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Impact Of AI-Based Security Systems On Customer Satisfaction And Engagement Of Fintech-Based Companies

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Abstract

The study aimed a) to evaluate the influence of AI-based security systems on customer trust and perception of safety in fintech services, b) to analyze the impact of AI-driven security features on customer satisfaction levels in fintech-based companies, and c) to explore the correlation between AI-based security measures and customer retention rates in fintech companies. The study aimed at consumers of fintech firms and was undertaken in the Delhi NCR region with a stratified random sampling method to get respondents. The target population consists of 200 participants for the study. The study is descriptive and experimental. Primary data is gathered employing a questionnaire and secondary data is collected from journals, books, articles, reports, etc. Data collected are analyzed using statistical tools including the use of frequency tables, mean, standard deviations, correlation, and regression by use of MS Excel and SPSS. The findings underlined how AI-based security systems transform the essential elements of customer satisfaction and engagement in fintech companies. Also, it has been found that there is a moderate positive relationship between the usage of advanced safety techniques based on AI and the customers' retention percentages, which confirms the role of these remedies in creating customer satisfaction, engagement, and loyalty.

Keywords: Artificial Intelligence (AI), Customer Satisfaction, Customer Engagement, Customer Relationship Management (CRM), and FinTech Companies.

1. Introduction

The success of each business hinges on customer satisfaction. In the initial stages of an organization, customers are prioritized before profit. Companies that excel in fully addressing customer requirements will maintain a leading position in the industry. Contemporary enterprises recognize that customer happiness is a crucial element for corporate success and significantly contributes to enhancing market value. Customers are individuals who purchase goods and services from the market or company to satisfy their needs and desires (Khadka & Maharjan, 2017). Customers acquire things to fulfil their financial expectations. Consequently, corporations must establish their price based on the product's quality that appeals to customers and fosters long-term loyalty.

The company must ensure that they deliver comprehensive services commensurate with their financial worth. This will augment the consumer base and sustain the long-term relationship between the customer and the business. Existing customers will assist in attracting new clientele by disseminating data regarding the business's products and services. Satisfaction refers to the state of feeling content following the fulfilment of one's desires or wants. Determining consumer satisfaction with the availability of products or services is challenging (Nagel & Cilliers, 1990). Ensuring customer satisfaction is a complex endeavor since several factors must be considered. Currently, the rivalry is evident throughout commercial organizations and markets universally, presenting a significant challenge for rivals. Despite the challenges in the expanding business, rivals are adeptly enhancing their marketing methods.

To capture the customer's attention, it is essential to offer superior and advantageous items in this competitive industry. If customer satisfaction is attained, customer engagement will inevitably follow. Customer engagement refers to the mechanisms by which a customer enhances the firm's value, either via direct or indirect contributions (Gupta et al., 2018). Engaged consumers are more inclined to exhibit brand loyalty, make repeat purchases, and promote the business through favorable word-of-mouth. Furthermore, without the consumer, a commercial organization would not be viable. Enhancing customer satisfaction is crucial for increasing the consumer base. These two concepts are crucial for attaining corporate objectives (Hanif, et al., 2010). Consequently, the connection between customers and the corporate organization or market is paramount.

A principal problem fintech organizations have in attaining customer satisfaction and engagement initiatives is the necessity for technology infrastructure and expertise. Traditional customer relationship management (CRM) solutions might be expensive and intricate, rendering them unattainable for several smaller enterprises (Chen & Popovich, 2003). Nonetheless, improvements in artificial intelligence (AI) and machine learning have created new opportunities for fintech firms to improve their CRM capabilities at a reduced cost. AI-driven CRM systems have several benefits, including as the automation of repetitive chores, predictive analytics, and tailored customer interactions, which may markedly improve customer engagement (Mogaji, et al., 2020).

