

Conference Paper

Risks and Threats of Using Open Banking in Russia and in the World

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Abstract

A study was conducted on the development of banking in the Russian Federation and in the countries of the world. It was determined that open banking in all countries of the world is at the stage of development. Based on literature, a comprehensive analysis of open banking functioning was conducted. Among the main problems the security risk, isolation and increased competition between banks were identified.

Keywords: open banking, PSD2 standards, aggregation site, the latest financial technologies.

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1. Introduction

The twenty-first century is an era of high technology. The introduction of information systems in all spheres of human activity allowed to provide high-quality and high-speed processing of information. One of the latest banking products that gained popularity is open banking.

Open banking is a system that provides the user with a network of financial institution data using application programming interfaces, commonly known as APIs. API (Application Programming Interface) - a set of protocols and tools for creating applications and software. API allows programmers to access certain functions or application data [2].

The relevance of the study is due to the high level of development dynamics of the latest technologies in the banking sector, among which open banking is one of the most important.

Objective: to identify risks and threats to the development of open banking in the field of AML / CFT based on the study of the nature and principles of open banking in Russia and in the world.

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Materials from foreign scientific websites, interviews with specialists in the banking sector were used for this study. With the help of such scientific methods as analysis, synthesis, modelling and synchronic method, the study of open banking as the newest direction in the field of financial technologies was carried out.

2. Material and Theoretical Bases of Research

To date, most of the world's population uses the services of the banking sector. In addition, customers tend to have more than one account in resident and non-resident banks. At the moment account management takes a significant part of the time. A study conducted by Ipsos Mori for Barclays Bank in 2015 shows that 40% of respondents were ready to disclose their data in order to receive free personal finance management services. Accenture's research conducted in 2016 shows that 85% of respondents in the 18-24 age group agree to entrust the consolidation of their financial data to third parties. [4]

The solution to this issue was the creation and development of software to aggregate customer banking information. Open banking can be considered the second generation of software that allows you to aggregate financial information. Before banks began offering open banking to customers, the most accessible was the aggregation website of Mint or Personal Capital, which combines user account data from all of its financial institutions so that customers can see them in one place. Such services require users to transfer their user names and passwords for each account. Obviously, there was a problem of security of client credentials. APIs are considered a more secure option, because they allow applications to exchange data without accounting credentials.

Open banking is an innovation in the global financial services market. As shown in Table 1, to date, the idea of open banking is actively developing in the market of the EU countries, the USA, Australia and other countries of the world [3].

The obtained data allowed to form a timetable for introducing open banking into the banking sector. As shown in Fig. 1, Germany became the first country to implement the principles of open banking in the national banking system. For Russia, the issue of introducing open banking is at the development stage.

Over the past decade, the banking services market has undergone dramatic changes that are directly related to the use and active implementation of innovative technologies, many of which have fallen outside the scope of the first directive. The European Commission in July 2013 decided to revise PSD 1 in order to close all the unaccounted for

TABLE 1: Development of open banking in the world.

Country	The planned period for the introduction of open banking	System Features
European Union	There is a payment directive PSD2 approved in 2015. The main platform for the development of open banking interfaces, which will be introduced during the year, is considered.	Association of banks and payment enterprises - the Berlin Group, promoting uniform standards for accessing bank accounts via API in accordance with PSD2 rules. The European payment directive provided the market with new operations - "initiation of payment" and "account information", regulated by external service providers (TPPs - Third Party Providers) and activated through a special account access interface (XS2A - Access to Account) between the bank and the provider.
United Kingdom	The beginning of 2018.	Introduction of standards and APIs for viewing transactions of personal and business work accounts and initiate payments from these accounts to organizations, with the permission of the client.
Australia	2017-18	The government announced the opening of an open banking regime in Australia. An independent review is conducted to identify a better approach to the implementation of the open banking regime in Australia. The results of the review should be submitted by the end of 2017.
Germany	In 2010, an open banking system was introduced.	With the cooperation of the largest state banks, the Open Bank Project (OBP) is developing. The main task is to form an open API for banks, which developers and fintech companies can use to create client-oriented applications and services that require access to certain information, such as the history of executed transactions and lists of accounts. In addition to accessing the client data of the OBP API, it is possible to extract "open data": lists of divisions and ATMs, a description of banking products.
Russia	It is approximately 2028 year.	The introduction of open banking is worth taking a closer look at how it will evolve in Europe. After, taking into account the already existing experience, apply the working technology in Russia. Bank Opening in the autumn of 2016 presented the API to the client's private office and the card-to-card transfer service to the finalists of the Fintech Open Fights competition. The company in one of the largest state-owned banks in Russia recently introduced a mobile banking system on the InterBank RS platform, which uses REST APIs with the properties of "openness".

and regulatory problems, to bring the current provisions to match the current realities in banking services.

