



## FEATURES OF API SERVICES IN THE IMPLEMENTATION OF TRANSFORMATIONAL PROCESSES IN THE ACTIVITIES OF COMMERCIAL BANKS

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Article history:	Abstract:
<b>Received:</b> 4 <sup>th</sup> December 2021 <b>Accepted:</b> 6 <sup>th</sup> January 2022 <b>Published:</b> 16 <sup>th</sup> February 2022	This article analyzes the features of the development of retail sales channels by commercial banks using APIs. In addition, the article contains suggestions and recommendations for expanding retail sales channels based on the results of studying the British experience in implementing APIs in the banking sector.
<b>Keywords:</b> Commercial banking, retail services, remote banking, retail sales channels, electronic platforms, API, UK, Retail Banking, Open API, The Open Banking Standard.	

### INTRODUCTION

In the retail services segment of the banking and financial sector, serious transformational processes have been taking place in recent years. The increase in the number of operators in the retail services segment and, in most cases, their integration contribute to the formation of new financial services. In turn, banks are trying to reduce operating costs and expand access to their services in order to attract new customers.

In this regard, it is natural to increase the interest of customers in personalizing the services offered by abandoning the practice of servicing through bank branches and remote service systems. However, the personalization of services requires the collection and processing of financial and non-financial data belonging to customers. This, in turn, creates the need to adapt the architecture of information and communication systems of banks to new conditions.

One of the features of the information and communication systems of banks is the continuity of the process of constant updating and their adaptation to external information systems (clients, government agencies, etc.). This, in turn, will lead to the replacement of traditional models of banking services and products with models that allow you to quickly respond to changes.

Thus, one of the important factors in strengthening the competitive positions of banks and financial success is to establish close cooperation with developers of business and fintex applications and involve them in the production of new banking services. Taking this factor into account, in particular, led to the emergence of the Banking as a Service (BaaS) technology. BaaS is a set of business models that provide access to banking services through information systems actively used by customers.

It should be noted that such information systems are usually developed not by banks, but by technology companies. At the same time, the most effective form of collecting and transferring data between information systems owned by retail market participants, in accordance with standard data exchange protocols, is the use of open interfaces (Open API).

In view of the foregoing, in this article we will try to analyze the content and essence of open interfaces (Open API), as well as the specifics of their application in the banking sector.

#### Main part

First of all, it should be noted that API (application programming interface) is a system that allows a bank or other financial institution to exchange information with external information systems, as well as use ready-made services (in the form of data processing procedures).

The main goals of introducing an open API in the financial services market are:

- diversifying the services of banks and other financial institutions in the provision of services to individuals and legal entities and ensuring their complexity;
- strengthening cooperation between market participants in the creation of new services and products;
- expanding access to the financial infrastructure for service providers in order to create a healthy competitive environment in the financial services market.

In scientific and practical sources, APIs are grouped according to various criteria. In our opinion, it is advisable to group them according to the degree of openness for users and the functional tasks they perform.



Depending on the level of openness for users, APIs can be grouped as follows:

- closed - applies only within one organization;
- limited openness - accepted only on the basis of special invitations (in particular, business partners, corporate clients, etc.);
- open - available regardless of the number and type of users.

Depending on the functionality performed, the following types of API are available:

- information services (reception and delivery of information from organizations);
- functional services (financial transactions, in particular, money transfers).

There are no serious restrictions on customer service through information services, but in functional services the condition of customer identification is observed. Therefore, functional services require the use of a remote authentication mechanism.

It should be recognized that the introduction and use of an open API is very beneficial, primarily for developers of business applications and fintex companies. They can offer new innovative services and services based on or integrated with banking services, in which customer accounts are opened through an open API. The presence and openness of standard protocols in the API expands the opportunities for business application developers and fintex companies to take cooperation with banks to a new level, simplifying the process of creating financial marketplaces and aggregators.

The use of open APIs provides a number of benefits for the bank and its customers, but at the same time it can increase operational risks (see Table 1).

