DIGITALIZATION OF THE BANKING ENVIRONMENT: FORMATION OF EFFECTIVE BANK ECOSYSTEMS

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ABSTRACT

Digital technologies adoption in all spheres of life has already reached a certain level and continues to grow, especially in the banking segment. The processes of the banking business transformation are inextricably linked with automation, introduction of the latest financial technologies and technical means to market new products and services. Therefore, the main direction of the banking sector development is the use of effective remote service technologies. These technologies provide an opportunity for customers to carry out banking operations through remote access using various means of telecommunication devices. One of the important trends in modern remote banking is the development of own ecosystems by banks, which help to differentiate businesses, strengthen the position of banks in the financial products and services market, increase customer loyalty and customer base, as well as generate additional income. The ecosystem is a combination of products and services from different areas, united around a single technological platform that is able to satisfy all the needs of customers in one window. It is for this reason that the development of ecosystems allows banks to successfully exist, develop in the conditions of increasing competition, and occupy new niches in the financial services market. The article considers the place and need for the development of modern remote banking services, analyzes the main segments of digital banking for retail and corporate clients in a transformation of the banking sector. Particular attention is paid to identifying promising areas for the remote banking service environment development based on the ecosystem approach. Creating their own ecosystems is a priority for large banks amid growing competition in the digital banking market. In conclusion, measures for banks to form an effective business model that will facilitate the transition to ecosystems are proposed.
Keywords: Banking ecosystem, Remote banking services, Commercial banks, Financial technology, Digital economy

1. INTRODUCTION

Current trends in the development of the global and national fmancial systems are associated with the increasing digitization of its particular segments and spheres (Tapscott, 2016; Nicoletti, 2017; PwC, 2017; Scardovi, 2017; Tiberius, Rasche, 2017; Beaumont, 2019). The banking sector is one of the most mobile and innovative business areas. Remote maintenance as well as modern financial technologies not only strengthen the competitive position of the bank in the market, but also help to achieve the necessary level of security of the banking business, both

for the credit organization and its clients (Skinner, 2014; Scardovi, 2016; Ernst & Young, 2017, 2018; Nicoletti, 2018; King, 2018; Bilan et al., 2019; Tanda, Schena, 2019). The Business Insider study notes that the modern generation is characterized by the active use of Internet technologies and is interested in obtaining services from credit organizations without physical presence in the bank's office. For example, less than 40 per cent do not visit banks, about 26 per cent visit a branch at least once a month, and another 10 per cent visit offices approximately once a month or twice a month, only 6 per cent visit branches on a weekly basis (Heggestuen, 2015). Modern banks must therefore take into account the preferences of a modern customer and actively develop a remote service channel. It is obvious that the main advantage of remote banking is the creation of comfortable conditions for consumers of banking services. Currently, they can get almost the whole range of banking services through remote access without leaving their homes.

2. DISCUSSION

Against the backdrop of the active digitalization of all business processes, it is important to provide effective customer service using traditional sales offices and contact centers, official sites and marketplaces, mobile applications, and social media accounts; terminals, interactive kiosks, ATMs; mobile or virtual offices, etc. According to expert estimates, Russia ranks 5th in the level of banking digitization in the EMEA16 region and ranks 1st in Europe in the distribution of mobile payments. On several other indicators, the country is approaching the European Union. Among the traditional banks most prepared for the digitization and integration of financial technologies are Tinkoff, Sberbank, Alfa-Bank. Let us present the position of the largest Russian banks in the context of the development of digital banking in Table 1.

