Global Digital Transformation Trends: Financial-Economic Sector

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Abstract. In recent years, the financial sector has been a leader in digital transformation. An additional driver of its accelerated digitalization was the COVID-19 pandemic, which contributed to the active spread of mobile banking, contactless payments, digital services for managing investment portfolios, etc. The largest banks and insurance companies play a leading role in the digitalization of financial services. New fintech companies have emerged both within large banking ecosystems and as stand-alone start-ups providing financial services on their own. The digital transformation of the financial sector is based on the integration of distributed ledger systems, cloud technologies, big data analysis and AI. As a result of the use of digital technologies, new business models are being built. For example, the Open Banking system, which is based on API (Application Programming Interface) technologies and is designed to exchange information necessary for the development of financial products and services, has become widespread. Such a system allows non-financial organizations to offer financial products and services personalized to the needs of a particular client.

1 Introduction

As part of the Bank-as-a-Service (BaaS) platforms, licensed financial institutions provide access to their systems and information (usually through open APIs) to third parties. At the same time, unlike open banking, in BaaS business models, non-financial organizations integrate specialized financial services into their own products. With the help of BaaS, it is possible to integrate the necessary financial products and services into various business processes, such as enterprise resource planning (ERP) systems [1]. BaaS platforms allow you to increase the number and speed of financial transactions. The development of new technologies and financial instruments in the last decade has enabled organizations and consumers to become active participants in financial markets. The spread of algorithmic trading, mobile investment services and robotic financial advisors has contributed to the growth of liquidity on the stock exchanges. The role of electronic payments has increased. It is expected that the volume of the corresponding world market by 2026 may reach about 13.8 trillion dollars [2]. A significant contribution to the development of the segment was

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made by online payments in retail trade, which, by reducing the transaction time and the reliability of operations, contributed to an increase in revenues and an increase in the operating efficiency of companies. Around the world, payment systems such as PayPal, Samsung Pay, Apple Pay, AliPay, and WeChat Pay are embedded in mobile apps. Analysts predict that the e-payment market will grow up to 30% per year in the coming years due to changing consumer lifestyles and the rapid increase in e-commerce.

Russia is one of the leaders in the digital transformation of the financial sector. A high level of digitalization has been achieved through the widespread use of mobile banking and electronic payments [3]. Active interaction between the Bank of Russia and the largest organizations in the financial sector, including within the framework of the FinTech Association, contributes to the rapid adaptation and implementation of new digital technologies, including distributed ledger technologies, AI, etc.

The accelerated digitalization of the Russian financial sector using a wide range of technological solutions is ensured by the relatively high costs of organizations for digital technologies and the involvement of highly qualified IT specialists.

As noted above, most of the key digital technologies are actively used in the Russian financial sector, in this regard, the key trends actually coincide with the global ones. For example, AI technologies are used to implement a variety of products and services, from chatbots for customer service to automation of credit processes and insurance. According to an industry survey, 53% of respondents familiar with AI technologies say their organizations are developing or have launched AI projects. Currently, robotic process automation (RPA) technologies are actively spreading in order to increase the efficiency of decision-making and automate tasks. In the future, RPA will become more closely integrated with AI, which will increase their effectiveness. Blockchain solutions are also rapidly penetrating the financial sector [4]. About 40% of respondents believe that the introduction of distributed ledger technologies in organizations will be extremely popular over the next five years.

2 Research Methodology

In 2020, the intensity of the use of digital technologies by domestic financial organizations is 1.5–2 times higher than in other sectors of the economy. The most common digital technologies are cloud services (41% of organizations use them), digital platforms (36.3%), geographic information systems (26%) and AI (22.8%). Big data analysis is used by 16.4% of organizations in the financial sector, which is almost 2 times higher than in other industries. RFID technologies, or the method of automatic contactless identification of objects via a radio signal, are used by 11.8% of financial organizations, the Internet of Things - 10.8%, industrial robots and digital twins - 0.8%, additive technologies - 0.5% of organizations [There same]. At the same time, the intensity of the use of special software in the financial sector is on average 2 times lower than in other industries [5]. The exception is ERP systems, which were used in 2020 in 13.4% of organizations in the financial sector, which is in line with the values for the economy as a whole. The intensity of the use of CAD, MES, PLM/PDM systems does not exceed 3%. Such indicators are explained by the use of software specialized for the needs of the financial services sector, as well as the active development of their own software in large banks.

The contribution of the financial sector to the total cost of Russian organizations for the implementation and use of digital technologies in 2020 amounted to 16.7%. At the same time, compared to 2019, in absolute terms, the sector's costs for digitalization decreased from 530.8 to 491.3 billion rubles. Over the past years, the financial sector has been a leader in digital spending, and the current decline may be due to organizations achieving a high level of digitalization, which limits the potential for further growth. In 2020, the ratio
of spending on digital technologies and the GVA of the financial sector decreased from 12.5% to 10.1%, which is still significantly higher than the average value for the economy, which remained at the same level (2.7%). The decrease in the intensity of digitalization costs in the financial sector may be due, among other things, to the transition of a significant part of employees to remote work during the pandemic in the context of the high level of digitalization achieved by that time. More than in other industries (about 42% of the financial sector’s spending on digital technologies) is accounted for by software [6]. The cost of machinery and equipment (34%) is 5% lower than the economy as a whole. The share of purchased domestic software in the financial sector in 2020 was 15.5%, which is 2 times less than the average for the economy (31.8%). At the same time, the use of domestic software, as a rule, is associated with the solution of specific industry-specific tasks that are exclusively local in nature. The dependence of the Russian financial sector on foreign software remains, primarily due to the dominance of providers Microsoft, SAP, Fiserv, FIS and Oracle in the database management systems market. The high degree of implementation and integration of foreign software in the Russian financial sector makes it difficult to fully switch to domestic software. Nevertheless, there are solutions on the Russian market that can potentially compete with Western counterparts (for example, the solution of Diasoft and Arenadata EDP).

