



## **KAPITEL 2 / CHAPTER 2 <sup>2</sup>**

### **FINANCIAL TECHNOLOGIES AS A FACTOR IN THE INNOVATIVE DEVELOPMENT OF THE BANKING SYSTEM**

**DOI: 10.30890/2709-2313.2025-38-03-026**

#### **Introduction**

In the modern world, the latest technology affects all aspects of our lives, including the economy and financial system. Many countries are already implementing a 'digital economy' based on computer technology as it helps to improve economic relations [1]. This trend is also affecting the banking sector, which is essential to the efficiency of a country's functioning [2].

The coronavirus pandemic has increased consumer interest in digital financial services, leading to rapid innovation in the banking industry. The closure of bank branches has forced traditional and non-traditional financial service providers to look for quick and easy solutions for consumers. At the same time, technological innovations are aimed at data protection and security in the banking sector [3]. Therefore, any impact on the banking system is essential and requires detailed research and analysis.

#### **2.1. Analysis of the introduction of financial technologies in the activities of banks in Ukraine**

One of the positive features of FinTech's introduction into the banking system is the reduction in bank branches due to the digitalization of banking services, not the economic crisis. (Figure 1).

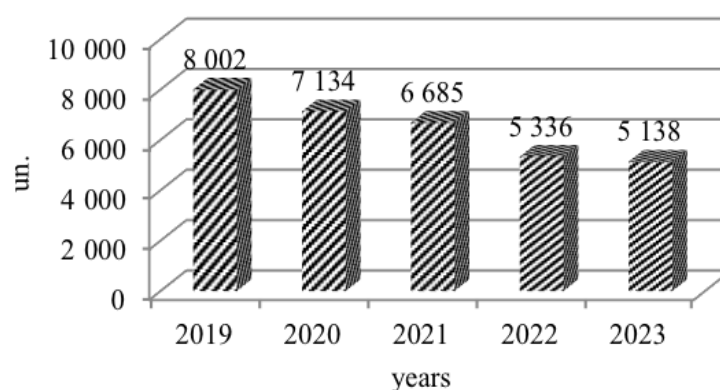
Figure 1 shows that during the research period, the number of bank branches decreased from 8,002 in 2019 to 5,138 in 2023. The largest decrease occurred in 2021-2022 – by 1,349 units, and the smallest in 2022-2023 – by 198 units.

---

<sup>2</sup>*Authors: Hlushko Alina, Khudolii Yuliia*

*Number of characters: 15646*

*Author's sheets: 0,39*



**Figure 1 - The number of bank branches in 2019-2023**

*A source: [4]*

Oschadbank remains the leader in the number of branches with a network of 1,182 branches. It is followed by PrivatBank with 1,132 branches (the network decreased by 78 structural units over the year). Raiffeisen Bank is in third place with 332 branches (+3 branches in Q4 of last year and –18 branches in the previous year). UkrSibbank (223 branches) and FUIB (221 branches) are in fourth and fifth place.

In 2023, compared to previous periods, the pace of optimization of the bank's branch network slowed significantly. In Q4, the number of structural units even increased for the first time in more than 10 years. The increase in the network of bank branches was primarily due to two banks – Asvio Bank and Crystal Bank, which increased their networks by almost half in Q4 (+14 and +13 branches respectively). The same banks are also leaders in branch network expansion in 2023.

In Ukrainian banks, digital technologies have covered both general lending and retail lending. The digitalization of lending expands access to financial services, reducing costs and allowing smaller loans to be more profitable. Increasing the availability of financial services also contributes to improving the financial and digital literacy of consumers, allowing them to manage their debts more efficiently.