№	Bank	The Faster Payments System (FPS) of Bank of Russia	Self-employment services	Online Accounting	Legal entity account opening online
1.	Tinkoff	✓		✓	✓
2.	Sberbank		✓	✓	✓
3.	Alfa-bank	✓	✓	✓	✓
4.	Raiffeisenbank	✓			✓
5.	Ak Bars	✓	✓	✓	✓
6.	Rosbank	✓			
7.	VTB	✓			
8.	Russian Standard Bank				✓
9.	Uralsib Bank				✓

Table 1: The largest banks positions in the development of digital banking in Russia (Source: KPMG, 2019)

According to the data of Table 1, it can be stated that Alfa-Bank to a greater extent has all the necessary services, participates in the FPS of the Bank of Russia, realizes online accounting for its clients, and performs opening of accounts of legal entities online. Sberbank became a member of the FPS only on March 31, 2020 and while the functionality is being piloted on a limited number of customers. Raiffeisenbank's digital strategy now focuses on two key areas: digitization of manual labor, and processes and creation of new products. In 2018, the organization actively developed mobile banking and chats as priority channels for interaction with clients. From our point of view, it is today's leaders in the technological transformation of banking business that will change the way banking services are provided and will compete in the market in the next two to three years. However, it is possible for banks to gain a certain market niche through the development of their own digital development programs, the use of

which will increase the operational efficiency of banks and reduce their costs. The main financial technologies used by Russian commercial banks are presented in Fig.1.
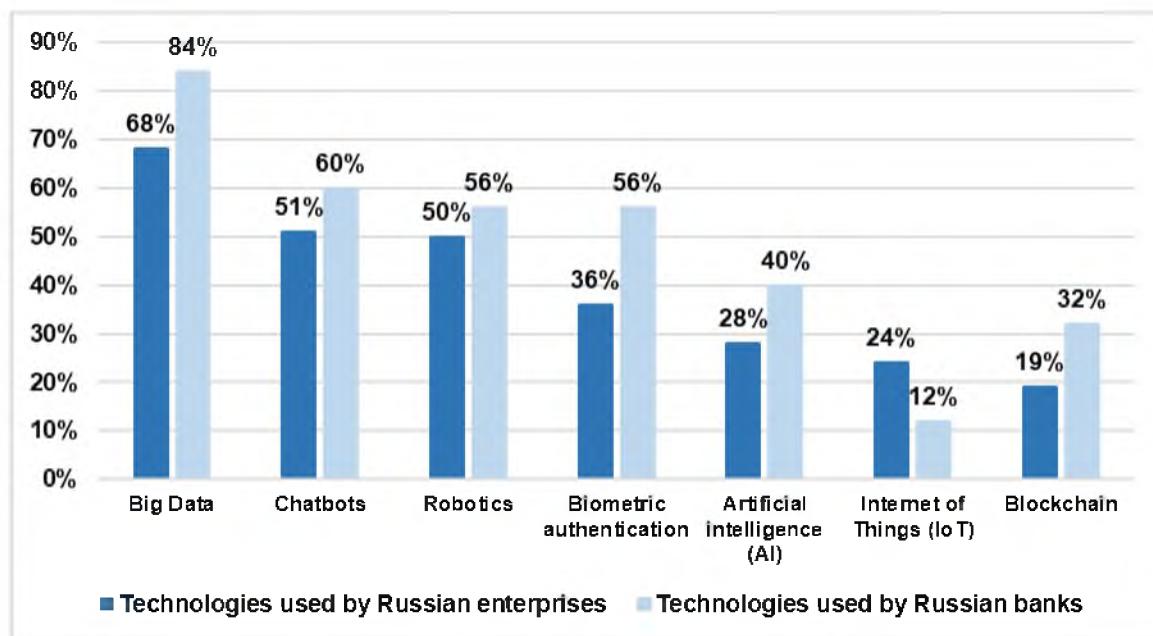

Figure 1: The level of financial technologies used by Russian commercial banks (Source: KPMG, 2019)

