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ANALYSIS OF THE DEVELOPMENT OF INNOVATIVE FINANCIAL TECHNOLOGIES IN THE CONTEXT OF FINANCIAL MARKET DIGITALIZATION

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Abstract. Financial technologies and innovations in Kazakhstan's financial market contribute to the emergence of new products such as digital banks and financial ecosystems. Tools and processes that were previously unavailable are now being developed, and technologies are implemented to reduce risks and improve profitability across various sectors. Empirical studies show that fintech development increases competition, lowers costs, expands access to services, and enhances service quality. It also encourages the creation of products tailored to diverse customer needs, leading to a more dynamic and client-oriented financial sector. Fintech is becoming a key driver of the digital economy, forming a sector that competes with and, in some cases, surpasses traditional financial institutions. Research aim – to analyze the development of innovative financial technologies amid Kazakhstan's economic growth. Scientific and practical significance – expanding theoretical understanding of financial market digitalization and offering practical recommendations for fintech sector development. Methods – analysis, synthesis, comparative analysis, and statistical review of open data and international reports. Key findings – main trends in fintech have been identified, success factors for digitalization outlined, and the

positive impact of fintech on accessibility and service quality confirmed. Value of the study – enhancing knowledge of digital financial technologies and proposing directions for further fintech advancement. Practical relevance – results support defining priorities for fintech development to improve the population's quality of life.

Keywords: Innovative technologies, financial technologies, digital tenge, digitalization, digital financial services, financial market

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ҚАРЖЫ НАРЫҒЫНЫҢ ЦИФРЛАНДЫРЫЛУЫ ЖАҒДАЙЫНДА ИННОВАЦИЯЛЫҚ ҚАРЖЫЛЫҚ ТЕХНОЛОГИЯЛАРДЫҢ ДАМУЫН ТАЛДАУ

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Аннотация. Қазақстан Республикасының қаржы нарығындағы қаржылық технологиялар мен инновациялар цифрлық банктер, қаржылық экожүйелер сияқты жаңа өнімдердің пайда болуына айтарлықтай ықпал етуде. Бұрын қолжетімсіз болған құралдар мен үдерістер қазір дамып келеді, ал жаңа технологиялар түрлі салаларда тәуекелдерді азайтып, табыстылықты арттыру үшін кеңінен енгізілуде. Эмпирикалық зерттеулер финтехтің дамуы бәсекелестікті күшейтіп, шығындарды төмендететінін, қаржылық қызметтердің қолжетімділігін кеңейтетінін және қызмет көрсету сапасын едәуір жақсартатынын көрсетеді. Сонымен қатар, бұл үрдіс тұтынушылардың әртүрлі қажеттіліктеріне бейімделген жаңа өнімдердің жасалуына жол ашады, нәтижесінде қаржы секторы анағұрлым серпінді әрі клиентке бағдарланған сипатқа ие болады. Финтех елдің цифрлық экономикасының маңызды қозғаушы күшіне айналып, дәстүрлі қаржы институттарымен бәсекелесе алатын, ал кейбір бағыттарда олардан басым түсетін қаржылық секторды қалыптастыруда. Зерттеудің мақсаты – Қазақстанның экономикалық өсу жағдайында инновациялық қаржылық технологиялардың даму барысын

кешенді түрде талдау. Ғылыми және практикалық маңыздылығы – қаржы нарығының цифрлануы туралы теориялық білімді тереңдету және финтех секторын дамытуға арналған нақты ұсынымдар ұсыну. Зерттеу әдістері: талдау, синтез, салыстырмалы талдау, ашық деректер мен халықаралық есептерді статистикалық өңдеу. Негізгі нәтижелер – финтехтің дамуындағы басты үрдістер анықталды, цифрланудың табысты болуына әсер ететін факторлар айқындалды және қаржылық технологиялардың қолжетімділік пен қызмет сапасына оң ықпалы дәлелденді. Зерттеудің құндылығы – цифрлық қаржылық технологиялар жөніндегі ғылыми білімді толықтыру және финтехті одан әрі дамытуға бағытталған ұсыныстар жасау. Практикалық маңыздылығы – халықтың өмір сүру сапасын арттыру мақсатында финтех дамуындағы басым бағыттарды белгілеуге ықпал ету.

