



НАЦИОНАЛЬНЫЙ БАНК КАЗАХСТАНА

OVERVIEW REPORT

# Development of **Open API, Open Banking** and Ecosystem of Digital Financial Services in the Republic of Kazakhstan

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# Summary

**Active digitalization of economies worldwide is associated with development and implementation of digital, technological solutions, an increased number**

of participants of financial market, as well as emergence of alternative business models that improve availability and quality of digital financial services and services for citizens and businesses.

A new generation of clients actively uses mobile applications and services to receive both financial and non-financial services, moving away from traditional approaches to interaction with institutions and the market. This creates a significant trend in the field of digital innovation through introduction of platform solutions for consolidation of cross-industry financial and non-financial services, active exchange of data and information.

Fintech industry is growing rapidly. Acting as third-party service providers, new fintech companies and start-up projects create innovations in the field of finance, increasing their usability and attractiveness through end-to-end technologies and speed of adaptation.

Entry of fintech companies into the space of financial services is the most visible in places where digital markets are highly developed, such as China, the EU and the US. However, leading technology companies such as Google, Meta, Amazon, Alibaba, Tencent also shift their focus to developing countries.

Such development of the entire financial industry increases an overall level of competition on the market, forcing traditional financial institutions to reconsider their development approaches with a focus on open, technological and equally accessible integrations and partner relations.

Thus, a new stage in development of the financial

market is being formed with requirements for harmonization of regulation, inclusion of new players and stronger consumer rights protection.

Given a rapid pace of technology development, competition on the financial market and current consumer demands, it is open secure interaction between financial, payment organizations and third-party service providers, cross-industry data exchange and development of secure digital financial services that will create a sustainable digital financial ecosystem with innovative digital projects and offers, thereby expanding availability and functionality of financial products and services.

To achieve such goals, the NBK is implementing a number of systemically important infrastructure solutions intended to enhance financial stability and develop healthy competition, including development of the National Payment System, digital biometric identification, a platform for secure data exchange based on open programming interfaces (Open API) and execution of KYC (Know Your Customer) procedures by banks.

Introduction of these initiatives will create a single payment space, an unobstructed access to own funds and personal data management for consumers. Architectural principle of 'equal accessibility' will ensure possibility of providing financial services in a digital format for all market participants.

Offered approaches stimulate further development of competition and innovation, as well as expansion of accessibility, reliability, security of financial and payment services. Achieving the target model will ensure 'digital sovereignty' of infrastructure of the financial market.



In order to describe and analyze a modern model for development of the financial sector using the Open API technology, the Open Banking concept, the National Platform for Digital Biometric Identification and the National Payment System, an overview report was prepared. It focuses on development of a target model of the digital financial infrastructure, providing access to personal and financial data, as well as building capacities for financial institutions, payment institutions and third-party service providers to develop new digital financial services and platforms through cooperation among them. Moreover, an international review of various

practices and approaches for regulation of the Open API and implementation of the Open Banking is presented, highlighting key findings that contributed to development of the main goal and objectives for development of the Open API and Open Banking in the Republic of Kazakhstan.

Also, advantages of introducing the Open API and Open Banking for market participants, the regulator and the end user are described, with rationale for the general model for implementing the Open API and Open Banking.

In conclusion, general measures and initiatives for development of the Open API and Open Banking are listed.