The main areas of interest for banks are Artificial Intelligence (AI), Big Data, robotics, the creation of chat bots and biometric identification and authentication (KPMG, 2019). The reasons for the increasing popularity of cloud technologies are the high capacity of their application and the savings in both maintenance and personnel, as well as infrastructure. Biometric technologies are based on human physiological characteristics and are used in Russia to personalize data and further identify customers in order to increase security, reduce fraud and simplify personal data entry. For example, thus far some Russian banks have been introducing technologies based on photos of customers, fingerprints, iris of eyes and even the voice of the client (Vaganova et al., 2019). Strengthening the role of analysis and in-depth work with large amounts of data is associated with the need to introduce Big Data technology. Using this technology, it is possible to increase the speed of acquisition and processing of large data sets, the need for their safe storage, the availability of reliability in operational and analytical repositories. Another equally promising segment of financial technology development in the banking sector is the introduction of robotic technological processes and artificial intelligence (AI). The robotization of typical banking processes already yields significant results for credit organization businesses, freeing up to 80 per cent of the human resources previously devoted to manual labor. Artificial intelligence is implemented in various areas of business processes and generates additional information that an employee can use for decision-making. In this way, banks reduce transaction costs, provide 24/7 customer service, and avoid many human-induced errors in the processing of typical requests. For example, Sberbank implements the AI-first concept, embedding artificial intelligence in all its processes. Thanks to the use of AI, the time for issuing loans to corporate clients in 2018 was reduced to 7 minutes. Due to the processes robotization and the reduction of manual labor in 2018, the efficiency of the back office was increased by 25% routine operations in 53 bank processes are performed by robots (Sberbank, 2019). The development of electronic interaction in the Russian financial market is also promoted by the Bank of Russia, which initiates a large number of IT-projects. The largest projects in the financial sector are related to the initiatives of the Bank of Russia to create

intersectoral platforms: Unified Biometric System (EBS), Faster Payments System (FPS), Incident Response Platform (IRP), Marketplace. Despite the active development of the financial services market, these technologies cannot be realized without building an effective business model in the banking industry. The distinctive features of the sustainable banking business model are:

- a long-term vision of the bank's own business, ecological, social and institutional environment;
- stricter self-regulation, taking into account the requirements of national and international regulators and determining ways to develop them;
- avoiding speculative profits and ensuring long-term profitability through organic growth;
- using the best of the world practices to increase the competitiveness of the bank's business.

Figure 2 shows the main directions of the banking industry business model transformation, which involve the formation of a digital remote banking environment through the identification of promising banking segments, financial technologies that are necessary for their implementation, and financial services providers (Fig. 2). As a result of the application of such a business model, the bank will demonstrate: a balanced and steady growth of its performance, high positions in the ratings of Russian banks.
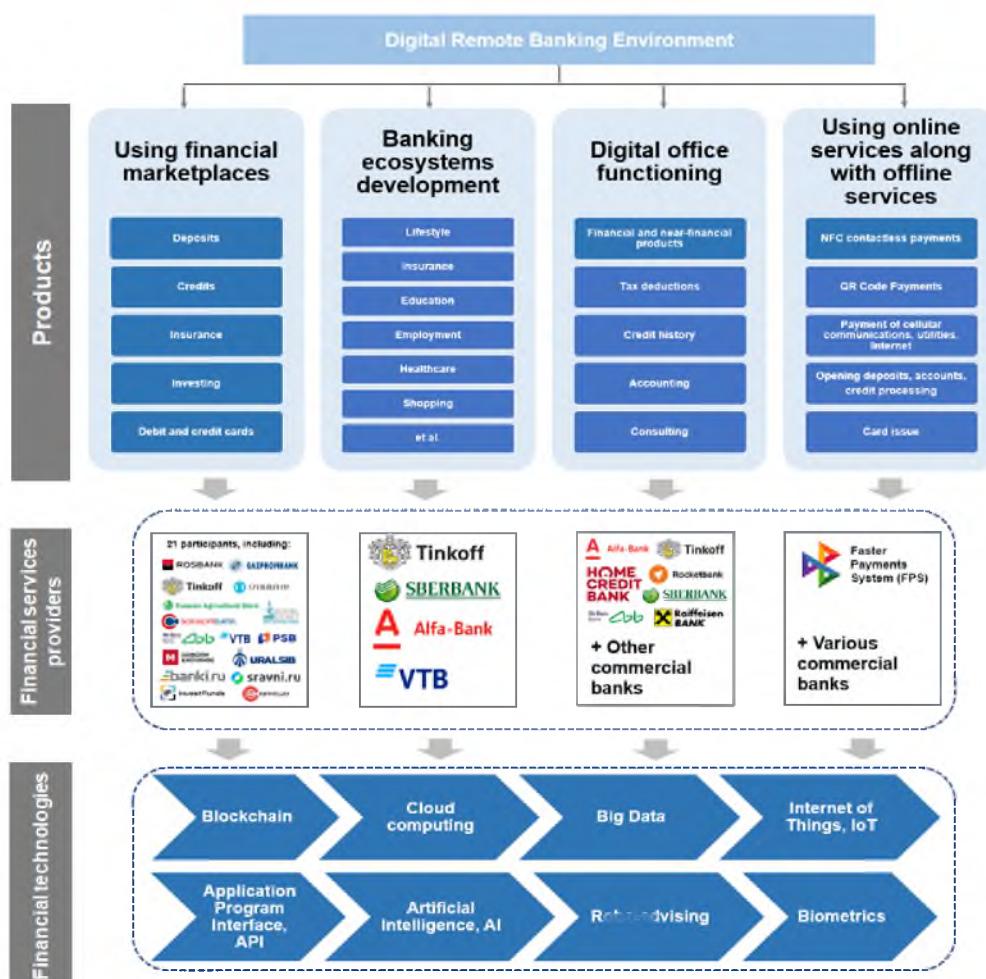
Figure 2: The main directions of the banking industry business model transformation in Russia
(Source: compiled by the authors)

