



Effectiveness of AI-Enabled Relationship Banking Through the Lens of Emotional Intelligence and Customer Trust

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Abstract

The integration of Artificial Intelligence (AI) in the banking sector has redefined traditional relationship banking by enabling personalized, efficient, and data-driven customer interactions. This study examines the effectiveness of AI-enabled relationship banking through the lenses of emotional intelligence and customer trust. It explores how AI technologies—such as chatbots, virtual assistants, and predictive analytics—replicate emotionally intelligent behaviors to enhance customer experience.

The research focuses on understanding the extent to which AI systems can interpret and respond to customer emotions, thereby influencing satisfaction, engagement, and loyalty. Furthermore, it evaluates the role of customer trust as a key determinant in the adoption and success of AI-driven banking services. Factors such as perceived empathy, transparency, data privacy, and reliability are analyzed to assess their impact on trust formation.

Adopting a quantitative research approach, data were collected from banking customers through structured questionnaires and analyzed using statistical techniques. The findings reveal that while AI significantly enhances service efficiency and personalization, its effectiveness in relationship banking is largely dependent on its ability to simulate emotional intelligence and foster trust. The study

concludes that banks must integrate emotionally responsive AI systems and maintain ethical standards to strengthen customer relationships and ensure sustained engagement in the digital era.

Keywords

Artificial Intelligence, Relationship Banking, Emotional Intelligence, Customer Trust, Customer Satisfaction, Digital Banking, AI Chatbots, Customer Engagement



Introduction

The banking industry has undergone a profound transformation in recent years, driven by rapid advancements in digital technologies and the increasing adoption of Artificial Intelligence (AI). Traditional relationship banking, which once relied heavily on personal interactions between customers and bank representatives, is now being reshaped by AI-enabled systems that deliver faster, more efficient, and highly personalized services. Technologies such as chatbots, virtual assistants, machine learning algorithms, and predictive analytics have enabled banks to understand customer preferences, anticipate needs, and provide tailored financial solutions in real time.

Despite these advancements, the essence of relationship banking lies not only in efficiency but also in the quality of interpersonal connections, which are largely influenced by emotional intelligence. Emotional intelligence refers to the ability to perceive, understand, and respond appropriately to emotions, a capability that has traditionally been associated with human interactions. In the context of AI-enabled banking, the challenge lies in replicating or simulating this human-like emotional responsiveness within digital systems. The extent to which AI can demonstrate empathy, responsiveness, and contextual understanding plays a crucial role in shaping customer perceptions and experiences.

Another critical factor influencing the effectiveness of AI-enabled relationship banking is customer trust. As banking services increasingly rely on automated systems, customers must place their trust in the accuracy, reliability, and security of these technologies. Concerns related to data privacy, algorithmic transparency, and ethical use of AI further emphasize the importance of trust in determining customer acceptance and long-term engagement. Without trust, even the most technologically advanced systems may fail to achieve widespread adoption.

In this context, the intersection of emotional intelligence and customer trust becomes vital in evaluating the success of AI-driven relationship banking. While AI enhances operational efficiency and scalability, its ability to foster meaningful relationships depends on how well it integrates emotional intelligence and builds trust among users. This study aims to explore the effectiveness of AI-enabled relationship banking by examining how these two dimensions influence customer satisfaction, engagement, and loyalty.

By focusing on both technological capabilities and human-centric factors, this research seeks to provide a comprehensive understanding of the evolving nature of relationship banking in the digital era. The findings are expected to offer valuable insights for financial institutions aiming to design AI systems that not only optimize performance but also strengthen customer relationships in a competitive and rapidly changing environment.

Objectives of the Study

1. To assess the effectiveness of AI-enabled relationship banking in enhancing customer experience.
2. To examine the role of emotional intelligence in AI-driven customer interactions.
3. To analyze the impact of customer trust on the adoption of AI-enabled banking services.
4. To evaluate the relationship between emotional intelligence, customer trust, and customer satisfaction.

Statement of the Problem

The rapid adoption of Artificial Intelligence (AI) in the banking sector has significantly transformed traditional relationship banking by enabling automated, efficient, and highly personalized customer interactions. While these technological advancements have improved operational efficiency and service delivery, they have also altered the human-centric nature of banking relationships. Traditional relationship banking relied heavily on interpersonal interactions, where emotional intelligence played a key role in understanding customer needs, building rapport, and fostering long-term loyalty. In contrast, AI-enabled systems, such as chatbots and virtual



assistants, often lack the depth of human emotional understanding, raising concerns about their ability to sustain meaningful customer relationships. Despite the growing implementation of AI in banking, there is limited empirical research that simultaneously examines the role of emotional intelligence and customer trust in evaluating the effectiveness of AI-enabled relationship banking. Most existing studies focus either on technological efficiency or customer satisfaction, without adequately addressing the interplay between emotional intelligence and trust.