The integration of AI technology in CRM is especially advantageous for fintech firms, enabling them to compete more equitably with larger corporations. AI-driven solutions, such as chatbots, engineered recommendations, and sentiment analysis, enable fintech organizations to offer customized and efficient customer support (Huang & Rust, 2018). These technologies enhance operational efficiency and allow organizations to comprehend and predict consumer demands more effectively, resulting in increased customer satisfaction and engagement (Kumar et al., 2019). Notwithstanding the evident advantages, the deployment of AI-driven CRM solutions presents several challenges. FinTech companies must surmount challenges like substantial initial expenses, integration challenges, and the necessity for specialized expertise to efficiently utilize these technologies (Mithas, et al., 2005). Furthermore, the swiftly developing landscape of AI necessitates that firms consistently revise their systems and procedures to maintain competitiveness. Consequently, fintech companies must implement a strategic methodology for the incorporation of AI in CRM, emphasizing scalability and enduring sustainability (Rust & Huang, 2014).

Consequently, customer satisfaction and engagement are essential for the success of fintech companies in the current competitive landscape. The incorporation of AI-driven solutions provides a feasible avenue for fintech firms to improve their CRM functionalities, yielding substantial advantages in customized customer engagement, operational efficiency, and predictive modelling (Devta, 2016).

Nonetheless, fintech companies must address the challenges linked to AI adoption to fully attain these advantages. By implementing a strategic framework and investing in requisite infrastructure and expertise, fintech companies may utilize AI-driven CRM solutions to enhance relationships with customers, elevate customer engagement, and promote sustainable business growth.

The study examines how there is a need to determine the impact of AI-based security systems on customer experience in firms operating in the fintech industry. Since more and more centralized financial transactions take place online, enhancing an AI-based security layer makes the perceived trust, as well as provides data privacy to the companies as well as customers based on their interactions with the company, is vital when discoursing customer retention and overall organizational effectiveness for growth.

The study is divided into seven sections. Section 1 comprises the introduction of the study. A literature review is then presented in section 2. Section 3 delineates the objectives of the investigation. The research methodology was examined in Section 4. The empirical results have been provided in detail in section 5. It has been succeeded by findings and discussion of the results in section 6. Section 7 contains conclusions, implications, and suggestions for future research. References have finally been included.

2. Review of Literature

a) Customer Trust and Perception of Safety in Fintech Companies

Financial technology, or Fintech, has been revolutionizing the global financial sector in recent years (Musabegovic, et al., 2019). Fintech services are regarded as technology-driven innovations that offer a variety of financial goods and services to consumers. These services aim to enhance efficiency, speed, and the ease of traditional financial services. Fintech encompasses multi-banking functionalities, blockchain

technology, financial transfer mechanisms, and robotics (Ekaterina, Z. 2021) Advisory and concierge services encompassing payments and financial management, facilitated by mobile app usage (Nayak, et al., 2021). Despite the numerous applications of fintech, there is an inherent danger associated with its utilization. Fintech-based online services can improve a bank's service quality for consumers; yet, the associated danger of cyber-attacks raises concerns over customer trust in such innovations (Nayak, et al., 2021).

Moreover, Fintech is managed by a third party, such as a bank or another authorized organization, which intrinsically fosters confidence between the user and the service provider (Ali, et al., 2021). Furthermore, user trust and dangerous behavior may depend on additional individual variables, like education, gender, and economic level. Similarly, perceived risk may significantly influence user intention toward Fintech adoption (Kim & Sundar, 2014). Nonetheless, the perceived advantages of Fintech may mitigate the risk aspects associated with an individual's usage of technology.