The use of particular online services by consumers along with offline services implies contact-less payments using NFC technology, QR-code payments, payment of cellular communications, utilities and Internet, opening deposits, accounts, credit processing, issuing cards, etc. The operation of digital offices includes a paperless office format, interactive sensor panels, tablet computers accessible to all visitors, contactless technologies and the possibility of videoconferencing with a bank specialist. Such offices should be functional and adapted to the global digitalization of the banking industry. Almost all banks presented in Fig. 2 have already implemented a chat where you can get quality advice and open some new banking products (usually accounts, deposits, debit cards). The first place in the ranking of digital offices is held by Alfa-Bank and Home Credit Bank (Markswebb, 2019, 4). Thus, for example, an unauthorized user at Home Credit Bank can order not only a credit or debit card, but also apply for a loan, and a bank customer sees the decision on the application almost immediately and can receive money on a card of another bank. If approved, client can immediately use the virtual card via Apple Pay/Google Pay and do not wait for the plastic card to be delivered. The Alfa-Bank application provides the option to order a credit card for unauthorized customers, order additional cards and insurance, as well as change personal data. In Sberbank mobile application, it became possible to get a consultation or contest the operation in a chat, set a new pin-code, block the card, order a reissue with delivery and electronic certificate of the available balance, apply for an insurance. The Financial Marketplace is a system that connects financial service providers and customers in a single information area and provides participants with a range of services that increase transaction efficiency. Such a system typically includes: a storefront (or data aggregator) to collect, organize and present information on financial products to the final consumer; an electronic platform to which financial products vendors are connected; a consulting bot to assist in the selection of financial products, conclusion and execution of transactions; as well as a financial transaction registrar (Solovey, Bykanova, 2019). An example is the VTB Bank, which