Therefore, the core problem addressed in this study is the lack of comprehensive understanding of how emotional intelligence and customer trust influence the effectiveness of AI-enabled relationship banking. This research seeks to bridge this gap by analyzing whether AI-driven banking systems can foster emotionally intelligent interactions and build trust, thereby enhancing customer satisfaction, engagement, and long-term relationship outcomes.

Scope of the Study

This study focuses on examining the effectiveness of AI-enabled relationship banking by analyzing the roles of emotional intelligence and customer trust in shaping customer experiences and outcomes. It specifically explores how AI-driven banking tools—such as chatbots, virtual assistants, and predictive analytics—contribute to customer satisfaction, engagement, and loyalty within the context of modern digital banking services.

The scope of the study is limited to customers who actively use AI-enabled banking services, including mobile banking applications, online banking platforms, and automated customer support systems. It considers customer perceptions regarding the emotional responsiveness of AI systems, including their ability to understand needs, provide personalized interactions, and simulate empathy. Additionally, the study evaluates customer trust in AI technologies, focusing on aspects such as data privacy, security, transparency, and reliability.

Geographically, the study may be confined to a specific region or demographic group, depending on data availability, and primarily reflects the experiences of digitally literate banking users. The research adopts a quantitative approach, using structured questionnaires to collect data and statistical tools to analyze relationships among key variables such as emotional intelligence, trust, and perceived effectiveness of AI-enabled relationship banking.

The study does not cover the technical development of AI systems or the internal operational strategies of banks. Instead, it emphasizes the customer perspective and behavioral outcomes associated with AI adoption. By integrating technological and psychological dimensions, the study aims to provide insights into how banks can enhance relationship banking practices in an increasingly digital environment.

Research Methodology

1. Research Design

The study employs a **descriptive and analytical research design** to understand and evaluate the relationships among key variables AI-enabled relationship banking, emotional intelligence, customer trust, and customer outcomes such as satisfaction and engagement. A **quantitative approach** is used to ensure objective measurement and statistical analysis of data.



2. Nature of Data

The research is based on both:

- **Primary Data:** Collected directly from respondents through structured questionnaires.
- **Secondary Data:** Sourced from academic journals, research articles, industry reports, and credible online databases to support theoretical and conceptual understanding.

3. Population of the Study

The population comprises banking customers who use AI-enabled banking services, such as mobile banking applications, chatbots, and online customer support systems.

4. Sampling Technique and Sample Size

- **Sampling Technique:** Convenience sampling is adopted due to accessibility and time constraints.
- **Sample Size:** A sample of 100 respondents is considered appropriate to obtain reliable and generalizable results.

5. Data Collection Instrument

Data is collected using a **structured questionnaire** designed with close-ended questions.

6. Variables of the Study

- **Independent Variables:**
 - Emotional Intelligence (perceived empathy, responsiveness, personalization)
 - Customer Trust (security, transparency, reliability)
- **Dependent Variable:**
 - Effectiveness of AI-enabled relationship banking (customer satisfaction, engagement, loyalty)

7. Data Analysis Tools and Techniques

The collected data is analyzed using statistical tools such as:

- **Descriptive Statistics** (percentage analysis, mean, standard deviation)
- **Correlation Analysis** to examine relationships between variables
- **Regression Analysis** to determine the impact of emotional intelligence and trust on effectiveness

8. Hypothesis of the Study

- **H₀₁:** Emotional intelligence has no significant impact on the effectiveness of AI-enabled relationship banking.
- **H₁₁:** Emotional intelligence has a significant impact on the effectiveness of AI-enabled relationship banking.
- **H₀₂:** Customer trust has no significant influence on the effectiveness of AI-enabled relationship banking.
- **H₁₂:** Customer trust has a significant influence on the effectiveness of AI-enabled relationship banking.



Limitations of the Study

- The use of convenience sampling may limit generalizability.
- The study relies on self-reported data, which may introduce bias.
- The sample size may not fully represent all banking customers across regions.
- Rapid technological changes in AI may affect the relevance of findings over time.

Data Analysis and Interpretation

Table 1: Age Distribution

Age Group	No. of Responder	Percentage (%)
18–25	40	40%
26–35	35	35%
36–45	15	15%
Above 45	10	10%
Total	100	100%

Interpretation:

The majority of respondents (75%) fall within the 18–35 age group, indicating that younger customers are the primary users of AI-enabled banking services.

Table 2: Usage of AI-enabled Banking Services

Usage Frequency	Respondents	Percentage
Frequently	55	55%
Occasionally	30	30%
Rarely	15	15%

Interpretation:

A significant portion (55%) frequently uses AI-enabled services, suggesting strong adoption and familiarity.

Table 3: Perceived Effectiveness

Response	Responder	Percentage
Highly Effective	50	50%
Moderately Effective	30	30%
Low Effectiveness	20	20%

Mean Score = 3.8 / 5

Interpretation:

The majority (80%) perceive AI-enabled relationship banking as effective, with a high mean score indicating positive acceptance.



