

Influence of Digital Technologies on the Transformation of a Banking Product

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ABSTRACT

The article discusses the theory and practice of the transformation of a banking product under the influence of digital technologies. The target of the research is in-depth understanding of the essence of banking product digital transformation. The research was conducted using a combined approach and a set of general scientific and special research methods. Based on the systematization of a banking product features, the predetermination of the digital technologies in banking products is revealed. A brief review of the banking products history in the context of the Russian banking system development was conducted. And the development problematic stages that influenced on the transformation of the banking product were identified. A brief excursion into the current state of the use of digital technologies in banking products is presented. The conclusion about the preservation of the intermediary role of banks and the possibility of researching the changes in the type of their activities in the digital era through the prism of research on the banking products transformation was made.

Keywords: *banking product, bank, digitalization, digital technologies, financial intermediation*

1. INTRODUCTION

The society and the economy are constantly transforming, being influenced by various trends. One of these trends is the use of information technologies, penetrating into all spheres of life. At present time the degree of the information technologies development largely determines the state of the economy at all levels: global, regional and local. The banking sector has not been an exception. Moreover, by virtue of its features, it is quite susceptible to innovations, which allows to satisfy the needs of its customers and get the activity up to a principally new level. The innovative activity has become an integral part of the functioning of any bank. One of the main directions of such activity is technological, which consists in the application of new information technologies, and it is closely related to all innovative areas in the bank [1]. In fact, the entire banking business is now based on the use of information technologies.

The digital economy is associated with an economy based on the digital computer technologies and the Internet, and digital transformations are not limited to the simple introduction of information technologies, and principally transform all areas of activity. Initially, e-business, e-business infrastructure and e-commerce were considered the core of the digital economy. However, the digital economy is in the stage of rapid development and its vision is constantly expanding with the advent of new technologies, such as Big Data, Cloud Computing, Blockchain, Cognitive Computing, Internet of Things (IoT), robots, Financial Internet Technologies (Fintech)

and etc. It gradually became obvious that the Internet is a key element of the digital economy, and the digital economy itself is significantly changing traditional business processes. It is called digitalization of economics, and in Russia they use such terms as digitalization or digital transformation [10]. Active digitalization of the banking sector has led to the fact that they have started to rank the Internet banking among the main elements of the digital economy.

The interest in the use of digital technologies in banks is directly related to the end result of the bank's activity - a banking product (service). There are several reasons for this interest:

- a banking product is not only the result of the bank's activity, but also a tool for the bank's interaction with a client;
- the regular improvement of product lines and banking products as a result of increased market competition in the banking and financial services sector;
- any technological innovations in banks consequently affect the banking product, including not only the channels for delivering it to the consumer, but also the technologies and business processes in its production.

The authors agree with the existing opinion about the need to rethink the essential characteristics of financial services in the digital economy [2] and consider it possible to

extend this approach to banking products (services) as one of the types of financial services.

Based on this position, the target of the research is in-depth understanding of the essence of the transformation of banking products under the influence of information technologies.

Achievement of this target is realized through the following tasks:

- reasoning the naturalness of the digital technologies usage in banking products in terms of their main features;
- studying the historical aspects of the banking products development in Russia;
- identifying the main directions of the banks development in the context of the current state of banking products and banks digitalization.

2. RESEARCH METHODOLOGY

The undertaken research is based on the use of an extensive complex of general scientific and special methods of scientific research, including description, deduction, induction, abstraction, comparison, generalization, observation, as well as a systematic approach.

The research was conducted using a combined approach, including the basic principles of the financial intermediation theory, theoretical views on the nature and features of the banking (financial) product and services of Russian and foreign authors, as well as evidence, including secondary, characterizing the trends of digital changes in banking products, and containing in the researches that were presented in scientific journals and the Internet.

3. RESULTS

3.1. Banking Product and its Features

As noted above, a banking product is the final result of the bank's activity. Until now, there is no single approach to formulating the concept of a banking product, which can probably be explained both by the difficulty of the phenomenon itself and by the peculiarities of the views of representatives of different fields of science (economists, marketers, lawyers and etc.). Besides, the analysis of current publications shows that their authors often identify the concepts of banking product and banking service. In particular, a banking product is considered as a banking service that meets the bank's customers needs [14].

The authors believe that banking service, of course, lies at the heart of a banking product, but is a narrower concept. The authors agree with the opinion of scientists who consider a banking product as the combination of four elements: services, operations, technologies and documents [6,9]. Based on the theory of financial intermediation, the authors consider the service to be the

main component of the banking product, because it is through the services provided by banks to customers that the connection of lenders with borrowers or savers with investors is realized. It determines the essence of the bank financial intermediation [11]. Thus, the properties of a banking (financial) service may be extended to a banking product.