b) Impact of AI-Driven Security Features on Customer Satisfaction

AI possesses substantial potential and opportunities for gaining a competitive edge, although it faces several hurdles. The implementation of AI technology in customer service presents dichotomous difficulties characterized as difficulties and paradoxes. Positively, elements like customization, ease, and anthropomorphism elucidate value co-creation (Jayakumar, 2016). Conversely, technology frets as privacy issues, a lack of human interaction, and loss of control contribute to value co-destruction. A customer-centric service ecosystem necessitates the equitable application of AI-driven value co-creation while addressing concerns about value co-destruction (Chen, et al., 2021). The incorporation of AI in cloud security extends beyond threat detection to encompass automatic response measures, since AI may execute numerous actions, such as isolating vulnerable systems, blocking malicious IP addresses, or cancelling access to compromised accounts. This automation is essential for managing events and mitigating additional harm (Nagar, 2018). AI-driven biometrics can facilitate the personalization and customisation of financial services. Through the analysis of biometric data, FinTech firms may customize their services to align with the distinct demands and tastes of individual consumers. This may result in enhanced consumer satisfaction and loyalty (Gomber, et al., 2018).

c) AI-Based Security Systems and Customer Retention Rates

Churn prediction and customer retention represent significant difficulties in customer relationship management, and predictive analytics provides essential insights for reducing churn risk and enhancing customer retention (Reddy, 2021). Businesses are rapidly utilizing AI to enhance their processes and decision-making, formulate successful strategies, and favourably impact consumer behavior (Dwivedi, et al., 2021). The evolving retail landscape, together with the necessity for instantaneous decision-making, demands robust and flexible AI systems capable of enhancing product performance (Oosthuizen, et al., 2021). Superior quality while enhancing customer retention and stimulating revenue development. Businesses employ AI to cultivate habits like customer retention (CR). Customer retention has emerged as a significant concern for telecommunications firms. Churn incidents result in revenue losses and incur

additional expenses for acquiring new consumers (Walcott, 2016; Adeniran et al., 2021). To address this challenge, they design diverse tactics to keep their customers satisfied. Recognizing the significance of customer experience and its influence on revenue development enables firms to enhance AI use to improve customer experience and achieve sustained business success (Bolton, et al., 2018).

2.1 Research Gap

Extensive research has been done on the topic of how fintech and AI technology improve customer satisfaction and security or help in retaining them. Nevertheless, there is limited research on how these AI-based security applications generate a compound effect on customer satisfaction and interaction with fintech firms. Although the studies underscore the known advantages of AI-driven personalization, threat identification, and customer loyalty, more emphasis is not given to studying the relational impact of perceived trust, technological acceptance, and security on customer behavior. Moreover, more detailed examinations of how the creation of value through AI may help companies while at the same time addressing privacy and trust considerations are still lacking, which is why more focused work in this area is required.

3. Objectives

a) To evaluate the influence of AI-based security systems on customer trust and perception of safety in fintech services.

b) To analyze the impact of AI-driven security features on customer satisfaction levels in fintech-based companies.

c) To explore the correlation between AI-based security measures and customer retention rates in fintech companies.

4. Research Methodology

The study uses mixed methods to assess the effects of AI-based security systems among customers in firms that deal with technological services such as Fintech. The study aimed at consumers of fintech firms and was undertaken in the Delhi NCR region with a stratified random sampling method to get respondents. The target population consists of 200 participants for the study. The research is descriptive and experimental; it will seek to assess the level of trust accorded to the AI security systems by the customers, assess the effects that the use of AI in the security features of the products being studied has on the customers, and determine the relationship between the AI security features and the retention rates of customers. Primary data is gathered employing a questionnaire that provides questions concerning variables of interest such as the usage of AI-based security systems, customer trust, and satisfaction and retention rates. Secondary data is collected from journals, articles, books, reports, etc. Some quantitative research tools are employed for data analysis where information and data collected are analyzed using statistical tools including the use of frequency tables, mean, standard deviations, correlation, and regression by use of MS Excel and SPSS. Consequently, the research methodology guarantees a comprehensive evaluation of customer satisfaction and engagement affected by AI security systems in fintech companies.

5. Results

This section provides a concise summary of the data's findings and interpretation. To categorize the outcomes, the demographic characteristics and objectives have been employed. A table that illustrates the findings and a clarification of those findings have been incorporated into the objectives.

