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Financial technologies in the development of banking activities in Ukraine's financial market

Maria Iorgachova*
PhD in Economic Sciences, Associate Professor
Odesa National Economic University
65082, 8 Preobrazhenska Str., Odesa, Ukraine
https://orcid.org/0000-0003-1933-6447

Olena Kovalova
PhD in Economic Sciences, Associate Professor
Odesa Polytechnic State University
65044, 1 Shevchenko Ave., Odesa, Ukraine
https://orcid.org/0000-0002-2080-1150

Abstract. The study of financial technology applications in banking is highly relevant, as financial technologies serve as a primary driver of change in the banking sector, facilitating the development of new products, optimising operations, and expanding access to financial services. This article aimed to examine the role of financial technologies in the development of banking activities and to identify directions for their advancement through the application of modern financial technologies. The research employed methods of analysis, synthesis, systematisation, and comparison to explore the theoretical foundations of financial technology utilisation. Grouping, tabular, and graphical methods were used to assess the current state of financial technology adoption in the banking sector, alongside abstraction and generalisation techniques. In the digital era, banks must implement innovations to maintain competitiveness. The analysis of financial technology applications has made it possible to identify current trends and potential areas of implementation in the Ukrainian banking sector, as well as to adapt decision-making processes regarding their use to the realities of the Ukrainian market, ensuring more flexible financial services for clients. It has been identified that the growing popularity of digital platforms has been accompanied by an increase in cyber risks. Therefore, the study of fintech has also contributed to ensuring cybersecurity and customer trust, with the development of effective data protection strategies emerging as a key factor in the stability of the banking system. The study also reviewed academic research confirming the relevance of financial technologies in banking, analysed the nature of fintech, its types and role in the banking sector, and assessed the state of Ukraine's fintech market. Recommendations for the development of the fintech market were proposed. The practical implementation of the recommendations provided in the study, particularly concerning the adoption of modern financial technologies such as blockchain, artificial intelligence, Big Data, and open interfaces, will enhance transparency, cybersecurity, and the adaptability of both the banking sector and the financial market of Ukraine as a whole to contemporary challenges

Keywords: banking system; financial services market; innovative technologies; directions for banking development; improvement of bank activities

Introduction

From 2021 to 2024, financial technologies (fintech) have become a key driving force in the transformation of the banking sector. This is because they enable the creation of new products and services, improve the efficiency of operations, and expand access to financial resources. In the context of global digitalisation, banks face the need to

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*Corresponding author

implement innovative solutions to remain competitive. The study of fintech helps to understand current trends, assess risks and opportunities, and adapt them to the Ukrainian context. This ensures the creation of more flexible and convenient financial services for customers.

Fintech research is also important for increasing financial inclusion, which remains a relevant issue in Ukraine. Thanks to digital tools, banks can provide services remotely, which is important for rural areas, where banking infrastructure is limited. Furthermore, fintech technologies open up new opportunities for small and medium-sized businesses by providing access to alternative financial sources, such as online lending and crowdfunding.

The importance of researching financial technologies is also due to the need to ensure cybersecurity and customer trust in banking systems. The increasing popularity of online payments and digital platforms has been accompanied by an increase in the risks of fraud and cybercrime. Analysing modern technologies and their vulnerabilities has allowed the development of effective strategies for protecting customer data and financial assets, which is essential for the stability of the banking system.

Scholarly interest in the essence of the term "financial technology" has led to the emergence of various approaches to its interpretation in contemporary economic literature. This concept can be understood in both broad and narrow senses. According to R. Bezpalyi (2021), in a broad sense, financial technologies encompassed innovative solutions that find application in everyday life, business, and large-scale government programmes, facilitating their effective implementation and operation. Researchers E. Feyen *et al.* (2023) proposed a narrow definition of financial technologies, viewing them as the result of revolutionary changes in the fields of mobile internet, smartphones, and internet technologies in general. In their view, the key feature of financial technologies was the speed of their development and the dynamic expansion of their applications. Initially, they were limited to computer solutions used in the banking sector, but over time, their influence has significantly expanded, covering personal, corporate, and public finance. V. Unynets-Khodakivska (2022) noted that financial technologies were a complex of interconnected innovative solutions, including mobile networks, Big Data, cloud computing, distributed ledger technologies, artificial intelligence (AI), and data analytics. These technologies, working in synergy, form a wide range of financial operations that were transforming the industry.

Some researchers have highlighted the trend of fintech companies replacing traditional financial market participants. They defined financial technologies as technologically enabled innovations in the financial sector, capable of creating new business models, applications, processes, or products. These innovations have significantly transformed financial markets and the activities of institutions providing financial services. As researcher L. Melnyk (2024) noted, the term "financial technologies" referred to the use of modern technologies to automate, improve, and optimise financial services and operations. Fintech solutions included information technology, blockchain, AI, data analytics, mobile platforms, and other innovative tools. They contributed to the creation of new financial products, increase process efficiency, and improve the quality of customer service. Furthermore, financial technologies were used to increase the accessibility of financial services, as well as to stimulate various innovations, while strengthening competition in the financial sector.

O.M. Petruk *et al.* (2022) identified four main approaches to interpreting the concept of "financial technologies": as a technology, as an innovation and business model, as an industry, and as a service. Each of these approaches had its own advantages and justifications, but all of them were based on the latest technologies that formed the foundation of fintech. Research on the role of financial technologies in the activities of foreign banks, including Islamic banks and financial institutions, was the focus of the study by A.A.A. Rahman *et al.* (2023). The study by H. Ismanto *et al.* (2023) was dedicated to analysing the impact of financial technologies and banking system stability on credit indicators and credit availability, using the example of Indonesian state commercial banks. It was worth noting that many scientific achievements by economic scholars have been dedicated to the study of financial technologies in banking. However, given the current innovative development of financial technologies, this issue required further research.

This research aimed to investigate the role and advantages of financial technologies in the development of banking activities based on a generalisation of theoretical aspects and to identify possible directions for its development in the financial market of Ukraine through the use of modern financial technologies. To achieve this aim, the following objectives were set in the research: 1) to consider the types of financial technologies in the financial market and one of its largest segments – the banking sector; 2) to determine the significance and advantages of using financial technologies for the development of banking activities; 3) to substantiate the directions of development of financial technologies in banking activities, as a key segment of the financial market of Ukraine.

Materials and Methods

In the process of this research, both general scientific and specialised research methods were used. When studying the theoretical foundations of the use of financial technologies in the financial market, particularly in banking, methods such as analysis and synthesis were applied; the method of comparison was used, when considering existing definitions of the term "financial technologies" by various scholars. In particular, most researchers noted the presence of an innovative

component, when considering financial technologies and their relationship to the financial market (Bezpalyi, 2021; Unynets-Khodakivska, 2022). However, other views focused on considering financial technologies as a complex system. For example, N. Demchyshak & R. Hudyma (2021), T. Staverska *et al.* (2023), and S. Viazovyi (2023) considered the field of financial technologies as a complex system that unites all financial market participants involved in ensuring its effective operation. O.M. Petruk *et al.* (2022) identified four key approaches to understanding the term "financial technologies", one of which was that financial technologies were an innovative business model. Despite the differences in interpretations, the common basis of all approaches was modern technologies, which served as the foundation of the fintech sphere.

Additionally, a system-structural method was used in the research to systematise the stages of financial technology development in the modern financial market. In the process of analysing the application of financial technologies in the Ukrainian banking system, an economic-statistical method was used to determine the proportion of financial institutions that were clients of fintech companies. Grouping, comparison, and classification methods were used in compiling a list of the main types of financial technologies in the modern global financial market and in comparing the cooperation of Ukrainian banks with fintech companies. The tabular method was used in compiling tables concerning the fintech products of individual Ukrainian banks, the use of fintech solutions in the activities of some Ukrainian banks, and the tabular presentation of the results of a comparative analysis of neobanks operating in the Ukrainian financial market. The graphical method was used to visually represent the components of financial technologies as a complex economic system, the types of payment innovations in banking, the global dynamics of transactions made using mobile wallets, and fintech funding by sector. SWOT and PEST analysis methods were conducted to identify existing prospects for the implementation of modern financial technologies in the banking activities of Ukraine. Methods of scientific abstraction and generalisation of the obtained results allowed for substantiating the prospects of using financial technologies for the development of banking activities in Ukraine.

