

Banking Innovations as an Element of the Digitalization of the Economy

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Abstract

This article examines FinTech - an actively developing segment at the intersection of the financial services and technology sectors, in which technology startups and new market participants apply innovative approaches to products and services that are traditionally provided by the financial services sector.

Keywords: *FinTech, robotization, gamification, Big Data, risk management, artificial intelligence.*

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Introduction

With the development of technological innovations, the digital economy has become one of the most important sectors of the national economy. In the modern world, in the context of globalization and the development of information technologies, the question of the transition of the economy to a fundamentally new level, which will consist of a single space located on the Internet, has become relevant. Digitalization poses serious challenges to existing business models, which include banks that are currently undergoing a transformation process around the world.

Today, there is an active transformation of the innovative activities of commercial banks in the context of the global digitalization of the economy. Digital transformation provides banks with unprecedented opportunities to increase profitability and improve customer experience. In order for a bank to remain competitive, it is necessary to modernize its intraorganizational innovation processes. At present, one of the main factors of successful banking activity is the policy of constant innovation. Digitalization requires revisiting traditional business practices and methods. Artificial intelligence and related technologies (machine learning, natural language processing, neural networks) have the potential to improve efficiency and increase revenue in the financial sector.

The development of digital banking is the path to economic transparency, reduction of the shadow economy, increase in tax revenues, the number of jobs and GDP growth. Digitalization can become one of the drivers for the development of the banking system, as well as increase the level of trust between depositors and banks and ensure transparency in the sector. Meanwhile, there are still certain gaps in areas such as infrastructure development, digital literacy and technological competitiveness that limit their ability to realize their digital potential.

In the future, the development of innovative technologies for banking services may become the main priority for choosing banking organizations and a stimulator for the growth of the quality of banking products and services, even taking into account international standards. As a result, the development of each individual credit institution forms a balanced and well-thought-out policy for the development of the entire banking sector, taking into account modern economic realities.

As President Sh. Mirziyoyev repeatedly noted in his speeches, one of the priority tasks for the consistent socio-economic development of Uzbekistan is the widespread introduction of ICT and digital technologies. It is digital technologies that are the effective tool that can ensure the qualitative reform of economic sectors and spheres of public life.

According to the statement of the President of the Republic of Uzbekistan Sh. M. Mirziyoyev: "It should be recognized that state-owned enterprises themselves do not have enough technical capabilities, and their specialists do not have enough knowledge and skills to independently carry out the transformation. Therefore, we involved the World Bank, the European Bank for Reconstruction and Development, the Asian Development Bank, McKinsey & Company, Boston Consulting Group, Rothschild & Co to reform large enterprises in the electric power industry, the oil and gas and chemical industries, mechanical engineering, as well as commercial banks and other world famous companies.

In 2021, 32 large enterprises of sectors of strategic importance will be transformed.

Our focus will be on the widespread introduction of digital technologies in the activities of banks." [one].

To take advantage of the digital economy, Uzbekistan has initiated changes to national legislation. Examples include Decrees of the President of the Republic of Uzbekistan No. UP-5099 of June 30, 2017 “On measures to radically improve the conditions for the development of the information technology industry in the republic”, No. PP-3724 of May 15, 2018 “On measures to accelerate the development of electronic Commerce”, No. PP-3832 dated July 3, 2018 “On measures to develop the digital economy in the Republic of Uzbekistan” No. PP-4642 dated March 17, 2020 “On measures for the widespread introduction of digital technologies in the city of Tashkent”. and No. PP-4699 dated April 28, 2020 "On measures for the widespread introduction of the digital economy and e-government". It should be noted that in recent years, even in the context of the COVID-19 pandemic, large-scale digital reforms have been carried out in the country.

Literature review

Digitization of economic processes is becoming a comprehensive trend that covers not only the direct information and communication network, but also all areas of economic activity in the country. The digital economy revolution is also having a strong impact on e-commerce, digital agriculture, “smart” grid systems, driverless transport, and personalized health care.

Indeed, the 21st century began with the information revolution based on the development of digital technologies and the process of globalization of the economy. Information in society and in the economic process has become a major resource. This information becomes knowledge in the hands of man, socio-economic relations move to global networks. The main factor of digital transformation in the activities of market participants is the development of digital culture.

That is why banks need to keep pace with the evolution of information technology.

