



# The Role Of AI-Powered Security Systems In Enhancing Customer Trust And Engagement On FX Trading Platforms

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## Abstract

The study aimed to examine how artificial intelligence (AI)-powered security systems enhance customer trust and engagement in Forex (FX) Trading platforms, the study also mark the effectiveness of AI technologies in mitigating security threats on FX platforms, and explore the role of AI in ensuring regulatory compliance and transparency, thereby fostering a more secure trading environment. The study used both qualitative and quantitative data. Empirical in nature, the study focuses on the users of trading platforms engaged in Foreign Exchange (FX) dealing in the Delhi NCR region. The study uses descriptive and exploratory research design and provides a target population of 250 respondents. A structured questionnaire is employed as the main source of data collection to address the research questions. The data is analyzed by statistical tools such as MS Excel and SPSS, using mean, S.D., correlation, regression, etc. The study showed that there is a clear positive correlation between the level of incorporation of AI security systems and the level of customer engagement, with AI technologies accounting for an important share of the variation in security threat prevention. Also, the study confirmed the role of AI in compliance and openness, which exhibits a moderate positive relationship between them.

**Keywords:** Artificial Intelligence, Customer Trust, Customer Engagement, Cyber Security, and Forex (FX) Trading Platforms.

## 1. Introduction

The core concept of relationship marketing is cultivating and sustaining enduring relationships with consumers to enhance a company's competitive advantage (Leninkumar, 2017). The customer-firm connection may depend on several factors, including the product or service, staff performance, brand reputation, or the business itself. In addition to these elements, Customer trust is a crucial factor in fostering consumer engagement with the company.

All relationships would fall apart or operate erratically in the absence of trust. Trust is characterized as the degree of reliability provided by one party to another in a certain trade relationship. In marketing, trust is typically associated with customer expectations regarding a firm's ability to fulfill its commitments and uphold its pledges (Nguyen, et al., 2013). These expectations are founded on the firm's expertise, integrity, and altruism. A firm's established reputation serves as a benchmark for customer trust and may also reinstate that trust during a crisis. Furthermore, corporate image is reported to affect trust across several settings, particularly in financial services and e-commerce (Flavian et al., 2005).

Customer engagement refers to the method by which businesses cultivate a continuous relationship with their consumers through significant encounters throughout the customer journey (Thakur, 2016). By nurturing this relationship, businesses may cultivate enduring loyalty and enthusiasm among customers. Artificial intelligence (AI) is a highly potent platform for consumer involvement. Customers ought to utilize AI to interact with firms (Hollebeek et al., 2014). Marketers may utilize artificial intelligence (AI) to enhance the efficiency of intelligent marketing (De Bruyn et al., 2020). An AI-enabled digital platform assists firms in attracting clients (Chawla and Goyal, 2021). The digital revolution has intensified competition in the commercial environment. Artificial intelligence enhances corporate intelligence and performance (Xia & Gong, 2014).

Businesses employ AI to forecast customer behavior as purchasers transition to online shopping platforms for acquiring products and services. AI has been integral to digital transformation, significantly influencing consumer decision-making, and AI technology may be employed to stimulate impulse purchases (Duan et al., 2019). The utilization of AI escalated amid the COVID-19 epidemic and is rapidly revolutionizing digital marketing methodologies. The proliferation of large data facilitates the integration of AI into commercial operations.

International trade in goods, services, and capital is dependent on the FX market, which determines the value of different currencies throughout the world. Additionally, FX is sometimes considered its own asset class. Customers in the foreign exchange (FX) market come from many walks of life, including those in the financial and non-financial sectors (Dwivedi, et al., 2021). The trading actions of these individuals and their engagement with market intermediaries influence the determination of currency rates, affecting nearly all international economic activities. Consequently, the foreign exchange market is the largest financial market globally. Foreign exchange trading volumes significantly exceed global equities market activity.

Pasquinelli elucidates that from the late 1990s onwards, financial mechanisms and digital technology have emerged as pivotal instruments of cognitive capitalism for the exploitation and appropriation of societal value (Kitirianglap, 2018). The predominant trend in capital accumulation is the utilization of AI to enhance industrial processes, communication, and economic operations (Kumar, et al., 2024).

Augmented by advanced AI and machine learning (ML) security features, customer trust and active engagement increase when dealing with FX trading platforms due to the secure nature of their systems. These systems rely on sophisticated formulas to identify abnormal uses, verify users, and protect such important information in genuine time (Moșteanu, 2023). Enhancing safety and reliability through AI-based security encourages enhanced participation by traders on the platform. Apart from that, more specific risk alarms and data encryption contribute to increased satisfaction and consequently better customer loyalty. Customer trust and security are two conspicuous angles that underpin financial trading, making artificial intelligence systems central to sustainable platform development.