Results and Discussion

The rapid progress of digital technologies in various areas of the economy, business, organisational activities, and the daily lives of the population has led to the emergence and active implementation of innovations in the financial sector, known as financial technologies (fintech). A detailed periodisation of the development of the essence of financial technologies was presented in Table 1.

Table 1. *Stages and features of financial technology development in the global financial market*

Stages	Features of financial technology development	Examples
Initial stage (2000-2010)	This was the dawn of digital financial solutions. The internet and mobile communications began to actively integrate into the financial sector, leading to the emergence of the first online banks and electronic payment systems. Platforms like PayPal became innovative tools for convenient and fast transactions. In addition, financial institutions began to implement software solutions to automate their processes, including CRM systems, which facilitated customer relationship management	Electronic payment systems; electronic money; personal financial managers
Consolidation stage (2010-2015)	This period was marked by the active development of mobile applications, which made financial services accessible at any time. Peer-to-peer lending platforms emerged, offering users new ways to obtain loans and invest funds directly, without the participation of traditional financial institutions. This stage was also characterised by the emergence of contactless payment methods, such as Apple Pay, which were made possible by the development of NFC technologies. Cloud computing made financial services more scalable, flexible, and cost-effective	Mobile applications; roboadvisors; contactless payments; cloud computing; P2P platforms
Fintech revolution stage (2015-2020)	During this time, the world witnessed a rapid growth of fintech startups that actively attracted investment. In particular, blockchain technologies and cryptocurrencies became one of the main trends, offering decentralised solutions for financial operations. Neobanks, such as Revolut and N26, emerged, operating entirely in the digital environment, offering customers fast and simple financial services. The integration of artificial intelligence and Big Data opened up new opportunities for personalising financial products and combating fraud. In addition, regulatory automation technologies, known as RegTech, significantly simplified compliance with legal requirements	Blockchain; cryptocurrencies; AI; crowdfunding; ICOs; neobanks; analytical platforms; regulatory automation platforms
Active development stage (2020-present)	In this period, fintech integrated with other industries, including e-commerce, which made financial services even more accessible. Central banks began to actively develop digital currencies, such as e-CNY in China, which became a new stage in financial history. Open banking technologies expanded access to financial services for customers and businesses. Along with this, machine learning continued to improve in combating financial crimes. The development of decentralised finance, based on blockchain, also became an important trend, continuing to change the global financial ecosystem	Online banks; integration technologies; CBDC projects; decentralised financial platforms; fraud prevention technologies

Source: *based on O. Shevchenko & L. Rudych (2020), V. Unynets-Khodakivska (2022), L. Melnyk (2024)*

The data in Table 1 demonstrated that each stage of financial technology development was associated with new opportunities and innovations that have transformed the modern financial market, making it more open, convenient, and efficient. According to scholars S. Obushnyi *et al.* (2023), the key drivers of the rapid development of financial technologies included the active implementation of digital technologies, the widespread adoption of the Internet, the growth of innovative activity, increased consumer demands for convenience and speed of service delivery, as well as for the quality and reliability of information. Added to this were the dynamic development of e-commerce and the successful experience of technology companies in other sectors of the economy, which have inspired the creation of new financial solutions.

Authors O. Shevchenko & L. Rudych (2020) noted that the development of financial technologies brought several significant advantages. The ability to make payments in real-time, lower prices for consumers, and easier access to a wider range of financial services were among the main benefits. Moreover, modern financial technologies open up new opportunities for both individuals and representatives of small and medium-sized businesses in terms of access to financial resources. Their dynamic development contributed to increased competition in the market, encourages financial institutions to implement modern information technologies, and promotes the diversification of business models. Among other potential outcomes of using financial technologies in the financial sector, one can highlight improved pricing efficiency and reduced information asymmetry. At the same time, the widespread adoption of these technologies was hindered by several barriers that slow their development. The main obstacles included inadequate legislative regulation, the unpredictability of user behaviour when making decisions, and limited access for certain consumers to modern financial services due to a lack of necessary devices or the skills to use them. It was worth considering the list of the main types of financial technologies in the modern global financial market (Table 2).

Table 2. *Types of financial technologies in the modern financial market*

Category	Types
Mobile payment systems and platforms	PayPal – one of the most common platforms for online payments. Apple Pay and Google Pay – mobile wallets for contactless payments. Venmo – a popular platform in the USA for simple P2P transfers. WeChat Pay and Alipay – leading mobile payment services in China. Square – a system that provides POS solutions for small businesses
Technologies supporting financial services	Plaid – an API for integrating banking data with applications such as Venmo or Robinhood. Stripe – solutions for processing online payments and managing business transactions. Adyen – a platform that allows accepting payments through various channels (mobile, POS, online). Fiserv – technological solutions for automating banking processes. SAP Fioneer – systems for managing the finances of large companies
Blockchain and Big Data	Ethereum – a decentralised platform for creating smart contracts. Ripple – technology for instant transactions between banks. Chainalysis – an analytical tool for tracking transactions in the blockchain. Elliptic – a transaction monitoring system for anti-money laundering (AML). Cloudera – solutions for managing Big Data in the banking sector
Biometric technologies	Face ID (Apple) – biometric identification for access to financial applications. Mastercard Identity Check – facial recognition technology for payment verification. Nuance Security Suite – voice identification solutions for customer authentication. BIO-key – multi-factor authentication using fingerprints. EyeVerify – retina vein analysis technology for financial transaction security
Digital currency technologies	Bitcoin – the first and most popular cryptocurrency. Tether (USDT) – a stablecoin pegged to the US dollar. CBDC (Central Bank Digital Currency) – digital currencies of central banks, such as e-CNY in China. Libra (Diem) – a digital currency project initiated by Meta (Facebook). Binance Coin (BNB) – a cryptocurrency supporting operations on the Binance platform
Artificial intelligence technologies	Kensho – AI for financial market analytics. Zest AI – machine learning-based credit scoring technology. Kasisto – chatbots for automating customer service. Darktrace – a cybersecurity system using AI to detect threats. Bloomberg Terminal – uses AI to provide financial data and forecasts

Source: *based on O. Shevchenko & L. Rudych (2020), T. Staverska et al. (2023), L. Melnyk (2024)*

The pursuit of innovation and digital transformation in the financial industry was reflected in various types of financial technologies. The development of financial technologies – from payment systems and loans to blockchain and digital banks – contributed to increasing the efficiency and accessibility of financial services for different segments of users. An analysis of the research conducted by Ukrainian economists on the nature of financial technologies had identified their key characteristics:

1) they stimulate the creation of new innovative products, services, and technologies, opening up new opportunities for the market;

2) they are a key element in the formation of modern business models for both financial intermediaries and market participants, including fintech companies;

3) they are considered disruptive or radical innovations, as they change traditional financial services and transform the financial market as a whole;

4) they are the basis of financial innovations, as they are inherently innovative and determine the direction of development of the financial market.

Financial technologies can be represented as a multi-component system that integrated various spheres, including cutting-edge technologies, financial services, startups, and the infrastructure that ensured their functioning and interaction (Fig. 1). According to N. Demchyshak & R. Hudyma (2021), the financial technology market was a complex ecosystem that united all participants in the financial market involved in its functioning. Among the main participants, they highlighted fintech startups, regulatory bodies, banks, international payment systems, professional associations of bankers and financiers, and service providers. Meanwhile, according to T. Staverska *et al.* (2023), the financial technology market included financial institutions, technology companies, startups (including investors, business incubators, and accelerators), as well as end-users of financial services. Financial technologies were an innovative field that combined financial services and modern digital technologies to create efficient, accessible, and personalised financial products and services. In 2023, Ukrainian fintech companies continued to expand their target audience, changing the focus of their activities. While before 2023, the main attention was focused on large businesses, in 2023, the structure of the customer base changed (Fig. 2).