In particular, the digitization of the banking system, one of the main links in the country's economy, was one of the first in the process of digitization of the economy, which led to the acceleration of the process of their transformation in line with modern requirements.

Transformation is an inevitable process of adapting business in the world to new conditions, to the preferences of society. The development of digital transformation in the banking sector should be achieved through a careful study of customer needs and analysis of existing opportunities, through the development of a new innovative strategy focused on the customer. The digital transformation of banks is primarily aimed at better understanding customer needs: customers and organizations want to communicate with banks quickly, easily and cheaply, so in the digital economy, the banking sector must be ready to offer the most modern services.

In the process of transformation of banks, the increase in customer demand is inevitable, and as a result of poor quality of advanced innovative banking services in this regard may lead to a decrease in bank customers' confidence in their bank. As a result, bank customers try to switch banks or use other banking services. Therefore, the transformation of banks' activities in accordance with the requirements of customers, creation of new banking services using modern information and communication technologies of banking products and services.

Methodology

In this study, statistical tables and graphs, analytical comparisons, logical and comparative analysis, grouping methods, as well as research work of foreign and domestic scientists on the subject were widely used.

Analysis and results

The Digital Uzbekistan 2030 program sets priorities and determines measures for the implementation of digital transformation. It is aimed at creating favorable conditions for attracting foreign direct investment, improving the quality of the national ICT infrastructure, implementing the concept of a "smart" city in cities, improving skills and competencies in the field of working with digital technologies.

An indispensable condition for digital development is the creation of a modern telecommunications base. In this regard, large-scale work has been done in the republic in recent years to modernize and expand communication networks.

One of the most important areas of digital development in Uzbekistan is the education of highly qualified IT personnel. This issue is of particular relevance in the Year of Youth Support and Public Health Promotion. In this context, the Ministry for the Development of Information Technologies and Communications is carrying out large-scale work. The first and important condition is the creation of a comprehensive system of continuous training of IT specialists within the framework of school, secondary specialized and higher education.

In matters of digital development of the state, the most important role is given to artificial intelligence (AI) technologies, which allow scaling tasks and monitoring processes. AI technologies are increasingly being used in Uzbekistan today: a number of domestic enterprises are actively implementing M2M technologies (machine to machine) in production and management processes. However, all these actions until recently were fragmented.

In February of this year, the Presidential Decree "On Measures to Create Conditions for the Accelerated Implementation of Artificial Intelligence Technologies" (No. PP-4996, February 17, 2021) was adopted. This document laid the foundation for the further development of the AI industry and identified the main directions.