- The banking product, in contrast to the products of the material production sphere, has some features. The authors share the view that the financial services digitalization has become a consequence of the financial services specifics [8]. Let us consider the main features of a banking product:
 - mediation. The feature is related to the fact that the banking product is associated with the movement of financial instruments: money, valuable securities and etc.;
 - intangibility or immateriality. The feature is recognized by almost all researchers and it is equally applied to products and services. It is noted: a banking product does not have a physical, material and tangible form. This fact distinguishes it from products of other areas, for example, industry [9]. Physical intangibility of a financial product is accompanied by mental immateriality that consists in the impossibility of its mental imagination [8];
- nonstocking. The feature is the inability to save, store and preserve a banking product [6]. It makes the banks plan their activities more carefully and take the most responsible attitude to the available resources in order to increase profits and reduce costs. Speaking of resources, it is worth mentioning the time duration of the product manufacture, which may be a decisive factor in its use by the consumer;
- dependence on a client. This means the impossibility of a bank functioning without the customers needs for their products. The very diversity of financial needs of groups and individual customers leads to the emergence of a large number of products types. One more aspect of this feature is the need for a confidential relationships between a bank and a client. This need essentially determines the whole character of the banking activity. An illustration of the bank's dependence on the client can be the opening of a settlement or deposit account when the client entrusts his funds to the bank on certain conditions.

3.2. Development of Banking Products in Russia

Studying the possibilities of further banking products development, taking into account modern technological capabilities, is inseparable from the history of the banking

product development. Consideration of the emergence and transformation of banking products should be carried out in the context of the development of the banking and banking activity.

Let us focus on several periods, as it is commonly believed, which had a significant influence on the banking system of Russia.

The period from 1855 to 1881 was marked by the activity of the state bank that had replaced the state-owned organizations engaged in lending. Among the tasks of the state bank we single out:

- increase in turnover of loan capital;
- formation of more systemic credit relationships;
- acceptance of deposits (exclusive right);
- sending the attracted funds for the state needs (until 1870).
- Lending was carried out in three directions:
- a loan under a mortgage contract for the estate property;
- interbank lending, lending to joint stock companies, as well as loans for trade;
- lending to the credit cooperation.

Describing the banking products of that period, it is worth noting that they belonged to the banking traditional directions and did not differ in the great diversity, although they were not devoid of an individual approach, especially in terms of credit products.

The period from 1881 to 1914 is characterized by the active development of raising funds through the development of a deposit system that begins to use various financial instruments, for example, valuable securities. It can be noted that banks are stepping up their customers' needs in order to attract them to credit and deposit products, which was naturally accompanied by the expansion of the product line.

The period from 1917 to 1991. The main feature of this period, of course, is the state monopoly on banking operations. There was created a stable and fairly extensive banking system, which allowed serving the country's economy. It is worth noting the clear orientation of the banking system not to meet the financial needs of each business entity, but to implement the economic interests of the existed political system. Speaking about banking products, we note the ossification and narrowness of the product line, the lack of consideration for the elementary customers financial interests, especially individuals. That period of development, from the authors' point of view, is not the main but extremely important for understanding the history and prospects of the banking product development. On the one hand, it practically deprived the banking products the possibility of natural development toward the improvement and the search for the unity of interests of a bank and a client. On the other hand, it determined the need for an leapfrogging nature of development next periods.

Since 1991 the serious changes had begun to happen in the country's economy and the banking system. With the abandonment of the state monopoly on banking there appeared a large number of commercial banks, which

began to actually fulfill the functions of a financial intermediary. The economy revival led to a significant increase in the client base of the banks and the expansion of their financial interests. Banks were faced with the need not only to increase the volumes of traditional banking activities, but also to expand the product line, as well as the capturing new directions and new banking products that could not only meet the customers' needs, but also bring significant profit to the bank itself. Unfortunately, the outstripping growth rates of customers' needs over the banks capabilities in the late 1990s formed the seller's market in the banking products market. The dictate on the part of banks allowed them to get a sufficiently high rate of profits without the active development of fundamentally new banking products, limiting themselves the improvement the range of existed products. Nevertheless, at the same time, the implementation of digital technologies in banking practice began. There were small and medium-sized commercial banks that started to introduce new technologies, including digital technologies. For those banks the implementation of digital technologies made it possible to increase their competitiveness by offering a more modern product that raised the speed and convenience of customers service. It also helped to reduce their own costs and secure a footing in the emerging banking products market. The limited range of banks products and resources led to the digitalization of the most mass services. Large banks joined the use of digital technologies in the products providing later, when they began to take measures to reduce costs and increase the efficiency of the resources usage. It was caused by a decrease in profitability and an increase in the risks level [7]. Thus, it is obvious for Russia:

- temporary lagging in the implementation of information technologies in customers service;
- slow pace of information technologies implementation;
- difficulties of implementing information technologies compared to other countries.