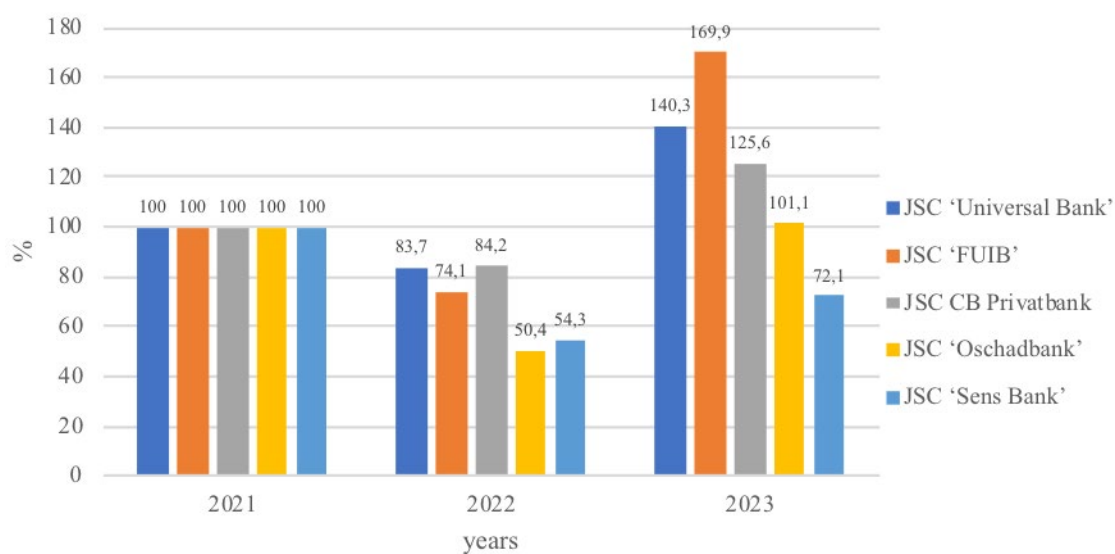
Analyzing the state of retail lending during the wartime period, according to the NBU (Table 1), we observe the following trends.

**Table 1 - Retail lending by Ukrainian banks in 2021-2023**

Banks	2021 p.		2022 p.		2023 p.	
	UAH million	%	UAH million	%	UAH million	%
1	2	3	4	5	6	7
JSC CB Privatbank	51655,3	25,8	43222	32,2	60660,9	37,4
JSC 'Universal Bank'	23726,1	11,9	17585,8	13,1	29880,1	18,4
JSC 'Oschadbank'	13620,5	6,8	11474,6	8,5	14407,1	8,9
JSC 'FUIB'	19623,2	9,8	9891,3	7,4	9996,9	6,2
JSC 'Sens Bank'	24329,3	12,2	131,99	9,8	9517,2	5,9
By banking system	200197,2	100,0	34263	100,0	162066,8	100,0

Authoring

As of 2023, Ukrainian banks granted UAH 162.1 billion in loans to households, which is UAH 68.1 billion less than the amount of loans granted at the beginning of 2022. In 2023, 5 banks in the banking sector accounted for 76.8% of all granted loans, and the top three banks for 64.7%. Moreover, during the two war years, market concentration took place. With lending in the banking system as a whole falling by 33% in 2022, the banks surveyed also reduced their lending to households, but at a lower rate than the entire banking sector (Figure 2).

**Figure 2 - Growth rate of lending to individuals by Ukrainian banks**

A source: [4]

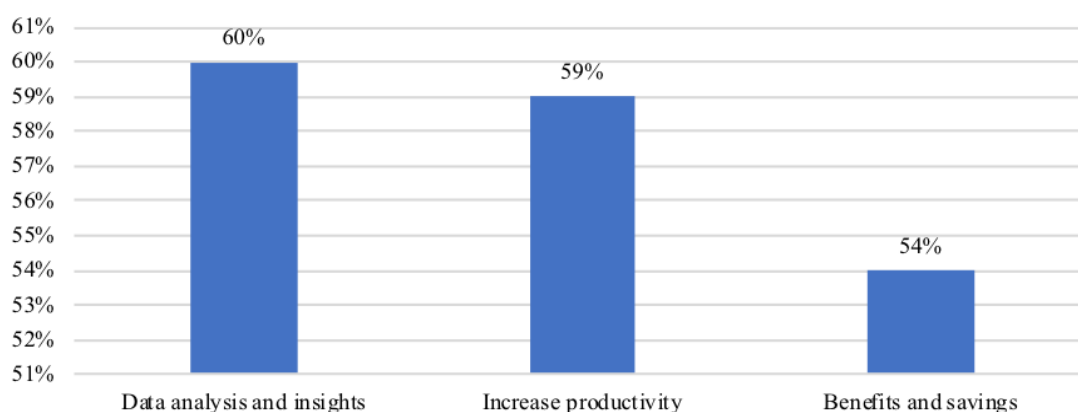
As for 2023, the banking system increased its lending to households by 20%, but as of 1 December 2023, it did not reach pre-war levels. We note that JSC CB Privatbank, JSC Universal Bank, and JSC Oschadbank exceeded the volume of