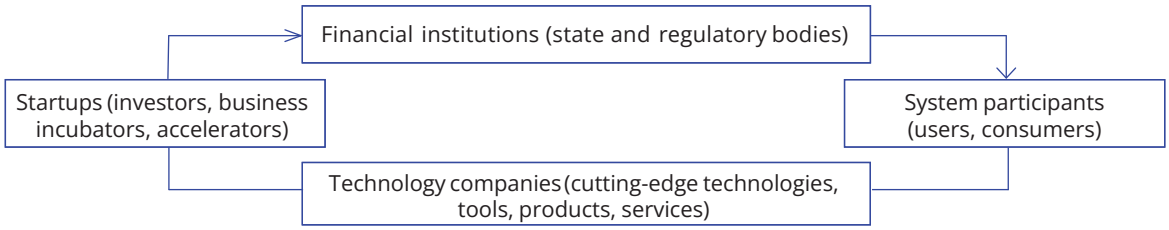

Figure 1. *Financial technologies as a complex economic system*
Source: *based on N. Demchyshak & R. Hudyma (2021), S. Viazovyi (2023), T. Staverska et al. (2023)*

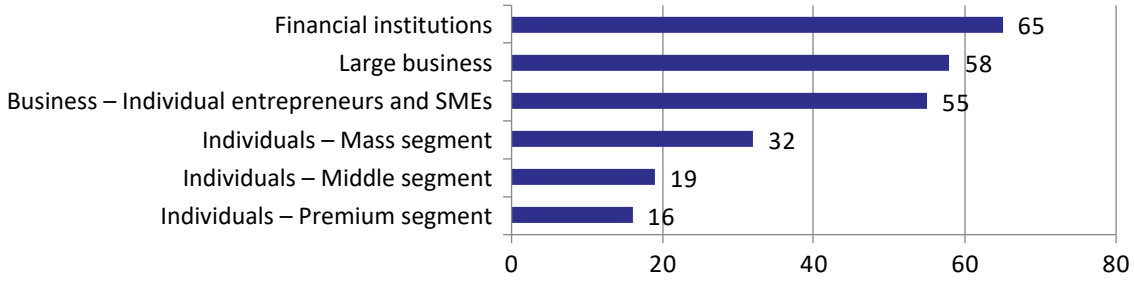

Figure 2. *Target audience of Ukrainian fintech companies in 2023, %*
Source: *based on Ukrainian catalogue of fintech companies 2024 (2024)*

This trend continued into early 2024. As the data showed, financial institutions remained the primary clients of Ukrainian fintech companies – this was emphasised by 65% of fintech companies. A significant proportion of clients were large businesses (58%), individual entrepreneurs and small and medium-sized businesses (55%). The individual segment was also a focus for fintech companies: 32% of companies target the mass market, 19% target the middle segment (middle class), and the smallest proportion – only a small fraction – work with the premium segment of individuals.

The National Bank of Ukraine had identified the creation of favourable conditions for the development of modern digital financial services, innovation, and the fintech industry as one of its key priorities (Strategy for the development of fintech..., 2020; Strategy for the development of the financial..., 2020). This approach was aimed at increasing the efficiency of both banking and nonbanking financial institutions, which was critical for economic growth and the post-war recovery of the country. Significant results were achieved in this direction during 2021-2023. An important step was the entry into force of the Law of Ukraine No. 1591-IX (2024), which created a basis for the qualitative transformation of the financial market. Its provisions provided an incentive for the introduction of new solutions and technologies that contributed to the development of a competitive and innovative financial ecosystem in Ukraine.

In April 2023, Ukraine transitioned to a new generation of the Electronic Payment System (EPS), which operated based on the international standard ISO 20022 and

provided the ability to conduct interbank transactions 24/7 (Implementation of ISO 20022 standard, 2023). The introduction of instant payments may lead to a reduction in the cost of cashless payments for end-users by increasing competition in the payment services market. In addition, instant payments will have several additional advantages, including:

1) reducing the costs of payment transactions, making them more accessible to the population and businesses;

2) stimulating the development of the payment services market, including the creation of innovative services by its participants;

3) promoting financial inclusion by simplifying access to financial products and services;

4) positively impacting the country's economy through GDP growth;

5) integrating into the European payment infrastructure, supporting the implementation of the EU's instant payments strategy;

6) strengthening the role of open banking and expanding its capabilities for users.

In 2023, the National Bank of Ukraine completed the development of an instant payment model based on the international standard ISO 20022 and the SEPA Instant Credit Transfer scheme (Implementation of ISO 20022 standard, 2023). This initiative was an important step in modernising Ukraine's payment infrastructure and created a foundation for a more efficient functioning of the financial market.

Analysing the impact of financial technologies on the Ukrainian banking sector, it was worth highlighting the national BankID NBU system. This tool has become a key element in expanding financial inclusion and overcoming barriers to access to financial services. The system provided instant transmission of users' personal data from banks to providers of various services, including government agencies, banks, other financial institutions, and commercial companies. Thanks to this, BankID NBU had contributed to increasing the convenience, accessibility, and speed of service for citizens and businesses.

In 2024, the BankID NBU system processed 87.7 million successful electronic identifications, compared to 42.9 million in 2023, representing a 104% (or 44.8 million transactions) increase over the 2023 figure. During this period, 22 new service provider subscribers joined the system, including 18 commercial, 3 non-commercial institutions, and 1 NBU bank identifier. The NBU made several significant adjustments to develop the BankID system. In particular, the NBU introduced separate inter-subscriber payments and standardised data sets. These innovations expanded the ability of institutions to attract new clients and provide services to existing ones through remote channels. A flexible approach to tariffs and standardisation ensured increased security of data transmission, while optimising the costs of service providers. These steps contributed to increasing the efficiency of the system's operation and stimulated its further implementation in the financial sector of Ukraine (Official website of National Bank of Ukraine, 2025).

The National Bank of Ukraine also introduced an online service that provided individuals – bank borrowers – with access to information from the Credit Registry. Clients can now obtain data on their own debt by authenticating through the BankID NBU system on a dedicated page of the regulator's official website. To enhance the convenience of interaction with subscribers, a new functionality was introduced – an automated dispute resolution system, which became available from May 2024 in the "Personal Account" of the subscriber (Official website of National Bank of Ukraine, 2025).

Considering the main aspects of fintech companies' policies in collaboration with banks, the following key areas were identified:

1. Fintech in lending (providing loans for small and medium-sized businesses, project financing, mortgage programmes, consumer loans, credit cards).

2. Support for banks through fintech services (intermediary services in lending, including application processing and verification, underwriting, credit scoring, servicing, and debt collection, BaaS (Banking as a Service) solutions, credit risk management; as well as intermediation in deposit operations, including customer acquisition (onboarding), identity verification (including KYC (Know Your Customer) and AML (Anti-Money Laundering)/CFT (Countering the Financing of Terrorism)), use of BaaS solutions).

3. Fintech in deposit attraction (accepting deposits, developing savings products and digital "wallet" tools, personal finance management, providing P2P payments).

As a result of analysing the state of banking business in Ukraine for the period 2021-2024, it was determined that financial institutions primarily focused on improving their IT systems. The main priorities were ensuring reliable protection of customer and bank data from cyberattacks, as well as reducing operating costs. The implementation of other fintech solutions was secondary. At the same time, a significant number of Ukrainian banks were already actively cooperating with fintech companies or planning such partnerships in the future. This interaction allowed financial institutions not only to reduce investment costs, but also to reduce the risks associated with the development and implementation of new technological solutions.

All respondent banks either collaborated on fintech projects or were ready to start them, according to a study conducted by the National Bank of Ukraine and the Ukrainian Financial Technology Association on the level of cooperation between Ukrainian banks and companies operating in the field of financial technologies (Table 3).

