Role of Artificial Intelligence in FINTECH and its Impact in Banking Sector

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Abstract— Artificial intelligence (AI) is the act of instructing a computer, robot, or other object to behave in a smart human way. AI is the study of how the human mind works, how it learns, how it makes decisions, and how it provides outputs. This study is dealing with the idea of AI in the banking system, how it has changed banking, and how it influence human labor. We all are aware that humans make mistakes, but as technology evolves, there is a lack of talented employees to control automation. Certain process and manual tasks that were formerly undertaken by individuals are being replaced by automated machines powered by technology. AI helps banks manage high-speed, record-level data and get valuable insights. This report provides an overview of current AI applications in the banking industry and how they are changing the nature of banking in India. The banking sector is making considerable transformation at a fast rate. Since AI in banking apps isn't only used in retail banking, banks may use it to provide frictionless, 24/7 interactions with customers. All other banking markets, including backend and mid office of investment banking, may benefit from AI.

Keywords: Artificial Intelligence (AI), Banking Sector, Customer Interaction, Machine Learning.

1. Introduction

Artificial Intelligence is a computing idea that facilitates a system suppose and resolve complicated issues as we people do with our intelligence [1]. For example, we carry out a task, make errors and research from our errors. Likewise, an AI or AI is meant to paintings on a hassle, make a few errors in fixing the hassle and research from the issues in a self-correcting way as part of its self-improvement [2]. AI is a manner of creating a computer, a computer-managed robot, or a software program suppose intelligently, with inside the comparable way the clever people suppose. AI is completed with the aid of using reading how human mind thinks, and the way people research, decide, and paintings whilst looking to resolve a hassle, after which the use of the effects of this take a look at as a foundation of growing clever software program and systems [3].

AI is evolving on rapid pace. Financial groups are already the usage of AI technology to perceive fraud and uncommon transactions, customize client service, assist make selections on creditworthiness, the usage of herbal language processing on textual content documents, and for cyber security and preferred threat management [4]. Over the beyond decades, banks had been enhancing their strategies of interacting with customers. They have tailor-made current era to the unique person in their work [5]. As an example, with inside the 1960s, the primary ATMs have been installed, and ten years later, there have been already playing cards for doing transactions and payment [6]. At the start of this century, customers discovered approximately round the clock on-line banking, and in yr 2010, they heard approximately cellular banking. But the improvement of the economic device didn't forestall here, because the virtual age is beginning up new opportunities — the usage of AI in banking and economic institutions [7]. By 2023, banks are projected to shop approximately $447 billion with the aid of using growing and enforcing AI applications [8].

AI brings the benefit of digitization to banks and facilitates them meet the opposition posed through FinTech players [9]. In fact, approximately 32% of economic provider companies are already the usage of AI technology like Predictive Analytics, Voice Recognition, amongst others, in line with joint studies performed through the National Business Research Institute and Narrative Science [10]. AI is the destiny of banking because it brings the strength of superior statistics analytics to fight fraudulent transactions and enhance compliance. AI set of rules accomplishes anti-cash laundering sports in few seconds, which in any other case take hours and days [11]. AI additionally allows banks to manipulate massive volumes of statistics at file velocity to derive treasured insights from it. Features which include AI bots, virtual charge advisers and biometric fraud detection mechanisms result in better high-satisfactory of offerings to a much wider purchaser base. All this interprets to extended revenue, decreased fees and increase in profits [12].

2. Literature Survey

Hu analysed difference among traditional technology intervention and the impact of AI in the field of economics [13]. By applying AI over the bank the average score achieved is 94.33% as compared with the olden methods. Moreover, the efficiency achieved by establishing AI on economic term at bank is higher. Byrum experimented the incorporation of the application of various types of AI technology in the buy-side of financial services and more specifically on the application of AI to financial portfolio management [14]. Also discussed about pros, cons and risks involved in AI technology in portfolio management.

Sadok et al, delivered a detailed description of the use of AI in credit analysis in banking sectors [15]. Credit risk is the risk of default on a debt that may arise from a borrower failing to make required payments. The risk of the lender includes lost principal and interest, disruption to cash flows, and increased collection costs. The loss may be complete or partial. Typically, a higher level of credit risk will be associated with higher borrowing costs hence minimizing the business. Here the presence of AI helps to maximize credit disbursement for higher revenues, Minimize losses by mitigating Credit Default Risk, Minimize banks losses & impact due to Concentration Risk and Increasing profitability with accurate estimations of Credit Losses. The trends of AI applied in business and economics research are analysed by Ruiz et al. [16].

