy and Security in the public and private Banking sector.

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Privacy	Equal variances assumed	.003	.956	.270	104	.787	.05271	.19489	-.33377	.43919

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an d sec uri ty	Equal variances not assumed									

Interpretation:

The t-tests evaluate whether there is a significant difference in the means of the two groups (assumed and not assumed equal variances) for the variable " Privacy and security "

In both cases, the p-value (0.787) is much greater than the conventional significance level of 0.05, suggesting that there is not enough evidence to reject the null hypothesis of equal means.

The mean difference of 0.05271 indicates the average difference between the two groups in the variable " Privacy and security"

The 95% confidence interval provides a range within which we can be 95% confident that the true mean difference lies.

Based on the output, there is no strong evidence to suggest a significant difference in the means of the two groups for the variable " Privacy and security " either when assuming or not assuming equal variances. The decision not to reject the null hypothesis is supported by both t-tests.

FINDINGS

The implication and novelty of this present paper stem from its dedication to meeting the requirements of reliability analysis. The study's results indicate that artificial intelligence significantly influences customer relationships within the banking sector in various advantageous ways. The research elucidates how banks employ artificial intelligence in relationship marketing, showcasing how these institutions can leverage AI to engage with clients on topics such as programmed transactions, bond yields, fees, and more. Due to its user-friendly interface, time-saving capabilities, and convenience for consumers, artificial intelligence proves valuable for banks in diverse customer support management solutions, database management services, as well as isolation and safety applications.

For customers who don't have a lot of money, chatbots, virtual helpers, and Customer Relationship Management (CRM) emerge as optimal choices for obtaining faster responses at a reduced cost and effort. AI-based financial services can enhance user experience, enabling clients to connect with banks, ask questions about products, and gain insights before completing transactions. Customers can feel at ease using banking services, receiving assistance in managing and obtaining advice on spending and saving habits. Access to responsive and prompt services around the clock as of customer care management, as opposite to relying on email or personal advisers, becomes a notable benefit. Banks can firmly uphold the four fundamentals of credibility—honesty, information, standing, and inevitability—to ensure the dependability of their customer services.

Clients can obtain essential information from institutions regarding transactions, deposits in the accounting system, upcoming instalments, credit or debit card history, repayment schedules, and credit limits through messaging. Utilizing artificial intelligence, they can swiftly execute payments on multimedia devices. Banking services have been identified for safeguarding consumers' personal details, ensuring their confidentiality and refraining from sharing information with external websites to uphold security and privacy standards.

Nevertheless, owing to their susceptibility to various intimidation, banks must enforce security manage measures that safeguard message transmission, and authentication processes, as well as ensure confidentiality and privacy.

SUGGESTIONS

- Develop educational programs to inform customers about the integration of AI in banking services.
- Create user-friendly guides or online resources explaining how AI benefits customers and enhances their banking experience.
- Implement virtual assistants to guide customers through various banking processes and answer queries.
- Establish mechanisms for collecting feedback from customers regarding their experiences with AI-driven banking services.
- Conduct training programs for bank staff to enhance their understanding of AI applications.

CONCLUSION

Every day, millions of customers engage in numerous transactions, generating data stored in a sizable database. Traditionally, a significant amount of manual labor was necessary for most banking activities. However, the advent of AI has streamlined these processes, reducing the need for manual intervention on both the employee and customer sides. Previously deemed impossible and complex, these tasks have now become simplified, thanks to Artificial Intelligence (AI). The banking industry has improved relationship management by providing various useful tools that ensure security, convenience, and stability.

It is recommended to integrate such technologies into various business sectors, given their continuous improvement. Utilizing modern technology is crucial for preserving and enhancing security in the financial system, and various segments of the banking industry are ready to embrace the latest innovations. Customers increasingly expect their banks to be innovative in the digital age. Upgrading technology not only elevates service and security levels but also enhances the bank's reputation. Internet and phone banking are particularly appealing to clients due to their efficiency and user-friendliness. Numerous studies highlight the introduction of various models to enhance process accuracy, improving the customer-banking connection and creating a win-win scenario for all parties involved.

In the face of competition from non-banking sectors, banks must adopt the latest and most popular technologies of the modern age to enhance their relationship marketing tactics. Automation has significantly benefited the banking sector, with artificial intelligence techniques proving instrumental in improving the speed and creativity of client banking transactions. Fortunately, AI offers a wide range of applications that enable banks to operate efficiently, ushering in a new era of financial services.

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