Түйін сөздер: инновациялық технологиялар, қаржылық технологиялар, цифрлық теңге, цифрландыру, цифрлық қаржылық қызметтер, қаржы нарығы

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АНАЛИЗ РАЗВИТИЯ ИННОВАЦИОННЫХ ФИНАНСОВЫХ ТЕХНОЛОГИЙ В УСЛОВИЯХ ЦИФРОВИЗАЦИИ ФИНАНСОВОГО РЫНКА

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Аннотация. Финансовые технологии и инновации, развивающиеся на современном финансовом рынке Республики Казахстан, играют ключевую роль в формировании новых цифровых продуктов, включая цифровые банки, финансовые платформы и экосистемы. Благодаря внедрению таких решений появляются ранее недоступные инструменты и процессы, направленные на снижение рисков, повышение прозрачности и увеличение доходности в различных секторах экономики. Технологии цифрового финансирования охватывают широкий спектр услуг, начиная от микрокредитования и онлайн-

платежей до автоматизированных инвестиционных платформ. Эмпирические исследования подтверждают, что рост финтех-сектора способствует усилению конкурентной среды, снижению стоимости финансовых услуг, улучшению качества обслуживания, а также расширению их доступности для широких слоёв населения, включая малый бизнес и сельские регионы. Финтех также стимулирует разработку новых продуктов, способных адаптироваться под индивидуальные потребности пользователей. Эти тенденции трансформируют традиционную финансовую систему, делая её более гибкой, клиентоориентированной и инновационной. Финансовые технологии становятся стратегическим драйвером цифровой экономики Казахстана, формируя высокотехнологичный сектор, который конкурирует с традиционными институтами и по ряду параметров даже превосходит их. Цель исследования — всесторонний анализ процессов развития инновационных финансовых технологий в контексте экономического роста страны. Научно-практическая значимость заключается в расширении теоретических представлений о цифровизации финансовых рынков и формировании прикладных рекомендаций по стратегическому развитию финтех-сектора. Методология исследования включает методы системного анализа, синтеза, сравнительного исследования, а также статистическую обработку открытых источников и международной отчетности. Основные результаты — выявлены ключевые тренды финтех-развития, определены факторы успешной цифровизации и доказано положительное влияние финансовых технологий на улучшение качества и доступности финансовых услуг. Практическая значимость — полученные результаты могут использоваться для разработки государственной политики и определения приоритетов в сфере цифровых финансов, направленных на повышение качества жизни населения.

Ключевые слова: инновационные технологии, финансовые технологии, цифровой тенге, цифровизация, цифровые финансовые услуги, финансовый рынок

Introduction. The relevance of this topic is driven by global trends in the development of financial technologies and innovations, which are reflected in the State Program "Digital Kazakhstan" launched in 2017. In line with the concept of this program, Kazakhstan is undergoing a comprehensive digital transformation through 23 "icebreaker" projects aimed at "breaking through entire sectors of the economy to create digital businesses". The digitalization of the modern financial environment is a priority area for the country's economic development, as evidenced by the adoption of the Law of the Republic of Kazakhstan "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Communications, Digitalization, Improvement of the Investment Climate, and Elimination of Excessive Legislative Regulation" dated May 21, 2024, as well as the approval of the Concept for the Development of Artificial Intelligence for 2024–2029.

Financial technologies and products are the key tools for effective digitalization of any financial market. The COVID-19 pandemic has intensified the need for an

accelerated transition to digital financial technologies and increased investment in this area. During this period, digital platforms developed rapidly, and banks began to transfer their services online, providing clients with access to financial products anytime and regardless of location. According to *statista.com*, the number of online banking users grew from 1.9 billion in 2020 to 2.3 billion by the end of 2023. According to statistics, the global use of modern financial technologies has increased 2.3 times in recent years: in 2018, 37% of the world's population used fintech solutions for various financial operations, while by 2023, 85% of financial service consumers utilized fintech. This, in turn, has necessitated the improvement of methods for assessing the effectiveness of meeting the ever-increasing needs of financial market participants.

Literature Review. Various perspectives on financial innovations have contributed to the formation of a modern understanding of financial technologies, reflecting society's current stance on innovations in finance. Financial technologies are directly related to the innovative use of modern technological processes to improve the delivery of products and services in banking, investment, insurance, and other financial sectors. These technologies are also found in any company that uses software, mobile devices, the Internet, or cloud computing to create and deliver financial services. Today, fintech companies offer alternative financing and compete with banks across most financial sectors, providing their clients with innovative financial products and solutions.

Some economists believe that the drive for profit maximization by individuals and companies stimulates innovation. Thus, the desire to increase income through the introduction of new solutions can have a positive impact on the economy as a whole. This suggests that changes in economic conditions, whether positive or negative, can encourage the search for profitable innovations.

Innovations in financial technologies involve new technologies and solutions that transform traditional financial services and expand access to them. Innovative financial technologies cover a broad range of innovations aimed at enhancing the efficiency, convenience, and accessibility of financial services for both individuals and businesses. These innovations not only include the digital transformation of traditional financial services but also the creation of entirely new products and models that were previously impossible. Although technologies are developing dynamically across all sectors, their most pronounced growth is observed in the financial sphere under the progressive direction of "fintech." New technologies emerge not randomly, but in response to the increasing needs of a population that prefers digital services over traditional ones to save time and money. As Deputy Chairman of the Bank of Russia Olga Skorobogatova noted, "The development of financial technologies will promote competition and increase the accessibility of financial services to the population" (Mazitova, 2019). Based on this, (Patashkova, 2020) "the financial technology market today can be considered one of the most rapidly progressing. Financial technologies are now applied in every segment of the financial market and are successfully used by market participants".

