

Financial Technologies as a Tool for Comprehensive Banking Services

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Abstract. The financial services sector has undergone major changes in recent years as a result of new technologies. Business processes in the creation of a banking product, building a long-term strategy and successful project activities are moving into a digital interactive model of interaction in the digital environment. In the emerging markets there are FinTech start-ups in areas such as the service of individuals and private capital management, which are in the lead at the expense of customer-friendly services. Financial technologies are radically changing the competitive environment of financial institutions and the structure of their functioning markets, reducing the branch network of banks, the number of employees in the financial services sector, while expanding their provision in real time, creating conditions for multifunctional digital banks with a low base of current costs by simplifying traditional systems. The FinTech segment of the capital market contributes to the formation of a new business model, offering users a personalized service option combined with lower fixed costs and price parameters. The research presented in the scientific article on the basis of monitoring the practice of financial technologies in the Russian banking system, allows to identify current trends and trends in the development of financial services in the new digital competitive environment, which should be taken into account by the bodies of state regulation and banking supervision.

1. Introduction

Global changes are observed in the banking sector, the determining factor being the development of financial technologies including contemporary trends in the financial services market. Corporate strategy of banks focuses on three key work directions: customer experience, operational processes and business models on the basis of the digital transformation and application of digital technologies, which provides broadened market options.

From the point of view of the consumer of financial services it refers to new application programs, appearance of digital products that are offered not only with traditional financial institutions, but also with companies that develop financial technologies outside the banking system, which allows to provide financial services simultaneously rendered by various third-party service providers. Financial technologies presuppose not only the external modernization of the bank, but also the restructuring a substantial part of the domestic business processes of commercial banks in combination on the basis of partnership with the so-called FinTech companies extensively emerging in the financial market, which in turn constitutes the relevance of the research.

Digital transformation as an inevitable process of the banking business is expressed in the transferring of operations from the traditional channel «branch network» to «remote channels»: online bank, mobile banking, call-centers, ATMs networks and payment terminals. The markets of mobile and con-

tactless payments, **P2P** services, digital currencies, online trading are growing rapidly, while the opportunities for the assimilation of block chain and big data technologies are expanding. In Russia, there is an example of an effective mono-office bank, which gets along without customer service centers and even lacks its own network of ATMs. This is Tinkoff Bank renowned for creating an integrated financial electronic system of the providing banking services. Client focus, customer-tailored offers, mobility are becoming the key elements of the digital banking model.

2. Theory

Banks as a traditional monetary institute are transforming into digital organizations, which is accompanied by a reduction in the total number of bank offices and transferal to «remote channels» of almost all standard banking activities. In the medium term, the number of offices of the banking network will continue to go down to the optimum level, allowing to meet the minimum requirements of the «physical contact with client» (see Table 1).

Table 1. The number of banking institutions' subsidiaries operating in Russia [8].

Region	2014	2015	2016	2017	2018
Central Federal District	397	348	292	218	171
NorthWestern Federal District	288	251	209	165	144
Southern Federal District	224	196	163	122	95
North Caucasian Federal District	155	99	72	53	42
Volga Federal District	389	322	256	205	146
Urals Federal District	231	193	151	136	122
Siberian Federal District	225	192	163	132	114
Far Eastern Federal District	96	89	79	67	56
Total	2005	1690	1385	1098	890

The data presented in Table 1 shows that over the past five years the number of banks' subsidiaries throughout Russia has decreased by 1115 or 55%, which is an objective regularity in the current context and the global trend. Distant service technologies of customers do not demand the presence of a separate business unit of the bank in the designated area. A new technically-oriented generation of customers seeks to obtain products and services in the online environment.

According to experts, US banks earn 80% of their revenue at the expense of 20% customers. More often than not, more than 60% of customers do not bring any income to the bank. Banks strive to redirect this customer category to the use of cheaper electronic channels for the provision of financial services [1]. Online customer service is much cheaper for banks due to essentially lower transaction costs than traditional channels of financial promotion of services.

In spite of the advantages that robotic technologies provide to the financial world, the question of the demand for financiers, accountants and the other categories of bank employees is becoming more and more acute. The analytical company MyPrivateBanking predicts that 10% of all funds of private investors will be under the control of robots by 2025 [4]. Sberbank plans to reach the level of 80% of decisions supported by artificial intellect by 2021, thereby reducing the staff of its employees by tens of thousands of people [10]. Under the given circumstances, Russian institutions of higher education need to make correctives to the training schedule of relevant specialists, taking into account the real needs of the market right now. Over the past three years, the transfer of settlements to remote channels has led to laying-off 15% of bank employees. The volume of non-cash resources stored on the servers of banking institutions in Russia is four times bigger than the volume of cash resources.

