

**SCTMG 2020****International Scientific Conference «Social and Cultural Transformations in the  
Context of Modern Globalism»****INNOVATIONS OF ELECTRONIC PAYMENTS IN THE  
BANKING SECTOR OF THE RUSSIAN ECONOMY**

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***Abstract***

The article discusses the main directions of the Russian economy digitalization, among which the greatest attention is paid to the use of such technologies as silicone bracelets and ceramic rings with a chip, the development of digital banking, remote service channels and others. The main incentives for Russian banks to launch product innovations as a way to attract customers and more accurately meet their needs are highlighted. The benefits for banks from the introduction of digital products in banks are assessed. The transition from the classical format of the bank to the financial ecosystem, both for private and corporate clients of the banking sector, is assessed. Highlighted the priority areas of activity of Russian banks, among which there is an accelerated launch of products on the market, as well as increased flexibility that will support higher rates. Biometrics is one of the main directions in digital restructuring. The development of financial services is gradually shifting to an open, integrated and promising technological ecosystem, which opens wide opportunities for the differentiation of services. Based on the material under review, in the current economic conditions in Russia various innovative payment technologies are being developed that have proven themselves in other countries as the most effective. The assessment of the complex of contact areas between the client and the company that allow the bank to effectively provide financial services and work with their clients ahead of schedule and eliminating any potential problems is made.

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**Keywords:** Digital economy, electronic payments, innovation, blockchain, banking, biometrics.



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## 1. Introduction

It is difficult to imagine the modern world without electronic payments, because today they play an important role in everyday life of an average citizen. We use them everywhere: to pay for the Internet, mobile services, in-store purchases, even salaries, pensions and scholarships. Most of the population gets their accounts in electronic way.

With modern monetary systems, such **means** of payment are perceived as non-exchangeable money, that have a credit basis, serve for settlements, circulation, accumulation, and have a certain level of reliability.

## 2. Problem Statement

The process of digitalization within the country is uneven, and megacities, as a rule, are ahead of other territories. This trend is typical for most countries of the world, according to BCG. However, by 2024, it is planned to create “smart” cities in Russia both in settlements with a population of over 100 thousand people and being the administrative centers of the constituent entities of the Russian Federation, and in locations with a population of less than 100 thousand people. Within the framework of the federal project of the Ministry of Construction of the Russian Federation, the standard and mandatory requirements for smart cities have already been approved, and pilot zones have been selected. The list of pioneers included Dubna, Ivanteevka and Reutov near Moscow (in total, 41 cities from 27 regions submitted applications to participate in the piloting).

## 3. Research Questions

According to FinTech Power 2019, the second annual forum for financial innovation, the digitalization rating of leading innovation banks consists of the following top ten Russian financial tech leaders: Tinkoff, Sberbank, Alfa-Bank, Raiffeiseng Bank, Ak Bars Bank, Rosbank, VTB, Russian Standard, Bank Saint Petersburg, Uralsib. Some banks attract startups.

## 4. Purpose of the Study

The evaluation criteria were the availability of relevant digital services, the infusion of the bank’s mobile applications, the activity of support in social networks, and the financial indicators of digitalization.

## 5. Research Methods

Nowadays credit cards are not extraordinary, although a couple of decades ago, it was something unreal. Regular credit cards are being replaced by smartphones, watches, bracelets, rings, as well as individual fingerprints, and the retina. Also, nowadays biometric technologies are developed in the contactless payment system, which is a technological process that identifies customers who make payments by biometric parameters, such as prints on the fingertips and palms, their heart rate.

For example, not so long ago, Sberbank introduced Ladoshki, a payment technology that is now successfully operating in dozens of Russian schools. The biometric system allows students to pay for lunch in the dining room with their own palm. In this case, funds are debited from the account which parents can control and replenish.

And the latest invention for today in the system of electronic and cashless payments is a novelty, which already at the end of 2018 went on sale in the Moscow metro. These are silicone bracelets and ceramic rings with a Troika card chip, which can be used to pay for metro trips.