Table 3. *Cooperation of Ukrainian banks with fintech companies*

Bank	Joint projects			Development of own investment projects			Own incubation/ acceleration			Investments in startups		
	No	Planned	Yes	No	Planned	Yes	No	Planned	Yes	No	Planned	Yes
PrivatBank	+					+		+		+		
Oschadbank			+		+		+			+		
Ukrgasbank			+			+	+			+		
Raiffeisen Bank Aval			+			+		+		+		
Alfa Bank			+			+	+			+		
UkrSibBank			+	+	+				+	+		
PUMB			+			+	+			+		
Credit Agricole		+				+		+		+		
OTP Bank			+		+				+	+		
Tascombank		+				+	+			+		
MegaBank			+			+	+			+		

Source: *based on Ya. Drobotya et al. (2021), Ukrainian catalogue of fintech companies 2024 (2024), Official website of National Bank of Ukraine (2025)*

Typically, banks prefer joint projects instead of creating their own innovation centres, although this strategy was also present in the market. It was worth emphasising that 63% of projects were financed by banks from their own resources, and all of them had already reached the break-even point. The listed banks had their own acceleration programmes, such as Alfa Digital, POPCORP, Raiffeisen Digital HUB, Open Banking Lab, and were actively working on the development of banking fintech products, including Airpay, IPay, LigPAY, QR-PAYMENTS, Privat24, Chatbot "Online Assistant", Oshchad PAY, Oshchad 24/7, Aifa-mobile, PUMB online, PUMB mobile, UKRSIB online, Raiffeisen Pay, Raiffeisen Online, OTP Smart. The structure of the most wellknown fintech solutions of Ukrainian banks was shown in Table 4.

Table 4. *Fintech products of individual Ukrainian banks*

Bank	Banking fintech products
PrivatBank	Applications Privat24, Privat24 for Business, LiqPay terminal, PrivatPay, FacePay24, QR codes, PrivatMoney
Monobank	Application Monobank, Monopay, Mono terminal, QR codes, Market
Raiffeisen Bank Aval	Terminal in smartphone, Raiffeisen Business Online, Pay by link
Oschadbank	Chatbot "Online Assistant", Oshchad PAY, Oshchad 24/7
Ukrgasbank	Welsend, EcoBank

Source: *based on the Official website of National Bank of Ukraine (2025)*

PrivatBank was one of the first Ukrainian banks to begin integrating fintech technologies into its operations, and it was considered one of the most innovative banks in the world. Its mobile application, Privat24, offered a wide range of services for individuals, including transfers between Visa and Mastercard cards, including international transfers; mobile phone top-ups; utility bill payments; account and card management; opening deposits and obtaining loans; insurance policy issuance; budget planning; automatic payments; searching and paying for tickets for various modes of transport (trains, planes, buses, city transport); cash ordering; generating certificates, checking credit ratings; a "Piggy Bank" function for savings (Official website of PrivatBank, 2025).

In turn, the "Privat24 for Business" application offered a range of useful functions that significantly simplify entrepreneurial activity. Among them were the "Charity" widget, which allowed support for the Ukrainian army; access to the "Terminal" application, which turned a smartphone into a POS terminal; SmartID – free cloud-based KEP (Qualified Electronic Signature) keys for quick and secure signing of electronic documents; a payroll project that allowed employees to be paid at preferential rates through the application; electronic reporting – creating and submitting reports and tax returns to regulatory authorities; business reputation dossier – a tool for checking companies and assessing cooperation risks. Additionally, "Privat24 for Business" offered many other functions that simplified the interaction of enterprises with banks, customers, and government agencies (Official website of PrivatBank, 2025).

One of PrivatBank's innovative developments was LiqPay – an in-house payment system that significantly simplified online transactions for individuals and legal entities. It supported a wide range of payment methods, including card data entry, FacePay24 – payment confirmation through facial scanning, PrivatPay – payment via transaction confirmation in Privat24, integration with

Google Pay and Apple Pay, payment using a QR code, and the "Payment in Parts" service. In addition, the bank offered the international payment system PrivatMoney, which allowed money transfers not only within Ukraine, but also abroad. PrivatBank was also working on the implementation of cutting-edge technologies, such as a behavioural biometrics system that will analyse about 300 parameters, and the "Shops and Filling Stations Instead of ATMs" programme. Thanks to innovations and adaptation to the challenges of wartime, PrivatBank was actively expanding its operations in Europe. Moreover, this bank was instrumental in launching and popularising Apple Pay in Ukraine (Official website of PrivatBank, 2025). It was worth noting that Monobank also offered various payment methods for businesses, including Google Pay and Apple Pay; QR code scanning; manual entry of details; NFC payment; the "Terminal by mono" application, which allowed not only to accept payments, but also to create daily sales statistics. However, this service had one significant drawback – it was only available to users of the Android operating system (Official website of Monobank, 2025).

Raiffeisen Bank Aval, similar to Monobank, also provided mobile applications for individuals and businesses. In addition to standard functionality, the mobile application for individuals offered: deposits with increased interest rates; and cashback in certain categories. For businesses, the application was undergoing updates, and several useful functions had already been added. Agreements on the stock market; a payroll project; monitoring of SWIFT transfers; official correspondence with the bank and other services had been added. Raiffeisen Bank Aval, like Monobank, offered the "terminal in smartphone" function. This required a mobile application, an open account with the bank, and a smartphone with Android OS. The bank also offered the Pay by Link service, which allowed the creation of QR codes or links for online invoice payments. This provided a simple and fast way to accept card payments over the Internet (Official website of Raiffeisen Bank, 2025).

Oschadbank, as one of Ukraine's state-owned banks, offered its customers a range of useful functions through its mobile application. Among its capabilities were: income and expense analysis with categorisation, which helped manage finances more effectively; online currency exchange, which allowed for convenient currency conversion without visiting a branch; biometric customer identification to ensure transaction security; and the creation of templates for recurring payments, which saved time. For businesses, Oschadbank offered the CorpLight platform, which provided all the basic functions for managing business accounts. This solution allowed for online financial transactions, making business management more convenient and efficient. One of the bank's unique developments was the My Transfer payment system, which provided fast money transfers. To use this service, customers must: visit an Oschadbank branch or My Transfer point, confirm their identity with a document, deposit the required amount, and receive a transfer control number via SMS (Official website of Oschadbank, 2025).

Ukrgasbank, although not always associated with innovation or readiness for bold fintech solutions, offers unique ideas for Ukraine, particularly in the field of eco-banking. The bank actively promoted the concept of eco-banking through its mobile application "Eco-Bank", which, in addition to standard services, offered: lending and investment in environmental projects; special conditions and rates for eco-loans. This solution was important not only for increasing the bank's revenues, but also for contributing to environmental protection and supporting the sustainable development of society. Ukrgasbank had its own payment system, Welsend, which allowed transfers both within Ukraine and abroad. Transfers were available in currencies such as UAH, USD, and EUR, providing convenience and flexibility for customers (Official website of Ukrgasbank, 2025). An analysis comparing the use of fintech solutions in the activities of Ukrainian banks was presented in Table 5.

Table 5. *Use of fintech solutions in the activities of some Ukrainian banks*

Bank	Application for individuals	Application for legal entities	Payment system	Payment service	Acquiring
PrivatBank	✓	✓	✓	✓	✓
Monobank	✓	–	–	✓	✓
Raiffeisen Bank Aval	✓	✓	–	–	✓
Oschadbank	✓	✓	✓	–	✓
Ukrgasbank	✓	–	✓	–	✓

Source: *based on Official website of National Bank of Ukraine (2025)*

After analysing the progress of financial technology implementation in leading Ukrainian banks, it can be concluded that PrivatBank was the most innovative and technologically advanced. The second position was held by the state-owned bank, Oschadbank. Following them were Monobank, Raiffeisen Bank, and Ukrgasbank. Notably, Monobank was distinguished by the most user-friendly mobile application for individuals, Raiffeisen Bank by its business tools, and Ukrgasbank by its active promotion and accessibility of eco-loans.