provides opportunities for fintech startups in the field of Big Data & Analytics, AI, Blockchain, digitalization of business processes, and biometrics. Currently, the Bank is working on the creation of a wage marketplace, active implementation of the project «Housing Ecosystem», development of its multi-service service for online trading. Particular attention should be paid to the development of indigenous ecosystems by banks. An ecosystem is a set of products and services from different areas, organized around a single organization. Typically, it is building an ecosystem around a technology platform that becomes a single window for all types of services and information. In other words, an ecosystem is a digital environment in which people meet all their needs, such as financial and non-financial, including payments, entertainment, daily needs for news and information content, etc. (Blakstad, Allen, 2018; Lyman et al., 2018; Arslanian, Fischer, 2019; Hacioglu, 2020; Bykanova, 2020). See Fig. 3 for a possible range of ecosystem services provided by banks. From the point of view of ecosystem benefits for customers, a bank should become a means of satisfying a person's daily needs for food, shopping, entertainment, organizing a business, etc. The ecosystem allows all of this to be personalized and to customize only the necessary services at the right time, as it has a full understanding of the interests and needs of the client. The reasons for the interest of banks in expanding ecosystems are also understandable. Firstly, competition in the traditional banking services market is intensifying. Less and less customers are not reached. It is obvious that each new client in these conditions is a client "selected" from another bank. Therefore, in the struggle for the client, banks expand their product range through non-banking services. From the point of view of ecosystem benefits for customers, a bank should become a means of satisfying a person's daily needs for food, shopping, entertainment, organizing a business, etc. The ecosystem allows all of this to be personalized and to customize only the necessary services at the right time, as it has a full understanding of the interests and needs of the client.
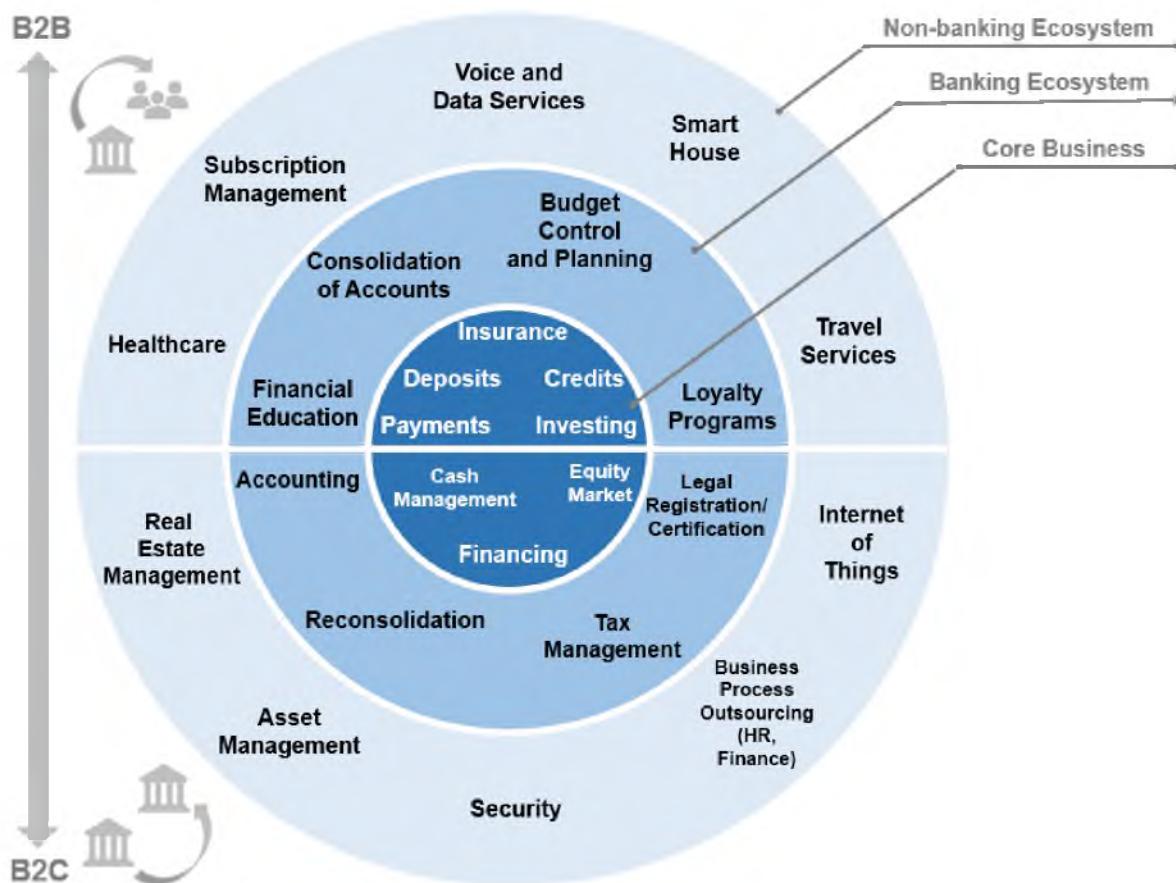
Figure 3: Banking sector ecosystem: a possible range of services
(Source: Yeshugova et. al., 2019)