Based on the data provided by Mastercard, you can trace the dynamics and trends in the spread of electronic payments in Russia. The results showed an increase in the popularity of non-cash payment methods. The survey also helped determine the level of recognition of contactless payment technology among residents of Russian cities.

The share of cardholders in Russia reached 92 % in 2018. Fewer people prefer to pay for purchases in cash (24 %). While the share of Russians who prefer to pay only with cards increased by 73% per year and in 2018 has amounted to 26 %. 50 % of respondents alternate payment card and cash.

The Russian banking system has a chance to become one of the most advanced in the world. Digitalization will help reduce bank expenses by 10–15 %, big data technologies will make it possible to evaluate the client as accurately as possible when granting a loan, a significant share of the income will come from non-banking services.

In addition to financial services, consumers will receive telecommunication, retail and other services within ecosystem this ecosystem; banking operations will be carried out almost instantly; customers will receive only personalized offers.

Banks work as a locomotive for innovation and personnel for other industries; IT companies will become full-fledged providers of financial services and competitors to banks; large banks will become ecosystem centers offering a wide range of services; small banks will become niche players.

Now the banking sector of Russia comes to life after the stagnation of 2015–2016. At the same time, the emergence of new players – fintech companies, non-banks and non-banking companies – changes the structure of competition, reduces the profitability of traditional banking, and therefore forces it to seek new sources of income. The two most promising areas here are new banking products based on digital technologies and non-banking products created in partnership with third-party firms.

The digital transformation of the banking industry in Russia has a good basement. More and more Russians are using remote service channels, while their level of distribution lags the level of Internet penetration, which indicates a growth potential. Mobile applications of Russian banks now have one and a half to two times more functions than similar applications of leading banks in Europe. This is partly explained by the fact that in Russia the industry was already being formed in the digital era, immediately adopting the best practices. In 2018, Russia entered the top 5 European countries for the development of digital banking. (Zolotova et al., 2015)

The driver of product innovations in the banking industry is the analysis of large amounts of data, machine learning, in-depth analytics, artificial intelligence, robo-advising, and blockchain, which allows you to perform operations without intermediaries. Based on these technologies, fundamentally new

products, services and opportunities are created, for example, services that previously required the personal presence of a client in the bank, and now have gone online.

The main incentive for banks to launch product innovations is the desire to retain customers and more accurately meet their needs. One way is to launch brand new products based on digital technology. For example, this is an online service of a mortgage broker at Tinkoff Bank or user identification by photo when making transfers at Otkritie Bank. In the future, biometric identification will gain popularity not only for customer identification, but, for example, for remote conclusion of an agreement. More and more banks offer personalized cashback services with the ability to select purchase categories, and some (Sberbank, VTB) use predictive analytics to create individual offers. The number of interactions with the client is reduced, while they become more effective. In addition to personalizing offers, banks need to develop an omnichannel service: not just through various channels, but the integration of these channels into a single system. To start product innovation, one needs to create new ideas. Continuous monitoring of trends and understanding of customer needs are decisive factors for the emergence of relevant ideas with commercial potential. The speed of bringing new products to the market is important here: the faster the bank launches new high-quality products, the more competitive advantages it receives.

The main benefits of digital transformation for traditional players are a multiple cost reduction and faster banking operations. As McKinsey's experience shows, the end-to-end digitalization of key processes in a traditional bank, whether it is selling new products or servicing branches, can reduce their cost by 40–60 %. And if large players, having the necessary resources and competencies, can carry out a full-scale digital transformation, small banks need to find their niche.

Large-scale financial investments in digital reforms for small banks are risky: opinions may not be enough, and losses from a failed transformation threaten to bankrupt the company. Therefore, it is important to find a niche segment and develop it: for example, Rocketbank is aimed at a young market, and all its offers and promotions are mainly aimed at the consumer segment. The lack of funds for digital transformation should not stop small players who would like to digitalize processes in their company: you can focus on the point development of key technological competencies or use other people's platforms to outsource individual functions.

