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**МЕТОДИЧЕСКИЕ АСПЕКТЫ УПРАВЛЕНИЯ
БАНКОВСКИМИ РИСКАМИ**

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Аннотация

На сегодняшний день банковская деятельность является одной из областей, в которых применение цифровых технологий реализуется наиболее эффективно. В статье выделены предметно-сущностные преимущества цифровизации услуг для коммерческих банков и их клиентов.

При этом нельзя не отметить, что цифровизация услуг способствовала формированию значительного количества рисков различной природы для всех экономических субъектов, включая банковские учреждения и их клиентов. В статье приведен перечень возможных потенциальных угроз для банков и их клиентов в процессе предоставления банками финансовых услуг с помощью цифровых технологий и цифровых каналов доступа к финансовым ресурсам. Вся совокупность таких рисков автором классифицирована на две группы: клиентские риски и банковские риски, приведена подробная оценка каждой из групп рисков.

Подробно рассмотрены деструктивные последствия использования банками и их клиентами цифровых технологий в процессе использования финансовых услуг, в частности исследованы инциденты получения несанкционированного доступа к персональным данным клиентов, а именно проанализированы общая динамика операций без согласия клиентов, динамика инцидентов в разрезе по типам и векторам атак (фишинг, социальная инженерия, вредоносное программное обеспечение), а также динамика телефонного мошенничества в банковской среде.

Выявлены мероприятия по противодействию несанкционированного доступа к данным клиентов, а также выделены общие тренды трансформации банковского сектора в условиях цифровизации услуг.

Ключевые слова: цифровизация, цифровые технологии, коммерческие банки, банковские услуги, цифровые услуги, банковские риски, финансовое мошенничество.

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METHODOLOGICAL ASPECTS OF BANKING RISK MANAGEMENT

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Abstract

Today, banking is one of the areas in which the use of digital technology is implemented most effectively. The article highlights the substantive and essential advantages of digitalization of services for commercial banks and their clients.

At the same time, it should be noted that the digitalization of services has contributed to the formation of a significant number of risks of various natures for all economic entities, including banking institutions and their clients. The article provides a list of possible potential threats to banks and their clients in the process of providing financial services using digital technology and digital channels of access to financial resources. The author classifies the entire set of such risks into two groups, which are client risks and banking risks, and provides a detailed assessment of each of the risk groups.

The destructive consequences of the use of digital technology by banks and their clients in the process of using financial services are examined in detail, in particular, incidents of gaining unauthorized access to clients' personal data are examined, namely, the general dynamics of operations without customer consent, the dynamics of incidents in the context of types and vectors of attacks are analyzed (phishing, social engineering, malware), as well as the dynamics of telephone fraud in the banking environment.

Some measures to counter unauthorized access to customer data were identified, and general trends in the transformation of the banking sector in the context of digitalization of services were highlighted.

Key words: digitalization; digital technology; commercial banks; banking services, digital services; banking risks; financial fraud

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Introduction

The advancement of science and technology has promoted the innovation of traditional industries; digital transformation has gradually become a trend [Zhu Y., Jin S., 2023]. The modern economy requires the introduction of digital technology in various fields of activity, including financial and credit sphere, which allows all market participants to receive benefits. However, when introducing

new technology, certain difficulties and negative consequences from total digitalization arise.

To a large extent, the introduction of modern technology into the activities of the banking sector of the economy is conditioned by the desire of financial institutions to improve the quality of service delivery and thereby increase their own competitiveness. With the help of digital services, the principles change and the quality of services provided to

customers improves, and the volume of online transactions accelerates and increases [Vaganova O.V., Gordya D.V., Sidibe M., Golubotskikh V.N., Pryadko E.A., 2023]. This will ensure conditions for strategic and long-term development. However, for banks and their clients, digitalization carries certain threats and risks, the occurrence of which could negatively affect their financial condition, maintaining confidential personal, individual and financial information.

That is why the significant effort of the Central Bank of Russia and commercial banks directly, is aimed at providing maximum protection of their own activities and information about customers. However, periodic cases observed in this area, losses of funds by clients of banking and non-banking institutions indicate the presence of quite complex and systemic problems in this area. This predetermines the need to conduct additional research for the purpose of applied description of the main threats of digitalization, primarily for banks and their clients in the process of providing/receiving financial services. However, periodic cases observed in this area, as well as losses of funds by clients of banking and non-banking institutions indicate the presence of quite complex and systemic problems in this regard. This predetermines the need to conduct additional research for the purpose of applied description of the main threats of digitalization, primarily for banks and their clients in the process of providing and receiving financial services.