The study underscored the need for AI-enabled security solutions to create trust and enhance the interaction and presence of customers on the FX trading platforms. The necessity of implementing safeguards in an environment that is prone to all sorts of cyber-related dangers and frauds is guaranteed by AI-processing methods in the domains of data and transaction security and user identification. They also involve the customer in the buying situation, and since safety has been expanded, customer satisfaction and loyalty will also be increased. The study offers beneficial information for FX platforms to adopt the best approach towards utilizing AI technology as a business weapon for development and existence.

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) Impact of AI-Powered Security Systems on Customer Trust and Engagement

Financial institutions are confronting rising expectations for efficiency and client engagement, with AI serving as a pivotal facilitator of this change (Kasaraneni, 2022). AI-powered chatbots constitute a notable milestone among AI applications, providing an innovative method for automating and improving client interactions. The use of AI in customer service has ignited discussions about its effects on client experiences and the potential diminishment or augmentation of trust (Ahmed, 2024). A further advantage for customers is the technology's capacity to learn from and utilize previously recorded customer information and preferences, thereby affecting consumer brand engagement (McLean, et al., 2021). Individualized and automated communications may assist customers in fulfilling their unique wants, while companies may leverage the advantages of improved service efficiency (Hlee, et al., 2023). "Cognitive, emotional, and behavioral dimensions during brand-related activities" make up the ever-changing psychological landscape that is consumer brand engagement. Automated customer-machine interactions are on the rise, which might provide marketers a new way to connect with consumers (Acikgoz, et al., 2023). AI is transforming banking by enhancing customer engagement and operational efficiency through tailored solutions (Kaluarachchi & Sedera, 2024).

### b) Effectiveness of AI Technologies in Mitigating Security Threats

The escalating security hazards in the digital realm consistently provoke significant apprehensions among individuals, businesses, and governments (Weng & Wu, 2024). The complexity of cyber-attacks necessitates a transition from conventional methods of mitigation to advanced, digital, and strategic approaches, including machine learning and other AI technologies (Kodete, et al., 2024). AI-based systems are often susceptible to several security vulnerabilities along the whole process, from initial data collection and preparation to training, inference, and ultimate deployment (Hu, et al., 2021). AI systems are subject to sensor manipulation and scaling attacks during data collection and pre-processing, poisoning, and malicious attacks during model training and inference, respectively. This integration has increased the vulnerability of Operational Technology (OT) settings to cyber threats, with instances like ransomware attacks and data breaches presenting substantial hazards to vital infrastructure and public safety (Chirra, 2020). The 2020 study by the "Cybersecurity and Infrastructure Security Agency (CISA)" revealed a significant increase in assaults aimed at operational technology (OT) systems, highlighting the critical necessity for specialized cybersecurity measures for these settings (CISA, 2020).

### c) AI's Role in Regulatory Compliance and Transparency

Transparency is a complex notion employed across several professions (Larsson & Heintz, 2020). Recently, it has had a comeback in modern discussions concerning AI. The absence of transparency is a primary difficulty of AI; nevertheless, the notion of transparency may be even more ambiguous than AI itself (Kiseleva, et al., 2022). Trustworthy AI is a comprehensive and systematic framework essential for individuals and society to create, deploy, and utilize AI systems (Wischmeyer, 2020). The statutory, trustworthy, and technical durability pillars form the basis of the framework, which also includes the following requirements: individual responsibility and supervision; technical resilience and safety; transparency; multiculturalism, fairness, and fairness; transparency; accountability; and societal and environmental wellbeing (Díaz-Rodríguez, et al., 2023). AI has the potential to transform compliance and regulatory reporting operations by automating mundane chores, improving data analytic skills, and facilitating predictive modeling (Nimmagadda, 2021). The quantity of firms seeking to create AI systems is rising. The opaque nature of AI systems has generated several ethical concerns. The ethical principles for AI published by three reputable expert committees underscored the need for openness and explainability in the development of AI systems (Balasubramaniam, et al., 2023).

## 2.1 Research Gap

Prior studies investigated the advantages of AI for redefining and improving customer satisfaction, and for protecting against security threats but fewer studies examine exactly how and why AI-assisted systems have those effects in the specific setting of FX trading platforms regarding customer trust and engagement. Other studies described general aspects of financial services, self-service, pro-active communications with users through AI, and ethical issues regarding the transparency of AI, while none of them discussed the specificities of the FX platform which operates in relatively riskier and hence requires more trust and security. In addition, the above literature has paid just scant attention to the relationship between AI-based security procedures and customers' behavioral responses.

## 3. Objectives of the Study

- To examine how AI-powered security systems enhance customer trust and engagement in FX Trading platforms.
- To assess the effectiveness of AI technologies in mitigating security threats on FX platforms.
- To explore the role of AI in ensuring regulatory compliance and transparency, thereby fostering a more secure trading environment.