Table 1: Demographic Profile of the Respondents

S.No.	Demographic Characteristics		N	%
1	Gender	Female	96	48%
		Male	104	52%
2	Age Group	Below 25 years	40	20%
		25–34 years	43	21.50%
		35–44 years	36	18%
		45–54 years	43	21.50%
		55 years and above	38	19%
3	Educational Qualification	High School or Below	46	23%
		Bachelor's Degree	37	18.50%
		Master's Degree	65	32.50%
		Professional/Doctorate Degree	52	26%
4	Occupation	Student	41	20.50%
		Self-employed	50	25%
		Salaried Professional	56	28%
		Retired	53	26.50%
5	Monthly Income	Below Rs.20,000	44	22%
		Rs.20,001–Rs.50,000	25	12.50%
		Rs.50,001–Rs.1,00,000	38	19%

		Rs.1,00,001–Rs.2,00,000	39	19.50%
		Above Rs.2,00,000	54	27%
6	**Frequency of Fintech Usage**	Daily	39	19.50%
		Monthly	34	17%
		Never	36	18%
		Rarely	51	25.50%
		Weekly	40	20%
7	**Type of Fintech Services Used**	Investment Platforms	44	22%
		Loan/EMI Services	57	28.50%
		Mobile Wallets	54	27%
		Online Banking	45	22.50%

Demographic characteristics give information about the respondents and their practices related to fintech usage. By gender distribution, the sample is relatively equally divided; 52.0% males and 48.0% females. It is also a rather mixed age group with the highest percentage of the 25-34 years (21.5%) and 45-54 years (21.5%) and others. Results of educational background show that most of the respondents have a master's degree (32.5%) which points to a relatively educated sample.

At the occupational level, 28% are paid employees, 26.5% are retirees and 25% are self-employed respondents. Analysis of income per month reveals a large number of employees; 27% earn over Rs.200000 and 22% earn below Rs.20000.

Structured from the survey results the frequency of using fintech services is rarely 25.5% and weekly users 20%. Loan/EMI services have been found to be used most frequently (both male and female) which is at 28.5%, the second most used is mobile wallets 27%. This analysis samples out diverse biases and underscores income and education to be deciding factors in the uptake of fintech.

Objective 1: To evaluate the influence of AI-based security systems on customer trust and perception of safety in fintech services.

Table 2: Regression Analysis

Objective	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Objective Result
Obj. 1	AI-based security systems > Customer trust and perception of safety	0.312672	0.097764	21.454684	4.631920	0.000	**Supported**

The regression analysis provides a comprehensive statistical approach to the impact of AI-based security systems on the overall customer trust and their perception of safety in Fintech services as depicted in Objective 1. The beta coefficient shows a positive sign, implying that there exists a significant role of AI-based security systems for developing the sense of security among customers. The obtained R^2 value suggests that the total variability in customer trust or perception of safety is accountable to the AI-based security systems. The F value and t-value explain the goodness of the model and the p value ensures that is statistically significant at 0.05 alpha level. It is from these findings that objective 1 is supported, granting acceptance to the role played by artificial intelligence on security in building trust in Fintech services.

Objective 2: To analyze the impact of AI-driven security features on customer satisfaction levels in fintech-based companies.

Table 3: Regression Analysis

Objective	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Objective Result
Obj. 2	AI-driven security features > Customer satisfaction level	0.315981	0.099844	21.961897	4.686352	0.000	**Supported**

The second objective allowed for identifying the influence of AI-driven security features on customer satisfaction in fintech-based companies through regression analysis. The Beta coefficient = 0.315981 which shows a strong positive relation this means that AI-integrated security features can improve customer satisfaction. Of the total variability in customer satisfaction, the R^2 value (0. 099844) was used to show that the AI-driven security features used a moderate impact and manipulated 10% of it. These values of F – ratio (21.961897) and 't' – ratio (4.686352) support the model's soundness and effectiveness for prediction. At the same time, the significance level of p = 0.000 in the observed tests increases the reliability of the results obtained. This emphasizes AI's role as a critical enabler of customer-centric financial technologies.