Analysing the 2024 data, the following key trends in the development of financial technologies in the Ukrainian banking sector can be identified:

1. Expansion of electronic channels for providing banking services, such as internet banking and mobile banking.

2. Contactless payments, both using contactless cards and smartphones and other NFC devices, were driven by the security, speed, and convenience of such transactions. Contactless payment has become an important financial innovation, the popularity of which has grown due to significant consumer demand. By the end of 2023, the market demonstrated the following indicators: the number of retail POS terminals increased to 449.5 thousand units, which was 25.5% more than in 2022; sales pointed that accept payment cards reached 459.7 thousand units, an increase of 44.9% compared to 2022; the number of ATMs was 15.8 thousand units, which was 1.1% more than in 2022; the total number of issued payment cards reached 1.151 billion units, exceeding the 2022 figure by 5%; the number of active payment cards reached 52.1 million units, which was 1.4% more than in 2023; the number of contactless payment cards reached 30.6 million units, which was 19% more than in 2022; the number of tokenised payment cards increased to 12.4 million units, which was 45% more than in 2022 (Official website of National Bank of Ukraine, 2025). As for 2024, this trend continued. The number of active POS terminals in the retail network in September 2024 increased by 8.6% compared to January (to 487.4 thousand units), and the number of points accepting payment cards increased by 10.9% (to 512.1 thousand units). The number of ATMs decreased by 1% to 15.8 thousand units. The total number of issued payment cards in the nine months of 2024 reached 122.1 million units, which was 6% more than in January 2024. The number of active cards used for expenditure operations increased by 5% – from 51.6 million to 54.1 million. The number of contactless cards increased by 9% during this period, accounting for 61.4% of all active cards. The popularity of tokenised cards also grew: their number has risen by 19% since the beginning of 2024 (to 14.9 million units), and they accounted for almost 28% of the total number of active cards. The share of contactless transactions continued to grow, reaching 94.2% by value and 95.3% by the number of transactions in the nine months of 2024. 4.23 billion transactions were made for 1349.1 billion UAH, which was significantly more than in the same period in 2023 (3.28 billion transactions for 1032.9 billion UAH). These figures indicated the rapid development of infrastructure and the growing popularity of contactless payments in Ukraine (Official website of National Bank of Ukraine, 2025).

3. Biometric identification. Among the most advanced customer identification technologies in Ukraine were: the use of fingerprints for transaction confirmation in the "Oschad 24/7" mobile application; and facial recognition through PrivatBank's FacePay24 service. These technologies were being integrated into tablets and smartphones, meeting user expectations and EU requirements for ensuring reliable identification. Their implementation contributed to increasing the security of financial transactions and ease of use.

4. Virtual internet banking technology (neobanks). Neobanks were modern banking platforms that, in terms of functionality, are not inferior to traditional financial institutions, but allowed savings on costs due to the absence of physical branches. In 2021, two new neobanks appeared on the Ukrainian market: NeoBank and Bank Vlasnyi rakhunok, and izibank exited beta testing. In addition, several banks offered their own online platforms for remote customer service, including Oschad 24/7, Privat24, iPUMB, and UniCredit Online. A comparative analysis of neobanks operating in the financial market of Ukraine was presented in Table 6.

Table 6. *Comparative analysis of neobanks operating in the financial market of Ukraine*

Financial service	NeoBank	Sportbank	Monobank	Izibank	Bank Vlasnyi rakhunok	Todobank
Virtual card	✓	–	–	✓	✓	–
Credit line	✓	✓	–	✓	–	–
Foreign currency account	✓	–	–	✓	✓	✓
Deposit	✓	✓	–	✓	✓	–
Expense analytics	–	–	–	✓	✓	–
Non-personalised cashback	✓	✓	✓	✓	✓	✓
Personalised cashback	–	✓	–	✓	–	–
Ability to add a card from another bank	✓	–	✓	–	–	✓
Additional non-banking services	–	–	–	–	✓	–
In-app support service	–	–	–	✓	✓	✓

Source: *based on O. Shevchenko & L. Rudych (2020)*

According to the data in Table 6, Monobank was the leader among neobanks in terms of product diversity. Its product line included: offers for individual entrepreneurs (IEs), premium products, children's cards, the ability to buy or sell stocks, and an instalment payment function. In addition to expanding its product range, Monobank

actively invested in its own infrastructure: it launched its own acquiring service and developed unique ATMs, which strengthened its independence and functionality. NeoBank also implemented several similar products in its mobile applications, while making a clear division by service areas. NeoBank for All was aimed at individuals, and NeoBank for Business offered specialised services for IEs. In the ranking of neobanks in Ukraine by the number of activated cards and the level of mobile application functionality development, Sportbank took second place. This bank actively increased its customer base and developed digital capabilities.

SWOT analysis has become a tool for strategic planning, allowing for the assessment of strengths, weaknesses, opportunities, and threats that affect the development of a particular sector or activity. In the context of banking in Ukraine, the application of financial technologies has become an important aspect of financial market transformation, as the digitalisation of banking services has contributed to increased efficiency, accessibility, and competitiveness. Conducting a SWOT analysis has made it possible to comprehensively assess the key factors that shape the potential and challenges of fintech in the banking sector (Table 7).

Table 7. *SWOT analysis of the application of financial technologies in banking in Ukraine*

Strengths	**Weaknesses**
1. Rapid implementation of innovations due to the openness of the market to fintech. 2. Growing popularity of digital banking services among the population. 3. State support in the development of the digital economy (Diia, Cashless). 4. Availability of qualified IT specialists in the country. 5. Growing investor interest in the Ukrainian fintech market	1. Instability of the financial system due to the economic situation. 2. Low level of financial literacy among some customers. 3. High level of cyber threats and imperfect data protection systems. 4. Insufficient integration of banking systems with modern technologies. 5. Limited access to international funding due to military risks
Opportunities	**Threats**
1. Integration with international payment systems and expansion of service exports. 2. Development of Open Banking and APIs for interaction between banks and fintech. 3. Implementation of artificial intelligence and Big Data for customer analysis. 4. Attracting new customer segments through personalised services. 5. Using blockchain to increase transaction transparency	1. Increased competition from international fintech companies. 2. Economic instability due to military actions and political factors. 3. Regulatory restrictions on the implementation of new technologies. 4. Loss of customer confidence in the event of data security breaches. 5. Disruptions in the operation of critical systems due to cyberattacks

Source: *compiled by the authors*

Thus, based on the results of the SWOT analysis, the following conclusions can be drawn regarding development potential: Ukraine has significant potential for the development of financial technologies thanks to qualified personnel, state support, and demand for digital services. Integration with international systems and the implementation of cutting-edge technologies, such as AI, Big Data, and blockchain, can make the banking sector more competitive. Among the main challenges were economic instability, cyber threats, low financial literacy, and potential regulatory barriers. It was necessary to ensure the stability of the data protection system and increase customer confidence. To maximise the benefits of fintech, focus should be placed on adapting new technologies, actively educating customers, integrating with global markets, and improving cybersecurity. At the same time, it was important to actively work on stabilising the domestic economic environment and attracting investment.

The PEST analysis of financial technologies focused on the study of the macroeconomic environment in which the banking system of Ukraine operates. The political aspect considered legislative support for digitalisation, regulatory constraints, and the impact of military actions on economic stability. The economic factor analysed the inflation rate, the availability of foreign investment, and the influence of international financial markets. The social aspect covered the shift in consumer behaviour towards digital solutions and the growing demand for innovative banking products. The technological factor examined the development of Big Data, blockchain technologies, and artificial intelligence, which contributed to increasing the efficiency of financial services (Table 8).