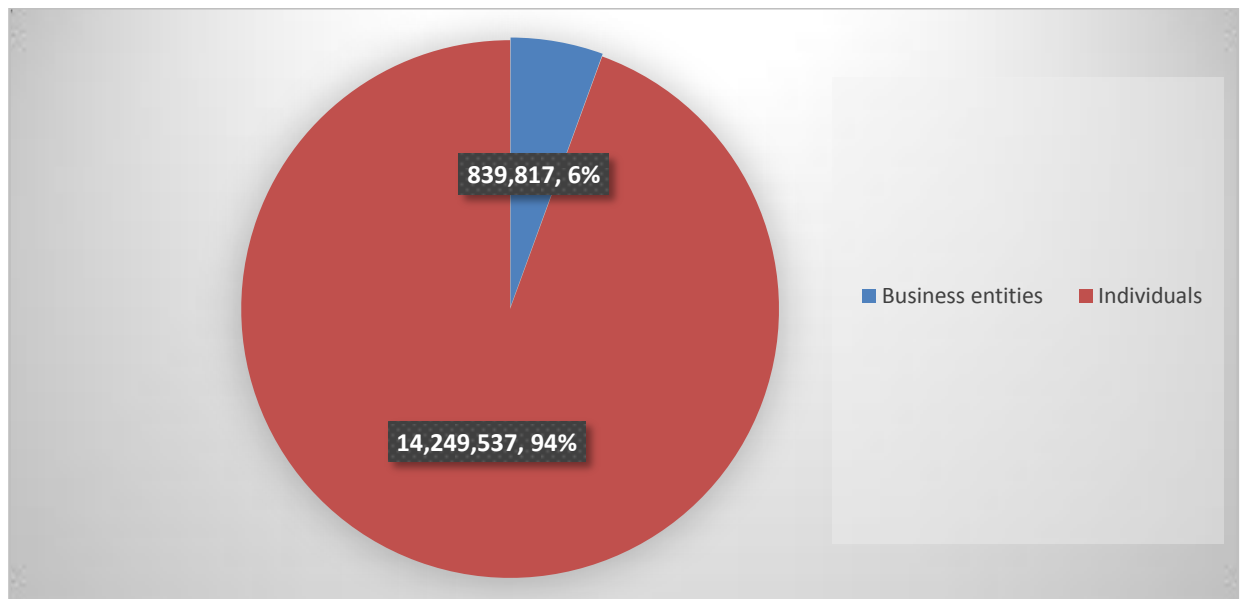


Figure 1. Number of users of remote banking services in the Republic of Uzbekistan.

Although it has achieved a number of successes with a number of remote banking services introduced by commercial banks, there are still a number of challenges in meeting the

requirements set by banks. They can include:

- Insufficient skills of the population to use all remote services provided by Online Banking;
- Problems of identification in the provision of services for banking active operations (for example, notifications on registration at the bank branch through applications);
- the length of time it takes to process and respond to information received through certain remote services;
- incomplete development of clear guidelines and instructions for remote service.

A comprehensive program of measures for the study and implementation of artificial intelligence technologies in 2021–2022 has been developed. In accordance with it, a list of pilot projects for the introduction of artificial intelligence technologies was approved, which will be implemented in 2021-2022 in agriculture, banking and finance, transport, healthcare, pharmaceuticals, energy, taxation and e-government. Importantly, these projects are planned to be implemented with the direct participation of IT Park residents.

Since AI technology is a very science-intensive industry that requires highly qualified personnel and sufficient material and technical resources, the Research Institute for the Development of Digital Technologies and Artificial Intelligence was established under the Ministry for the Development of Information Technology and Communications. Among the primary tasks of the research institutes: conducting fundamental and applied scientific research in the field of artificial intelligence, cooperation and joint implementation of projects with leading foreign innovative and scientific institutions in this area, the introduction of AI technologies in the sectors of the economy, the social sphere and the public administration system, the formation of a scientific ecosystem development of digital technologies. [4].

Another important prerequisite for the development of the digital economy and the expansion of e-commerce is the development of public financial services and improved, interoperable payment systems. Increasing digitalization in the financial sector will inevitably have a direct impact on social well-being and business as financial services become more accessible. The introduction of digital technologies is causing structural changes in the business environment, helping enterprises of all sizes to integrate into the regional and global economy.

Realization of digital potential in the financial and banking sectors primarily leads to increased transparency, accessibility, integration, efficiency and flexibility.

Digital technologies tend to have a positive impact on the inclusiveness of the banking sector, as they increase the availability of financial services. According to the United Nations, expanding access to digital financial services can be an important catalyst to accelerate progress towards the SDGs and create long-term social and economic impacts for millions of people around the world. Wider access to financial services means a growing demand for them, which stimulates further development of the banking sector. Demand from individuals contributes to the digitalization of the financial sector, which indicates that this area of the digital economy has the potential for synergistic development.

At the same time, as digitalization increases in all economies and societies, similar disadvantages appear. Recent studies show that automation and the associated advances in the application of artificial intelligence in manufacturing will eventually lead to a reduction in job opportunities and an increase in unemployment (Frey and Osborne, 2017). Although digitally augmented

economic activity creates value, it will not need the same number of workers, and a significant part of the population will be unemployed. To address the potential and existing risks to employment associated with digital technologies, some developed countries are considering a wide range of pilot policies, ranging from universal wages to taxing robots and data centers. It should be emphasized that digitalization, combined with evidence-based policies, can enable the development of digital technologies, complementing social and economic well-being.

According to the findings of scientists (Balsmeier and Woerter, 2019), enterprises' investments in digital technologies are positively correlated with the employment of high-skilled workers and negatively correlated with the employment of low-skilled workers. As low-skilled jobs are threatened in the long term, governments are faced with the need to provide opportunities for lifelong learning and retraining. Given the current level of technological capabilities and the ability of enterprises to successfully integrate them into existing business models, digital transformation at this stage will mainly contribute to the replacement of individual tasks, not entire jobs. Automation is mostly about simple and repetitive tasks, enabling people to focus more on creative tasks and devote more time to developing their talents.

