



Publisher:
Fast support and result LLC

STDF

**SCIENCE TECHNOLOGY
&
DIGITAL FINANCE**

VOLUME|3 ISSUE|4
SEPTEMBER|2025



zenodo



INDEX COPERNICUS
INTERNATIONAL



<https://bestjournalup.com/index.php/stdf>

VOLUME | 3 ISSUE | 4 SEPTEMBER | 2025

ТОМ | 3 ВЫПУСК | 4 СЕНТЯБРЬ | 2025

JILD | 3 SON | 4 SENTYABR | 2025

ISSN:2992-9199

**ARTIFICIAL INTELLIGENCE IN BANKING****1 Eshboyev Temur, 2 Eshboyeva Madina**¹ Senior student at INHA university in Tashkent² Sophomore student at JB of NUU**Abstract**

The banking industry is undergoing a major transformation as artificial intelligence (AI) technologies become increasingly embedded in processes, decision-making, risk management, and customer-facing services. This article explores how AI is being leveraged by banks and financial institutions, identifies key use-cases (such as fraud detection, credit scoring, robo-advisory, customer service), discusses the enabling technologies and organisational enablers (data and infrastructure, analytics capability, regulatory/governance aspects), reflects on the benefits (efficiency, accuracy, cost-reduction, customer experience) as well as the risks and challenges (data privacy, model bias, regulatory compliance, organisational change). Finally, the article offers a forward-looking perspective on how banks can become “AI-first” institutions, and what this means for stakeholders in banking including regulators, customers, and executives.

Keywords:

Artificial Intelligence (AI), Banking, FinTech, Fraud Detection, Credit Scoring, Customer Experience, Risk Management, Governance, Digital Transformation, Robo-advisory.

Email: madinaeshboyeva885@gmail.com

©2025. Eshboyev Temur, Eshboyeva Madina

Published by Fast support and result LLC. This is an open access article under the CC BY-NC-ND license

[Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.](https://creativecommons.org/licenses/by-nc-nd/4.0/)

Introduction

Artificial intelligence (AI) is revolutionizing the global banking sector by transforming how institutions operate, make decisions, and serve customers. In today's digital economy, where millions of transactions occur each second, the integration of AI technologies—machine learning, natural language processing, and predictive analytics—has become a strategic necessity rather than a luxury. Banks face increasing competition from fintech firms, stricter regulations, and changing customer expectations, which demand efficiency, personalization, and trust. Within this context, AI enables banks to process massive volumes of financial and behavioral data, detect patterns that humans cannot, automate complex operations, and create seamless customer experiences. According to McKinsey & Company's research, the "AI Bank of the Future" is structured around four key layers: intelligent customer engagement, AI-driven decision-making, advanced data infrastructure, and a scalable platform-based operating model. This structure allows banks to integrate intelligence into every level of their operations—from front-end customer interactions to back-end risk management—ensuring both agility and competitiveness. A systematic literature review in the *Journal of Financial Services Marketing* and similar research published in *Sustainability* confirm that banks around the world are embedding AI into nearly every operational domain, including fraud prevention, risk assessment, compliance, and customer relationship management. As the financial ecosystem becomes increasingly digitized, AI stands out as

the most powerful enabler of efficiency, accuracy, and innovation.

Main part

AI's applications in banking are extensive, influencing nearly every process. Fraud detection and anti-money laundering (AML) are among the earliest and most impactful areas of implementation. Traditional rule-based systems often fail to detect sophisticated fraud patterns, while AI algorithms can monitor millions of transactions in real time, identifying anomalies and adapting to new threats such as synthetic identities and deepfakes. In credit scoring and lending, AI improves accuracy and fairness by analyzing alternative data sources—mobile usage, e-commerce activity, and utility payments—to assess borrowers who lack traditional credit histories. This not only reduces default risk but also promotes financial inclusion by extending credit access to underserved populations. In customer service, AI chatbots and virtual assistants provide 24/7 support, personalized responses, and multilingual communication, significantly enhancing user satisfaction. Robo-advisors and AI-driven investment tools automate portfolio management and financial advice, leveraging big data to make informed recommendations in real time. Moreover, AI is increasingly deployed in compliance and governance, automating regulatory reporting, monitoring for suspicious activities, and ensuring adherence to complex financial laws. These capabilities generate tangible benefits: operational efficiency through automation, reduced human error, faster decision-making, and deeper customer insights. However, AI adoption also introduces substantial challenges. Banks must address data

quality issues, overcome fragmented legacy systems, and manage ethical risks associated with algorithmic bias and privacy breaches. Regulatory concerns further complicate the picture, as financial authorities worldwide now require explainability and accountability in AI decision-making. Ethical lapses—such as discriminatory lending or opaque credit models—can quickly erode public trust. Therefore, responsible AI governance, transparency, and human oversight are essential to maintaining both compliance and credibility in the banking sector.

To successfully transform into AI-driven organizations, banks must adopt a comprehensive strategic framework that integrates technology, data, people, and governance.

First, they need to align AI initiatives with clear business objectives, focusing on measurable value creation rather than experimentation.

Second, strong data infrastructure is fundamental: unified data lakes, cloud-based analytics platforms, and automated pipelines must replace fragmented legacy systems.

Third, banks must develop robust model-risk management frameworks that ensure transparency, fairness, and explainability across all AI applications.

Fourth, success depends on people and culture—upskilling employees in data literacy and fostering collaboration between finance, IT, and compliance teams.

Conclusion

Finally, institutions must adopt ethical and regulatory safeguards to mitigate risks of bias, misuse, and cyber-attacks. The future trajectory of AI in banking points toward even greater integration through generative AI, large

language models, and real-time decision engines capable of personalized recommendations and conversational banking. For emerging markets such as Uzbekistan, AI presents both opportunity and responsibility: while it can accelerate digital transformation and expand financial access, it also requires careful attention to governance, inclusion, and local capacity building. As AI continues to mature, it is poised to redefine the DNA of banking—transforming customer engagement, reshaping risk management, and reimagining how financial value is created and delivered. Banks that embrace AI responsibly will not merely survive technological disruption; they will lead it, becoming intelligent, data-driven enterprises built for the future of finance.

References:

1. Fares, O.H., Butt, I., & Lee, S.H.M. (2022). *Utilization of Artificial Intelligence in the Banking Sector: A Systematic Literature Review*. Journal of Financial Services Marketing.
2. McKinsey & Company. (2023). *Extracting Value from AI in Banking: Rewiring the Enterprise*.
3. Narang, A., Vashisht, P., & Bajaj, S. (2024). *Artificial Intelligence in Banking and Finance*. ResearchGate.
4. Bank Policy Institute. (2023). *Navigating Artificial Intelligence in Banking*.
5. Sustainability (2023). *Banking 4.0: Artificial Intelligence in the Banking Industry*.
6. Madina E. MAMKAT INNOVATSION SALOHİYATI //PSIXOLOGİYA VA PEDAGOGİKA FANLARARASI FANLAR SIFATIDA Shakllanishi. – 2025. – T. 4. – No 40. – 197-201-betlar.