A bibliometric evaluation was made with the help of online databases like Scopus and Web of Science to ensure the impact of AI. The research focuses on present trends as well as the future scope of AI in economics and business. Vipra J examines significant developments in the use of AI in India's fintech Industry [17]. And it investigates the possible risks relating to the application of AI to financial services and products and offers a series of options to improve as well as it makes a decision. Ambika et al. evaluate the usage of AI on private banks in Bangalore [18]. Customer satisfaction is the major concern in this research and the data was acquired from the various private bank customers in that city. From the analysis, it came to be observed that digital payments are used for bill payments, transactions, loan payments etc using AI efficiently.

Mahfuzur Rahman et al, aims to learn the value and difficulty of using AI in Malaysia's banking system and to study at the elements that are significant in affecting customer' desires to use AI in banking services by Qualitative and Quantitative analysis using with the software of Smart PLS [19]. Yomna Abdulla et al, analyze the use of AI, one of the reducing technologies, in Bahraini banks. We conclude that even a limited banking sector used the AI applications, with chatbots and RPA being the most frequently utilized applications [20]. Malali, A. B., & Gopalakrishnan, S learn the nature of AI platforms in the financial sector and how it is growth plan as a major innovator by looking closely at the more major challenges in this field of work [21]. Mhlanga, D understanding why artificial intelligence may impact the success of the Sustainable Development, this study studied how aim 1 on reducing poverty and goals 9 on new sector, creativity, and connectivity in emerging nations [22]. The findings showed that artificial intelligence is transforming agriculture education and the banking sector through financial inclusion, as well as boosting the collecting of data on poverty through poverty maps.

Vinuesa et al., found across all aims, AI can help the fulfillment of 134 tasks, but it can also restrict the achievement of 59 goals. But, research study focuses miss critical factors. In order to support AI's quick progress and promote growth, legal control and research are needed [23]. Lack to do so can contribute to failures in honesty, privacy, and ethics. Lien, N. et al, focuses on comprehending fintech and applying it to the Vietnamese banking industry. And has made significant progress by identifying the elements that affect consumers' intention to use fintech services [24]. Therefore, perceived usefulness (PU), social impact (SI), customer trust (TRU), and perceived ease of use (PEU) all have a positive impact on the intention to utilise fintech (INT) services (PEU).

Khan et al. to address artificial intelligence-based access control systems as a crucial element of managing and protecting the information assets of the financial industry in the Gulf Cooperation Council (GCC) region [25]. Organizations that use web-enabled remote access in conjunction with applications that are distributed over many networks confront a number of challenges because of the dynamic and complex nature of security rules for access control, including increased operational complexity and issues with monitoring. Makhija, P., Chacko, E., et al, contributes research article helps raise the importance of financial independence and financial literacy for today's young [26]. The study also emphasizes the significance of government involvement in promoting financial literacy and raising awareness of youth and women's wellbeing on a worldwide scale.

Chinthapalli et al. shows that the most popular combinations of different hybrids and AI applied to the SM are those, and

many other forms of study are new attempts to anticipate future SM movements and values [27]. This strategy, which considers all equities and is less risky than the base, produces an annual earning rate of about 20%. The analysis also showed that Bahrain's Central Bank has granted the digitalization in banks major priority [28], that means the future technology advance and integration in banks would happen very soon.

3. Artificial Intelligence

AI have some advantages and disadvantages in financial and banking sector [29].

Advantages of AI

- Takes risks instead of Humans
- Digital Assistance
- Available 24x7
- Reduction in Human Error
- Allowing for quicker decisions.
- Helping in Repetitive Jobs

Disadvantages of the AI

- Makes Human Lazy
- To create Unemployment
- It has no emotions
- Lacking Out of Box Thinking
- High Costs of Creation

4. Objective of the Study

- ➢ To examine the effects of AI technology on financial services.
- ➢ To investigate the various applications of AI techniques in private banks and to explore how it helps in the quality of customer care.
- ➢ To understand the idea of AI and its use in financial issues.