3.3. Separate Aspects of the Current State of Information Technologies Usage in Banks

As noted above, the spread of digital technologies in banking products begins with the most popular mass products that define the very essence of banking activity. Until now, settlement and cash services remain such a product. The number of electronic payments has long prevailed, and the number of settlement and cash transactions carried out on paper is steadily tending to zero. At the same time, the development of digital technologies, increasing the mobility of bank customers and their service requirements force the banks to improve the offered services and expand communication methods. It is worth adding that the complication of settlement and cash services and the search for new opportunities leads to increased risks and costs. But in general, labor input and

costs of banks are reduced, the operations become more transparent and controlled [5].

The most popular are two types of settlement and cash services: «Client-Bank» system and «Internet Bank» system.

Historically, the «Client-Bank» system appeared earlier, before the Internet was widely distributed in our country. A step forward has been the use of the «Internet Bank» system, which provides settlement and cash services with Internet technologies and it is in continuous development. For example, in Raiffeisenbank you can make payments not only by the account and card numbers, details, but also by phone number, including via Bluetooth. In Russia, almost half of the adult population (45.1%) in 2018 used remote access to the bank accounts, while in 2017 this share was 31.5%, in 2016 - 28.2%. The growth rate of banking services digitalization in the Russian Federation is higher than in Europe - 7% per year against 3%. The proportion of Russian adults who made or received digital payments, as well as used plastic cards for purchasing, loses ground only to North America and Europe and it is constantly growing. According to researches, it can be claimed that Russia does not lag behind the global trend of the accounts remote management via mobile applications [8].

According to the Mediascope research, the bank cards, online banking and electronic money are considered the most popular online payment methods. The largest audience grew for electronic money services: 71% of respondents made online payments with their help in 2018, their share grew by 22.8% compared to 2017. 88.9% of respondents paid with the bank cards; it is 12.2% more than in 2017. 87.2% of respondents used Internet banking, the share grew by 8.9% compared to 2017.

Mobile contactless payments are becoming more popular as an online payment method. The audience of such services grew 3.5 times more in 2018, it means that 36.3% of respondents use them.

Digital technologies allow to expand the banking services capabilities through the development of remote service channels and the organization of the work in 24/7 format. In Russia, 24/7 format banks are «Tochka» (Financial Group «Otkritie») and «Tinkov - Credit Systems».

Banks are not limited with the usage of digital technologies only in organizing the settlement operations. The most advanced banks take steps towards working with the blockchain projects. So, for example, Alfa-Bank, in cooperation with S7 airlines, launched a platform based on Ethereum for the automated sale of airline tickets in 2017, and «Sberbank Factoring» uses blockchain technology to reconcile documents when concluding factoring transactions.

The largest banks have the leading positions in digital transformation and development of new banking products. According to the researches, the top 10 banks formed an investment portfolio for digitalization programs for next 3-5 years in the amount of more than 100 billion rubles. The main technologies of digital transformation in Russia are big data analysis (Big Data), robotics (RPA), chat bots, optical recognition (OCR), artificial intelligence (AI),

Internet of things (IoT), virtual and augmented reality (VR and AR) and blockchain. The most popular technologies in banks are AI (72%), Big Data and predictive analytics (61%), robots (56%), chat bots (56%) and optical recognition (44%).

The greatest example of the digital technologies usage by banks is Sberbank, which is in the process of ecosystem forming. We can say that it does not only take into account the growing customers needs and it forms them, providing the widening range of products and opportunities. In 2015, Sberbank began developing a new technology platform for creating an ecosystem. In 2020, they are planning to complete the migration to the new platform. In this case, the main tasks should be solved to increase the efficiency of development, launch new products in the market (including partnership ones), increase the level of operations automatization and process efficiency. The platform structure consists of four architectural layers:

- the «Unified Frontal System» program - a unified point of contact with customers;
- the «Data Factory» program - accumulation of customer experience and generation of new knowledge;
 - the «Support Platform» program, including a business hub and food factories;
- the core of the platform - «Basic Services» (applied and technological).

