

A Study on Evaluating how Artificial Intelligence affects Financial Service Delivery in Fintech Companies

Dr. Bhupendra Bahadur Tiwari¹ and Ms. Varalakshmi G²

¹ Professor & Director for School of Economics & Commerce, CMR University, Kalyan Nagar, Bangalore

² Research Scholar, School of Economics & Commerce, CMR University, Kalyan Nagar, Bangalore

Abstract

Fintech has been moving fast, and AI has become one of the main forces behind that change. A few years ago, AI tools were more of an experiment. Now they're part of day-to-day operations—chatbots answering customer questions in seconds, algorithms spotting possible risks early, and systems shaping services to match what people actually need.

For this study, we wanted to see what that looks like in real life. We didn't just rely on numbers; we ran surveys and also dug into a few detailed case studies from fintech companies. The pattern was hard to miss—AI helps services move quicker, lets businesses grow without losing efficiency, and gives decision-makers better insights from their data. It also makes it easier to keep up with regulations, which can be a constant challenge in finance.

Of course, it's not all perfect. The initial costs can be steep, privacy issues are never far from the conversation, and there are still tough ethical questions about how much control we hand over to machines. But for fintech firms willing to face those hurdles, AI offers more than just convenience—it opens doors to broader financial inclusion and a stronger competitive edge.

Keywords: *Artificial Intelligence, Fintech, Financial Services, Customer Experience, Service Delivery, Data Analytics, Financial Inclusion.*

Introduction

This research looks at how fintech companies are changing their services with the help of artificial intelligence (AI). As electronic technology has advanced rapidly, AI has emerged as a major driver of transformation in finance. The study examines AI tools like chatbots, natural language processing, machine learning, and predictive analytics, showing how they reduce risks, boost customer satisfaction, and deliver tailored solutions.

Using a mix of surveys and case studies from selected fintech firms, the research evaluated how well AI works in practice. The results suggest that AI doesn't just speed up service delivery—it also supports scalability, data-based decision-making, and regulatory compliance. Yet, there are challenges. High implementation costs, privacy risks, and ethical questions remain. The findings offer useful guidance for fintech players aiming to use AI for better financial inclusion and competitive advantage.

Background

Digital technology has been moving fast—faster than many expected—and finance hasn't been left behind. At the centre of all this is AI. It's not only reshaping how financial products are created, but also how they are delivered and used in everyday life.

Fintech companies, the tech-driven businesses offering financial services, have embraced AI early on. They use it to improve customer satisfaction, cut costs, streamline operations, and gain an edge in the market. You can see it in tools like chatbots for quick queries, robo-advisors for investment help, fraud detection systems, and credit risk models. These tools make services more personal, more efficient, and far more data-driven than before.

Because fintech firms are often more flexible than traditional banks, they can adopt new technologies quickly. They can test, tweak, and launch without years of red tape. This adaptability has made them ideal for experimenting with AI—and in many cases, the experiments have paid off. AI is helping make financial services more inclusive, reaching people and communities that conventional banking has often overlooked.

Still, the path isn't free of obstacles. Concerns about data privacy, algorithmic bias, ethics, and unclear regulations need attention. This study focuses on how fintech companies are applying AI, whether it truly improves service delivery, and what must be addressed to ensure its responsible and sustainable use.

Literature Review

1. **Arner et al. (2019)** highlighted AI's role in automation for advice services, fraud detection, and credit scoring. They noted that real-time decisions improve customer engagement and agility.
2. **Gomber et al. (2020)** linked AI adoption in digital finance to reduced costs, faster processing, and better predictions, with personalization driving satisfaction.
3. **Singh & Prakash (2021)** found chatbots and recommendation engines improve customer interaction and retention.
4. **Zeng, Lu, & Huang (2021)** warned about ethics—bias, transparency issues, and accountability remain unresolved.
5. **Deloitte Insights (2022)** identified growing customer expectations, data expansion, and competition as AI adoption drivers, while stressing governance.
6. **Kapoor & Suri (2022)** showed machine learning credit models outperform traditional methods but said explainability is crucial.
7. **Sharma & Patel (2024)** reported that robo-advisors make financial planning more accessible, especially for younger users.