Table 8. *PEST analysis of the application of financial technologies in banking in Ukraine*

Factor	**Indicators**
Political	1. State support for digital transformation (initiatives such as Diia, the Cashless programme). 2. Legislative framework for fintech development (including Open Banking and electronic payment regulation). 3. Impact of military actions on economic stability and banking infrastructure. 4. Tax policy regarding digital services and international investments

Table 8, Continued

Factor	Indicators
Economic	1. High inflation rate affecting the purchasing power of the population. 2. Limited access to international financial markets due to political risks. 3. Demand for digital services due to the growth of cashless payments. 4. Potential for attracting foreign investment in the Ukrainian fintech sector
Social	1. Spread of digital technologies among the population and the growth of smartphone usage. 2. Low level of financial literacy in some regions. 3. Growing demand for remote banking services, especially among the younger generation. 4. Positive perception of innovative services, such as digital wallets and mobile banking
Technological	1. Rapid development of artificial intelligence, Big Data, blockchain, and cybersecurity technologies. 2. Availability of highly qualified IT specialists in Ukraine. 3. Integration of Ukrainian banks with international payment systems (Visa, Mastercard). 4. Insufficient investment in cybersecurity infrastructure

Source: *compiled by the authors*

The PEST analysis of the application of financial technologies in Ukraine's banking sector led to the following conclusions:

1. Ukraine has demonstrated state support for digitalisation, which has created a favourable environment for fintech development. However, military risks and an unstable political situation have limited the full realisation of potential.

2. Economic conditions have created both challenges (inflation, and access to international capital) and opportunities (growing demand for cashless payments). It is necessary to attract investment for the stable development of fintech.

3. Social trends, such as the digitalisation of society and the popularity of mobile banking, have supported the development of fintech. At the same time, low financial literacy in some regions remains a significant obstacle.

4. Ukraine has significant technological potential thanks to a developed IT sector. However, infrastructural constraints, particularly in the field of cybersecurity, need to be addressed to ensure consumer confidence.

According to the SWOT and PEST analyses, existing opportunities for the integration of financial technologies into the Ukrainian banking system were explored, but there were also significant obstacles that needed to be addressed, including stabilising the political and economic landscape, increasing the financial literacy of the population, and developing technological infrastructure. In 2023, EY Global Financial Services Markets conducted a study to analyse fintech development trends and identify key funding sectors (Fig. 3). This analysis showed that the banking industry received the most funding in all markets studied. In China, with 92%, the highest percentage of fintech investment was in the banking sector.

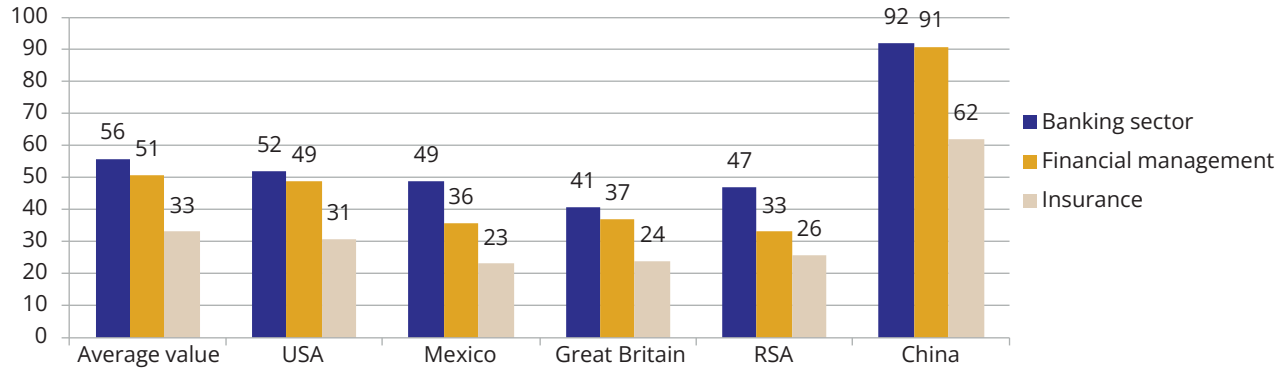

Figure 3. *Fintech funding by sector in 2023, %*

Source: *compiled by the authors based on E. Feyen et al. (2023)*

In the third quarter of 2024, the total amount of financial investments in the field of financial technologies reached 7.3 billion USD, which was 25% less than in the previous quarter of 2024 (Fintech trends 2025, 2025). Financial technologies in banking covered a wide range of innovative solutions that contributed to the automation, simplification, and improvement of the quality of financial services. AI and machine learning (ML) have become some of the most important innovative technologies in modern banking. Throughout 2023-2024, banks around the world actively implemented strategic approaches to the use of AI, which opened up significant prospects for its widespread application in this industry. According to forecasts from independent research, the implementation of AI can significantly optimise the operational activities of banks, allowing them to reduce their operating costs by approximately 22% by 2030 (Chui *et al.*, 2023). This highlighted the

importance of AI as a tool for increasing the efficiency and competitiveness of banking institutions on a global scale. Other important types of financial technology in modern banking included payment innovations, which included several elements (Fig. 4). Traditional physical wallets had been largely replaced by mobile wallets. These digital tools had significantly increased their audience and gained popularity as they allowed users to store and use credit cards, loyalty cards, and other payment instruments (Fig. 5).

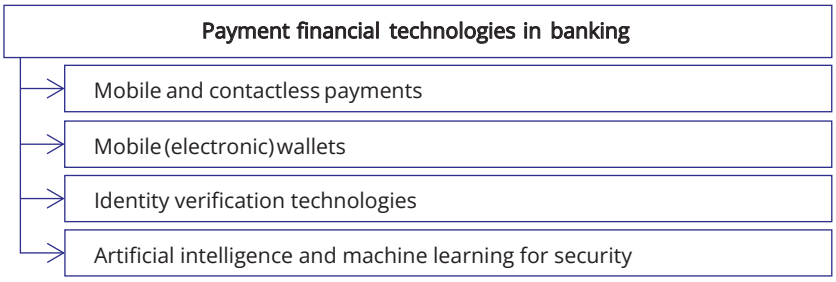

Figure 4. *Types of payment innovations in banking*
Source: *based on P.D. Nagorny (2020), N.O. Krykhivska et al. (2021), V. Matei & A. Buz (2022)*

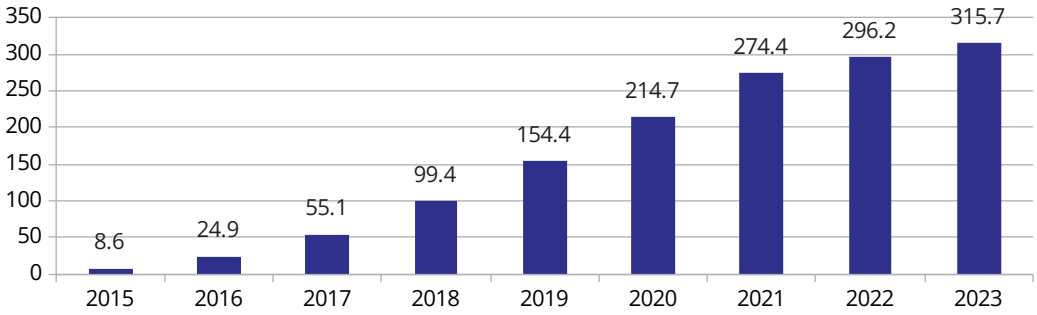

Figure 5. *Global dynamics of transactions made using mobile wallets, billion USD*
Source: *based on E. Feyen et al. (2023)*

The use of cloud technologies was another technology that had become increasingly popular. This was a set of information solutions that offered virtualised online access to computing power, including data processing, storage, and network resources. By using cloud platforms, customers can access the resources they need when they need them, eliminating the need to develop and manage their own physical servers and infrastructure. To increase operational efficiency and improve the quality of customer service, banking institutions were actively implementing these technologies into their operations. Cloud technologies offered several key advantages that make them indispensable for modern banking institutions:

1. Data storage and infrastructure access. By migrating their data and systems to the cloud environment, banks significantly reduce the costs of purchasing and maintaining equipment. Cloud platforms provide enhanced infrastructure reliability, allowing customers to access financial services quickly, at any time, and from any device, regardless of location.