**Table 1**  
**Features of using an open API in the activities of banks <sup>1</sup>**

Users Priorities Risks	Users Priorities Risks	Users Priorities Risks
Bank customers	<ul style="list-style-type: none"> <li>- Expanding the choice of financial services in financial markets;</li> <li>- expanding access to financial</li> </ul>	<ul style="list-style-type: none"> <li>- Risk of disclosure of confidential information;</li> <li>- risk of illegal transactions</li> </ul>

	services in various information systems; - Reducing the cost of using financial services by increasing competition and reducing banking fees; - Expanding the possibility of accepting payments for goods, works and services sold	
banking organization	<ul style="list-style-type: none"> <li>- creation of opportunities for the transfer of financial products and services through "foreign" information services;</li> <li>- creating opportunities for expanding the client base (at the expense of users of other information systems);</li> <li>- Access to information and services in other financial institutions</li> </ul>	<ul style="list-style-type: none"> <li>- the cost of implementing and maintaining an open API;</li> <li>- the risk of cyber attacks and theft of funds (due to the disclosure of information about access to information systems);</li> <li>- decrease in revenue or market share due to increased levels of competition;</li> <li>- Increased level of operational and legal risks associated with the exchange of information between different legal entities</li> </ul>

It should be noted that the use of an open API in the field of payments by banks will lead to significant changes in the payment scheme. In particular, payment can be made directly from the customer's bank account through the banking API by the seller's store or financial intermediary. In this case, sellers of

<sup>1</sup> Илмий манбалар таҳлили асосида муаллифлар ишланмаси



goods and services will be able to reduce the cost of accepting payments, and banks and payment organizations will lose commission income.

Given the expected benefits and potential risks of implementing an open API, banks can choose one of the following strategies:

- access to minimal elements inside the API to avoid the introduction of an open API or compliance with legal regulations;
- creation of an additional innovative API (in particular, provision of regulated information about clients on a paid basis);
- In addition to the API, offer services for data analysis and grouping, payment and customer data collection;
- Development of a comprehensive API platform for the formation of an ecosystem between banks, sellers of goods / services, consumers, fintex companies, start-ups and becoming the center of daily transactions.

Of course, the indisputable fact is that the use of APIs in the banking industry gives strategic priorities. However, their introduction into banking may cause certain organizational and economic problems. With this in mind, we will try to analyze the UK experience in implementing Open API technologies in the banking sector.

Theoretical, methodological and practical features of the implementation of Open API technologies in the UK banking sector are reflected in the following three main documents:

1. Second Payment Services Directive (PSD2), adopted in the European Union in 2015 [7]. This document sets out the principles for using Open API technologies in the EU financial markets. In addition, disclosure of information about user accounts, as well as the possibility of making transactions from the client's account to suppliers (including new market participants) without special agreements between various organizations.

2. Research conducted by the UK Treasury [8] formed the theoretical basis for the systematic implementation of the Open API in the banking and financial sector of the country.

3. In August 2016, the Competition and Markets Authority (CMA) of the United Kingdom. Analysis of the competitive situation in the market of current accounts of retail consumers (Personal settlement account - PCA) and settlement accounts of small and medium-sized businesses (Business

settlement account - BCS) [9]. Based on the results of the analysis, an action plan was developed to improve the competitive environment in the field of banking services.

This document sets out the following main questions:

- Firstly, the high level of monopolization and concentration of risks in the payment segment of the financial services market necessitated the transformation of the banking and financial sector;
- secondly, the current situation in this segment of the financial services market leads to an increase in the cost of tariffs, commissions, products and services, and also prevents the entry of new participants.

To overcome these problems: a) increase the level of competition in the banking and financial sector and expand access to financing for small and medium-sized businesses (according to the CMA analysis, the share of new banks in the lending market for small and medium-sized enterprises is less than 2%); b) prevent the formation of credit institutions "too big to fail"; c) create an opportunity to compare the conditions of financial services in all banks; g) activation of the processes of production of new services by creating an open database for various organizations and start-ups;

d) the use of special mechanisms (including the preservation of all details (Settlement Account Change Service-CASS) when transferring an account from bank to bank) to encourage equal distribution of accounts between different credit institutions.