Discussion

Digital technology today really pierces virtually every sphere of social relations. Its influence is especially felt in the economic sphere,

where the use of advanced information technology allows economic entities to increase their own efficiency and level of competitiveness. Accordingly, in the banking sector, the use of the potential of such technology is a very important tool of financial activity for banking institutions, given the fairly high level of competition between them. It is the active role of banks in the development, adaptation, modernization and use of digital technology in their own work that has ensured a sufficiently high digitalization of the entire sphere of banking services. The overall impact of the extensive development of digital services and the use of information and communication technology currently includes the following benefits for banking institutions and for their clients (Fig. 1).

However, in addition to the obvious advantages for the banking industry, digital technology also contributes to the emergence of new threats for both banks and their clients. Security issues are becoming especially important in the area of banking services, where the level of fraud and losses can be quite high, and solving problems can take a significant period of time. Also, ensuring the reliability of financial transactions and protecting information for banks and their clients is one of the components of building a bank's reputation [Tan J., 2023], which in any case affects the quality of its work and the formation of conditions for long-term development in the future.

Fig. 2 presents potential threats to banks and their customers in the process of using financial services through digital technology and digital channels of access to financial resources.

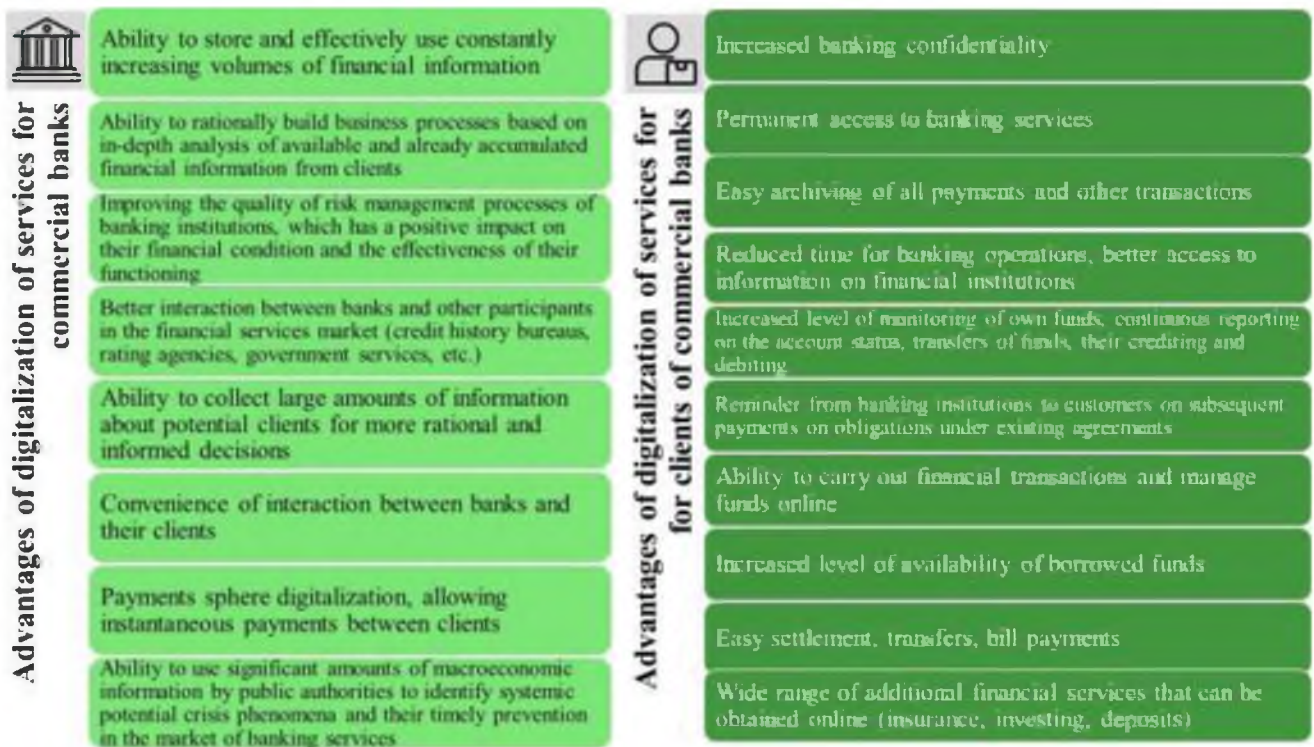


Fig. 1. Advantages of digitalization of services for banks and for clients of commercial banks
 Source: [compiled by author]