New technologies are having a strong impact on the banking industry. Machine learning and artificial intelligence, big data and geolocation services, personalized services and offers - all this is actively used in the activities of modern banks. Robots stand up to replace the workplace, and in the short term, all standard operations will be performed autonomously.

The implications of the digitalization of the financial sector will include increasing the transparency of cash flows in the economy and expanding the scope of non-cash payments. At the same time, effective digitalization of the banking sector requires appropriate policies and flexible legal frameworks that allow banks to apply disruptive technologies and develop their own innovative products and services, and even encourage them to do so.

In the process of deploying a competitive market economy and the active use of new technologies in the financial sector, the business processes of commercial banks are radically changing. At the moment, FinTech companies and banks are trying to apply various scientific and technological achievements in their activities.

Today, due to the high level of competition in the digital services market of the banking sector, banks are improving the quality of service and expanding the list of services offered. According to studies, more than 75% of the population uses the Internet daily and by far the majority of this number use mobile banking or online banking. The development of a mobile bank as a channel for remote access of each client to the bank's products helps to increase the competitiveness of each individual bank, and hence the development of the banking sector as a whole. The use of big data analysis, robotization of technologies, machine learning, gamification to create a creative and targeted offer, digitalization and increase in the speed of all business processes, cloud technologies are one of the tools for the development of the digital economy of the banking sector.

With the help of the latest technologies, banks can develop and create new innovative products that help attract new customers and increase the loyalty of existing customers, taking into account growing needs. The rapid development of digital technologies is a driver of change in society as a whole. In order for banks to remain in their niche, they need to be competitive and stay one step ahead of other market players, they need to constantly generate new ideas and find ways to develop to achieve the most effective results. The continuous study of trends and

customer needs are fundamental factors for the emergence of modern ideas that have commercial opportunities. An important factor is the speed of launching an innovative product, and most importantly, a quality product. The faster the bank can adapt the new technology to the end user, the more promising benefits it will receive.

Conclusions and suggestions

In the process of researching the banking industry, one can note the presence of a list of trends in the market:

- 1) The activity of introducing innovative technologies is a driver for the development of competition from FinTech companies;
- 2) Robotization of technologies is responsible for processing huge amounts of data, its analysis and forecasting;
- 3) Gamification is responsible for the creative visualization of bank offers and helps to make new products more successful and meaningful;
- 4) The volume of use of technology for analyzing large data arrays (BigData) is increasing, it is used to assess and build a forecast of the client's creditworthiness, scoring, and underwriting. With the help of this technology, the client's preferences are analyzed and a personalized offer of products or services of the bank is put forward;

5) Artificial intelligence essentially has three directions of development:

I. Algorithms and machine intelligence - elementary machine intelligence or algorithmic cognition that replaces some elements of human thinking, decision making or processing for specific tasks.

II. Neural networks or algorithms that can make human-equivalent decisions for very specific functions and perform better than humans based on benchmarks. This does not prevent intelligence from having machine learning or cognition capabilities so that it can learn new tasks or process new information outside of its original programming. In fact, many machine intelligences already have this ability. Examples include: high-quality trading algorithms (HFT), facial recognition software, insurance risk assessment applications using image recognition, and credit risk assessment algorithms.

III. Artificial General Intelligence – A human-equivalent machine intelligence and learning system that not only passes the Turing test and reacts like a human, but can also mimic human decision making. It will likely also process non-logical or informational cues, such as emotions, tone of voice, facial expressions, and nuances that living intelligence can currently provide. In essence, such an AI will be able to successfully perform any intellectual task that a person can perform.

6) Considering the high activity of application of innovative technologies in the banking sector, the role of risk management and innovation activities is increasing.

These trends are directly related to the process of digitalization of the economy, which leads to the progress of competition in the financial sector, and specifically in the banking services market. Thus, the most significant tools of commercial banks at the present stage are the development of innovative technologies, as well as compliance with global trends (the development of FinTech technologies, robotization, gamification, the prevalence of Big Data

technologies, risk management) and the creation of a strategy focused on the transformation of business processes, taking into account development of the digital economy.

Digital technologies are the main key to the consistent development of any state, which makes it possible to make a qualitative breakthrough in many aspects of society. And the comprehensive digital reforms being carried out today in Uzbekistan are aimed at achieving the main goal - to become one of the leading states with a prosperous economy and a strong civil society.

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