To speed up penetration process of digital channels, banks obtain FinTech projects, develop partnerships with start-up teams, and espouse the development of FinTech, investing significant funds to facilitate the expansion of own financial services, enhance loyalty and customer satisfaction. Financial

technology or FinTech is a branch made up of companies that use technologies and innovations to compete with traditional financial organizations (banks and other intermediaries in the financial market).

Financial technologies demonstrate growth of investments in Russia. According to the data from experts, for 2011-2016 investments in the FinTech market in Russia grew by more than ten times. About 90% of investments in financial technologies are effected by leading Russian banks. More than 70 % of the funds are focused on the field of personal finance and financing small businesses. According to the data from the Russian venture company, total volume of Russian banks for development of investments in financial technologies is rated 0.2 % of international standard [5].

The greatest demand is observed in areas of innovation in the financial services market: payments and money remittances, payment service providers (more than 50% of investments); projects in lending sector(25% of investments); management of capital and operations in financial markets (7%); insurance (2%) [2]. The number of digital banks has an upward trend, demonstrating a positive movement by customer acquisition and promoting the range of financial and additional nonfinancial services (see Table 2).

Table 2. The world's leading digital banks by customer base size [6].

№	Bank	Parent company	Country	Number of clients (million people)
1	ING Diba	ING Group	Germany	8,5
2	Capital One 360	Capital One Financial	USA	7,8
3	USAA Bank	USAA	USA	7
4	FNBO Direct	First National of Nebraska	USA	6
5	Rakuten Bank	Rakuten	Japan	5
6	Tinkoff Bank	-	Russia	5
7	TIAA Direct	TIAA-CREF Trust Company	USA	3,9
8	Discover Bank	Discover Financial Services	USA	3,5
9	Alior Bank	-	Poland	3
10	DKB AG	-	Germany	3

In the field of remote banking servicing, FinTech comprises many interests that are currently showing a rapid growth: digital payments and peer-to-peer payments; peer-to-peer lending; crowdfunding and crowdinvesting; risk management; BigData analysis and predictive modeling; security technology. In Russia it has launched a project called Finnet aimed at developing discrete storage and remote processing technologies for reducing the intermediaries in the development and introduction of banking products. The advisory company EY believes that the sector of financial technology is developing globally in relation to employment, investments and the number of FinTech companies, although it is still miles away from ripeness. The main initiatives in the financial technology market can be divided into the following groups: start-up companies; traditional financial institutions (banks, insurance organizations); technological or retail companies that have appeared in the financial sector; complex start-up companies with a mixed ownership structure.

The advisory and audit company Deloitte estimated the activity of Russian banks to introduce new technologies. The experts selected 11 innovations and divided them into several groups: security («smart»identification), analytics (BigData, personal financial assistants), digital technologies (digital wallet, contactless payment, etc.), automation (robots in divisions), gamification (games and quests for

customers) and P2P-lending. As a result, according to the estimates of Deloitte, the most advanced bank is Sberbank (18 points), the second place was shared by Alfa-Bank and Tinkoff Bank (16 points). The bank «Otkrytie» ranked the third (8 points) [4]. In 2017 Sberbank launched a project called the Ivanov digital index, it is an index that represents the level of digitalization of the life of the average Russian citizen. According to reports, more than 95% of operations are underway in Sberbank through digital channels and only about 50% with private individuals [10].

3. Results

A study of domestic banking practices revealed a number of trends in the market (see Fig. 1): 1) the active sectoral use of information technology, online services, mobile applications contributes to increased competition from FinTech companies; 2) robotized technologies take over work with data arrays, its analysis and forecasting; 3) gaming elements and the visual component of banking offers, programs and processes become significant criteria of success, gamification is applied; 4) the use of BigData technology is being expanded to analyze creditworthiness, credit scoring and underwriting, data monetization is performed and the institution can offer banking services which are suitable for it to the client; 5) the role of risk management of innovation activity increases which is connected with the intensification of innovative banking; 6) direction in the development of innovative banking as a creating a base of “customer experiences”, because it covers direct interaction between people and technologies without needing contact bank officers, which is unit daily needs, desires, interests of customers.