Рис. 1. Преимущества цифровизации услуг для банков и для клиентов коммерческих банков

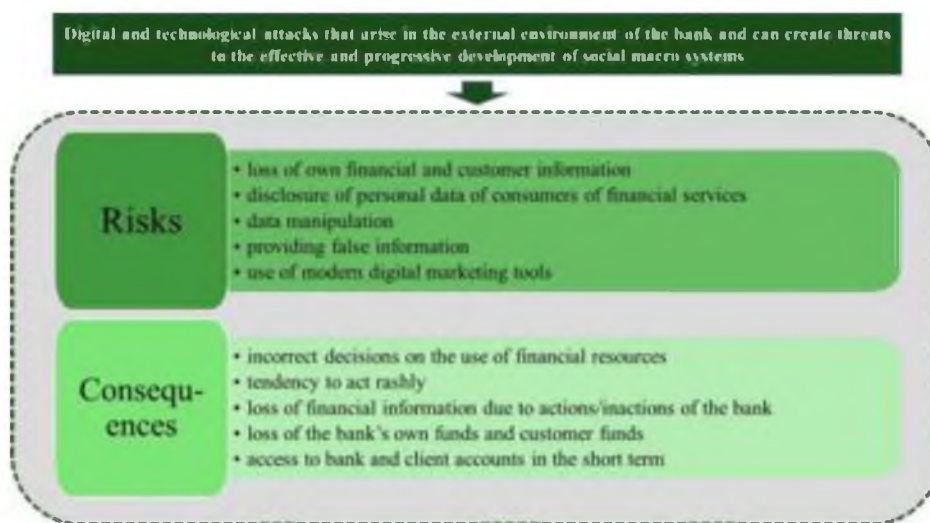


Fig. 2. Potential risks and consequences for banks and their clients arising in the process of providing digital services
 Source: [compiled by the author]

Рис. 2. Потенциальные риски и последствия для банков и их клиентов, возникающие в процессе предоставления цифровых услуг

Thus, it can be stated that the digitalization of services has contributed to the formation of a significant number of risks of different nature for all economic agents, including banking institutions themselves and their clients. We will conduct a more detailed consideration of the threats and risks of digital transformation of the financial services market for banks and their clients. According to the author, it is advisable to divide them into two groups: client risks and bank risks.

Client risks represent potential threats of

loss of financial resources from credit, deposit and current accounts, which may arise in the process of using digital technologies, taking into account specific personal characteristics of the person. These include the following:

1. Insufficient level of digital literacy (Fig. 3).
2. Digital inequality in society and different access to information and communication technology, as defined by household areas (Fig. 4).

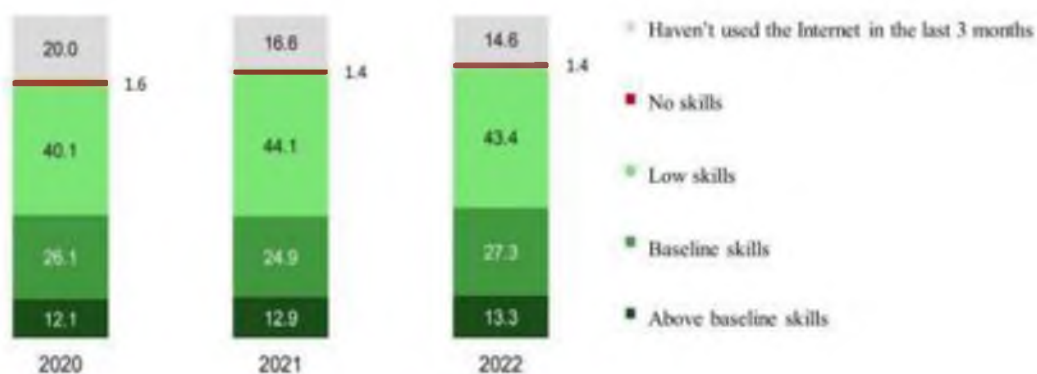


Fig. 3. Digital skills of Russians: 2020-2022 (in % of the total population aged 15 and older)