The bank transition to the new digital technologies leads not only to the improvement and creation of new products, but also to a change in the structure of the bank itself. So in 2017, the largest data processing center (DPC) in Russia began to function

Thus the bank is being transformed into a service company offering in addition to traditional financial products, insurance, brokerage, IT services and etc

4. DISCUSSION

A review of the banking product characteristics allows the authors to suggest that the features of a banking product related to the banks activity nature largely determine the possibilities for using digital technologies. Let us look again at the banking product features:

- mediation. The financial instruments movement does not always have the material nature. For confirmation, it is enough to refer to the cash flow in the non-cash form. It is most likely about the information transferring, which is consistent with the information approach revealing the banks role [3]. Processing large amounts of information that banks possess, and the information transferring can be successfully implemented using digital technologies;
- intangibility. This feature is directly related to the mediation. It can also be explained by non-cash funds flows and the existence of non-documentary financial instruments. The authors agree with the opinion that intangibility assumes

a certain set of qualities (level of education, amount of knowledge, skills, etc.) that a service consumer should have [8]. Moreover, digitalization leads to the increase of these qualities level and their expansion in the financial and information directions;

- nonstocking. The impossibility of the finished product storage and its timely offering to the client implies the need for technologies manufacturing the product in the shortest possible time. Building such technologies with the reduce not only the time but also the financial costs is one of the digitalization objectives;
- dependence on a client. At present, digital capabilities allow to create and sell quickly a large number of banking products that meet the financial customers needs. Some researchers believe that the digitalization reduces the level of personal contacts between a bank and a client [2]. It leads to dividing the products into the mass and individual ones [8]. One can only partly agree with it when considering the initial stages of the digital technologies development. However, the current level and further digital technologies improvement, as the authors believe, should lead to blurring the lines between retail and individual products. We can observe the implementation of this provision now when products initially tested as individual ones begin to be massively replicated. In addition, one of the possible directions for the banking product development may be its modeling from basic elements in accordance with the particular client needs. Of course, it is possible only if there is a sufficient level of consumer's personal qualities.

A brief history review of the banking products development allows us to state the fact that there is a certain set of basic banks activities (raising funds, lending, settlements) throughout the history of the banks development [15]. These directions are determined by the intermediary nature of all banking activity. Until recently, the development and increase in the banking products types took place in the context of these main directions. The authors associate the fundamental expansion of the banks area and the line of offered products with the digital technologies development.

Worthy of note the presence of a precisely defined specificity of the banking products development in Russia. Firstly, this is the period (1917-1991), which is characterized by the absence of the clear banking product progressive development in accordance with the world trends. Secondly, the enormous increase in the number of banking products at the end of this period in the 1990s and the beginning of the digital technologies use in banks. According to the authors, it is here that there are problems which exist and may still arise in the process of using digital technologies by banks. The authors associate these issues to a number of circumstances. The banks in

developed countries began to use the digital technologies having a well-formed consumer market for banking products. The guaranteed objective of digitalization was to improve interaction with the client and satisfy his financial needs. In Russia, digitalization was started in an emerging market with an insufficient range of banking products, and the market was a seller's market. Another factor is the forced character of digital innovation for banks. As a result, there has been a shift in targets from the client interests to the bank ones, and until now they have partially retained their leading positions [4]. The following circumstance is the bank's client's unwillingness to accept a new banking product as a result of an insufficient level of necessary personal qualities.

Researching the current state of banking products development makes it possible to suggest that fundamental shift in the quality and the increase in the number of banking products is not only the result of the digital technologies usage in creating a banking product, but also a reflection of changes in business-processes and the model of a bank's business. Supposedly, the digitalization of the banking sector can lead to the design of three basic business models:

- platform-banks. In this model banks are universal companies that sell both their own products and the partners' ones. In essence, there will be a transformation of classical banks into financial ecosystems and a redistribution of the financial market [12];
- universal credit organizations. The model will allow banks to develop further using information technologies. Such banks will represent a wide product line based on the traditional banking operations;
- specialized banks. Banks will specialize in a relatively narrow range of products within individual market segments. Probably, when creating their products, they will focus on the use of information technologies strictly directed at implementing a limited list of tasks.
- Despite the possibility of different models, the authors support the view that the importance of banks and their role as a financial intermediary should be preserved [13].

5. CONCLUSION

The use of digital technologies has become an integral part of the banks activities in the creating and selling banking products to customers.

The ability to use digital technologies is predetermined by the essential characteristics of a banking product (mediation, intangibility, nonstocking and dependence on

a client). They remain unchanged throughout the history of banking products development.

The character and success of digital technologies in the banking sector depends on the development degree of the banking system and banking products. Violation of the progressive development of the banking system can adversely affect the state of banking products, including their technological component.

Active development of banking products under the digital technologies influence is entailed changes in the business model and institutional structure of banks. It is not yet clear which way the development of banks and banking products will go. It remains undeniable that banks will continue to exist as financial intermediaries. Researching the transformation of banking products under the digital technologies influence can provide a key to understanding the further development ways of banks and their functioning.

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