The PSD2 directive creates the basis for a completely new financial system, radically different from the old one, it regulates the principles of interaction between market participants, consumer rights, and regulates payment services.

Let's analyze the key provisions of the PSD2 directive.

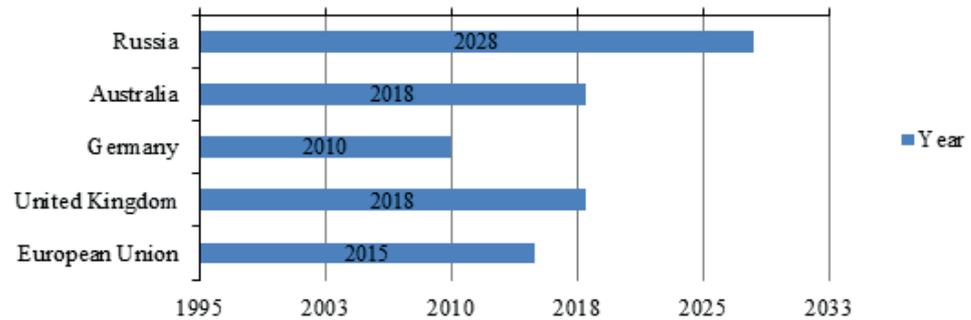


Figure 1: Implementation of open banking in the world.

Regulation 1 of the PSD2 directive introduces a new type of institution in the legal field - financial intermediaries, for which two new licenses will be created. However, in this case, new licenses are not intended to improve the established concept of a financial intermediary, in this case, service providers come to the forefront, and the system of classical contractual relationships that are inherent in financial intermediaries is replaced by cybernetic ones, which will be legislated. The PSD2 directive introduces two new licenses to create two new types of financial intermediaries.

The first license provides creation of payment initiation services provider, which are interfaces for making payments and act as intermediaries for the holder and consumer of funding sources. These services are given the right to debit funds from any accounts created in any financial institution without agreement.

According to the second license, it is envisaged to create services for aggregating financial information (account information service providers) that request information from financial organizations on behalf of the client about the status of their accounts and consolidate it. In this case, the main meaning is in the words "on behalf of the client". Such an instruction can be received when signing any of the offers.

The question arises as to why it is necessary to create exactly two new types of financial intermediaries. The answer is: the first is inadequate without the second, which in its most powerful form, through the offers of technology IT companies such as Apple, Microsoft, will be only for the Americans.

The second provision of the PSD2 Directive requires all financial institutions to provide all new financial intermediaries without a separate agreement. And since the new financial intermediaries are IT companies, in fact, the directive obliges banks to transfer their basic functions to these IT companies.

Regulation 3 provides the establishment in the European Union of a pan-European register of organizations that are assigned the status of payment institutions and their agents. This provision will be implemented, most likely, by creating 13 root Internet DNS

servers, which will store complete copies of an array of data from the entire planet. This innovation can be described as the complete integration of countries in the overall financial system of the world. However, if you consider the situation when one of the countries in which one of the servers will be located decides to disconnect from the new financial system, it will be possible to save only the internal payment system. If the country fails to maintain its internal payment system, the exit from the new system threatens to lose its own Internet and the collapse of the country's entire payment system.

The fourth provision allows the provision of payment services by "payment institutions". Under this category, the directive is understood by all payment institutions that are not banks.

Regulation 6 of the directive establishes that states have the right to release payment institutions with an annual turnover of up to 3 million euros from all claims. In this case, the financial industry has a value for the state as a guiding one. It is also very likely that one main institute will be created, which guarantees the possibility of forcible introduction of a certificate by technological corporations, which hinders the cybernetic links between financial institutions. Thus, using the liquidity of the Fed, it will be possible to build a hierarchical pyramid, headed by someone who has this certificate and liquidity.