HYPOTHESIS:

Null Hypothesis: There is a no significant relationship between the age and overall satisfaction of AI technology on financial services.

Alternative Hypothesis: There is a significant relationship between the age and overall satisfaction of AI technology on financial services.

5. Research Model

The research model of this analysis is based on the various role of AI in banking and most of the financial sectors [30-37]. Figure 1 shows the variables depends on AI.

Research Methodology

A total of 20 participants were interviewed and investigated for information on the use of AI in the banking sector. The customers belonging to Karur Vysya Bank Ltd. and Union Bank of India located in Krishnankoil, Tamilnadu, near the Kalasalingam Academy of Research and Education were used in this research. AI aids with the effective and easy usage of online and mobile banking applications.

A comprehensive questionnaire was designed and utilized to provide an overall global picture of AI during, before, and after the epidemic, and a sample was questioned via selected group. The intention of this study was to learn more about customers' online banking preferences, as well as their perceptions of their lifestyles in response to AI implementation, including its necessity, benefits, and scope.

Figure 1. Variables depends on AI

Table 1 depict the number of male and female customers involved in the review process. The dissection of the gender is illustrated in Figure 2. The male and female respondents were 72% and 28% respectively.

Table 1. Gender of Respondents

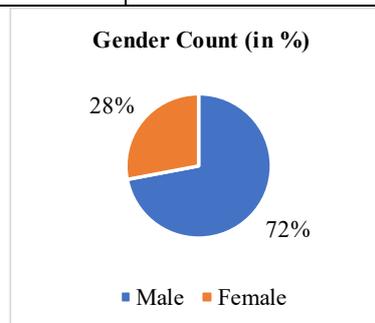| Gender	Total Sample (%)
Male	72%
Female	28%

Figure 2. Gender Count

Table 2 illustrates the number of age wise customers involved in the review process. The age analysis is show in Figure 3.

Table 2. Age Group of Respondents

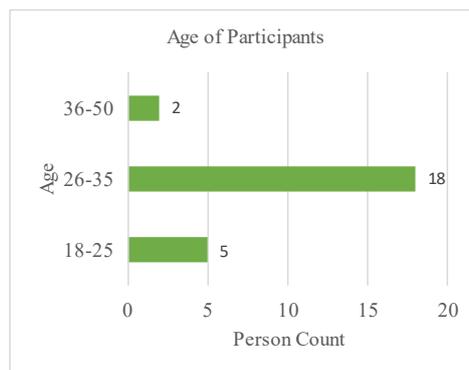| Age Group	Total sample (%)
Upto 20	10%
21-30	40%
30-34	35%
Above 35	15%

Figure 3. Participants Age

Table 3 shows the customers with various qualifications used in the review on AI technology in banking transaction process and its pictorial representation is portrayed in Figure 4.

Table 3 Qualification of Respondents

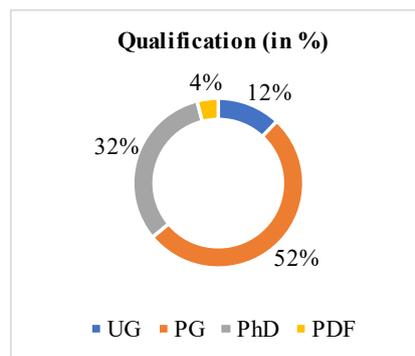| Qualification	Sample Size
UG	12%
PG	52%
PHD	32%
PDF	4%

Figure 4. Respondents Qualification

Table 4 explain the respondents internet usage frequency in year wise and the same is exemplified in Figure 5.

Table 4. General usage of the internet by the Respondents

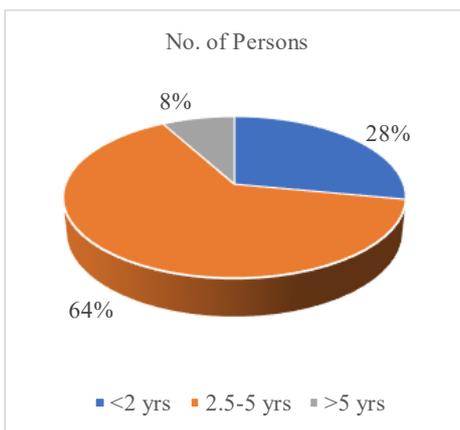| Amount of internet usage	Respondents (in%)
<2 yrs	10%
2-5 yrs	40%
5-10 yrs	40%
>10 yrs	10%

Figure 5. No of Persons using Internet

Table 5 give details about the AI technology application for the various payment activities like EB, Recharge, DTH, and etc. and is revealed in Figure 6.