It should be noted that innovations in the financial sector are driven by the digitalization process, of which financial technologies — referred to hereafter as "fintech" — are a key component. The main distinctive feature of fintech is its ability to create financial innovations. The term "fintech," derived from "financial technology," has become widely accepted in the business community's vocabulary. As mentioned above, there is no unified definition of "innovation" or "fintech" in the scientific literature published either in Russian or English to date. For instance, (Schueffel, 2016) Professor Schueffel from the Fribourg School of Management defines fintech as "a new financial industry that applies technology to improve financial activities". Meanwhile, (Aldridge, 2016) have significantly contributed to the understanding of fintech and its role in the modern financial world, focusing on innovations related to data analysis, regulation, and the integration of fintech solutions into the existing financial infrastructure. Both experts agree that fintech opens up broad opportunities for improving the efficiency and accessibility of financial services, while also presenting certain risks. They emphasize the importance of regulation and ethical standards to minimize risks associated with data processing and the use of artificial intelligence (Filippov, 2018)

The Bank of Russia defines financial technologies (fintech) as "the provision of financial services and solutions using innovative technologies". According to (Mazitova, 2019), "in essence, the concept of fintech refers to new applications, processes, products, or business models in the field of financial services, most of which are carried out via the Internet". In the definition by (Sulimenko et al., 2019) "fintech is an industry that facilitates the growth of efficiency in the functioning of the financial and banking sectors". Fintech is "rather an entrepreneurial phenomenon that is not driven solely by one single engine of financial innovation, but rather influenced by a combination of economic, technological, and regulatory factors" (Zavolokina, et al., 2016).

Thus, according to many researchers, fintech creates new prospects for the development of innovative products and services, thereby becoming a major competitor in the traditional financial services market. Summarizing the analysis of the essence of fintech proposed by leading scholars worldwide, it should be noted that there is no single universally accepted definition of this term. This can be explained by its complex nature and the multitude of factors influencing its development.

Research materials and methods. This study employed a comprehensive set of scientific analysis methods. The main methods included:

Comparative analysis, used to compare the dynamics of financial technology development in Kazakhstan with global trends and the indicators of SCO (Shanghai Cooperation Organization) countries, which made it possible to identify the specific features and unique characteristics of Kazakhstan's fintech sector. System analysis, which allowed for the consideration of the digitalization of the financial market as a complex phenomenon encompassing technological, economic, and institutional aspects. Generalization method, applied to formulate conclusions based on the study of various empirical data, reports of international organizations, official statistical sources, and regulatory documents of the Republic of Kazakhstan.

Content analysis method, used for analyzing program documents such as "Digital Kazakhstan," the Concept for the Development of Artificial Intelligence, and reports of the National Bank of the Republic of Kazakhstan on the implementation of the digital tenge. Statistical data processing methods, which made it possible to assess the level of digitalization and the development of financial technologies in the country based on quantitative indicators. The use of these methods in combination provided a comprehensive analysis of the current state and prospects for the development of innovative financial technologies in Kazakhstan, thereby enhancing the reliability and validity of the conclusions drawn.

Discussion and Results. The issue of the development of monetary systems in the context of digitalization is a relevant topic of discussion within the scientific community. Modern monetary systems are undergoing radical changes under the influence of digital technologies, which affect not only traditional banking institutions but also the issuance and circulation of money. This process impacts not only the functioning of monetary systems but also economic stability and financial security. Significant transformations are taking place under digitalization, creating new challenges and opportunities for monetary policy and regulation. The implementation of digital technologies such as blockchain, artificial intelligence, and big data has led to the emergence of new forms of money. Special attention in this context is given to central bank digital currencies (CBDCs), which are being studied and tested in many countries, including Kazakhstan, China, and the European Union. These currencies represent a form of national money issued in digital format, maintaining all the advantages of traditional currency units while providing additional benefits related to speed and transparency of transactions.

"It is forecasted that by 2050 physical money will completely disappear, giving way to virtual currencies exchanged through digital platforms" (Teker, et al., 2022). "In the future, digital currencies will become a convenient and efficient means for reforming the international monetary system" (Wang, et al., 2022). A cashless economy is considered both from the perspective of economic theory and from the standpoint of the functioning of monetary and financial systems. The key factors contributing to the transition to a cashless economy are as follows:

- Firstly, the development of digital technologies such as the Internet, mobile networks, and online banking accelerates and simplifies cashless transactions, making them accessible and convenient for users.
- Secondly, the widespread adoption of mobile payments, contactless technologies, and digital wallets stimulates the use of cashless means in everyday purchases.
- The third factor is support from governments and central banks. Many countries actively promote a cashless economy by developing central bank digital currencies and introducing regulations that encourage the reduction of cash use.
- The fourth factor is security and the fight against the shadow economy: cashless transactions enable the tracking of fund movements, thereby reducing the risk of money laundering and illegal activities and enhancing the transparency of the financial system.