In addition, the 9 largest UK banks [10] (which account for the majority of individual accounts) have taken steps to publish open data through specialized software interfaces, as well as to implement relevant standards based on a CMA-approved project. given for improvement.

A special order (Retail Banking Market Research Order 2017) set the task of developing Open API standards for serving individuals and implementing Open API by the date of entry into force of the PSD2 directive.

It can be assumed that measures to stimulate competition in the UK financial services market are primarily aimed at fully satisfying consumer demand for financial products and services using the Open API.

To implement the principles of Open Banking based on Open API technologies, CMA created an intersectoral working group Open Banking Working Group (OBWG). The working group includes



representatives of credit institutions, fintex companies, government agencies and other organizations (more than 150 specialists).

The results of the OBWG study are set out in The Open Banking Standard. This document contains recommendations on the purpose, principles of Open Banking and organizational measures for its implementation.

In particular, the document states that the goals of developing uniform Open Banking standards are:

- firstly, disclosure of information about the working hours and location of credit institutions and ATMs;

- secondly, disclosure of information about financial products and services of a credit institution (prices for financial products and services, prices for all types of commissions, main features and priorities of products and services, conditions for obtaining products and services);

- thirdly, provide third parties (financial service providers) with access to account information at the request of customers;

- Fourthly, to provide the possibility of making payments through the accounts of third parties at the request of the customer.

The main principles of Open Banking are:

- authentication of users of financial services (multifactor);

- disclosure of relevant information to third parties (financial service providers) with the consent of the client;

- Possibility of third-party transactions from the client's account in financial institutions;

- Ability to refund transactions based on open API;

- distribution of obligations under contracts between the parties;

- Prohibit the use of screen scraping mechanisms (collection of sensitive data by processing the data displayed on the monitor using special software).

In addition, the principles of Open Banking must comply with the requirements set out in the following documents:

- General Data Protection Regulation (GDPR) [11];

- Technical standards for strong client authentication (TS-SCA) according to PSD2 [12];

- Regulations on payment services (PPP) [13].

It should be noted that he is the developer and owner of The Open Banking Introduction Entity Open Banking portal in the UK [14].

The Open Banking portal is divided into two parts:

1. Information section. Provides information about the project and registration of participants in the Open Banking Directory. Two-factor authentication at registration (remote authentication requires installation of a special application for scanning fingerprints on mobile devices). The Open Banking Directory serves as a unique reference for participants in the Open Banking ecosystem.

2. Directory-catalog for programmers. This is an open resource hosted on the Internet, which contains standards for open interfaces, communication schemes, sample requests and responses sent to the corresponding services, and a description of the processes that occur when using the corresponding interfaces, in chronological order. . The guide is aimed at technical specialists of banks and fintex companies.

## **CONCLUSIONS AND SUGGESTIONS**

We can draw the following conclusions and suggestions for the development of the proposed retail sales channels during the transformation of commercial banks through APIs:

First, the increase in the number of people working in the retail financial services sector, and in most cases their integration, contributes to the formation of local ecosystems and new financial services. In turn, banks are trying to reduce operating costs and expand access to their services in order to attract new customers.

In this case, it is advisable to expand the architecture of information and communication systems of banks through APIs.

Secondly, the availability and openness of standard protocols in the API globally expands the opportunities for business application developers and fintex companies to take cooperation with banks to a new level, simplifying the process of creating financial marketplaces and aggregators.

Thirdly, the inclusion of APIs in the list of measures to be implemented and supported at the state level is important for the digitalization of the economy, ensuring consumer rights, and achieving popularity of banking services. This is stated in the document "The Open Banking Standard" of the intersectoral working group Open Banking Working Group (OBWG), created in the UK. The document



contains recommendations on the purpose, principles of Open Banking and organizational measures for its implementation. This, in turn, served to expand the range of digital services in the financial and banking sector.

Fourth, it is advisable to develop national standards for integrating APIs into existing information and communication systems, using the experience of foreign countries, including the UK.

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