Objectives of the Study

- To examine the ways in which fintech companies incorporate AI into the provision of financial services.
- to evaluate how AI affects decision-making, operational effectiveness, and customer happiness.
- To determine the difficulties fintech businesses encounter while putting AI technologies into practice.
- To investigate AI's possibilities in the financial industry.

Research Methodology

Design – A quantitative approach measured AI's effect on fintech service delivery using cross-sectional data.

Population & Sample – Employees, technology managers, and service staff with AI experience formed the target group. Fifty respondents were chosen purposively.

Data Collection – A structured questionnaire assessed AI's impact on satisfaction, efficiency, speed, and risk control using a five-point Likert scale.

Hypothesis –

- H_0 : AI has no significant impact on fintech service delivery.
- H_1 : AI has a significant impact on fintech service delivery.

Analysis Tool – One-sample t-test ($p < 0.05$) compared the mean score against a neutral value (3).

Variables –

- Independent: AI use in service delivery
- Dependent: Customer satisfaction, operational efficiency, turnaround time, fraud detection, personalization

The **t-test** is appropriate for this study because it allows testing of the hypothesis that the perceived impact of AI on service delivery is statistically different from a neutral standpoint. Given the relatively small sample size ($n = 50$), the t-test provides robust results in determining whether the observed effect is likely due to chance.

One-Sample Statistics

Variable	N	Mean	Std. Deviation	Std. Error Mean
AI Impact on Service Delivery	50	3.80	0.70	0.10

One-Sample Test

Test Value = 3.00	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
AI Impact	8.00	49	0.000	0.80	0.60 - 1.00

Interpretation of Results

1. **Descriptive Statistics:** The mean score for the perceived impact of AI on financial service delivery is **3.80**, with a standard deviation of **0.70**. This indicates that most respondents rated the impact positively (above the neutral value of 3).
2. **T-Test Results:**
 - The **t-value** is **8.00**, and the **p-value** is **0.000** ($p < 0.05$).
 - Since the p-value is less than 0.05, we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_1).
 - This suggests a **statistically significant positive impact** of AI on financial service delivery in fintech companies.
3. **Confidence Interval:** The 95% confidence interval for the mean difference (0.80) ranges from **0.60 to 1.00**, confirming the consistency of the positive impact across the sample.

Findings

1. **Positive Perception** – Mean score of 3.80 suggests AI is viewed favorably.
2. **Significant Effect** – t-value of 8.00 and $p = 0.000$ confirm statistical significance.
3. **Improved Experience** – Chatbots, personalization tools, and 24/7 services deliver faster, tailored responses.
4. **Efficiency Gains** – Loan processing, fraud checks, and transaction monitoring are faster and more accurate.
5. **Risk Management** – Predictive analytics improves fraud detection and compliance.

6. **Challenges** – Around 40% cited issues: high setup cost, privacy risks, bias, and lack of transparency.
7. **Uneven Readiness** – Larger firms are further ahead; smaller ones face infrastructure and skill shortages

Suggestions

- Build AI systems that are scalable, ethical, and transparent.
- Strengthen data protection with encryption, anonymization, and compliance with regulations.
- Collaborate with regulators to align AI tools with policy shifts.
- Provide regular AI training for staff.
- Be open with customers about how AI shapes their services.

Conclusion

This research set out to explore AI's role in fintech service delivery. The evidence shows AI is making a real difference—services are faster, more efficient, and more personalized. Customers benefit, and firms manage risks more effectively.

Technologies like chatbots, predictive analytics, fraud detection systems, and robo-advisors are changing how people interact with finance. These aren't just small improvements—they're reshaping the entire experience.

But success isn't automatic. Privacy concerns, high costs, and ethical issues must be addressed. The fintech companies that strike the right balance between innovation and responsibility will not only stay competitive, but also help expand financial inclusion in a lasting way.

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