household loans as of 01 January 2022. It happened, firstly, due to consumer confidence in these banks and secondly, because they used only the latest digital technologies for lending to customers, such as artificial intelligence for analyzing data about borrowers, their credit history, income, and expenses, to assess their creditworthiness and make decisions on granting a loan, cloud computing allowed banks to store and process data about borrowers in a secure and scalable environment, which helped to provide loans faster and more efficiently, etc.

## 2.2. Prospects for the use of artificial intelligence and blockchain technologies in the banking sector

Today, banks all over the world are actively implementing artificial intelligence (AI) strategies, which will facilitate the widespread use of this technology in the financial sector. According to independent studies, AI is expected to reduce banks' operating costs by around 22% by 2030 [3] (Figure 3).



**Figure 3 - The main reasons for using artificial intelligence by banks**

*A source: [5]*

Artificial intelligence is well-positioned to combat fraud and cybercrime in the financial sector, as well as to solve many banking security issues [6]. Credit risk assessment based on AI and machine learning (ML) is more efficient and effective. From regulatory technologies to robo-advisors, AI/ML systems allow companies to



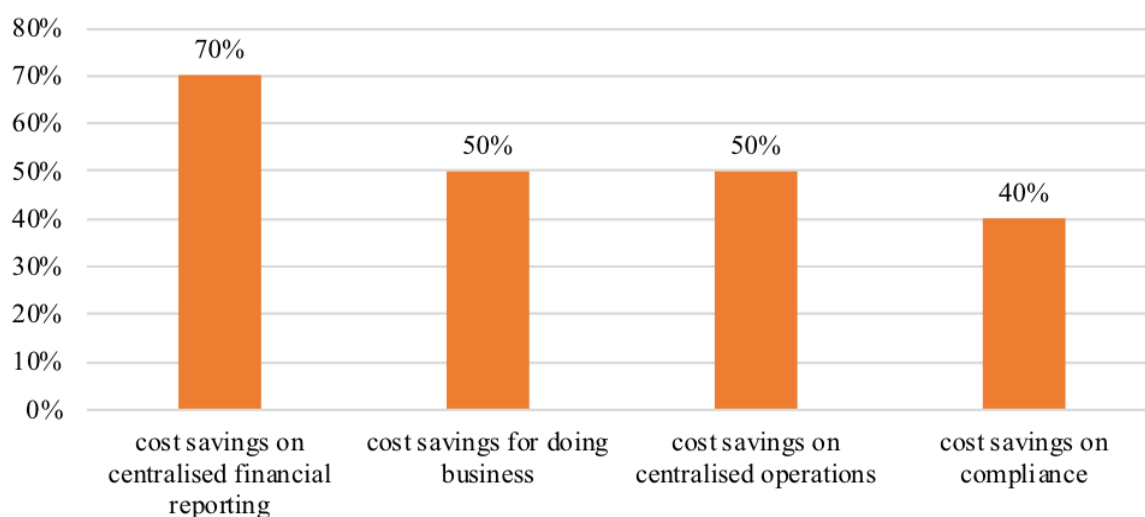
better monitor customer behavior and identify opportunities for growth and anomalies. By 2023, banks will have saved an estimated \$447 billion through the development and implementation of AI applications [7] (Table 2).

**Table 2 - Savings from using AI across different bank departments**

The use of AI in the banking sector					
Channel		Front office		Middle office	Back office
Amount of potential cost savings		199 дол. USD		217 дол. USD	31 дол. USD
Key use cases	In larger cases	Conversational banking		Fraud and risk management	Credit underwriting
	Smaller use cases	AI biometric technology	Personalised statistics	Anti-money laundering/Know your customer	Smart contract infrastructure

A source: [8]

A blockchain is a distributed database that stores a sequential chain of records (blocks), each containing a time stamp, a hash of the previous block, and transaction data in the form of a hash tree. The use of blockchain in the banking sector allows for fast, efficient, and secure payment processing for bank customers (Figure 4).