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Table following on the next page

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№	Type of services	Name of the service, provided by Sberbank	Name of the service, provided by Tinkoff
1.	B2B Services	Evotor, Korus consulting, Sberbank-Factoring, Strategy Partners	Tinkoff Business
2.	Telecommunications	SberMobile	Tinkoff Mobile
3.	Lifestyle	Foodplex, Delivery Club, Sber Food	Tinkoff Travel, Tinkoff Entertainment (*including Kassir.ru*), CloudTips, Tinkoff Journal
4.	Investing	Sberbank-Investing	Tinkoff Investing
5.	Fintech	Yandex.Money	Tinkoff Development Centre
6.	Unified Communications	Dialog	MoneyTalk
7.	Insurance	Sberbank-Insurance	Tinkoff Insurance
8.	Cloud Technologies	Sbercloud	CloudPayments, Cloud Kassir
9.	Loyalty Program	Spasibo	Tinkoff Loyalty Program
10.	Education	Business Environment	Tinkoff Education
11.	Real Estate	DomClick	–
12.	Cybersecurity	BiZone	–
13.	Transport	Sberbank-Leasing, Cetelem Bank	–
14.	Employment	Rabota.ru	–
15.	Technical Support	Sberbank-Service	–
16.	Professional Service	Sber-Marketing, Sber-Legal, TOT, United Credit Bureau	–
17.	E-commerce B2C	Yandex.Market	–
18.	Business Process Outsourcing	Sberbro, Sber-Solutions	–
19.	Healthcare	DocDoc	–
20.	Identification	VisionLabs	–
21.	Advertising and Marketing	Segmento	–

Table 2: Banking ecosystems of Sberbank and Tinkoff
(Source: compiled by the authors)

These two banks have different patterns of ecosystem relationships. For example, the Sberbank ecosystem includes already more than 20 well-known companies in such areas as: electronic commerce (Yandex.Market), medicine (DocDoc), telecommunications (Sberbank Telecom), cloud technologies (SberCloud), communications (Dialog), identification (VisionLabs), lifestyle (Foodplex), services for optimizing business processes (Evotor, Intercomp) and others. Tinkoff prefers to create its own services and actively participates in the integration of third-party services: the bank offers its clients more than 120 partner programs. The bank has defined a lifestyle-banking strategy (for example, turnkey travel) and builds meaningful services in accordance with the needs of customers. The bank enters only niches where it has certain advantages. And vice versa, if the bank's service is not efficient, it will be closed immediately, as in the case of a mortgage broker. In the case of Tinkoff, this is truly a classic ecosystem where all services are provided in one window (Spektr, 2020, 6-9). In two or three years, another large ecosystem of VTB Bank will appear in Russia. The bank will create an IT-platform, which will include a rental service, mobile operator, digital accounting, and a marketplace for banking services. The VTB has ready solutions for eight projects that are part of the digital ecosystem, of which four services has been already operating in a pilot mode: virtual operator VTB Mobile,

