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CUSTOMER SATISFACTION AND ADOPTION BARRIERS OF ARTIFICIAL INTELLIGENCE (AI) CHATBOTS IN THE BANKING SECTOR: A COMPREHENSIVE ANALYSIS

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Abstract:

This research paper explores the dual facets of customer satisfaction and the adoption barriers associated with Artificial Intelligence (AI) chatbots in the banking sector. As financial institutions increasingly deploy AI-driven solutions to enhance customer service, understanding the factors that influence user satisfaction becomes crucial. Through a comprehensive analysis involving qualitative and quantitative approaches, the study identifies key drivers of customer satisfaction, including responsiveness, personalization, and ease of use. Simultaneously, it examines significant barriers to adoption, such as technical glitches, the inability to handle complex queries, and security concerns regarding data privacy. The findings reveal that while AI chatbots have the potential to improve customer interactions and operational efficiency, addressing these barriers is essential for maximizing user acceptance and satisfaction. This paper provides actionable insights for banking institutions aiming to optimize their chatbot implementations, thereby fostering a more engaging and secure customer experience in an increasingly digital landscape.

Keywords: *Artificial Intelligence, Chatbots in Banking, AI in Banking.*

Introduction:

Artificial Intelligence (AI) has revolutionized various industries, and the banking sector is no exception. With the increasing integration of AI-driven solutions such as chatbots, robo-advisors, fraud detection systems, and personalized financial services, banks are enhancing efficiency, security, and customer experience. However, the perception of banking consumers towards these AI-powered services plays a crucial role in determining their acceptance and widespread adoption.

Consumer trust, awareness, and satisfaction significantly influence the success of AI implementation in banking. While AI can streamline processes and offer personalized financial recommendations, concerns regarding data privacy, security, and the lack of human interaction remain prevalent among users. Understanding how banking consumers perceive AI-driven services is essential for financial institutions to improve their offerings, address concerns, and foster greater acceptance of AI in banking.

This study aims to explore the perception of banking consumers towards AI in banking services by examining factors such as trust, usability, perceived benefits, and risks. By analyzing consumer attitudes and expectations, the research will provide valuable insights into how banks can optimize AI adoption while ensuring a positive customer experience.

The rapid advancements in Artificial Intelligence (AI) have transformed various industries, with the banking sector being one of the most significantly impacted. AI-powered technologies such as chatbots, robo-advisors, fraud detection systems, automated loan processing, and personalized financial recommendations have redefined the way banks interact with their customers.

These innovations promise increased efficiency, cost savings, and enhanced customer experience. However, despite these benefits, consumer perception plays a crucial role in the adoption and success of AI in banking services.

Consumer perception towards AI in banking is influenced by several factors, including trust, usability, security, transparency, and ethical concerns. While AI enhances banking efficiency by providing 24/7 customer support, reducing human errors, and offering data-driven insights, some consumers remain sceptical about its reliability, accuracy, and potential risks. Concerns such as data privacy breaches, algorithmic biases, and the lack of human empathy in AI-driven interactions raise questions about whether AI can truly replace human touch in banking services. Additionally, demographic factors such as age, education level, and technological familiarity may also shape consumer attitudes toward AI in banking.

Understanding these perceptions is critical for financial institutions aiming to implement AI effectively. If banks fail to address consumer concerns, AI adoption may face resistance, leading to reduced customer satisfaction and trust. On the other hand, if AI is deployed with transparency, ethical considerations, and consumer-centric designs, it can significantly improve the banking experience, making transactions more secure, efficient, and personalized.

This study aims to explore the perception of banking consumers towards AI-driven services, examining key factors such as trust, perceived benefits, risks, and overall acceptance. By analysing consumer attitudes and expectations, this research will provide valuable insights into how banks can enhance AI adoption while ensuring a positive and secure customer experience.

The Indian banking sector has witnessed a significant transformation with the adoption of Artificial Intelligence (AI)-powered services. With a rapidly growing digital economy and increased penetration of internet banking, AI applications such as chatbots, robo-advisors, automated loan approvals, fraud detection systems, and personalized financial recommendations have become an integral part of banking services in India. Leading banks, including the State Bank of India (SBI), HDFC Bank, ICICI Bank, and Axis Bank, have already integrated AI-driven solutions to enhance customer experience, improve operational efficiency, and strengthen security. However, the perception of banking consumers towards AI-driven services varies across different demographic and socio-economic segments.

India's diverse population presents unique challenges and opportunities for AI adoption in banking. While urban and tech-savvy consumers are more receptive to AI-driven banking, rural and semi-urban customers often exhibit skepticism due to factors such as low digital literacy, lack of awareness, and concerns regarding data privacy. Additionally, trust in AI-based financial decision-making remains a critical issue, as Indian consumers traditionally prefer human interaction for banking services, especially in areas like loans, investments, and financial planning.