**Figure 4 - Potential results from the implementation of blockchain in the banking sector**

A source: [9]

In general, the introduction of blockchain into the banking system would result in global annual cost savings of USD 12 billion.



Blockchain technology has numerous benefits, including time savings, as access to it does not require supervisory review, making the process quick and cost-effective. It also helps to reduce costs, as neither method requires 3rd party verification and participants can send assets directly to each other. This reduces the number of intermediaries and transactions, as all participants have access to one common database. Blockchain also provides a high level of security, as data is distributed among many participants, making it impossible to change it.

Currently, the scope and application of blockchain technology is gradually growing and is projected to reach an average annual growth rate of 78.8% by 2026 [3].

In general, when examining the impact of digitalization on the Ukrainian banking system, we can say that the potential benefits outweigh the costs by 10% (Figure 5).

Potential costs		Potential benefits	
Innovative offers from competitors	-13%	+5%	Innovative offer and business model
Margin squeeze	-16%		
		+10%	Digital sales
Increased operational risk	-6%	+30%	Automation
TOTAL:		-35%	+45%

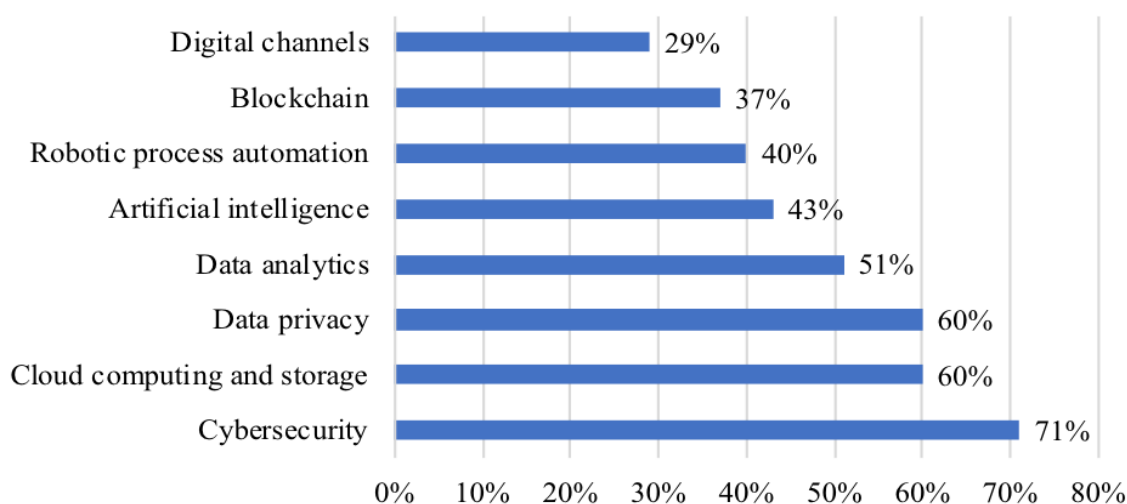
**Figure 5 - Impact of digital transformation on bank profitability**

*A source: [10]*

The introduction of digital technologies allows banks to optimize their operations by reducing customer service costs and streamlining business processes. Hyper-personalized services provided through data analytics contribute to an increase in the number of service sales and, consequently, to the growth of banks' profits.

Deloitte's research has shown a planned increase in banks' future spending on the latest technologies to increase resilience and accelerate transformation in the financial sector (Figure 6).

Figure 6 shows that banks will spend the most on cybersecurity (71%), which is one of the most important priorities for the banking sector, and the least on digital channels (29%). Cloud computing and data privacy also have a significant share in bank spending, accounting for 60%.



**Figure 6 - Bank survey on future growth in FinTech spending**

*A source: [3]*

In addition to the above, it is worth highlighting the risks faced by banks in the development of financial technologies, as they also affect the efficiency and development of the banking sector in Ukraine (Table 3).