Source: [Kuzina L.S., Popov E.V., Shcherbakov R.A., 2023]

Рис. 3. Цифровые навыки россиян: 2020–2022 гг. (в % от общей численности населения в возрасте 15 лет и старше)

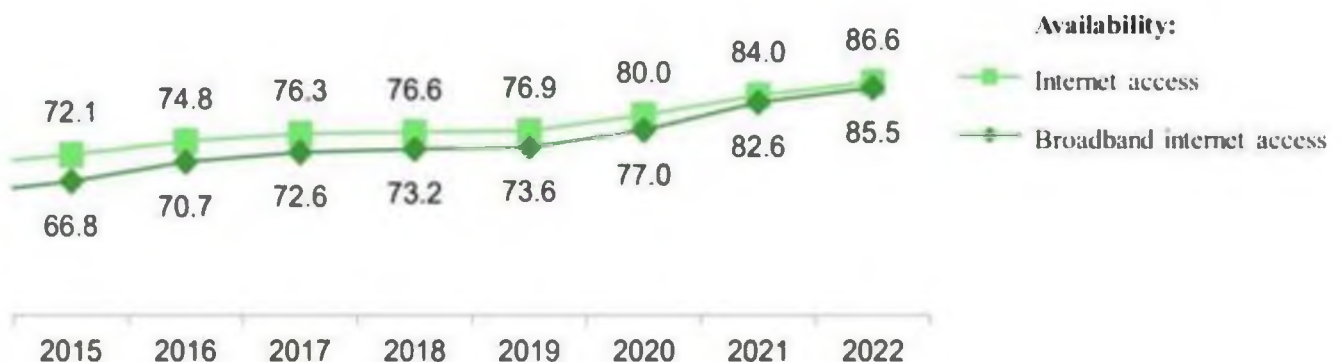


Fig. 4. Availability of Internet access in households (in % of the total number of households)

Source: [Kuzina L.S., Popov E.V., Shcherbakov R.A., 2023]

Рис. 4. Наличие доступа в интернет в домохозяйствах (в % от общей численности домохозяйств)

The banking risks of using digital technology, which can lead to destructive consequences in the process of using financial services, include the following:

- 1) hacking, loss of individual financial information;
- 2) dissemination of fake information about the functioning of financial institutions,

using the names of banks and non-banking institutions to send fraudulent messages;

3) manipulation of human consciousness, which can be carried out through the use of the latest digital technology to influence human behavior (contextual advertising, manipulation of facts, statistical information);

4) cyber-attacks against the operation of financial institutions that result in the loss of individual information that may spread in the future;

5) psychological influence to induce households to irrational behavior in the sphere of financial decision-making as a result of the

use of modern digital technology (chat bots, calls, etc.).

Massive data leaks in 2021-2023 have affected many organizations and individuals both in Russia and around the world. In several incidents, such well-known companies and services as Gemotest, SDEK, Yandex.Eda, DOM.RF, Sovcombank, MTS-Bank, etc. have suffered [Current Cyber Threats ... , 2023]. Statistical data on the total number of destructive effects of the use of digital technology by banks and their customers in the use of financial services are presented in Tables 1-3:

Table 1

Operations without customer consent

Таблица 1

Операции без согласия клиентов

Period of time	Number of operations without customer consent, pcs	Volume of operations without customer consent, thousand rubles	Percentage of social engineering, %	Percentage of reimbursed (returned) funds (compared to volume), %
<i>General indicators</i>				
1Q 2021	237737	2873356.49	56.2	7.3
1Q 2022	258097	3294160.94	52.5	6.2
1Q 2023	252111	4549282.42	50.5	4.3
<i>Operations without customer consent through remote servicing channels for individuals</i>				
1Q 2021	48 250	1 126 831.54	81.9	1.5
1Q 2022	39 731	1 660 927.42	72.0	1.1
1Q 2023	251456	3946664.03	64.24	6.2
<i>Operations without customer consent through remote servicing channels for legal entities</i>				
1Q 2021	1 504	562 400.55	78.6	1.2
1Q 2022	1 293	147 632.59	69.3	2.5
1Q 2023	655	105815.39	23.8	15.4

Source: [Information security incidents ..., 2023]

Table 2

Incidents by type and vector of attack (pcs)

Таблица 2

Инциденты по типам и векторам атак (ед.)