Another key factor shaping consumer perception is security and privacy. With rising incidents of cyber fraud and data breaches in India, many consumers question whether AI-driven systems can ensure the safety of their personal and financial information. Regulatory bodies like the Reserve Bank of India (RBI) have introduced guidelines to enhance digital security, but consumer trust in AI-based banking solutions still needs to be strengthened.

Despite these concerns, the increasing reliance on digital banking, government initiatives such as **Digital India**, and the rise of fintech start-ups have paved the way for greater AI adoption. AI-powered banking services are making financial transactions more efficient, reducing paperwork, and offering personalized customer support. As India moves

towards a more digitized financial ecosystem, understanding consumer perception of AI in banking becomes crucial for ensuring successful AI implementation.

Review of Literature:

1. Sharma, S., & Kumar, M. (2017). According to the researcher, banking is a customer-focused service sector, and because of the fierce competition, client satisfaction has emerged as the most crucial component of any banking operation. Banks are more committed to keeping their current clientele by offering high-quality services that result in client satisfaction. The shift from conventional to contemporary banking has resulted in major changes to the concepts and factors that determine customer satisfaction. Examining the literature on customer satisfaction in the banking sector provided evidence of this. Based on a thorough study of the literature, this paper looks into how the ideas and factors that determine customer satisfaction have evolved over time as banking has moved from conventional to modern. The study's conclusions will offer valuable insight into historical customer satisfaction patterns and serve as a foundation for bank management to develop customer satisfaction plans in the near future.

2. Gupta, A., Hathwar, D., & Vijayakumar, A. (2020). According to the researcher, chatbots are computer programs that comprehend and process natural language. In addition to helping users with activities like finding the closest restaurant or booking a movie ticket, chatbots can also be a source of entertainment, play a significant part in home automation projects, offer advice on company strategy, and assist in other ways. We shall explain the definition of a chatbot and its various varieties in this paper. We also suggest a classification based on requirements, usability, and current market trends. AI chatbots are designed to behave like genuine ones rather than being "know-it-all" bots. Unlike other AI tools, chatbots will be used to improve human talents, allowing people to be more creative and take calculated risks.

3. Misra D. J., (2017). The Researcher has made an effort to address every aspect of establishing an information system for banks. The Core Banking System (also known as CBS concept, implementation methods, information system legal frameworks, standards for CBS adoption, security and safety measures, security policies, procedures, etc., have all been covered in this book. The Core Banking System, or CBS, is designed for the convenience of the entire bank, not just its branches. This type of centralized system generates data so that anyone can access it and use it to promptly serve clients.

4. Battineni et al., (2020). The study's researchers noticed that Arogya Setu, the chatbot created during the pandemic, was created with the help of a team of highly qualified medical professionals. Many people have benefited from our chatbots virtual assistance when they need a doctor. By providing mental and psychological support, reports on new instances in the area, and strategies to combat COVID-19, the Arogya Setu assisted the public. To provide moral support, a medical staff kept in constant contact with afflicted individuals. According to the study, AI chatbots have been very helpful to distant individuals who don't have access to information.

5. Skjuve et al., (2021). Human companion relationships, or HCR, were the subject of the researcher's investigation. For the study, the researcher conducted interviews with eighteen people. The social penetration model, which discusses how people interact socially with artificial chatbots, served as the foundation for the study. The study describes how individuals share their

sentiments, behavioural problems, and social challenges with chatbots and how this influences their decisions in a good way.

6. Sidaoui et al., (2020). The Researcher concluded that, Traditional interviews, surveys, and chatbot interviews were the three methods the researcher used to get information from the client. The information was analysed to see how well an AI chatbot worked for customers and how well it affected their opinions. Improvements in sentiment analysis and customer experience have been found to require more research.

Objectives:

1. To study the awareness of Artificial Intelligence (AI) Chatbots among bank customers.
2. To analyse the Challenges of Artificial Intelligence (AI) Chatbots in banking services.

Hypotheses:

1. Hypothesis 1

H0: There is no significance difference between the awareness of customers on (AI) Chatbot and Age.

Analysis and Interpretation:

H1: There is a significance difference between the awareness of customers on (AI) Chatbot and Age.

Methodology:

The Methodology refers to the process and design of conducting the study about a particular topic and concluding the answer to a specific question. The current Research employs Quantitative Research method. Primary method of data collection is employed in this proposed study. Structured Questionnaire was framed to collect the Data from customers of Banks.

Primary Data:

The data is collected from the Primary source through survey method, a structured questionnaire was framed

Sampling Element:

Individuals which includes consumers of Banks using Bank Application.

Sample Size: 59

Sampling Method:

Snowball Sampling Method

Statistical Technique:

 Non- Probability Purposive sampling. SPSS is used for Data Analysis.