## 4. Research Methodology

The study uses both qualitative and quantitative data in its endeavor to understand how the use of security technologies such as AI can improve customer trust in FX trading platforms. Empirical in nature, the study focuses on the users of trading platforms engaged in Foreign Exchange (FX) dealing in the Delhi NCR region while using a stratified random sample to guarantee an adequately broad cross-section of participants. The study uses descriptive and exploratory research design and provides a target population of 250 respondents. A structured questionnaire is employed as the main source of data collection to address the research questions with respect to AI security systems, customer trust, and levels of engagement. In the study, secondary data is obtained from academic journals, articles, books, etc. The data is analyzed by statistical tools such as MS Excel and SPSS, using mean, S.D., correlation, regression, etc., This robust research approach guarantees the establishment of methodological completeness in determining the usefulness of AI security systems on the customers.

## 5. Results

This section provides a concise summary of the data's findings and interpretation. Demographic characteristics and objectives were employed to categorize the outcomes. A table that illustrates the findings and clarifies those findings has been incorporated into the objectives.

**Table 1: Demographic Profile of the Respondents**

S. No.	Demographic Characteristics		N	%
1	Gender	Female	107	42.8
		Male	143	57.2
2	Age Group	Below 25 years	45	18.0
		25–34 years	53	21.2
		35–44 years	43	17.2
		45–54 years	60	24.0
		55 years and above	49	19.6
3	Educational Qualification	High School or Below	53	21.2
		Bachelor's Degree	49	19.6
		Master's Degree	83	33.2

		Professional/Doctorate Degree	65	26.0
4	Occupation	Student	53	21.2
		Self-employed	64	25.6
		Salaried Professional	66	26.4
		Retired	67	26.8
5	Monthly Income	Below Rs.20,000	54	21.6
		Rs.20,001–Rs.50,000	31	12.4
		Rs.50,001–Rs.1,00,000	48	19.2
		Rs.1,00,001–Rs.2,00,000	54	21.6
		Above Rs.2,00,000	63	25.2
6	Platform Usage Frequency	Daily	46	18.4
		Monthly	41	16.4
		Never	44	17.6
		Rarely	66	26.4
		Weekly	53	21.2
7	Trading Experience	Beginner	96	38.4
		Intermeiate	69	27.6
		Expert	85	34.0

Several characteristics of respondents indicating demographic nature can be described in table 2. Age distribution according to gender gives a dominant male population with 57.2%. Age is also diverse ranging from 18–68 years with the majority of the participants being between 25–54 years (62.4%). Socio-demographic characteristics reveal that respondents are educated enough; 59.2% of the respondents possess a bachelor's, master's, or a professional or doctorate degree. Employees are almost equally divided and are majorly Salaried (26.4 %) followed by the retired class (26.8 %). The monthly income distribution is also irregular, new 46.8% of the respondents having a monthly income of more than 1 lac. As for frequency, the responses for the platform usage are split down the middle, with the majority of participants (26.4%) reporting 'rarely'. The frequency of trading experience is almost equal, professionals are 38.4% beginners are 34.0% and intermediate 27.6%.

- a) To examine how AI-powered security systems enhance customer trust and engagement in FX Trading platforms.

**Table 2: Regression Analysis**

Objective	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Objective Result
Obj. 1	AI-powered security systems > Customer trust and engagement	0.302842	0.091713	25.142	5.014227	0.000	Supported

The regression analysis in Table 3, reveals that there is a direct relationship between the implementation of AI security systems and customer trust and engagement. Moderately positive is the share of AI security systems on trust and engagement: the beta coefficient equals 0.302842. In other words, based on the obtained R<sup>2</sup> of 0.091713, the percentage of the customer-trust-and-engagement variability that can be attributed to AI security systems is 9.17%. The F-statistic comes out to be 25.142 and the t-value is 5.014227 to show the strength of the model as well as the significance of the predictor. The p-value, which is equal to 0.000, also shows the result is statically significant. The findings of the study, support the objective by indicating that AI-based security measures improved customers' trust and engagement towards FX trading platforms.

- b) To assess the effectiveness of AI technologies in mitigating security threats on FX platforms.

**Table 3: Regression Analysis**

Objective	Regression Weights	Beta Coefficient	R2	F	t-value	p-value	Objective Result
Obj. 1	AI-technologies > Security threats on FX platforms	.310	0.096	26.539	5.151629	0.000	Supported

There is a strong positive relation that exists in the results of the regression analysis concerning the effects of AI technologies and the ability to counter security threats to platforms dealing in FX. The beta coefficient of 0.310 shows a moderate positive relationship between AI technologies and the ability to combat these threats. The R<sup>2</sup> value (0.096) indicates that AI technologies account for 9.6% of the variability in mitigating security threats. The F-statistic calculated as 26.539, and t-statistic (5.151629) prove the efficiency of the model and the importance of the predictor. It is statistically significant at 0.000 affirming the objective that AI technologies are very crucial in mitigating security threats on FX platforms.