Both large and small players can use big data analysis technologies to create models for predicting credit risks. This will allow you to create individual offers to customers and effectively allocate resources. An example here is the method of a territory optimizing coverage with a network of branches or ATMs based on dynamic modeling and analysis of client flows.

The transition from the classical format of the bank to the financial ecosystem to serve both private and corporate customers implies increased attention to the consumer and their needs, as well as building partnerships with other companies. The services provided by partners must meet a wide range of everyday customer needs.

An important factor in innovative development is the ability to interact with technology companies in the joint development and implementation of innovative solutions, outsourcing of innovations and other forms of cooperation. Aggregators of user information (for example, social networks and telecom operators) that provide access to external customer data become strategic partners of banks (Dyatlov et al., 2019).

Small financial institutions that are unable to afford the modernization of their own IT systems can use the services of outsourced companies – from cloud storage and data processing services to the use of in-depth analytics and analysis of large data sets. Banks with inadequate digital competencies can focus on providing basic services such as balance sheet management and transaction management.

Among the recommendations to market participants, a favorable climate for the company to work with investors can be pointed out. Based on that we can distinguish the following four success factors.

Firstly, a clear strategy, which should include a development plan for three types of innovations: product, process and innovation in building a business model.

Secondly, partnership. The development of relations with the Central Bank, banks, fintech and IT companies will complement knowledge and skills with new competencies, while gaining a competitive advantage. Banks should carefully monitor the activities of fintech companies and startups in the market, identify the most promising ones, then buy them or create strategic partnerships.

The development of missing competencies. Implementation of innovations requires new skills in the field of digital technologies, personnel management, understanding of customer needs.

Effective work with innovations requires a certain approach of employees to work, encouraging their interaction. Intangible factors, such as a certain freedom of action, are also important for young professionals (Golova & Sukhovey, 2017).

For a long time, the development of online banking was hindered by the norms of Russian laws regarding remote identification: it was simply impossible to open a deposit without a passport and personal presence. Only in December 2017, a law, allowing the opening of an account and credit line remotely, was passed. Together with market participants, the Central Bank paves the way for the development of innovations, works out legislative norms. An example is the creation of the FinTech Association in 2016 on the initiative of the Central Bank. It was within the framework of the association that a Quick Payment System was developed and implemented that allows banks to instantly transfer funds by phone number. The speed of technological changes requires more flexibility from the regulator, and the success of innovations directly depends on the degree of cooperation of the Central Bank in market participants. Adequate industry regulation will protect the industry and companies from threats, and a stable market environment will foster innovation.

Despite the growing pace of digitalization, fully digital banks in the Russian market are still few. The reason for some inhibition is the accumulated “zoos” of the systems, determined by the specifics of each bank, as well as stringent regulations. Previously formed IT infrastructures are characterized by low flexibility and complexity of integration with new solutions. However, traditional banks create blocks of digital business in their structure or outside it and strive to be in the trend by introducing separate digital solutions (Android Pay in Russia: how to connect and pay by phone <https://vc.ru/p/android-pay-how>).

According to the TAdviser survey, all major banks (TOP30) confirm their interest and willingness to move towards digitalization. 100 % of them have already automated remote banking services (Internet and mobile banking). Individual banks are currently updating these solutions or are considering replacing them. 95% of respondents automated loyalty programs. All 100% have a loan conveyor.

New additional opportunities for expanding the business – for example, through the sale of partner products (through the digital marketplace, as well as the implementation of the white label concept) are

still of little interest to TOP30 Russian banks. First, the restraining factor here is the non-obviousness of monetization, the absence of obvious successful cases, including such in world practice.