Table 5 AI technology using for Payments (EB, Recharge, DTH)

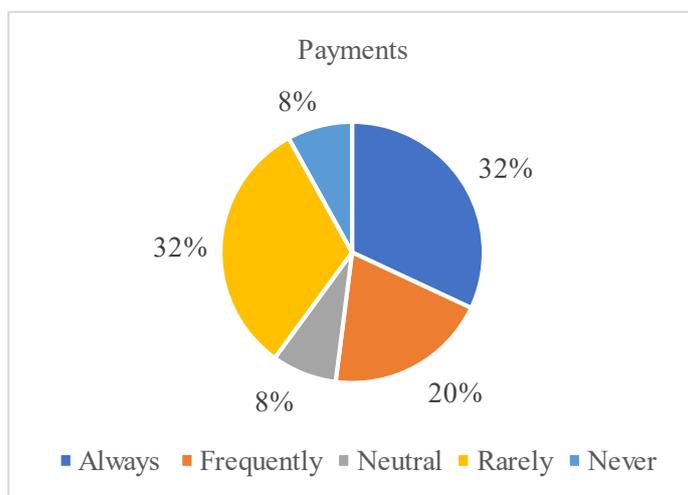| Using AI for Payments	Respondents (in%)
Always	30%
Frequently	25%
Neutral	10%
Rarely	30%
Never	5%

Figure 6. AI using Level for Payments

Table 6 delivers the customers response about the security, confidentiality and privacy during every transaction made by them using AI technology and the overall response is exposed in Figure 7.

Table 6 Belief on AI during every transaction

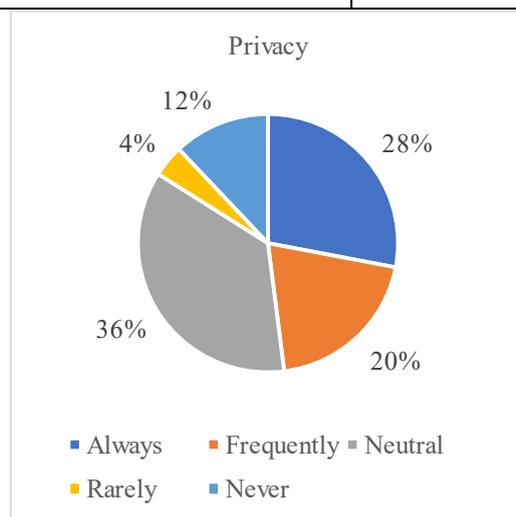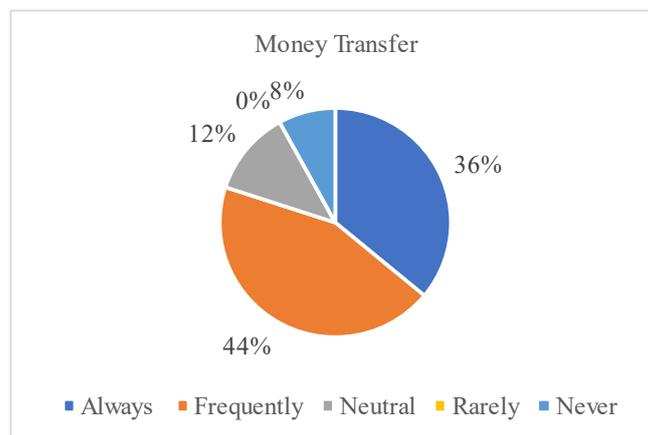| Belief on AI during every transaction	Respondents (in%)
Always	30%
Frequently	15%
Neutral	40%
Rarely	5%
Never	10%

Figure 7. AI Security Level

The customer satisfaction is noted from customers from both the banks regarding the involvement of AI on banking operations and is described in Table 7. The number of customers satisfaction count is rendered in Figure 8.

