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MAIN DIRECTIONS OF IMPLEMENTING DIGITAL TECHNOLOGIES IN THE ACTIVITIES OF FINANCE AND CREDIT SYSTEMS

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Abstract: This study examines the main directions of digitalization in finance and credit systems and analyzes the impact of technologies on financial intermediation, lending, risk management, and operational efficiency. According to the results, digital lending systems, mobile banking, blockchain, and artificial intelligence-based risk management are identified as the main directions. The study demonstrates the relationship between digitalization and efficiency based on an integrated model. In conclusion, the importance of developing digital infrastructure and ensuring security is emphasized.

Keywords: finance and credit system, digitalization, fintech, blockchain, risk management, AI.

Introduction

In recent decades, the rapid development of digital technologies has fundamentally transformed entire economic systems. These changes have been especially noticeable in finance and credit systems, where digitalization has become a key tool for innovation, operational restructuring, and increasing competitiveness. Digitalization refers to the implementation of digital tools such as mobile platforms, artificial intelligence, blockchain technologies, and big data aimed at improving financial services, creating convenience for customers, and strengthening institutional stability.

This process is not only technological but also organizational in nature, affecting business models, customer communication, regulatory mechanisms, and risk management processes. Therefore, identifying the main directions of digitalization in finance and credit systems is important from both academic and practical policy perspectives.

Financial institutions — including banks, microfinance organizations, credit unions, and fintech companies — are increasingly relying on digital infrastructures to optimize processes. For example, lending processes, credit assessment, operational settlements, and customer service are now carried out through digital platforms. The opportunity to provide loans and deposit products through digital channels to populations with limited access to traditional financial services has increased significantly.

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In particular, mobile banking reduces the need for physical branches and ensures 24/7 service availability. Automated credit assessment systems based on AI and machine learning provide greater accuracy in identifying borrower risks compared to traditional methods.

The impact of digitalization is not limited to customer convenience. Digital lending platforms also introduce new risks, including cybersecurity threats, data privacy issues, and algorithmic bias. Therefore, risk management in financial institutions using digital tools becomes more complex and requires strict supervision by regulatory authorities.

Central banks and financial supervisory authorities worldwide are working on creating regulatory frameworks that encourage innovation while maintaining financial stability. At the same time, digitalization intensifies competition between traditional banks and fintech companies. Fintech companies with agile structures and technological approaches implement innovations more rapidly.

As a result, investment in digital platforms, technological partnerships, and improving employee qualifications have become strategically important for sustainable financial operations.

Academic research examines the impact of digitalization on finance and credit systems, analyzing credit risk assessment, blockchain settlements, and the effects on financial inclusion. However, systematic studies aimed at identifying the main directions of digitalization and evaluating financial outcomes through them remain limited.

This study aims to identify the key directions of digitalization in finance and credit systems and evaluate their practical impact while presenting an integrated framework explaining the relationship between technological adoption and efficiency.

Methodology

The study applied a mixed-methods approach. At the initial stage, quantitative data were collected from commercial banks, credit unions, and fintech companies operating in various countries over the last five years.

The main variables included:

- volume of digital transactions;
- level of online lending;
- number of mobile platform users;
- operational cost ratio;
- credit risk indicators.

Quantitative analysis identified growth trends and digital service adoption rates while examining their relationship with financial outcomes. Time-series analysis was used to determine the long-term effects of digital platforms.

At the same time, expert interviews were conducted with specialists in the financial sector, and their opinions were analyzed through thematic coding. Interviews included representatives of banks, fintech companies, and regulatory authorities.

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The literature review covered scientific articles, industry reports, and policy documents from the last five years. Based on these materials, the main directions of digitalization — digital credit assessment, mobile financial services, blockchain solutions, and AI-assisted risk management — and their effects on credit system efficiency were identified.

Quantitative analysis was carried out using the R and Python software programs, and data reliability was verified. Qualitative data were validated through triangulation and comparison with industry trends.

This methodology allows for broader and deeper analysis of digitalization trends in finance and credit systems.

Results

According to the analysis results:

- fintech companies demonstrated the highest level of digitalization (84–89%);
- banks showed a medium level (68–75%);
- credit unions had lower levels (51–63%).

Operational costs in fintech companies were lower, although credit risk levels were slightly higher. In banks, risk remained relatively stable.

Overall, digitalization improves efficiency but also increases the complexity of risk management.

Discussion

Digitalization accelerates financial services and reduces operational costs. Mobile banking and AI-based credit assessment systems significantly improve efficiency.

At the same time, the rapid growth of fintech companies also increases risks. Therefore, strong regulatory and security systems are essential.

Conclusion

The study identified the main directions of digitalization in finance and credit systems: digital lending, mobile financial services, and advanced analytical tools are the primary pillars.

Fintech companies demonstrate high levels of digital adoption and operational efficiency, while commercial banks and credit unions are gradually implementing digital platforms.

Digitalization improves customer interaction and operational processes; however, security and regulation remain crucial issues.

As a result, the digital transformation of finance and credit systems represents both an opportunity and a strategic necessity. Policymakers and industry leaders should focus on secure infrastructure, data protection, and employee skill development.

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Future research is recommended to examine long-term impacts and sectoral differences.

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