Objective 3: To explore the correlation between AI-based security measures and customer retention rates in fintech companies.

Table 3: Correlation Analysis

Objective	Factor			Correlation		Objective Result
		Mean	SD	Pearson Correlation (r)	Sig value	
Obj.1	Customer retention rates	16.6150	3.94902	0.374350**	0.000	**Supported**
	AI-based security measures	17.5600	3.81433			
**. Correlation is significant at the 0.01 level (2-tailed).						

The correlation analysis for Objective 3 indicates that there is a strong positive correlation between the level of AI-based security measures implemented and the rate of customer retention in FinTech companies. A moderate positive correlation is seen by the Pearson correlation coefficient of 0.374350; implying that strong AI-related security measures would lead to consumers' satisfaction and retention. This indicates that the computed correlation is statistically significant at the 0.01 level [p = 0.000] which affirms the credibility of the findings. It can also be seen that the customer retention rates and the AI-based security measures are significant security features that play a major role in retaining the company's customer base of satisfied and loyal customers.

6. Findings and Discussion

The findings underlined how AI-based security systems transform the essential elements of customer relations in fintech companies. The impact of AI on security reasons, customer trust, and safety perceptions can be considered as the reason for the variation with a coefficient of 9.8 percent, whereas a positive effect of AI on satisfaction, will have a coefficient of 10 percent. Also, it has been found that there is a moderate positive relationship between the usage of advanced safety techniques based on AI and the customers' retention percentages, which confirms the role of these remedies in creating customer satisfaction, engagement, and loyalty.

The study by (Jayakumar, V. N. 2016) focused on the opposite and values in the context of possibilities in AI utilization in customer service. However, our study aimed at AI security in only the fintech sector where AI security measures for the customer find a positive relationship to a customer's trust, satisfaction, and retention. Overall, both studies consider the role of informational AI in customer experience and their attitudes and trust.

Consequently, although our study examined the effects of adopting AI-based security systems on trust, satisfaction, and retention rates, (Musabegovic, et al., 2019) explored the mediating role of customer trust on the relationship between perceived usefulness, ease of use, data security, and the adoption of fintech services.

The study conducted by, Ekaterina, Z. (2021) was concerned with system, information, and service quality, pinpointing the role of security & privacy in creating trust & positive consumer perception. On the other hand, our study investigated AI-based security systems and their effects on customer trust, satisfaction, and turnover regarding the systems' role in customer engagement.

Although our study employed customer satisfaction, safety, and retention to measure the effects of AI security in fintech companies, Ali, et al., (2021) examined perceived benefits, risks, and trust in Islamic fintech adoption, which considered cultural and geographical differences.

7. Conclusion

In conclusion, the study asserted that AI-based security systems have a significant influence on customer trust, perceived satisfaction, and engagement on the fintech companies. The study has shown that through the usage of AI, security features do change the attitude of the customers towards the system safety and level of trust hence keeping them satisfied which in return can lead to high retention rates. The low positive relationship between AI security measures and customer loyalty shows the relevance of the use of the technologies in nurturing long-term customer relations. The study's findings can be generalized as follows: The increasing importance of financial technology companies makes it crucial for these firms to invest in AI-based security to achieve the needful, on the necessity of which customers are most insistent – trust, customer satisfaction, and customer retention, which act as a thorny shield unto the core of competitive advantage. In the future, scholars should expand on the effect of various AI advancements on customers' views in branches of fintech such as mobile payment, credit, and cryptocurrency. Moreover, future studies on customer behavior in emerging markets can benefit from extending the context under which AI-based security was discussed further and investigating its potential and performance in a global environment.

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