Provision 7 of the PSD2 directive requires that strong authentication should be used when accessing accounts. Most likely, authentication will be used in an extremely strong form, which means that when an automatic fraud filter takes you as a fraudster, it will call the police on GPS coordinates instantly. At the same time, the user himself accepted an offer that identifies him.

Regulation 8 states that, as before, transfer orders must be executed on the next business day, however for some financial institutions this period may be extended to 4 days. These "some cases" will refer to the top of the hierarchical pyramid, about which the assumption was made earlier.

Regulation 10 of the PD2 directive stipulates that the provisions of the directive should be implemented in national legislation by January 13, 2018, and during 2017-2018 at least 10 explanatory documents and technical standards necessary for the effective implementation of the directive will be prepared.

Thus, it is necessary to connect multidisciplinary specialists (supercomplex modelling), which are able to compare factors from the following fields of knowledge, such as international law, information technology, electronic payment technologies, marketing, social engineering and international taxation.

We can say that PSD2 is in some way an absolute breakthrough in the financial sphere, but in this document there are many shortcomings and understatements. Undoubtedly, traditional institutions should be preserved during the transition period. However, if in the meantime a pyramid of financial intermediaries is built, then a new financial system of the world, based on PSD2, will collapse. As a variant of counteraction to the top of the pyramid of financial intermediaries, is the creation of its own alternative top of this pyramid ahead of schedule. However, in this case, there can be no sets of "peaks" in this system, since the financial system is driven by cybernetic technologies to the point of singularity from which there are only two outputs: a natural solution: the infusion of all into this global payment system under a common certificate for all the appearance of a universal "pay" button provided by the intermediary intermediary, which is at the top of the entire hierarchical pyramid of intermediaries or an absolute exit from this system and a return to paper money.

Open banking is designed to improve the customer's bank experience in several ways. This forces large, established banks to be more competitive with smaller and newer banks, which ideally leads to lower costs, better technology and better customer service. Open banking rules require that banks publish, both on the Internet and within their branches, accurate and impartial information that allows consumers to assess the quality of their services, the movement towards transparency, designed to motivate banks to ensure the best quality of customer service. Banks also need to notify customers about unexpected overdrafts and give them a grace period to fix the problem and avoid an overdraft.

Open banking is the main source of innovation in the banking sector. For example, API interfaces can alleviate the sometimes burdensome process of transition from using a service of a settlement account of one bank to another bank. The API can also view transaction data from consumers to determine the best financial products and services for them, such as a new savings account that will receive a higher interest rate than the current savings account or another credit card with a lower interest rate.

Through the use of network accounts, open banking can also help lenders obtain a more accurate picture of the financial situation and the level of risk to consumers in order to offer more suitable credit conditions. It can also help consumers get a more accurate picture of their finances before taking on debt. An open banking application for customers who want to buy a house can automatically calculate whether customers can afford a mortgage based on all the information on their accounts. Such a calculation will provide a more reliable picture than recommendations for mortgage lending currently provide. Another application can help clients with impaired vision better

understand their finances with the help of voice commands. Open banking can also help small businesses save time through online accounting and help fraud detection companies better track customer accounts and identify problems earlier.

The development of open banking will be another step towards better monitoring of financial activities.

For Russia, the issue of introducing open banking is at the development stage. At the moment, the Russian association "FinTech" has been established, which includes Sberbank, VTB, Gazprombank, Alfa Bank, Otkrytie, QIWI and the National Payment Card System.

The main objectives of the Association's work are the development and implementation of new technological solutions to ensure the development of the Russian financial market, as well as creating conditions for the digitalization of the economy of the Russian Federation.

"The main objectives of the Association will be the development and implementation of new technological solutions to ensure the development of the Russian financial market, as well as creating conditions for the digitalization of the economy of the Russian Federation," said the Deputy Chairman of the Central Bank, Olga Skorobogatova. [5]

The effectiveness of introducing technologies related to open banking in Russia can only be investigated by analogy with the development of the Internet banking sector. Since today's Internet banking users will act as the main target audience while introducing open banking.

In 2016, the third wave of the study of the current state and dynamics of financial change in the online environment in Russia was held. This study was conducted from the point of view of the end user.