- The fifth important aspect is the growth of financial inclusion. The shift to cashless payments allows a greater number of people to access financial services, including those who previously had no access to traditional banking products.

- The sixth factor is convenience and time savings: cashless payments speed up the payment process and improve customer experience.

- The seventh factor is the reduction of cash handling costs. Transitioning to cashless payments lowers the expenses for companies and banks related to processing, storing, and transporting cash.

- Finally, the eighth factor is the changing consumer habits: modern users find it more comfortable and faster to make payments using digital solutions, which drives the creation of new cashless products and services.

- Together, these factors create a strong foundation for the transition to a cashless economy, contributing to its further development and strengthening (Marszałek, et al., 2022).

"The use of digital assets (DAs) for conducting payments will make the process faster, cheaper, and more efficient. DAs can serve as intermediary currencies, creating necessary liquidity pools and ensuring direct transactions. In the future, cross-border payments will be conducted using a combination of distributed ledger technologies and digital assets. This will allow bank employees and payment service providers to carry out affordable and transparent real-time transactions quickly and easily" (Treacher, 2018). Currently, the development of digital assets and their implementation in various fields continues actively. In our study, we concluded that digital assets should be systematically categorized into two main areas of application: the financial-economic sphere and the non-economic sphere. Our vision is presented in Figure 1. Each component in the scheme has already developed and has a unique structure. At present, digital assets in the financial-economic sphere of application indicate the extent to which a country is digitally advanced in providing digital financial services. According to experts, digital financial services, including the use of mobile phones, are available in more than 80 countries worldwide (Treacher, 2018). Similar data is presented in the analytical report by the World Bank (Chu, 2018).

Millions of people who previously had no or limited access to financial services can now perform cashless payments and transfers, as well as use various banking products in digital format. Financial system regulators in most countries are actively working to expand access to financial services, aiming to increase the level of financial inclusion. Thanks to these initiatives, a significant portion of the population gains access to modern financial management tools, contributing to poverty reduction, improved economic stability, and the promotion of financial literacy growth.

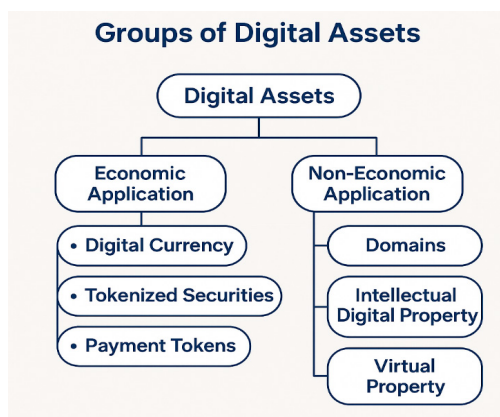


Figure 1 – Groups of Digital Assets

Note – compiled by the authors

"The full-scale involvement of the population in financial processes, implemented at the level of the global financial system through a variety of digital services and technologies, is considered by experts to be a driving force behind economic growth" (Salampasis, et al., 2018). Financial inclusion not only provides disadvantaged segments of the population with access to digital financial tools but also encompasses three key areas: digital payments, digital investments, and digital financing. At the core of digital inclusion lies the expansion of the use of information and communication technologies (ICT), which enables people previously excluded from comprehensive financial services to actively access and utilize them. By evaluating the ICT index, it becomes possible to establish a strong correlation between a country's economic development and its digital progress. Based on the 2023–2024 Global ICT Development Index Report, we compared Kazakhstan's indicators with those of other countries (we selected member countries of the Shanghai Cooperation Organization, excluding India and Tajikistan) for the 2023–2024 period (Demirguc-Kunt, et al., 2018)

In our view, it is necessary to examine in greater detail the components of the ICT index that directly indicate the level of a country's digitalization development. We have systematized the ICT index by country according to its basic components, as presented in Table 1.

Table 1 – ICT Index by Country (Based on Core Components)

Indicator	Kazakhstan	Russia	China	Pakistan	Iran	Kyrgyzstan	Uzbekistan	Belarus
Individuals using the Internet (%)	97.2	95.2	79.6	34.7	82.7	84.0	88.3	94.2
Households with Internet access at home (%)	100	91.1	85.5	41.0	83.7	98.3	100.0	94.2

Mobile broadband subscriptions per 100 inhabitants	64.1	73.9	71.9	34.4	77.1	100	71.1	65.2
Population covered by 3G and 4G/LTE mobile network (%)	91.5	94.2	99.9	77.8	82.6	97.3	89.4	98.8
Mobile broadband Internet traffic per mobile broadband subscription (GB)	87.5	86.9	83.2	71.2	74.7	58.8	63.5	80.0
Fixed broadband Internet traffic per fixed broadband subscription (GB)	82.4	85.1	85.3	83.4	66.5	64.4	66.1	79.4
Average cost of mobile data and telephony consumption (as % of GNI per capita)	99.3	100	100	97.5	Undefined	91.5	99.9	97.2
Average cost of fixed broadband Internet consumption (as % of GNI per capita)	100	100	100	63.7	Undefined	83.8	97.8	100
Individuals owning a mobile phone (%)	97.6	100	87.4	52.9	76.2	99.1	83.2	100
Note: compiled by the authors based on data from (The ICT Development Index 2024).								

