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ARTIFICIAL INTELLIGENCE AS A CATALYST FOR OPERATIONAL EFFICIENCY IN FINANCIAL INSTITUTIONS

Melikmurodov Dilshod

University of World Economy and Diplomacy

Email: dmelikmurodov10@gmail.com

Abstract

This article examines the growing role of artificial intelligence (AI) in the financial sector, focusing on its impact on productivity enhancement and cost reduction. It highlights how AI technologies—such as machine learning (ML), natural language processing (NLP), and computer vision—are transforming core financial operations, including fraud detection, credit scoring, customer service, trading, and compliance. Drawing on industry case studies and reports, the paper demonstrates that AI significantly improves operational efficiency by automating repetitive tasks, accelerating decision-making, and extracting insights from large datasets. Furthermore, AI contributes to cost optimisation through reduced labour requirements, lower compliance costs, and enhanced fraud prevention mechanisms.

Key words

Artificial Intelligence (AI); Financial Services; Productivity; Cost Reduction; Machine Learning (ML); Natural Language Processing (NLP); Automation; Fintech; Risk Management; Fraud Detection

Introduction

Artificial intelligence (AI) has modified financial services by upgrading to automated routine tasks, faster operational results, and improved decision-making. As banking and finance become data-driven and technology-driven, AI offers a digital productivity boost by automating repetitive tasks, detecting patterns in big data, and assisting with human decision-making. Most banks, insurance companies, asset management companies, and fintechs apply AI technologies for the detection of fraud, credit scoring, trading, customer service and risk management. The implementation of these applications enhances productivity, optimises time management, and improves overall operational efficiency. For instance, JPMorgan's AI eliminated an estimated 360,000 lawyer-hours per year (Son, 2017), while one local bank reported almost 40% growth in software developer productivity using generative AI[1]. Additionally, it is important to highlight the efficiency and cost benefits associated with this technology. Many firms that apply AI to their high-value and low-value tasks have reported that chatbots of this new technology handled routine queries and cut support costs.

Productivity of AI in Financial Services

Productivity is boosted by AI through automating everyday repeatable tasks, accelerating decision-making, and uncovering insights. Overall, AI saves humans time and capital for the greater and more complicated missions, replacing them in ordinary tasks such as data entry, documentation, analysis, and finding useful information. For instance, ML (machine learning)

[1] https://www.mckinsey.com/industries/financial-services/our-insights/how-ai-could-reshape-the-economics-of-the-asset-management-industry.

and NLP (natural language processing) significantly speed tasks such as reviewing contracts with clients, processing paperwork, etc. JPMorgan's COIN platform uses these two features to read credit agreements. The bank also uses automated software programs, or in other words, "bots," to handle IT requests, such as a password reset, 1.7 million password resets per year, approximately the work of 140 employees[2]. Another case is with a Fortune 500 bank implementation of its KYC, which dropped customer verification time and resulted in a 40% cost decline[3].

All the examples above are one of the useful aspects of AI in document processing, or in other words, back-office tasks. Additionally, AI can provide customer service through chatbots and virtual assistants. This digitalisation enables instant service, and NLP and conversational AI bots find solutions to customer problems without human interaction, simply by accessing user data. The benefits of this modernisation reached a significant level and provided IBM with the opportunity that 30% of support costs can be cut[4]. According to Deloitte Insights (2025), banks with advanced chatbots see a higher level of satisfaction from younger customers. In global terms, AI chatbots are expected to save billions of dollars; banks saved $7.3 billion by using them in 2023 (Vohra, 2025).

Insurance is also one of the most developed sectors in finance. AI streamlines claims using different models such as CV (computer vision), NLP, or ML. In a basic environment of claiming, it takes many hours for a human worker per claim. However, if AI automates most of it, the boost in productivity will reach a much higher level. For instance, after Trygg-Hansa used CV version and RPA to auto-process property claims, the result was a shocking 95% reduction in time to handle fast-tracked claims[5].

ML and reinforcement learning models can check data at high speed. This could play a crucial role in aiding and developing trading strategies. One example can be Forex Forest, a fintech that uses AI for trading and changed its infrastructure to the cloud. Eventually, this upgrade not only cut server costs by 70%, but model development time also reduced[6].

According to the WEF (2026) report, "the Industrial and Commercial Bank of China (ICBC) deployed a 100 billion parameter financial model for 400,000 employees, generating RMB 500 million in profit gains and scaling up to millions of automated daily decisions".