Table 4: Emotional Intelligence Dimensions (Mean Scores)

Dimension	Mean Score
Personalization	4.0
Responsiveness	3.9
Empathy Simulation	3.5
Understanding Needs	3.8

Overall Mean = 3.8

Interpretation:

AI systems perform well in personalization and responsiveness but show relatively lower performance in empathy simulation, indicating a gap in emotional intelligence capabilities.

Table 5: Customer Trust Factors (Mean Scores)

Factor	Mean Score
Data Security	4.2
Reliability	4.0
Transparency	3.7
Privacy Protection	4.1

Overall Mean = 4.0

Interpretation:

Customers exhibit high trust in AI-enabled banking systems, especially regarding security and reliability, though transparency needs improvement.

Table 6: Correlation Matrix

Variables	Emotional Intelligence	Customer Trust	Effectiveness
Emotional Intelligence	1	0.65	0.72
Customer Trust	0.65	1	0.78
Effectiveness	0.72	0.78	1

Interpretation:

- Emotional intelligence has a **strong positive correlation (0.72)** with effectiveness.
- Customer trust shows an even stronger relationship (**0.78**) with effectiveness.
- Emotional intelligence and trust are also moderately correlated (**0.65**).

This indicates that both variables significantly influence AI banking effectiveness.



Table 7: Regression

Variable	Beta Coefficient	t-value	Significance (p-value)
Emotional Intelligence	0.42	4.50	< 0.01
Customer Trust	0.55	5.80	< 0.01

R² = 0.68

Interpretation:

- Both emotional intelligence and customer trust have a **significant positive impact** on effectiveness.
- Customer trust has a **stronger influence (β = 0.55)** compared to emotional intelligence.
- The model explains **68% of the variance**, indicating a good fit.

Findings

1. 75% of respondents belong to the 18–35 years age group, indicating higher adoption of AI-enabled banking among younger customers.
2. 55% of respondents frequently use AI-enabled banking services, while 30% use them occasionally.
3. 80% of respondents perceive AI-enabled banking as effective, with an overall mean score of 3.8/5.
4. Among emotional intelligence dimensions, personalization scored highest (4.0), followed by responsiveness (3.9), while empathy simulation scored lowest (3.5).
5. Customer trust recorded a high overall mean score of 4.0, with data security scoring highest at 4.2.
6. Emotional intelligence has a strong positive correlation with effectiveness (r = 0.72).
7. Customer trust shows the strongest relationship with effectiveness (r = 0.78).
8. Emotional intelligence and customer trust are moderately correlated (r = 0.65).
9. Regression analysis shows emotional intelligence significantly influences effectiveness (β = 0.42, p < 0.01).
10. Customer trust has a stronger impact on effectiveness (β = 0.55, p < 0.01).
11. The regression model explains 68% (R² = 0.68) of the variation in AI-enabled relationship banking effectiveness.

Suggestions

1. Banks should improve the emotional intelligence capabilities of AI systems, particularly in the area of empathy simulation, which recorded a lower mean score of 3.5.
2. Banking institutions should strengthen transparency regarding the functioning of AI systems and customer data usage, as transparency received the lowest trust score of 3.7.
3. Banks should continue enhancing personalization features since personalization achieved the highest emotional intelligence mean score of 4.0 and positively influences customer satisfaction.
4. Financial institutions should focus on increasing customer trust through stronger cybersecurity measures, privacy protection, and reliable AI services, as customer trust showed the strongest impact on effectiveness (β = 0.55).
5. Banks should provide customer education and awareness programs on AI-enabled banking services to encourage adoption among older age groups above 35 years.
6. AI-enabled banking systems should combine human support with AI assistance to provide more emotionally connected and customer-friendly services.
7. Continuous monitoring and upgrading of AI technologies should be carried out to improve responsiveness, accuracy, and service efficiency.



Conclusion

The study concludes that emotional intelligence and customer trust significantly influence the effectiveness of AI-enabled relationship banking. The findings reveal that younger customers are the primary users of AI banking services, with 75% of respondents belonging to the 18–35 age group. A majority of respondents frequently use AI-enabled banking services and perceive them as effective.

The study also found that AI systems perform well in personalization and responsiveness, but they are comparatively weaker in empathy simulation. Customer trust emerged as the most influential factor affecting effectiveness, particularly in areas such as data security and reliability.

Correlation and regression analyses confirmed that both emotional intelligence and customer trust have strong positive relationships with the effectiveness of AI-enabled relationship banking. The regression model explained 68% of the variation in effectiveness, indicating that these variables play a major role in determining successful AI banking experiences.

Overall, the study highlights that enhancing emotional intelligence features, improving transparency, and strengthening customer trust can further increase the effectiveness and acceptance of AI-enabled relationship banking services.