Considering the ICT index criteria, particularly the percentage of individuals using the Internet, it can be emphasized that Kazakhstan ranks first among SCO countries with 97.2%, while Pakistan shows the lowest figure at 34.7%. Kazakhstan also leads in the percentage of households with Internet access at home (100%), followed by Kyrgyzstan (98.3%) and Belarus (94.2%). Regarding the average cost of fixed broadband Internet consumption, Kazakhstan, Belarus, Russia, and China share the first position (100%), followed by Uzbekistan (97.8%).

Kazakhstan significantly lags behind neighboring countries in the number of mobile broadband subscriptions per 100 inhabitants, standing at only 64.1, whereas in Kyrgyzstan this figure reaches 100. Kazakhstan ranks fourth in terms of mobile network coverage by 3G and 4G/LTE technologies (91.5%) and third in the percentage of individuals owning a mobile phone (97.6%). Thus, it can be confidently stated that Kazakhstan is successfully developing in the field of digitalization, largely supported by advanced financial technologies actively utilized in the country's economy. Today, the national payment system is constantly undergoing the effects of digitalization in the fintech sector, resulting from advancements in software, microelectronics, information, and network technologies across all its segments. The significant impact of digitalization is particularly evident in the segment of electronic retail payments. We have made an attempt to develop an ecosystem model of the electronic retail payments market. The author's model is presented in Figure 2.

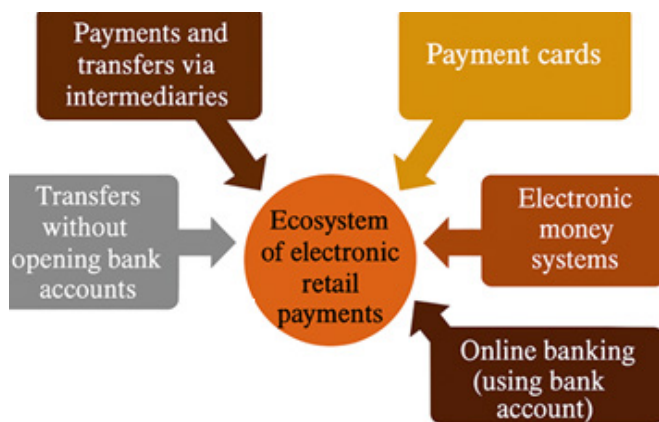


Figure 2 – Ecosystem of the Electronic Retail Payments Market

Note – compiled by the author

Following the author's model, the electronic retail payments market in Kazakhstan can be represented by the following components: payment cards, electronic money systems, transfers and payments through intermediaries (payment sub-agents or bank agents), online banking services through the transfer of funds using bank accounts, and money transfers without opening bank accounts. Automation in the provision of payment services to individuals, combined with fintech, has led to significant changes in the personalization of communications and services, particularly affecting customer preferences. These transformations have resulted in the modification of the payment landscape.

The introduction of the digital tenge (DT) provides unique opportunities, surpassing other forms of payment. The digital tenge enhances the speed, security, and accessibility of payments, thus improving the current financial system. However, the DT does not replace existing monetary mechanisms; rather, it offers additional options and flexibility for citizens and businesses. The implementation of the digital currency in Kazakhstan is carried out with consideration of national interests and within an open and constructive dialogue with market participants to ensure the long-term and sustainable development of Kazakhstan's economy. To present a complete picture, it is important to consider the stages of the digital tenge's implementation in Kazakhstan. The project's development began in July 2020 with the aim of combating corruption, specifically by ensuring the transparency of budget funds during public procurement and reducing the volume of cash circulation. In 2021, the National Bank of Kazakhstan, in active cooperation with financial market participants, the expert community, and international partners, launched the pilot project "Digital Tenge." This project tested the entire lifecycle of the digital currency — from issuance and distribution to its use in transactions such as purchases and transfers. To ensure broad participation in the research and implementation of the national digital currency, the Digital Tenge Hub was launched in June 2022. This collaborative platform became a space for market participants, regulators, and other

stakeholders to jointly address issues related to the introduction and development of the digital tenge in Kazakhstan. Special attention during the pilot project was given to integrating the digital currency with blockchain technology.