the marketplace of banking services Unicom-24, the housing ecosystem and the operator of fiscal data. Decisions have already been made on digital accounting and B2B-connectivity, where small businesses can connect to overseas trading platforms (for example, Aliexpress) and find suppliers (Rambler Finance, 2019). A combination of factors is needed to create a successful ecosystem. Firs factor is the presence of a sufficiently large customer base, which trusts the bank and may be interested in receiving various services from its partners. Second factor is the bank's willingness to move away from traditional business methods and build a common development strategy in conjunction with the IT technology implementation strategy. Thirdly, in order to create efficient ecosystems, it is necessary to invest in the development of technological solutions such as cloud computing, Big Data, electronic accounting systems, etc. The audience, which uses non-financial services of the analyzed banks is constantly growing. Thus, as of the beginning of 2019, the audience of Sberbank was 67 million people, which is more than 70 per cent of the total number of active private customers of the bank. At the same time, the financial and lifestyle services offered by the Tinkoff ecosystem are used by more than 8 mlllion customers. Among Russian banks, Sberbank has traditionally invested the most in digital transformation. In 2015-2018, it invested more than 390 billion rubles in it. VTB Bank spent 10.16 billlon rubles for these purposes in the first six months of 2019, and 44.68 billlon rubles for the previous four years (Bloomchain, 2019, 17).
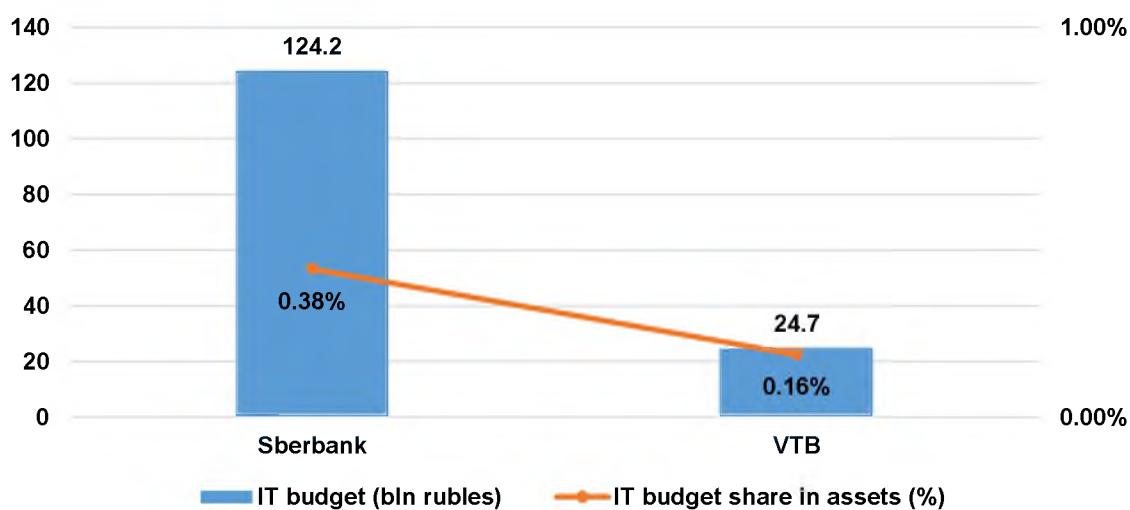

Figure 4: Information technology (IT) costs in Russian banks
(Source: Sberbank, 2019a; VTB, 2019)

The costs of digital transformation by Sberbank and VTB are significantly lower than the amounts claimed by the largest western banks for the same purpose. For example, in 2019, JP Morgan spent five times more than both Russian banks combined in 2018. Moreover, if we talk about the share of IT costs in assets, then Sberbank will be approximately at the same level as the largest US banks – about 0.4 per cent. According to McKinsey, banks with successful ecosystem development can increase their return on equity to doubie digits by 2025 (McKinsey Quarterly, 2018, 6). One of the financial goals in the development strategy of Sberbank 2020 is to reach the ROE at 20 per cent. At the same time, it is still difficult to assess the effectiveness of banks' investments in their own technological development: most banks continue to work on combining their services, thus most of their investments may have a delayed effect: with the growing demand for multifunctional digital platforms, rapid growth of absolute and relative performance indicators of non-banking services can be expected in the coming years (Bloomchain, 2019, 18).

3. CONCLUSION

Thus, in the conditions of a dynamically developing market of financial services, in order to resist competition, commercial banks should create new efficient business models based on ecosystems, while taking into account the experience and expectations of users, striving to provide the best service and to respond needs of the customers. The Russian banking sector, as well as Azerbaijani, has all the possibilities (customers, infrastructure, technologies) to become one of the leaders in the formation of ecosystems. The transition of banking services to a new financial and technological level will improve the quality of services, reduce the cost of banking operations, provide access to banking products and services on a round-the-clock basis, and contribute to transform the banking system into digital banking.

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