Incidents	1Q 2021	1Q 2022	1Q 2023
Attacks aimed at clients of financial organizations. Phishing attacks.	963	705	1889
Attacks aimed at clients of financial organizations. Social engineering attacks.	10 136	9 691	19608
Attacks aimed at clients of financial organizations. Attacks using malicious software (malware).	56	50	75
Other incidents	137	284	47

Source: [Information security incidents ..., 2023]

Table 3

Fraudulent phone numbers and Internet resources (pcs)

Таблица 3

Мошеннические телефонные номера и интернет-ресурсы (ед.)

Fraud channels	1Q 2021	1Q 2022	1Q 2023
<i>Fraudulent phone numbers: detected</i>			
Using +7 (800) numbers	133	335	683
Telephone numbers	4 185	71 284	9087
Mobile numbers	1 786	17 935	87146
<i>Fraudulent Internet resources: removed from delegation</i>			
Unlicensed activity	503	111	1489
Malware	48	2	75
Financial pyramids	18	57	1348

Source: [Review of reporting on information ..., 2023]

We also note that digital technology significantly complicates the process of detecting and identifying fraudsters, which requires large financial resources and time from banking institutions. Therefore, clients will wait a long time for a decision on the return of their lost funds.

Despite the advantages of introducing digital services, banks are exposed to high risks of gaining unauthorized access to clients' personal data. For example, according to official statistics of the Ministry of Internal Affairs

of Russia, the total number of registered crimes under Article 159 of the Criminal Code of the Russian Federation "Fraud Committed Using Information and Telecommunication Technology or in the Field of Computer Information" has increased by 13.3% in 2022 and has reached 238,560 criminal attacks, which is 46.1% of the total number of all crimes of the designated category [Madatova O. V., Pisarenko K. V., 2022]. Abroad, the customer data protection system is being revised to address this issue. As recommended by the Basel

Committee, the acceptance of payments online includes the following requirements:

1. Bank must identify and monitor clients represented by natural and legal persons.
2. Each bank should develop measures to neutralize the threats of obtaining unauthorized access to personal data of customers.

In order to minimize the risks of fraud

associated with the introduction of digital technology, the bank should develop regulations, recommendations and instructions, documentation with clear key performance indicators, as well as training materials for professional development of employees, which should be available for review by all bank personnel.

The following instruments, presented in Fig. 5, may be used by banks to offset these risks.