On October 27, 2022, the National Bank of Kazakhstan announced plans to integrate the digital tenge with the BNB Chain platform. This cooperation enabled real-world testing with consumers and businesses, providing a detailed study of all stages of the digital currency's lifecycle, including programmability and offline transactions. On August 14, 2023, the National Bank of Kazakhstan officially announced the launch of the digital tenge, emphasizing its goal to further develop and modernize the national payment system in response to new challenges. In September 2023, the process of creating the National Payment Corporation (NPC) was announced to support the more effective implementation of the digital tenge. In November 2023, banks began issuing debit cards that allow users to pay for goods and services using the digital tenge. Thus, the year 2023 marked a crucial milestone in the implementation of Kazakhstan's digital currency, completing the first phase of its rollout, including the launch of the platform in pilot-industrial operation in cooperation with second-tier banks and international payment systems.

During this phase, experiments and research were conducted to test the functionality and efficiency of the digital tenge. To achieve these goals, the National Bank of Kazakhstan created two platform environments: a production environment and an experimental environment ("technological sandbox"), allowing for a deeper study of various aspects of the digital currency and its integration into the country's financial system. Based on the 2023 reporting data of the National Bank of Kazakhstan, several key achievements confirming the successful implementation stages of the digital tenge (DT) can be identified: Integration of innovative functions. Significant steps included the successful testing and integration of innovations such as smart contracts and cross-border payments, expanding the capabilities of the DT. Connecting participants via API. Key banks (Kazpost, Altyn Bank, Eurasian Bank, Halyk Bank, Bank CenterCredit) were connected via APIs, ensuring integration with existing IT systems and supporting the move to pilot-industrial operations.

Launch in pilot-industrial operation (PIO). Since November 2023, the DT has been operating in PIO, involving five major second-tier banks and a focus group of participants. Integration with international platforms. Integration with the Binance platform and KASE exchange was achieved for testing the issuance of stablecoins backed by the DT. Integration with the National Bank infrastructure. The DT platform was integrated with the National Bank's systems for centralized issuance and redemption management. Interaction with international payment systems. This integration lays the foundation for using the DT in interbank settlements globally. Testing of smart contracts. Research scenarios successfully tested the use of smart contracts in areas such as tokenized asset sales, health and fitness apps ("Pedometer" scenario), and VAT settlements.

In our view, the achievements of 2023 demonstrate that the implementation of the digital tenge in Kazakhstan is proceeding as planned, with a strong focus on

innovation, international cooperation, and expanded functionality. The transition from a pilot project to full-scale deployment of the digital tenge is actively ongoing, with several important stages yet to be completed for its integration into Kazakhstan's financial and economic systems.

Conclusion. Thus, it can be concluded that the National Bank of Kazakhstan's "Digital Tenge" project is one of the flagship initiatives for the transformational development of Kazakhstan's entire financial and economic system. The project has progressed from a conceptual stage (first phase, 2021) to a pilot project (second phase, 2022) and to pilot-industrial operation (third phase), officially launched on November 15, 2023. This landmark marks the beginning of broader deployment in the coming years. The conducted research allowed us to identify the main advantages of the digital tenge for the digital transformation of Kazakhstan's economy:

- Simplification of payments: The digital tenge simplifies payment processes, enabling quick and convenient transactions through mobile applications and other digital platforms;
- Enhanced security: Digital currency reduces risks associated with physical cash handling and potential fraudulent schemes;
- Increased transparency: The digital tenge improves financial flow tracking and control, helping reduce tax evasion and financial crimes;
- Reduced transaction costs: The use of the digital tenge can lower payment and transfer costs compared to traditional banking operations;
- Improved financial inclusion: The digital tenge makes financial services more accessible to a broader range of people, including the unbanked;
- Innovation and market development: The introduction of the digital tenge stimulates the development of new financial technologies and services such as smart contracts and automated financial solutions;
- Rapid adaptability and scalability: The digital tenge easily integrates with modern digital platforms and can quickly adapt to changing market conditions;
- Efficiency in control and reporting: Digital transactions can be seamlessly integrated with accounting and tax systems, simplifying reporting and regulatory compliance;
- Stimulating economic activity: The digital tenge can foster greater participation in economic processes, including online purchases and investments.

These advantages help create a more efficient and modern financial infrastructure, improving the quality and accessibility of financial services for all market participants.

References

Министерство цифрового развития, инноваций и аэрокосмической промышленности РК. (2024). Утверждена Концепция развития искусственного интеллекта на 2024–2029 гг. — Официальный сайт Министерства. — URL: <https://www.gov.kz/memleket/entities/mdai/documents/details/606493?lang=ru> (дата обращения: 25.02.2025).

Chu A.B. (2018). Mobile Technology and Financial Inclusion. In: Handbook of Blockchain, Digital Finance, and Inclusion, Vol. 1. — Cambridge: Academic Press. — C. 131-144.

Demirguc-Kunt A., Klapper L., Singer D., Ansar S., Hess J. (2018). The Global Findex Database: Measuring financial inclusion and the fintech revolution. — World Bank Publications. — C. 123-134.

Программа «Цифровой Казахстан» включает 23 проекта-ледокола в сфере ИКТ. — Digital.

Report. — URL: <https://digital.report/programma-tsifrovoy-kazahstan-vklyuchaet-23-proekta-ledokola-v-sfere-ikt/> (дата обращения: 08.12.2024).