Transformation of business models based on the use of banking innovations	Development of FinTech companies Robotizing of technology Gamification Expanding the use of BigData technology Enhancing the role of innovation risk management Creating a database of "customer experience" to offer new unique banking products
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Figure 1. Current trends in the development of banking innovations.

The success rate of robotic technologies is 45%, BigData technology - 68%, gamification - is estimated at 16% [6]. Russian banks are significantly lagging behind in the application of gamified technology connected with the client sector and building stable relationships, but in the long term the potential for developing financial technologies on the Russian financial market is sufficient (see Table 3).

Table 3. Development potential of innovative banking services in the Russian financial market.

Banking Trends	Innovation	Current state	Development potential
Banks with FinTech companies	Integration	Active turnover of companies for the last three years increased by 73%	As part of the development of the digital economy
Robotized technologies provide efficient work with data arrays, their analysis and forecasting		The level of automation with the use of robots - no more than 5% of operations (in some banks - up to 10%)	Conducting 40% of operations in banks with using robots

Gaming elements of banking offers, programs and processes (gamification)	Almost not used	With the help of gamification, it can be announced a line of innovative banking products and services.
The use of BigData technology is expanding.	Widely used. Over 60% of innovative banking products and services accounted for this trend.	As part of the development of the digital economy
Enhancing the role of innovation risk management	The high level of risk that holds the development of banking innovation	Transformation of banking risk management, accounting, auditing, revision of the banks reliability rating system
Information base "customer experience"	Formation stage	As part of the development of the digital economy

Innovative technologies, which has been introduced in the financial sector, lead to increasing competitive environment in the FinTech companies industry. This companies, in turn, are aimed at providing diverse financial services of the required quality as soon as possible and are almost the main competitors of banks in the fight for the client. FinTech companies unlike banks have more flexible structure and, as a result, mobility. FinTech companies provide services using modern channels: mobile applications, artificial intelligence (robots), social networks, etc. Banks compete for customers with FinTech companies that are capable of providing financial services that are faster and more targeted. This fact confirms the need for banks to active using innovative technologies to maintain leadership in the financial operations segment.

4. Conclusion

The perspective of the evolution of financial technologies in Russia is connected with the solution of the issues of the development and integration of digital technologies into the main spheres of social life. Unfortunately, the level of readiness of Russian companies to the digital economy is estimated as extremely low (36% out of 100). Among banks, the level of readiness to jumping to a new “digital model” is much higher - 68%.The share of the digital economy of Gross Domestic Product in Russia in 2016 was estimated at only 2.8% [7]. Russian companies and banks are not paying enough attention to training employees in the field of digital technology. In the banks of Russia, educational programs in the field of digital technologies were introduced in 33% of respondents. Less than 10% of Russian companies conducted centralized educational programs or had paid for trainings and events for the selection of employees. Nevertheless, products and services with technological developments possess high growth potential (see Table 4).

Table 4. Growth potential of using FinTech services.

Name of financial services	Current introduction rate of service among FinTech users,%	Growth potential,%
Non-bank money transfers	89	7
Payments by using mobile phones	54	30
Banks, which are functioning only online, without divisions	46	26
Money Transfers Abroad	42	26

Currency exchange operations online	18	44
Car insurance with the use of computer remote communication (insurance telematics), which allows to track driver behavior	25	41
Online insurance - online travel and other types of insurance	15	40
Online Budgeting and Financial Planning Tools	14	25
Pension, medical online insurance	11	35
Online Investment	10	24

Thus, the most important feature of the product strategy of commercial banks at the present stage is the inevitable adherence to world trends (development of financial technologies, robotization, gamification, the predominance of BigData technologies, risk management, creation of a base of "customer experience". And the inevitable orientation of business technologies to digital economy. Further functioning of banks is aimed at building partnerships with FinTech companies. As a result of cooperation, banks receive a more comfortable environment for the implementation of their own innovative direction. In addition, it gives the reduction in operating costs, improved personalized approach in the implementation of products and services, and an overall improvement in the quality of customer service. The availability of financial services for consumers implies the existence of several sales channels: off-line, online, mobile applications, etc. The customer service model provides for the reduction of contacts in the traditional banking system with representatives of the front office and transfer to remote channels, the release of personnel and the transition to the digital environment of such components as customer data storage, access to them, types of computer networks.

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