In Russia, the number of Internet users is 81.8 million people [6], which is about 70% of the population of Russia. At the same time, 97% of Internet users are clients of Russian banks, and about 75% of them use the channel of remote control of their accounts. The most popular example of such a bank remote control channel is the Internet bank. At least one Internet bank uses about 64.5% of Internet users, which is 35.3 million. [6].

Consider the intersection of the audience of online banking and mobile banking users for 2016 (Figure 2) [7].

The largest number of Internet banking customers (28 million people, or almost 82% of Internet banking users) is Sberbank Online. Then VTB24-Online, Alpha-click

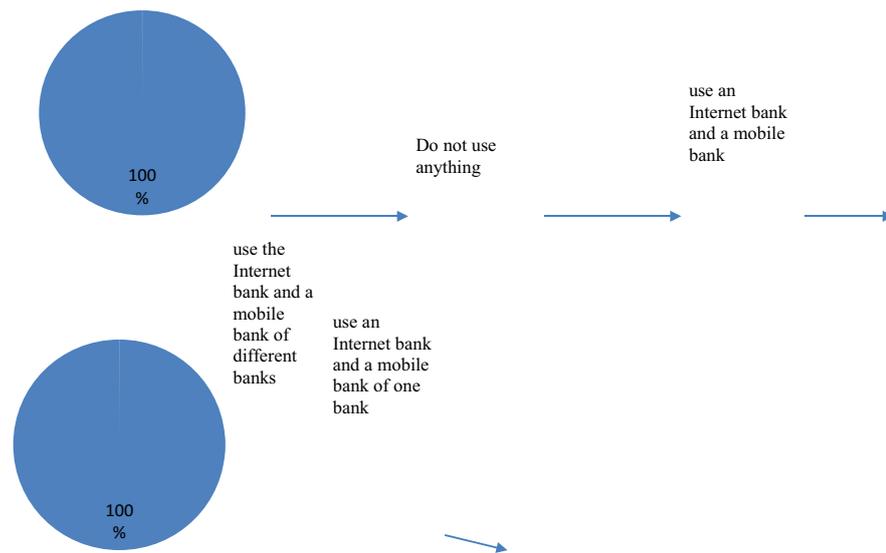


Figure 2: Intersection of the audience of Internet banking and mobile banking users for 2016.

and Tinkoff share the second, third and fourth places among themselves, accounting for 9%, 7%, and 6% of users respectively [7].

Applications for smartphones are used by about 33% of Internet users in Russia, which is 18.1 million. Similar to the statistics on the use of Internet banking, the mobile bank, which dominates the number of clients, is Savings Bank: it is used by 14 million people or 78% of the entire mobile banking audience. The second, third and fourth places are occupied by mobile applications of VTB24, Alfa-Bank and Bank Tinkoff, which are used by 8%, 6% and 5% of mobile banking customers in Russia.

The penetration rate of Internet banking services in developed countries, such as the United States and the EU, is about 92%. There are data on the number of Internet banking users in Russia (Table 2), on the basis of which it is possible to construct a regression equation and predict in how many years Russia will reach this level.

TABLE 2: Number of Internet Banking Users in Russia (% of the population) [9].

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Number of Users (%)	11	12	13	18	25	55	64	67	64,5	70

In this case, we use a multidimensional polynomial regression, the essence of which is the approximation of data by a polynomial of degree n . To construct a polynomial regression of n -degree, at least $(n + 1)$ points of the original data are needed. The higher the degree of the polynomial, the more accurately the polynomial regression describes the initial data, but a higher degree of the polynomial can cause a more significant error, so in practice, polynomials of degree $n \leq 5$ are used.