2. Data analytics and processing. Cloud service providers offer powerful analytical tools for working with large volumes of information. This enables banks to more effectively analyse risks, optimise business processes, and improve decision-making mechanisms.

3. Cybersecurity. Cloud providers offer comprehensive solutions for protecting data and systems from cybercrime threats. These measures include real-time system monitoring, threat detection, the use of encryption to protect data, and other tools aimed at preventing and mitigating the effects of cyberattacks (Kondratska & Duma, 2023).

One of the modern financial technologies that was finding increased application in the banking sector was open banking. This was an innovative approach that enabled cooperation between banks, third-party companies, and technology solution providers, creating integrated networks for data exchange. Open banking allowed for the secure transfer of customers' financial information with their consent. For example, this could be data on spending, payment habits, or financial preferences. Through the use of API (application programming interface) and AI technologies, third-party services can access customers' banking and financial data, which enabled effective financial management, the creation of personalised services, and the improvement of customer experience (Dovhan & Halitseiska, 2021).

Open banking technology opened up opportunities for creating innovative financial products and services, including personalised payments, budget management, comparison of financial offers, optimisation of risk allocation, and other solutions. Within this technology, APIs played a critical role, ensuring the transmission of commands to third-party providers. APIs were also the basis for the functioning of the Banking-as-a-Service (BaaS) concept, which had become an important element of open banking. BaaS involved an end-to-end process of integrating fintech companies and other businesses with banking systems via APIs. This approach allowed third-party organisations to provide banking services to customers using the infrastructure of financial institutions, which contributed to accelerating innovation in the financial sector and expanding the availability of services (Bezpalyi, 2021). BaaS enabled companies without a banking licence to access a wide range of banking services. This included opening accounts, processing payments, lending, storing funds, and other financial transactions, without the need to develop their own banking infrastructure or obtain a licence. Instead, companies integrated with existing banking systems using open APIs. Open banking technology was gaining popularity at an extraordinary pace, and the number of its users was constantly growing. The largest growth had been observed in Europe, as well as in the Far East and China. The active use of open banking in these regions had created favourable conditions for the further development of the technology, expanding its capabilities, and improving its functionality.

Microservices were another important element of modern financial technologies that were actively used in banking. Their main idea was to provide high flexibility for the implementation of fintech solutions, which contributed to the creation of innovative and advanced technologies. This flexibility allowed the banking sector to quickly adapt to competitive conditions and dynamic market changes. Microservices allowed for the development of independent, modular applications, each of which can be specifically configured to solve individual tasks and meet the unique needs of the banking business. This approach increased efficiency, ensured scalability, and allowed for rapid response to new challenges.

Traditional monolithic banking systems were built on a single code base to create a single module. Due to the high interdependence of components, any change in the system required significant changes to the entire architecture. This had made such systems obsolete in the modern financial industry, where individual and adaptive technological solutions had become increasingly important. The integration of microservices had solved these problems, providing a significant impact on the business results of banks. It had allowed for: increasing employee motivation by engaging them in innovative projects; increasing the productivity of business processes through flexibility and automation; accelerating the launch of new products on the market by reducing development and implementation time; reducing the number of defects in products and services by improving their quality and reliability. Thus, microservices have become a key element for modernising banking platforms and increasing their competitiveness (Dovhan & Halitseiska, 2021).

Based on the research results, the main types of existing modern financial technologies that can be used in the banking activities of Ukraine had been systematised (Table 9).

Table 9. *Key types of financial technologies for the development of banking activities in Ukraine*

Category	Types
Payment technologies (aimed at automating and accelerating payment processes)	1. Mobile payments and electronic wallets: Apple Pay, Google Pay, PayPal. 2. Cryptocurrencies and blockchain payments: enabling fast, intermediary-free transactions. 3. Biometric payment authentication: using fingerprints, facial or voice recognition for payments. 4. Instant interbank transfers: using API technologies for fast and secure operations
Credit technologies (innovations that facilitate the loan acquisition process)	1. Digital lending platforms: automated services that assess customer creditworthiness based on algorithms and artificial intelligence. 2. Peer-to-peer lending (P2P): allowing individuals or small businesses to obtain loans directly from investors through online platforms. 3. Data analysis for scoring: using Big Data for rapid risk assessment
Investment and analytical technologies (helping customers manage their finances effectively)	1. Robo-advisors: automated platforms that offer investment advice based on algorithms. 2. Intelligent capital management systems: automating financial planning and portfolio analysis. 3. Market forecasting technologies: based on artificial intelligence and machine learning for analysing market trends
Data protection and cybersecurity technologies (for safeguarding financial transactions)	1. Blockchain for data storage: a decentralised system that ensures transaction security. 2. AI in fraud prevention: real-time detection of suspicious transactions. 3. Multi-factor authentication: enhancing security through multiple verification methods
Personalisation and customer service technologies (aimed at improving customer experience)	1. Chatbots and virtual assistants: AI-powered automated support systems. 2. Omnichannel platforms: integrating various communication channels for seamless customer service. 3. Personalised offers: recommendations for financial products based on customer behaviour analysis

Table 9, Continued

Category	Types
Asset management innovations (solutions that simplify asset management for banks and customers)	1. Smart contracts technology: automatic execution of agreement terms via blockchain. 2. Integrated financial management platforms: centralised management of accounts, expenses, and investments. 3. Risk forecasting tools: used to mitigate asset management risks
Open banking (allows customers to use financial services through third-party apps via APIs)	1. Account aggregation: access to accounts from various banks through a single app. 2. Financial analysis platforms: real-time monitoring of expenses and income. 3. Fintech integration technologies: enabling cooperation between banks and financial start-ups

Source: *based on R. Bezpalyi (2021), Yu.S. Khudolii & M.O. Khalievina (2021), N. Kondratska & V. Duma (2023)*

The significance of financial technologies for the development of banking activities had only intensified over time. Financial technologies have played a key role in transforming banking operations, providing innovative approaches to service delivery, risk management, and operational improvement. In this context, the need arose for an in-depth analysis of the significance of financial technologies in the development of the banking sector. Based on the results of the research, the main aspects and advantages that confirmed the important role of financial technologies in the development of banking activities were formulated (Table 10).

Table 10. *Advantages of financial technologies for the development of banking activities*

Indicator	Characteristics
Increased efficiency of banking operations	Financial technologies allow banks to automate a range of routine processes, such as payment processing, loan management, and account opening. This significantly reduces the time and costs of performing these operations. For example, the use of robotic process automation (RPA) allows for faster processing of documents, while cloud technologies contribute to scaling banking services
Improved customer experience	Fintech technologies contribute to the creation of personalised and convenient financial products. Online banking and mobile applications allow customers to access their accounts, make transfers, or pay for services at any time and from any location. The integration of artificial intelligence allows for analysing customer behaviour and offering products that best meet their needs
Expanded access to financial services	Thanks to fintech, banks can serve customers even in remote regions where there are no physical branches. For example, digital banks, or neobanks, such as Monzo or Revolut, operate entirely online, providing a wide range of services through mobile platforms. This promotes financial inclusion and provides access to banking services for a wider audience
Optimisation of risk management	Fintech helps banks manage risks more effectively through the use of Big Data and analytics. For example, AI and ML allow for predicting customer creditworthiness and determining the probability of default. Fraud detection systems analyse transactions in real time, quickly identifying suspicious operations
Improvement of regulatory compliance	Fintech also contributes to banks' compliance with regulatory norms through RegTech technologies. These solutions automate the processes of monitoring compliance with legal requirements, for example, in the field of anti-money laundering (AML) or combating the financing of terrorism (CFT). This reduces the risk of fines and improves the reputation of banks
Cost reduction and increased competitiveness	Innovative financial solutions allow banks to reduce the costs of customer service, infrastructure development, and regulatory compliance. For example, the use of blockchain technologies reduces the cost of transactions and speeds up their processing. Thanks to this, banks can reduce the cost of their services and remain competitive in the market
Development of new business models	Financial technologies stimulate banks to introduce new business models, such as open banking. It allows third-party fintech companies to use bank APIs to create new products that expand the range of financial services for customers
Integration with other industries	Thanks to fintech, banks are becoming important players in other areas, such as e-commerce or insurance. For example, banking applications now integrate services for purchasing insurance policies or booking travel, which provides additional sources of income