Source to Know about AI Chatbot Facility

		AI Chatbots facility Banks	AI Chatbots facility Friends	AI Chatbots facility Relatives	AI Chatbots facility Mail notifications from banks	AI Chatbots facility Text messages from banks	AI Chatbots facility Advertisement on T.V.	AI Chatbots facility News Paper	AI Chatbots facility Banks website	AI Chatbots facility Mobile bank application
N	Valid	59	59	59	59	59	59	59	59	59
	Missing	0	0	0	0	0	0	0	0	0
Mean		3.24	3.31	2.75	3.05	3.19	3.15	3.03	3.34	3.41
Median		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Std. Deviation		1.006	.969	.958	.936	.900	.979	.890	.921	.853
Source Ranking			3rd						2nd	1st

From the above table it can be stated that, out of many sources to know about AI chatbot facility. The Mobile Banking Application, Banks Website and information from friends are the main sources to know about AI Chatbot facility, Ranking first, second and Third.

Kruskal-Wallis test result showing comparison between age and level of awareness

	Level of Awareness You are aware that AI Chatbot is a kind of virtual assistance developed for customers	Level of Awareness Your Bank provide AI Chatbot Facility	Level of Awareness You are aware about the ways to connect Chatbot
Chi-Square	4.927	2.245	3.164
df	2	2	2
Asymp. Sig.	.000	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: Age

As per the above table, the p-value for the Kruskal-Wallis test is less than that of 0.05 indicates that there is significance of difference between average score of awareness for individual and overall awareness when compared between different age groups. Therefore, rejecting null and be stated that there is significance difference between the levels of awareness of customers on (AI) Chatbot services in the bank when compared with age.

Challenges and Problems faced by Customers in using Chatbot AI

		often struggle to comprehend complex banking terms and jargon used by AI chatbots.	lack of personalized interactions with AI chatbots leaves customers feeling disconnected from their banking inquiries.	AI chatbots frequently provide inaccurate or unreliable information	Security concerns arise as customers hesitate to share sensitive banking information with AI chatbots	Communication breakdowns occur due to regional accents or variations in language that AI chatbots struggle to understand	The absence of human touch and empathy in interactions with AI chatbots affects the overall customer experience	AI chatbots often fail to address complex banking issues that require human intervention or specialized expertise	Inconsistencies in the accuracy and reliability of information provided by AI chatbots	Limited support for multi-language interactions poses communication barriers	Technical glitches and downtime of AI chatbot services impact the availability and reliability of customer support
N	Valid	59	59	59	59	59	59	59	59	59	59
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		2.88	3.08	2.81	3.05	2.80	3.00	3.15	2.90	2.98	3.19
Median		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Range		4	4	4	4	4	4	4	4	4	4
Percentage %					3rd			2nd			1st

Source: Data generated from SPSS

The above data, states about the various problems faced by the customers. From the calculated mean scores, it can be stated that consumers faced many problems out of those three important problems listed down. Technical glitch and downtime of AI chatbot service has a mean score of 3.19 and is Ranked First. The AI Chatbot fail to address complex banking has a mean score of 3.15 and is ranked second. Security concerns arise as customers hesitate to share sensitive e- banking information with AI Chatbot, ranking third.

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Conclusions and Suggestion:

In conclusion, the integration of AI chatbots in the banking sector has the potential to significantly enhance customer satisfaction by providing efficient, round-the-clock support and personalized interactions. However, the successful adoption of these technologies is hindered by several barriers, including concerns about data privacy, the complexity of chatbot interfaces, and the lack of human-like understanding in responses.

To overcome these challenges, financial institutions must prioritize user-centric design, ensuring that chatbots are intuitive and capable of addressing customer needs effectively. Additionally, transparency about data usage and robust security measures can help alleviate customer concerns regarding privacy.

Ultimately, fostering a positive relationship between customers and AI chatbots will require ongoing evaluation and adaptation of these technologies, ensuring they evolve alongside customer expectations and technological advancements. By addressing these barriers, banks can enhance customer satisfaction and fully harness the benefits of AI-driven solutions.

The Research also focus on the problem stated in analysis and also suggest the solution to the problem which are implementing a robust infrastructure and regular maintenance schedules to minimize downtime. Additionally, establish a failover system that seamlessly redirects users to alternative support channels, such as live chat or phone support, during outages. Regular testing and updates can also enhance system reliability. Incorporating a hybrid model that seamlessly transitions customers from AI chatbots to human agents when complex issues arise. Training chatbots with advanced natural language processing (NLP) can improve their ability to recognize when an issue requires human intervention, ensuring customers receive the support they need. Enhancing security measures by implementing end-to-end encryption for all communications between customers and chatbots. Educating customers about data protection practices and providing clear information on how their data is used can build trust. Additionally, offering authentication features, such as biometric verification, can reassure customers when sharing sensitive information.

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