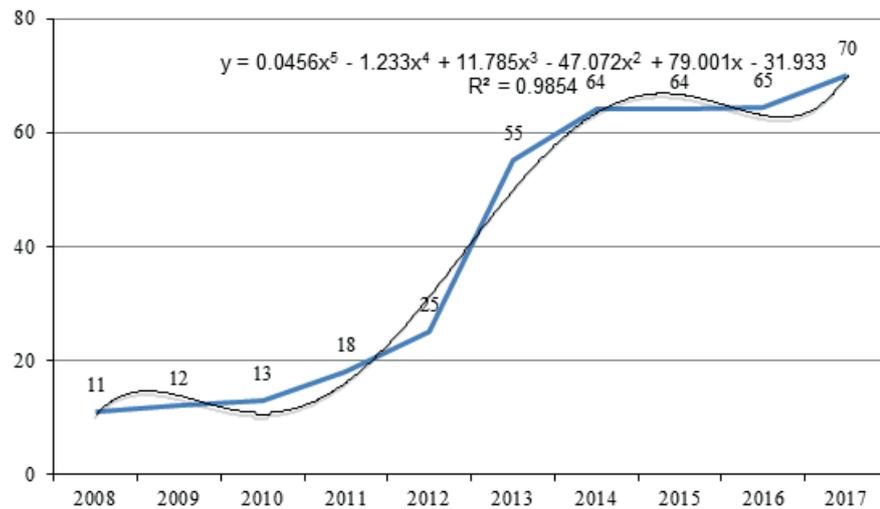


Figure 3: The number of Internet banking users in Russia (in% of the population).

The polynomial trend line is used in practice to describe alternately decreasing and increasing values. It is useful to use for analysis of unstable magnitude.

We construct the polynomial regression equation of the fifth degree based on the data of Table 2 (Figure 3).

The trend line, which allows to determine when Russia will reach the level of developed countries in penetration of Internet banking looks like:

$$y = 0.0456x^5 - 1.233x^4 + 11.785x^3 - 47.072x^2 + 79.001x - 31.933$$

In this case, the calculated parameters of the model explain the dependence between the studied parameters by 98.54%, which characterizes the coefficient of determination R-square, equal to 0.9854.

So, based on the results of the derived regression equation, Russia will reach the level of penetration of Internet banking services to approximately equal developed countries by 2019, in which the desired parameter will take the value equal to 91.71%.

3. Results

In general, during this study, the dynamics of the increase in the number of Internet banking users has been revealed. Analysts note that in the future this segment of the market will continue to increase. From 2015 to the beginning of 2017 the number of users of Internet banking services in Russia increased from 23.3 million to 35.3 million users [8]. At the same time, there is a great growth potential in this market, since only 70% of Internet users in Russia now use this service. It should also be noted that, according to analysts, now the market for Internet banking, there is a trend of the flow

of customers from the usual Internet banking in mobile applications. This phenomenon significantly increases the volume of ongoing transactions and simultaneously reduces the cost of customer service, including by reducing the load on call-centers, since many applications have a built-in messaging system with banks.

In general, all the revealed tendencies of development of the financial online environment in Russia can be considered favorable for the further introduction of open banking.

Open banking can also be used as a tool for controlling and regulating the activities of banks for organizations such as the FATF, KVATF, ATG and other world groups to develop measures to combat money laundering. More open activities of banks will allow more closely monitor the cash flows of both the bank itself and its customers.

In this case, the open banking API also has the following risks:

- increased competition between banks, as only the strongest banks will be able to unite to create a platform. Creating a platform requires huge investments and banks will struggle to attract more customers.
- security risk; banks will have to open their information to other banks-competitors.
- The risk of isolation. In case that open banking is widely spread in the banking sector, credit institutions that do not use open banking will be isolated, which will mean a risk of losing customers, and, consequently, a decrease in the bank's activity.
- The risk to customers is that they focus all their accounts in one place and with a sudden cyber attack all information can be used by third parties for personal gain;
- There is also a risk that a company that will write a platform for open banking will concentrate all power over the banking sector in its hands.

Thus, the main concerns with Open Banking are related to conflicts of interest, uneven distribution of influence and exacerbation of financial isolation. Convenience, speed and simplicity can be dispensed with at the cost of losing a significant amount of control over the data.

The analysis allows to formulate the following recommendations:

- it is necessary to carry out more thorough work on the creation of open banking to prevent the hacking of users' personal offices.

- the process of creating a platform for open banking should be entrusted to an enterprise created by leading specialists from various companies of IT technologies and the banking environment (the best option is a state-owned company). This step will minimize the influence of leading companies in the field of software development and limit personal interest.
- Development of legislation regulating the activities of banks in the field of open banking and legislation to limit the power for the company that will write this platform.

4. Conclusion

Summing up, we can say that open banking represents a new direction in the field of financial technologies. The development of open banking will create a financial platform through which clients of various banks will be able to manage their accounts. This will reduce the time of operations, reduce transactions, enter a new level of competition among banks. The reverse side of the use of open banking is the lack of legislative regulation, control over the absence of excess of powers of the company engaged in the development and implementation of open banking, as well as the security of customer data.

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