Table 7 Overall satisfaction for the AI usage

Overall Satisfaction	Respondents (in%)
Strongly Satisfied	25%
Satisfied	60%
Neutral	15%

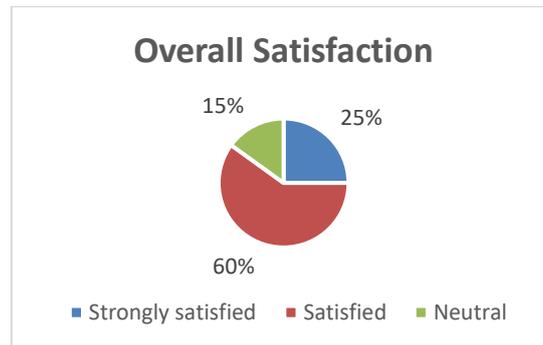| Dissatisfied	0%
Strongly dissatisfied	0%

Figure 8. AI usage overall satisfaction

Table 8 provides the performance level of financial sector after the implication of AI. The performance level mentioned by the customers is shown in Figure 9.

Table 8 AI performance level in the financial sector

Performance Level	Respondents (in%)
V. Good	40%
Good	25%
Fare	20%
Poor	10%
V. Poor	5%
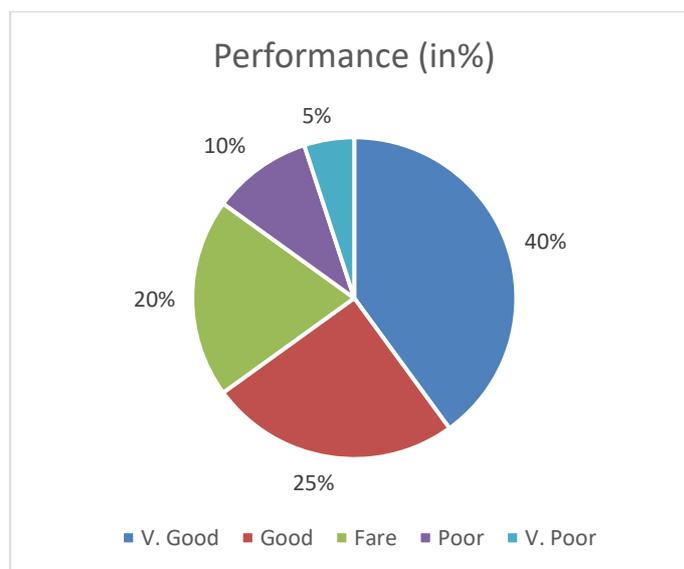
Figure 9. Performance of AI in financial sector

Correlations

		Age of the Respondent	Over All Satisfaction
Age of the Respondent	Pearson Correlation	1	.218
	Sig. (2-tailed)		.355
	N	20	20
Over All Satisfaction	Pearson Correlation	.218	1
	Sig. (2-tailed)	.355	
	N	20	20

Table 9. Correlation Between Age and Overall Satisfaction

Correlations

		Using for Money Transfer	Over All Satisfaction
Using for Money Transfer	Pearson Correlation	1	-.488[*]
	Sig. (2-tailed)		.029
	N	20	20
Over All Satisfaction	Pearson Correlation	-.488[*]	1
	Sig. (2-tailed)	.029	
	N	20	20

*. Correlation is significant at the 0.05 level (2-tailed).

Table 10. Correlation between Money Transfer and Overall satisfaction

6. Results

There is no statical data to prove the alternative hypotheses, so we go with null hypotheses and there is no relationship between overall satisfaction to age. In our statical correlation analysis we find there is no statical data to prove the age factor influence the overall satisfaction.

7. Conclusion

AI offers many benefits for the banking sector. In India's banking sector, AI is transforming company procedures and customer administrations. It's also being used to maintain administrative accuracy, identify fraud, and analyze actual economic soundness. AI can be used to create better business strategies, deliver a personalized experience, and help with long-term goals, such as financial consideration. There is no denying that the continuing push toward digitalization is creating a major effect on traditional banking models. Banks have changed a lot in adopting AI-enabled technologies. Since AI's ability to manage standard and time-consuming activities that are subject to error, the number of banks using AI is going to increase. Betting big on AI is expected to hit $ 41.1 billion in 2018 and $ 300 billion by 2030, according to an analysis by Information Handling Services Markit.

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