Source: *based on Yu.S. Khudolii & M.O. Khalievina (2021), N. Kondratska & V. Duma (2023), T. Staverska et al. (2023)*

Scientists N. Kondratska & V. Duma (2023) identified several key factors that contributed to the development of financial technologies in global banking. These include: a decline in trust in the traditional banking sector, caused by the consequences of the global financial crisis; the widespread adoption of mobile internet and the growing popularity of social networks; the successful activities of technology companies in other sectors of the economy; rising consumer expectations regarding the quality of financial services and the desire to implement innovative solutions. In general, as the scientists noted, financial technologies have created new opportunities for innovation, increased competition, and improved financial services. They have become a key driver of the digital transformation of the banking sector, contributing to the development of convenience, efficiency, and personalisation of customer service. M. Ihnatenko *et al.* (2022) noted that cryptocurrencies, their market, circulation, and mechanisms of use are an independent segment of the financial system, which was capable of accelerating business processes in many areas.

Yu.S. Khudolii & M.O. Khalievina (2021) and O. Nakonechna & O. Mykhaylyk (2022) emphasised that in modern banking, the use of financial technologies has become not a competitive advantage, but a mandatory condition. This encompassed the implementation of online banking, multifunctional payment cards, innovative methods of distributing banking services, virtual currencies, fast transfer systems, as well as daily banking services. Particular attention was paid to remote banking and multi-channel forms of service, which functioned as ecosystems for interacting with customers. The adaptive architecture of channels and the usability of such services have become priorities for the active population aged 18-50. The modern pace of life and high demands on the information environment require the widespread use of digital and network technologies, including CRM systems. Such technologies can provide a high level of automation and self-service, integrating multifunctional solutions that will contribute to increasing the efficiency and accessibility of banking services.

An analysis of contemporary trends in financial technologies and the banking sector has demonstrated a continuous process of improvement and modernisation of the industry based on advanced innovations. Banking institutions have actively implemented technologies such as AI, blockchain, and data analytics to optimise operations and ensure a high level of customer service. An important aspect of fintech development has been the collaboration of banks with fintech companies. This partnership has contributed to the creation and implementation of new products and services that meet the needs of the modern market. In addition, increasing the level of personalisation of banking services has significant potential. The use of advanced data analytics has allowed for the formation of individual offers for each customer, which has positively impacted their experience of interacting with the bank, increased satisfaction, and loyalty of the customer base.

Many other researchers have continued to explore the impact of financial technologies on banking and the improvement of financial services. However, there was a lack of separate comprehensive studies on the systematisation of existing modern financial technologies that can be used by banks and a detailed justification of the benefits of their use in the banking sector, as a key segment of the Ukrainian financial market. A comprehensive approach to this problem will allow for the adjustment of future actions of financial institutions' management for further development.

Conclusions

Financial technologies have fundamentally changed traditional banking, making it more transparent, faster, and accessible. Previously, banks focused primarily on physical branches, but in 2024, thanks to fintech, customers have the opportunity to perform virtually all financial transactions online. This ensured steady growth in a competitive environment and allows banks to remain relevant in the face of rapid technological changes. The development of the banking industry and the improvement of the quality of financial services largely depend on this technical progress. However, when implementing them, it was extremely important to ensure compliance with the highest security standards, in particular regarding the protection of customers' personal data.

It was the modern types of financial technologies that have been implemented in the banking sector that have contributed to increasing the security of operations and services. They have made banking systems less vulnerable both internally and externally, ensuring higher reliability, data processing speed, and the possibility of long-term, stable information storage. The main advantage of such innovations as blockchain, open banking, and microservices has been the use of innovative algorithms and approaches to database organisation. These solutions have provided a significantly higher level of reliability compared to traditional technologies, which has significantly strengthened the economic security of banking institutions and contributed to their sustainable development.

In summary, this study has outlined the fundamentals of financial technologies and their contribution to the growth of banking operations in the Ukrainian financial sector. The analysis of various types of financial technologies in the financial market, with an emphasis on banking, which is its largest segment, was crucial for the research. An overview of the Ukrainian fintech market in the context of the banking system has made it possible to determine their significance and benefits for the development of banking activities. In addition, the research has substantiated the main directions of financial technology development in the banking sector as a key component of the Ukrainian financial market. All of this has made it possible to provide effective recommendations regarding the implementation of the latest financial technologies in the banking sector, as an important segment of the Ukrainian financial market, which will contribute to increasing operational efficiency, reducing costs, expanding financial accessibility, and strengthening customer confidence in financial institutions. Promising areas within this issue may include further research on the relationship between the level of use of modern financial technologies and the increase in the efficiency of financial market entities, in particular regarding their investment attractiveness in the global market.

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None.

Conflict of Interest

None.

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Фінансові технології у розвитку банківської діяльності на фінансовому ринку України

Марія Іоргачова
Кандидат економічних наук, доцент
Одеський національний економічний університет
65082, вул. Преображенська, 8, м. Одеса, Україна
https://orcid.org/0000-0003-1933-6447
Олена Ковальова
Кандидат економічних наук, доцент
Національний університет «Одеська політехніка»
65044, просп. Шевченка, 1, м. Одеса, Україна
https://orcid.org/0000-0002-2080-1150

Анотація. Проблема дослідження використання фінансових технологій у банківській діяльності є актуальною, оскільки фінансові технології виступають основним драйвером змін у банківському секторі, сприяючи розробці нових продуктів, оптимізації операцій та розширенню доступу до фінансових послуг. Метою статті було дослідження значення фінансових технологій у розвитку банківської діяльності та виявлення напрямків її розвитку завдяки застосуванню сучасних фінансових технологій. При проведені дослідження застосовувалися методи: аналізу, синтезу, систематизації, метод порівняння для розгляду теоретичних засад використання фінансових технологій. Групування, табличний та графічний методи допомогли проаналізувати сучасний стан використання фінансових технологій банківським сектором; також, були використані методи абстрагування та узагальнення. У цифрову епоху банки вимушені впроваджувати інновації для збереження конкурентоспроможності. Проведений аналіз використання фінансових технологій дозволив виявити сучасні тенденції та можливі напрями їх застосування в українському банківському секторі, а також адаптувати прийняття рішень щодо їх використання до українських реалій, забезпечуючи клієнтам більш гнучкі фінансові послуги. Виявлено, що зростання популярності цифрових платформ супроводжувалося підвищенням кіберризиків, тому дослідження фінтеху також допомогло гарантувати кібербезпеку та довіру клієнтів, а розробка ефективних стратегій захисту даних стало ключовим фактором стабільності банківської системи. Також, у роботі було розглянуто наукові дослідження, які підтвердили актуальність фінансових технологій у банківській діяльності, проаналізовано сутність фінтеху, його видів і ролі в банківському секторі та оцінено стан українського фінтех-ринку. У дослідженні було розроблено рекомендації щодо розвитку фінтех-ринку. Практична реалізація наданих у дослідженні рекомендацій щодо впровадження таких сучасних фінансових технологій, як блокчейн, штучний інтелект, Big Data та відкриті інтерфейси, сприятиме підвищенню прозорості, кібербезпеки та адаптації як банківського сектору, так й фінансового ринку України в цілому до сучасних викликів

Ключові слова: банківська система; ринок фінансових послуг; інноваційні технології; напрями розвитку банків; поліпшення діяльності банку