**Table 3 - Characterization of risks for banks under the influence of FinTech**

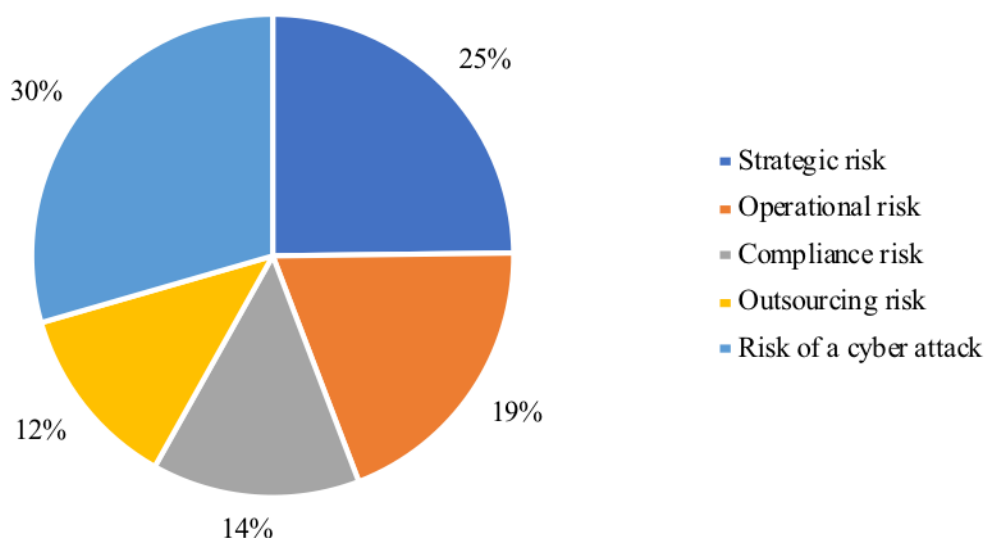
Type of risk 1	Characteristics 2
Strategic risk	The potential risk to capital investment arises from inefficient management decisions that lead to a decline in bank profitability. Existing banks lose significant market share or profits if new entrants can innovate more effectively and provide cheaper services that better meet customer needs.
Operational risk	The risk associated with the performance of the bank's business functions, as well as the risk of fraud and external events, create a large number of IT interdependencies and market infrastructure. This leads to IT risk, which can escalate into a systemic crisis, especially when services are provided by dominant market participants. The activities of FinTech companies in the banking sector complicate the entire banking system and attract new entrants that may have limited experience in managing IT risks.
Compliance risk	The risk of data privacy violations and non-compliance with laws and standards may arise from the processing of large amounts of information and the use of outsourcing.
Outsourcing risk	The transfer of certain business processes to third parties increases the uncertainty of the responsibilities of participants in the value chain, which increases the likelihood of operational incidents. The main task of banks is to control transactions that take place outside their borders and manage risks. If FinTech companies act as service providers, banks should be more cautious when executing contracts and ensure the safety of the bank and customers.



Risk of a cyber attack	The risk arises in part from banks' dependence on software and information technology. Attackers are interested not only in the actions of banks but also in confidential customer data. This underscores the need for banks and FinTech companies that use the latest developments in mobile payments, online lending, and digital transfers to effectively manage and control cyber risks.
------------------------	--

A source: [2, 11]

Figure 7 shows statistics on the risks that Ukrainian banks have faced or may face.



**Figure 7 - Risks faced by Ukrainian banks**

Authoring

It should be noted that FinTech is not a threat to banks, but rather an opportunity. Banks that can effectively use FinTech technologies will be able to increase their competitiveness, improve the quality of services, and win new customers.

## Summary and conclusions.

By studying the impact of fintech on the development indicators of the Ukrainian banking system, we concluded that there is a positive trend, which indicates the effectiveness of the use of financial technologies in banks. The number of bank branches tended to decrease during 2019-2023, which is a positive trend for banks. In terms of lending, banks increased their volumes during the period under review, but in



2023 failed to reach pre-war levels. The growth in lending was primarily due to the use of the latest technologies by banks. It is also worth noting that by 2023, banks will save approximately \$447 billion through the development and implementation of AI applications, and according to autonomous studies, artificial intelligence is expected to reduce banks' operating costs by approximately 22% by 2030. By implementing blockchain, banks can save 70% of centralized financial reporting costs, 50% of business costs, 30-50% of compliance costs, and 50% of centralized operations. In addition, we have identified the risks faced by banks in the development of fintech, which also have a significant impact on its development, so it is worth identifying and avoiding them in time, as they affect not only the banks themselves but also their customers. In general, when examining the impact of digitalization on the Ukrainian banking system, we can say that potential benefits outweigh costs by 10%, which is a positive trend in the implementation of fintech by banks.