3 Results and Discussions

In 2020, about 98.2 thousand ICT specialists were employed in the financial sector, while 95.2 thousand people were employed. are IT professionals (Figure 35). Compared to other industries that consume digital technologies, the share of ICT specialists in the total number of employees in the industry is significantly higher - 6.2% versus 1.6% in other industries in 2020. The demand for ICT specialists has grown both in absolute terms and in relative terms to the total number of employees. The contribution of the financial sector to the total demand for ICT specialists in the economy is 5.3% (7.3% for IT specialists) [7]. Over the past years, both in Russia and abroad, there has been a shortage of highly qualified personnel in all areas of the application of digital technologies in the financial sector.

The digitalization of the financial sector cannot be ensured without the formation of the necessary regulation. The main initiatives in the field of digital transformation are being developed by the Bank of Russia together with the largest participants in the financial market.

Foreign experience in the digitalization of the financial sector is widely used by the Bank of Russia in the preparation of new legislative proposals [8]. In particular, the regulation of open banking systems is largely based on the experience and results of the implementation of open API standards in financial institutions in a number of countries (EU, UK). As in other countries, regulation regarding the circulation and use of private cryptocurrencies is being tightened. Along with other global central banks, the Bank of Russia is actively developing its own digital currency.

In November 2021, a draft of the main directions for the development of the financial market of the Russian Federation for the period 2022-2024. was approved by the Board of Directors of the Bank of Russia for submission to the State Duma of the Federal Assembly of the Russian Federation. The draft report of the Bank of Russia outlines the areas of digitalization of the financial market [Bank of Russia, 2021], including: development of legal conditions; development of digital financial infrastructure; implementation of technologies in the field of regulation and supervision (RegTech, SupTech); the possibility of establishing experimental legal regimes; improving the information security of the financial sector as a whole [9]. The purpose of legal regulation is to ensure the implementation of legislative initiatives that contribute to the creation of conditions for the
digitalization of all financial services. These initiatives provide for the development and introduction of appropriate amendments to draft federal laws, concepts, regulations and reports of the Bank of Russia in 14 areas. For example, it is planned to develop legal support for the implementation of the Digital Profile, which is necessary to obtain information about individuals and legal entities when providing financial services to them. The Digital Profile infrastructure is currently being implemented as an experiment. In 2022, the Bank of Russia plans to consolidate the legal status of the Citizen’s Digital Profile.

Another important legal initiative is the development of regulation in the field of circulation of anonymized personal data. Today, financial institutions face restrictions in the field of data processing and circulation due to the lack of unified regulation. According to the project, it is planned to consolidate approaches to the processing of anonymized data, as well as the possibility of their further use, including by third parties. In addition, taking into account this initiative, it is planned to develop the regulation of open APIs or data exchange through open APIs in various sectors of the economy [10]. The organizational and technical measures planned by the Bank of Russia are aimed at developing the digital identification of customers and the exchange of data of digital payment services.

Among the priority areas, one can single out the development of the Unified Biometric System in order to transfer all financial services to a digital format. Such a system will allow the use of technology without creating their own biometric systems. In the near future, it is planned to develop and pilot a digital ruble platform [11]. Thus, at the beginning of 2022, the Bank of Russia began testing the digital ruble platform, within which credit institutions will be connected and C2C operations will be implemented. In general, the project of the main directions for the development of financial technologies corresponds to global trends in the financial sector [12]. However, due to the tightening of sanctions pressure in 2022, significant adjustments will be required in the digitalization strategy of the financial sector and in the development of financial technologies.

4 Conclusions

In Russia, as well as in the world, the digital maturity of the financial services sector is at a high level compared to other sectors of the economy. The financial services sector is among the industries for which digital maturity is assessed as part of monitoring the achievement of the corresponding indicator of the national goal “Digital Transformation” established in Decree No. 474. It is determined by the level of digitalization of the provision of banking payment and non-payment services, as well as non-banking services to customers (Fig. 36). Digital maturity in the field of financial services as a whole is 86% for 2021. At the same time, the level of digitalization of the provision of banking payment services to both individuals and legal entities is already quite high - about 94 and 96%, respectively. Such high values are explained by the widespread use of mobile banking and electronic payments in Russia, the growth rate of which outpaces the dynamics in some developed countries. Given this degree of penetration of digital payment services, the figure is expected to reach 97% by 2030.

Significant digitalization potential remains in the provision of banking non-payment and non-banking services to the population and businesses. The digitalization of the provision of non-banking services to legal entities has the lowest level in 2021 — 36%. By 2030, the figure may increase by 11% and reach 47%. The share of digital non-banking services to individuals in 2021 amounted to about 65%. It is planned to increase the indicator to 73% by 2030. The development of banking ecosystems can significantly increase the degree of digitalization of non-payment and non-banking services. As noted above, the digital maturity of the financial sector is determined based on the indicators of digitalization of service delivery. In fact, only the client part of the business of financial organizations is
assessed. This does not take into account the introduction of digital technologies in support and infrastructure divisions, the digitalization of internal business processes of banks and financial companies. Also, taking into account the already fairly high digital maturity of the financial sector, it is advisable to monitor not only the “gross” indicators of the coverage of digital services by the population and legal entities, but also the structure of the portfolio of relevant services, focusing, among other things, on the most innovative and demanded of them.

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