Филиппов Д.И. (2018). О влиянии финансовых технологий на развитие финансового рынка. Российское предпринимательство. — №5. — URL: <https://cyberleninka.ru/article/n/o-vliyani-i-finansovyh-tehnologiy-na-razviti-e-finansovogo-rynka> (дата обращения: 17.06.2024).

FinTech - In-depth Market Insights & Data Analysis. — Statista. — URL: <https://www.statista.com/study/45600/in-depth-report-fintech/> (дата обращения: 18.01.2025).

ICT Development Index 2024. — ITU Publications. — URL: https://www.itu.int/dms_pub/itu-d/opb/ind/d-ind-ict_mdd-2024-3-pdf-e.pdf (дата обращения: 13.07.2024).

Marszałek P., Szarzec K. (2022). Digitalization and the Transition to a Cashless Economy. In: Ratajczak-Mrozek M., Marszałek P. (eds.) Digitalization and Firm Performance. — Cham: Palgrave Macmillan. — URL: https://doi.org/10.1007/978-3-030-83360-2_10 (дата обращения: 16.08.2024).

Мазитова Е.Т. (2024). Применение современных финансовых технологий в малом и среднем бизнесе. Студенческое научное сообщество XXI века: материалы 74-й междунар. студ. науч.-практ. конф. — №2(74). — URL: [https://sibac.info/archive/economy/2%20\(74\).pdf](https://sibac.info/archive/economy/2%20(74).pdf) (дата обращения: 20.06.2024).

Паташкова Е.С. (2020). Новые финансовые технологии на казахстанском рынке: возможности и ожидания. Central Asian Economic Review. — №1. — С. 135–146. — URL: <https://caer.narxoz.kz/jour/article/view/88> (дата обращения: 23.07.2024).

Президент подписал Закон РК «О внесении изменений и дополнений...». — Официальный сайт Президента Республики Казахстан. — URL: <https://www.akorda.kz/ru/glavoy-gosudarstva-podpisan-zakon-respubliki-kazahstan-o-vnesenii-izmeneniy-i-dopolneniy-v-nekotorye-zakonodatelnye-akty-i-zlishney-zakonodatelnoy-reglamentacii-2143237> (дата обращения: 03.04.2025).

Salampasis D., Mention A.-L. (2018). FinTech: Harnessing Innovation for Financial Inclusion. In: Handbook of Blockchain, Digital Finance, and Inclusion. — Cambridge: Academic Press. — С. 451–461.

Schueffel P. (2016). Taming the Beast: A Scientific Definition of Fintech. Journal of Innovation Management. — Т. 4, — № 4. — С. 32–54. — URL: https://hesso.tind.io/record/1996/files/Schueffel_Tamingthebeast_2016.pdf (дата обращения: 15.06.2024).

Сулименко О.В., Рябова К.А. (2019). Развитие цифрового банкинга и финтех-компаний. Финансовые исследования. — №4 (65). — С. 78–83.

Teker S., Teker D., Orman I. (2022). Digital payment systems: a future outlook. Pressacademia. — №15. — С. 175–176. — URL: <https://doi.org/10.17261/Pressacademia.2022.1613> (дата обращения: 13.06.2024).

Treacher M. (2018). The role of digital assets in global payments. Journal of Payments Strategy and Systems. — Т. 12. — № 1. — С. 9–12.

Wang X., Di D., Liu R. (2022). The Evolving International Monetary System: Will Dollar Hegemony Outlive the Digital Revolution? — Singapore: Palgrave Macmillan. — URL: https://doi.org/10.1007/978-981-19-2041-7_6 (дата обращения: 13.07.2024).

Что такое финтех: ответы на ключевые вопросы. — РБК Тренды. — URL: <https://trends.rbc.ru/trends/industry/618b6f349a794772fa50adf4?from=copy> (дата обращения: 17.06.2024).

World Bank. (2024). Digital Financial Inclusion. — URL: <https://www.worldbank.org/en/topic/financialinclusion/publication/digital-financial-inclusion> (дата обращения: 06.08.2024).

Zavolokina L., Dolata M., Schwabe G. (2016). The FinTech phenomenon: antecedents of financial innovation perceived by the popular press. Financial Innovation. — Т. 2. — № 1. — С. 1–16.