- c) To explore the role of AI in ensuring regulatory compliance and transparency, thereby fostering a more secure trading environment.

**Table 4: Paired T-test Analysis**

Objective	Paired Variables	Mean	Standard Deviation	Correlation	t-value	p-value	Objective Result
Obj. 3	AI-technologies	16.1594	3.42790	.336	-1.565422	0.000	Supported
	Regulatory compliance and transparency	16.5777	3.89216				

The paired t-test analysis in Table 4 compares AI technologies and regulatory compliance and transparency for fostering a more secure trading environment. The obtained mean results are high (16.1594 for AI technologies and 16.5777 for regulatory compliance and transparency), which strongly correlates to the relationship between AI technologies and regulatory compliance and transparency. A moderate level of positive correlation (0.336) points to the fact that AI technologies have a large impact on the changes in regulation and transparency. The t-value of (-1.565422) also indicates that the test is very sensitive the p-value of 0.000 indicates that the relationship is statistically significant. All these results validate the objective that the adoption of AI technologies promotes improved regulatory compliance and market transparency in the Forex trading platforms for a more secure environment to operate in.

## 6. Findings and Discussion

The findings underscored why security systems backed by AI are vital to boosting customers' trust and engagement in FX trading platforms. The study showed that there is a clear positive correlation between the level of incorporation of AI security systems and the level of customer engagement, with AI technologies accounting for an important share of the variation in security threat prevention. Regression analysis supports their utility in lowering risks and building trust. Also, the study confirmed the role of AI in compliance and openness, which exhibits a moderate positive relationship between them. In sum, the study proved that AI systems are instrumental in establishing a safe, trustworthy, and transparent trading space for all the participants of the platform.

In the emerging field of AI service robots, Hlee, et al. (2023) examined various functional and emotional factors that affect customers' perception and behaviors in services. In contrast to existing work, our study aimed to investigate the effects of security systems with artificial intelligence features and capabilities on customer trust, customer engagement, and regulatory constraints regarding FX trading. Every aspect of AI's potential is touched upon in both but serves as the highlight to limit of context and still specialized in certain dimensions.

In the framework of compliance and regulatory reporting in banking, Nimmagadda (2021) dealt with AI implementation in terms of automation, anomaly detection, and risk minimization. On the other hand, our study aimed to explore the effects of AI on the trust, engagement, and compliance of customers in the trading of Foreign Exchange platforms. Both focus on the important roles of AI in financial sectors, but one looks more at application-level issues while the other at technological-level issues.

The study by Balasubramaniam, et al. (2023) stressed the need for ethical guidelines, or the lack of opacity, as well as explainability of AI systems at workplaces across industries, they present realistic models for detailing the explainability of requirements. Whereas our study examined how AI can be used to improve customer trust, security issues, and regulatory compliance in the FX trading platforms. Common to both studies are the emphasis on the centrality of AI, but the focus on different applications and frameworks.

Kodete (2024) described ML approaches to promoting cybersecurity with a focus on efficiency, reactive detection, data processing, and recognition of patterns, but there are issues, such as the quality of data and data bias. On the contrary, our study examined the use of artificial intelligence in FX trading security systems that help in increasing customer confidence, controlling threats and being in accordance with the legislation. Both studies highlighted that security and trust are controlled by AI/ML technology.

## 7. Conclusion

Focusing on this peculiarity of the problem, the study highlighted the centrality of AI security systems for increasing customer confidence and involvement in trading in the FX segment. It showed a strong positive link between the use of AI technologies and customer trust enhancement mainly through protection and risk management. Furthermore, AI systems showed great promise in guaranteeing legal compliance, which further enhances platform credibility. Nonetheless, the findings showcased in the study demonstrated that Artificial Intelligence played a great role in building a secure and trustworthy trading environment that is compulsory for continuity of customers' loyalty.

The implications of the study are as follows. The study presents practical recommendations for practitioners on how to integrate AI systems into their organizations' cybersecurity and compliance measures. Policymakers would especially understand from the results that more effort should be put into formulating strong policies and guidelines that support AI while integrating it while at the same time dealing with the related issues.

Further research should analyze the time effect, comparing the effectiveness of AI security systems in different countries, and examining other novel forms of AI like AI to address the topic of explainability. Future studies should extend the lifespan of customer retention and satisfaction with the use of AI security systems, compare cross-region adoption, as well as examine newer forms of AI such as explainable AI.

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