Moreover, modernisation impacts financial stability for companies and financial institutions globally. "AI/ML systems bring new and unique risks arising from the opacity of their decisions, susceptibility to manipulation, robustness issues, and privacy concerns. These could undermine the public's trust in the integrity and safety of an AI/ML-driven financial system. Furthermore, AI/ML could potentially bring about new sources and transmission channels of systemic risks," reported the IMF (2021).

Role of AI in cost reduction

[2] https://www.the-independent.com/news/business/news/jp-morgan-software-lawyers-coin-contract-intelligence-parsing-financial-deals-seconds-legal-working-hours-360000-a7603256.html.
[3] https://www.pwc.com/us/en/industries/financial-services/library/how-ai-is-reshaping-banking.html
[4] https://www.nexgencloud.com/blog/case-studies/how-ai-and-rag-chatbots-cut-customer-service-costs-by-millions.

[5] https://www.blueprism.com/resources/case-studies/trygg-hansa-claims-automation/
[6] https://aws.amazon.com/solutions/case-studies/case-study-forex-forest/

Cost reduction represents one of the most needed tools for every company and financial institution today. Implementing digital technologies, AI, or ML is more effective at lowering expenses. In finance, AI reduces costs in three ways: lowering operational costs through automation, reducing compliance costs, and lowering fraud losses and chargebacks.

When AI automates a process, it reduces labour hours and often reduces the need to redo the work or recheck all data. Even when humans are still superior in processing and making final decisions, AI can shorten handling time per case. For instance, the survey form WEF 2026, covering six key fintech verticals in Asia-Pacific, Europe, Latin America and the Caribbean, the Middle East and North Africa, the US and Canada, and sub-Saharan Africa. “It suggests that AI adoption and automation are improving performance, with 83% of fintechs reporting improved customer experience and approximately three-quarters of respondents noting higher profitability and reduced costs. Additionally, the survey revealed the sector’s response to macroeconomic and funding trends, regulatory environments, and opportunities to partner with traditional financial institutions”.

In other words, “AI adoption is heavily impacting performance, with 83% reporting improved customer experience, 74% higher profitability, and 75% reduced costs," claims the World Economic Forum (2026). Another example of a reduction in operational costs can be related to an AI application for KYC, where there was a significant reduction in client verification costs, up to 40%, as noted by PwC (2025). These costs can be related to financial indicators. The lower efficiency ratio means more profit per unit revenue.

McKinsey's report on banking operations indicates that there is a gain of 14 to 15 pp from AI application regarding the efficiency ratio[7].

One more important area that can be related to reducing costs is compliance. The application of AI for AML/CFT can reduce false positives. The IMF noted that AI is applied to these issues. False positives are very important for reducing costs because they require more operational capacity[8].

Another important area that can be related to reducing costs is fraud detection. The BIS Economic Report (2024) noted that 70% of financial institutions apply AI for exploring credit scores and fraud detection. This application reduces investigation costs and excludes extra spending.

The case related to Upstart, a fintech lender based in the USA, noted that an AI-driven lending platform allows more than 500 partner banks to approve 44% more loans than ordinary FICO underwriting. The important aspect is that 80% are fully automated. In addition, Upstart noted that its loans increased by 157% after adopting infrastructure for ML, as noted by Reruption (2023).

AI systematically reduces expenses by replacing human labour with new technology without compromising quality, reducing fraud losses, and speeding up the process.

[7] https://www.mckinsey.com/industries/financial-services/our-insights/extracting-value-from-ai-in-banking-rewiring-the-enterprise.

[8] https://www.imf.org/en/News/Articles/2021/10/29/sp102921-ai-and-regtech

Conclusion

Artificial intelligence in the financial industry is no longer just experiments; it is now an essential component for both efficiency and cost control. Artificial intelligence is no longer a threat to traditional employment in the financial industry, but it is now a complement to human work.

Artificial intelligence increases the level of productivity, an essential goal for any company, both small and large. Artificial intelligence reduces the time required for tasks in the operations and administration of the company. These are the significant advantages of incorporating artificial intelligence in the company[9].

Regarding costs, the move from traditional to artificial intelligence has had a significant impact on the financial industry. Although artificial intelligence is indeed an expensive investment, it is achievable for companies that want to achieve success in the long term. Financial institutions that incorporate artificial intelligence in the industry have already achieved success in terms of efficiency and reduction in costs.

The trends indicate that the most successful financial institutions in the industry combine artificial intelligence with human talent. In the new economy, artificial intelligence is essential for the improvement of both productivity and costs in the financial industry[10]. The financial industry will now achieve results that were not possible before the development of artificial intelligence.

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