References

Approval of the Concept for the Development of Artificial Intelligence for 2024–2029. (2024). Official website of the Ministry of Digital Development, Innovations and Aerospace Industry of the Republic of Kazakhstan. Retrieved February 25, 2025, from <https://www.gov.kz/memleket/entities/mdai/documents/details/606493?lang=ru> (in Russian)

Chu A.B. (2018). Mobile Technology and Financial Inclusion. In: Handbook of Blockchain, Digital Finance, and Inclusion, Vol. 1. — Cambridge: Academic Press. — P. 131–144. (in English)

Demirguc-Kunt A., Klapper L., Singer D., Ansar S., Hess J. (2018). The Global Findex Database:

Measuring financial inclusion and the fintech revolution. — Washington, D.C.: World Bank Publications. — P. 123–134. (in English)

Digital Kazakhstan program includes 23 "icebreaker" projects in the ICT sector. (2024). Digital Report. Retrieved December 8, 2024, from <https://digital.report/programma-tsifrovoy-kazahstan-vklyuchaet-23-proekta-ledokola-v-sfere-ikt/> (in Russian)

Filippov D.I. (2018). O vliyaniy finansovykh tekhnologiy na razvitiye finansovogo rynka [On the impact of financial technologies on the development of the financial market]. Russian Entrepreneurship, No. 5. Retrieved June 17, 2024, from <https://cyberleninka.ru/article/n/o-vliyaniy-financeovykh-tehnologiy-na-razvitiye-financeovogo-rynka> (in Russian)

FinTech - In-depth Market Insights & Data Analysis. (2025). Statista. Retrieved January 18, 2025, from <https://www.statista.com/study/45600/in-depth-report-fintech/> (in English)

ICT Development Index 2024. — ITU Publications. — URL: https://www.itu.int/dms_pub/itu-d/opb/ind/d-ind-ict_mdd-2024-3-pdf-e.pdf (дата обращения: 13.07.2024). (in English)

Marszałek P., Szarzec K. (2022). Digitalization and the Transition to a Cashless Economy. In: Ratajczak-Mrozek M., Marszałek P. (Eds.), Digitalization and Firm Performance. — Cham: Palgrave Macmillan. — https://doi.org/10.1007/978-3-030-83360-2_10 (in English)

Mazitova E.T. (2024). Primenenie sovremennykh finansovykh tekhnologiy v malom i srednem biznese [Application of modern financial technologies in small and medium-sized businesses]. In: Student Scientific Community of the 21st Century, Proc. of the 74th Int. Student Scientific-Practical Conference, 2(74). Retrieved June 20, 2024, from [https://sibac.info/archive/economy/2%20\(74\).pdf](https://sibac.info/archive/economy/2%20(74).pdf) (in Russian)

Patashkova E.S. (2020). Novye finansovye tekhnologii na kazakhstanskom rynke: vozmozhnosti i ozhidaniya [New financial technologies in the Kazakhstani market: opportunities and expectations]. Central Asian Economic Review, — No. 1. — P. 135–146. Retrieved July 23, 2024, from <https://caer.narxoz.kz/jour/article/view/88> (in Russian)

President signed the Law of the Republic of Kazakhstan "On amendments and additions". (2024). Official website of the President of Kazakhstan. Retrieved June 3, 2024, from <https://www.akorda.kz/ru/glavoy-gosudarstva-podpisan-zakon-respubliki-kazahstan-o-vnesenii-izmeneniy-i-dopolneniy-v-nekotorye-zakonodatelnye-akty-izlishney-zakonodatelnoy-reglamentacii-2143237> (in Russian)

Salampasis D., Mention A.-L. (2018). FinTech: Harnessing Innovation for Financial Inclusion. In: Handbook of Blockchain, Digital Finance, and Inclusion. — Cambridge: Academic Press. — P. 451–461. (in English)

Schueffel P. (2016). Taming the Beast: A Scientific Definition of Fintech. Journal of Innovation Management, — 4(4). — P.32–54. Retrieved June 15, 2024, from https://hesso.tind.io/record/1996/files/Schueffel_Tamingthebeast_2016.pdf (in English)

Sulimenko O.V., Ryabova K.A. (2019). Razvitiye tsifrovogo bankinga i fintekh-kompaniy [Development of digital banking and fintech companies]. Financial Research, 4(65), 78–83. (in Russian)

Teker S., Teker D., Orman I. (2022). Digital payment systems: a future outlook. Pressacademia, 15. — P. 175–176. <https://doi.org/10.17261/Pressacademia.2022.1613> (in English)

Treacher M. (2018). The role of digital assets in global payments. Journal of Payments Strategy and Systems, 12(1). — P. 9–12. (in English)

Wang X., Di D., Liu R. (2022). The Evolving International Monetary System: Will Dollar Hegemony Outlive the Digital Revolution? — Singapore: Palgrave Macmillan. https://doi.org/10.1007/978-981-19-2041-7_6 (in English)

What is Fintech: Answers to Key Questions. (2024). RBC Trends. Retrieved June 17, 2024, from <https://trends.rbc.ru/trends/industry/618b6f349a794772fa50adf4?from=copy> (in Russian)

World Bank. (2024). Digital Financial Inclusion. — URL: <https://www.worldbank.org/en/topic/financialinclusion/publication/digital-financial-inclusion> (in English)

Zavolokina L., Dolata M., Schwabe G. (2016). The FinTech phenomenon: antecedents of financial innovation perceived by the popular press. Financial Innovation. — T. 2. — № 1. — C. 1–16. (in English)

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