50% of respondents use self-written software for digitalization tasks. Most banks note that they do not find a suitable turnkey solution on the market, and therefore they are considering foreign platforms as well. Large banks are interested in maximizing their competitive edge in digitalization. This determines a shift in priorities towards in-house development (Dobreykina, 2013).

In new digital solutions, banks are primarily interested in the high availability and flexibility of services, the richness of functions, and ease of use.

The priority of TOP30 Russian banks is to accelerate the launch of products on the market (time-to-market, we can talk about reducing the term from 1–1.5 years to less than 6 months) and, accordingly, increasing agility, which will support higher rates.

The development of the Internet of things, artificial intelligence, social and mobile solutions offers huge opportunities for financial service providers. To use them, financial service providers are forced to transform their business by introducing digital technology.

The financial services industry is gradually shifting to an open, integrated and promising technological ecosystem that, with proper organization of processes, promises financial institutions numerous advantages in terms of customer experience, promises competitive results in business activity, and opens wide possibilities for differentiating services.

Due to the ability to create or embed custom communication tools, financial service providers can embed real-time video support in online and mobile terminals in order to create even more personalized interactive services. Integration of video will allow, for example, to simplify the procedure for reporting damage as a result of an accident to an insurance company. Or optimize the process of user interaction with an ATM at minimal cost. Not surprisingly, about 80 % of financial service providers see video banking as a tool that will improve their customer experience and reduce costs (Lapteva et al., 2019).

The use of chatbots and virtual assistants can maintain a conversation with customers on almost any topic, starting with information about their accounts and ending with a history of expenses. Moreover, these solutions allow you to give personalized recommendations and suggestions, based on historical data and on real-time information. According to industry experts, as technology is optimized, the chatbot ecosystem will only expand. This will provide financial service providers with little effort to automate tasks such as intrusion detection, transferring funds, comparing insurance programs, payment, etc. According to experts, European financial institutions can achieve cost savings of up to 90 % by automating workflows using solutions like chat bots (Lomakin & Samorodova, 2009).

Two-thirds of clients of financial institutions in the United States find attractive features offered by consultant robots, and therefore it is not surprising that the market for digital counseling systems will reach \$ 500 billion by 2020. With the help of artificial intelligence technologies, banks can create intelligent mechanisms which will be able to consult on almost all issues, from investment opportunities to personalized approaches to saving. This is achieved using an open integrated architecture, which allows us to achieve a single unified presentation of all customer banking information (Alexandrova et al., 2019).

The future of banking authentication technology can be described in one word – the biometrics. Although not yet ubiquitous, many market leaders are already actively introducing the use of physical characteristics (fingerprints, voice, face, method of pressing keys) for automatic recognition. Biometrics is one of the most important steps towards digital transformation for PFCs facing today's realities in the field of mobile services security. More than 90 % of customers believe that their banks do not sufficiently protect mobile applications, and 41 % are confident that they will be hacked. Therefore, about 80 % of customers would use voice biometrics if this would provide increased security. In general, analysts in the biometrics market received a volume of \$ 17 billion by the end of 2017 with an impressive average annual growth rate (CAGR) of 18.5 % over the past 7 years (Maslennikov, 2019).

## 6. Findings

Ultimately, financial institution clients seek targeted and personalized experience. They want intuitive service providers to feel and understand their desires and address potential problems before they arise. Due to the ability to comprehensively track and collect data and share it across the entire organization, financial service providers can use training algorithms, which will provide the necessary intellectual capabilities at the last stage of resource selection and naturally optimize any interactions. At the same time, a comprehensive analysis of all aspects of consumer contact with the company and its services will allow the financial services provider to be proactive and eliminate any potential problems.

## 7. Conclusion

Thus, it may be noted that at present several innovative payment technologies that have already proven themselves in other countries are beginning to develop in Russia. But despite the advantages and convenience of electronic payments, according to the results of opinion polls, for a third of Russians, cash remains the main payment method. But in some cases, it is impossible to do without more modern methods. Which of this methods will play a major role in money circulation in the future?

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