

# The Role of Big Data and Cloud Technologies for Financial Services in the Innovation Economy

**Kurbanova Sitora Bakhodirovna**

assistant teacher Samarkand Institute of Economics and service,

e-mail:kurbanovasitora1989@mail.com

**Abstract:** It is well-known that digital technologies play a crucial role in accelerating the growth of the digital economy. This article explores the role of Big Data and cloud technologies in modern financial services.

**Key words:** fintech technology, financial services, cloud technologies, big data, financial planning.

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The integration of financial technologies is essential in implementing financial planning within a corporate governance system. Using financial technology in collaboration with companies can streamline processes, eliminating declaration mechanisms and reducing paperwork. This mechanism, when used by economic entities in financial management, can reduce the need for accountants, ultimately saving financial resources in real terms.

Additionally, the use of fintech technology in corporate governance allows for the sale of manufactured goods, works, and services on electronic markets, accurate accounting, reducing advertising costs, timely analysis of demand, and submitting financial reports to various government agencies promptly. This also aids in properly managing human resources and efficiently evaluating staff turnover.

In Uzbekistan, a roadmap for digital transformation in the banking system has been developed. The decree by the President of Uzbekistan on the country's 2022–2026 development strategy emphasizes transforming the digital economy into a key “driver,” aiming to increase its scale by at least 2.5 times. This involves approving a targeted program to automate production and operational processes in both the real and financial sectors, thereby enhancing digitization in these areas by 30% through specific projects outlined in the approved roadmap [Decree of the President of the Republic of Uzbekistan, No. PF-60, dated January 28, 2022, on the Development Strategy of New Uzbekistan for 2022–2026].

Some notable components in the digital transformation of the banking sector include:

- Enterprise resource planning (ERP) systems to increase financial and economic efficiency and optimize corporate management.
- Customer relationship management (CRM) systems to increase trade volumes and improve customer service.
- Supervisory control and data acquisition (SCADA) systems to automate production and dispatch processes in industrial enterprises.
- Expanding online banking services and introducing automated scoring systems for credit analysis.
- Completing banking sector transformation, with private banks reaching 60% of total bank assets by 2025.
- Actively using modern financial technologies to offer financial services, promoting cashless payments, and ensuring digital security in financial services.

Big Data refers to large and diverse sets of structured and unstructured data, and the methods used to analyze them in a distributed manner. The term "Big Data" appeared in 2008, first used by Clifford Lynch, the editor of the journal *Nature*. He emphasized the rapid increase in global data volumes and the role of new tools and advanced technologies in managing them.

Cloud computing is a distributed data processing technology where computing resources and capabilities are provided to users as an Internet service. As M.I. Plotnikov pointed out, although many have heard of "cloud technology" or "cloud computing," few truly understand its nature.

In an innovative economy, cloud technology plays an essential role in efficiently collecting, storing,

and processing vast amounts of data. The primary types of cloud services are:

- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)

Advantages of cloud services:

1. No need for costly hardware, as data is stored in the cloud.
2. Improved computer performance since cloud-based applications free up local storage.
3. Reduced maintenance issues with fewer physical servers and continuously updated software.
4. Lower software purchase costs, as software for the cloud may only need to be bought once or rented.
5. Cloud technology provides virtually unlimited storage, often in the range of millions of gigabytes.
6. Automatic software updates, eliminating the need for manual updates.
7. Compatibility with any operating system since access is through web browsers.
8. Access to documents at any time with an internet connection.
9. Enhanced security and data loss prevention with automatic backups to secure servers.

Disadvantages of cloud services:

- No access if the internet is unavailable, limiting work to locally downloaded documents.
- Internet speed and quality are essential for cloud service efficiency.
- Cloud service may be slower when handling large data transfers compared to installed software.
- Security is generally reliable, but it's worth noting the need for security in cloud backups.
- Some services require paid subscriptions, which may be inconvenient for users.

The digital transformation of the banking sector includes elements like analyzing customer experience, digitizing services and products, and transforming internal processes. Customer experience in digital banking allows for a comprehensive study of service demand and the identification of new requirements. Bank customers drive innovation in banking, creating real demand for modern banking services and products. Customers evaluate banks based on their experience in obtaining services quickly and conveniently.

Currently, billions of customers can be served via mobile phones, prompting banks to continuously improve their digital technology to remain competitive. Barclays Bank was one of the first to introduce online banking, resulting in customers visiting branches only once a month while using mobile banking services 18 times per month. The transformation of internal processes is also critical to bank sector development. Alongside customer-oriented digital technology, management, leadership, and control functions also require improvement.

A significant barrier to full digital transformation is the lack of digital skills among service personnel. The Customer Relationship Management (CRM) system is a vital component of digital transformation in banking, enhancing customer relations.

In the financial sector, digital transformation creates a new digital work environment, facilitating more efficient financial operations. This demands skilled personnel capable of addressing professional issues through digital technologies, with new roles like digital technology and innovation directors becoming necessary.

## Conclusion

In conclusion, companies with high organizational and human capital are likely to benefit significantly from investments in digital technologies. Such companies can maximize their investment returns, increase sales, reorganize processes, and enhance production efficiency. In these conditions, financial investments serve as a primary driver for transitioning to a digital economy.

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