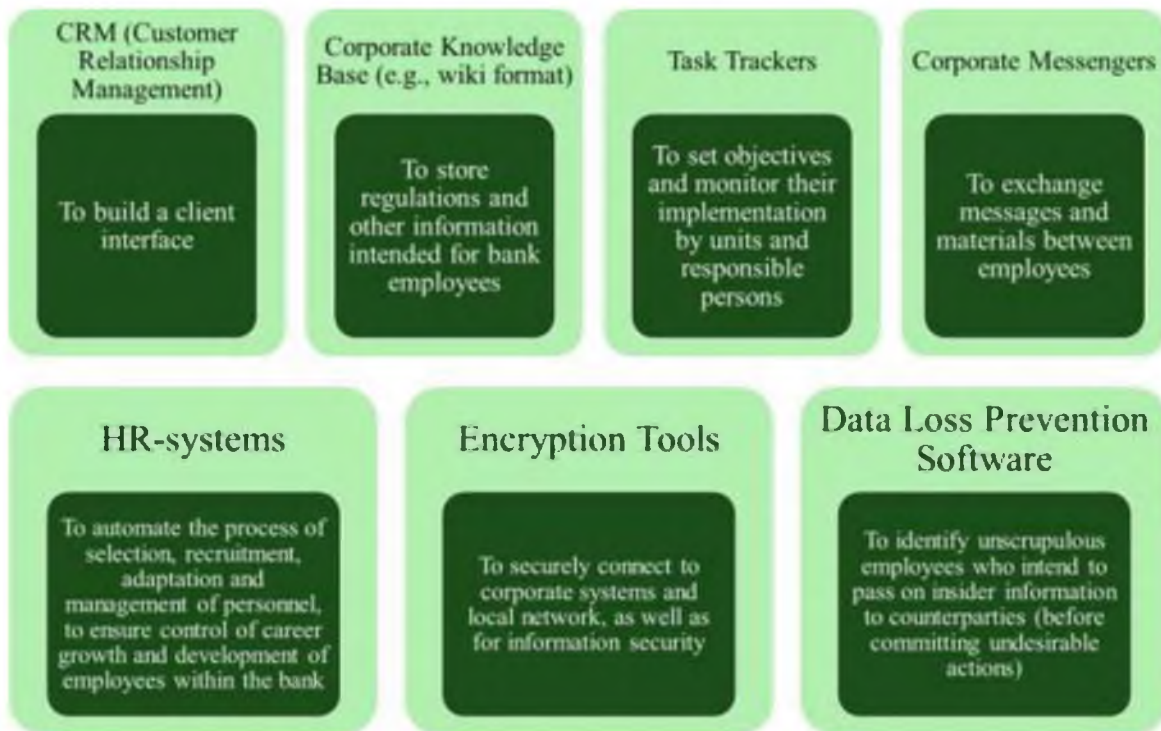


Fig. 5. Instruments for minimizing the risks of unauthorized access to information of bank clients
Source: [Risks on the path to digital transformation ..., 2021]

Рис. 5. Инструменты минимизации рисков несанкционированного доступа к информации клиентов банков

We must not forget that the basic asset in the digital space is information, and data security is one of the components of the foundation of the digital economy, while potential losses from cyber-attacks on the financial system can reach about 5% of GDP [Central banks and cybersecurity risks ..., 2022]. In order to ensure information interaction and coordination of work to combat crimes in the IT sector, the Bank of Russia created the Center for Monitoring and Response to Computer Attacks in the Credit and Financial Sphere (Financial CERT of the Bank of Russia). Recognizing the need

for consolidation on the issue of information security, the Association of Russian Banks launched a platform for exchanging data on cyber threats. The platform allows participants to automatically receive verified and relevant information online. The platform is based on a REST API, which makes it possible to automate security settings without human intervention. If necessary, credit institutions can receive support from technical specialists who will help set up the credit institution's security measures for subsequent use and integration

with the platform. The advantages of the platform are the aggregation of more than 26 sources of threat data (Financial CERT, telecom operators, BLZONE), uploading only useful information to protect the bank and automating the process of applying this information. The functionality of the platform can

be used in both large and small organizations that do not have advanced security tools and highly qualified personnel.

Thus, it is possible to distinguish some general trends of transformation of the banking sector in terms of digitalization of services (Fig. 6).



Fig. 6. General trends in the digitalization of services

Source: [Borkova E.A., Osipova K.A., Svetlovidova E.V., Frolova E.V., 2019]

Рис. 6. Общие тенденции цифровизации услуг

When analyzing the activities of Russian banks in the field of cybersecurity, it is necessary to note the contribution of PJSC Sberbank, which, developing its own development strategy, takes into account the regularity of cyber-attacks and seeks to increase the security of data, reducing time and money losses to zero. As for B2B-marketplaces, PJSC Sberbank launched SberB2B (a platform for the sale of goods and services of any customers and sellers) in 2018. The main reason was the

negative dynamics of the B2B sector in the country, which had led to significant losses of time and money. In the field of digitalization of public services, it is worth noting, for example, the system created in March 2019 that provides remote issuance of certificates for housing property in Moscow [Khakimova., G.R., Konstantinov, P.S., Khaliullin, T.I., Shchipletsova, N.I., 2021]. The “Interreg Baltic Sea Region” project is a good example in

the area of cross-border cooperation. It is focused on innovation, modern transport and natural resource management. Common IT platforms include the ERA, the 3rd generation DATACHAINS.world blockchain platform. В области трансграничного сотрудничества ярким примером стал проект «Интерег. Регион Балтийского моря», нацеленный на развитие по таким направлениям, как инновации, современный транспорт и управление природными ресурсами. Среди общих IT-платформ можно отметить ERA – блокчейн-платформу 3-го поколения DATACHAINS.world [Priority directions of digital transformation ..., 2020], which has become a solution not only for individuals, but also for commercial companies, as well as government agencies.

Conclusion

In conclusion, the study found that modern information and communication technology and digital services have had a powerful impact on the functioning of banking financial institutions, which is fundamentally changing the basis of their activities. The use of the significant potential of information and communication technology in the process of operation of commercial banks has significantly influenced the processes of their interaction with their own clients. The article highlights the main consequences of the digitalization of financial relations, which includes formation of a significant number of risks of different nature for all economic agents, including banking institutions themselves and their clients. The threats and risks that banks and their clients receive as a result of further digital transformation of banking services are analyzed and a number of instruments are proposed to neutralize them.

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