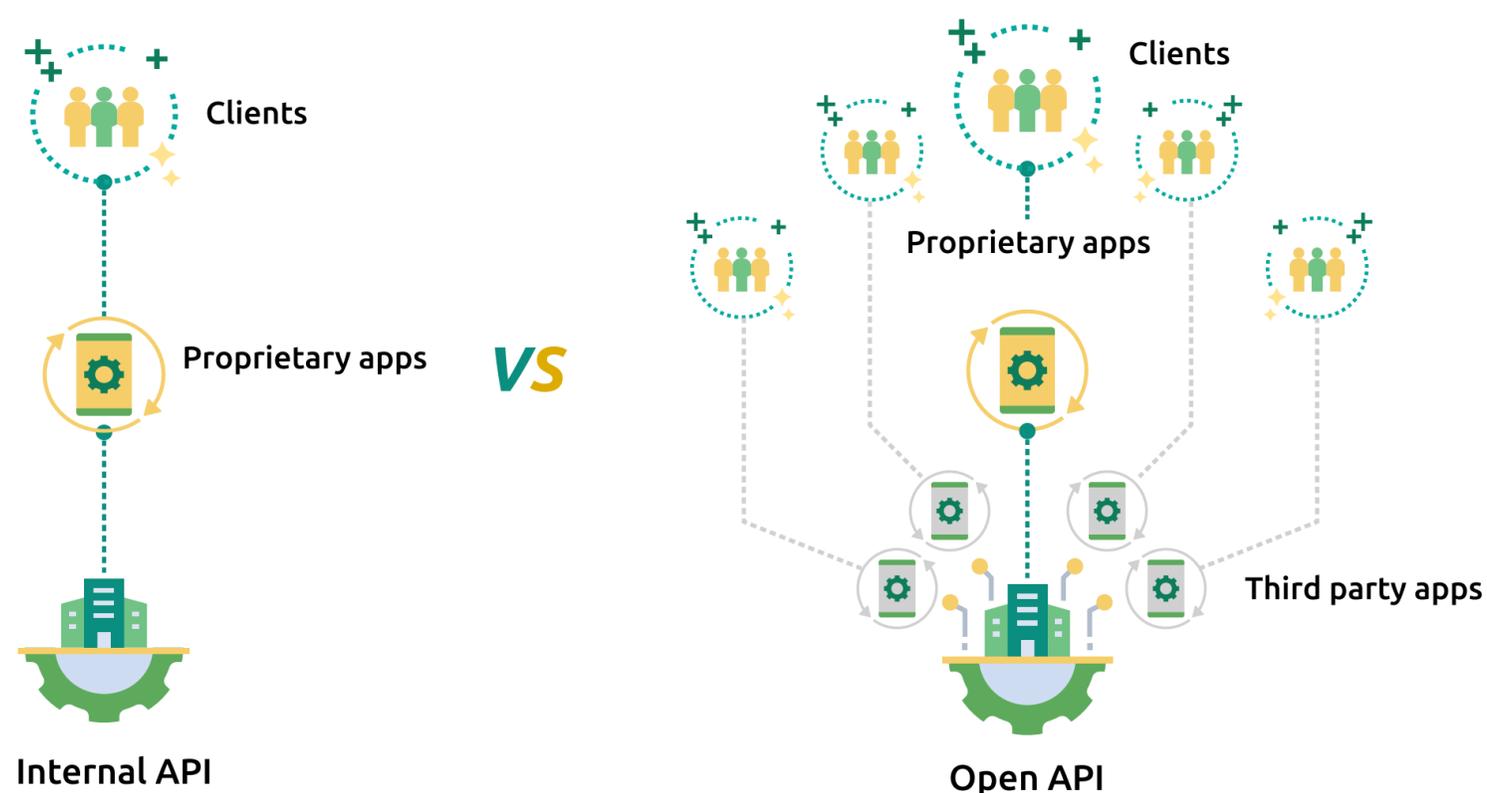
# INTRODUCTION

Development of the financial market during a period of digital transformation creates a basis to introduce innovations, attract new participants, and it also contributes to development of regulatory standards and requirements in order to establish transparency, security and support for such processes.

Thus, the Open Banking concept (hereinafter referred to as the Open Banking) has become one of contemporary trajectories of digital development of financial institutions. It is the creation of technological and regulatory conditions that allow clients to transfer their data safely and efficiently between financial institutions and authorized third parties (hereinafter referred to as the third-party service providers) for new consumer benefits.

In other words, open banking is aimed at using the client's financial data with his consent by third-party service providers to expand the availability of financial services and create new, personalized services and products.

## Traditional Banking and Open Banking



*One of the latest Open Banking developments in the UK is Variable recurring payment. It automates movement of funds between accounts of one person to make savings, investing and loan repayments. This innovation makes it easier for legal entities to make necessary payments by including non-recurrent or recurrent payments (such as utilities, taxes), and also provide integration with online wallets (e.g. to split bills).*

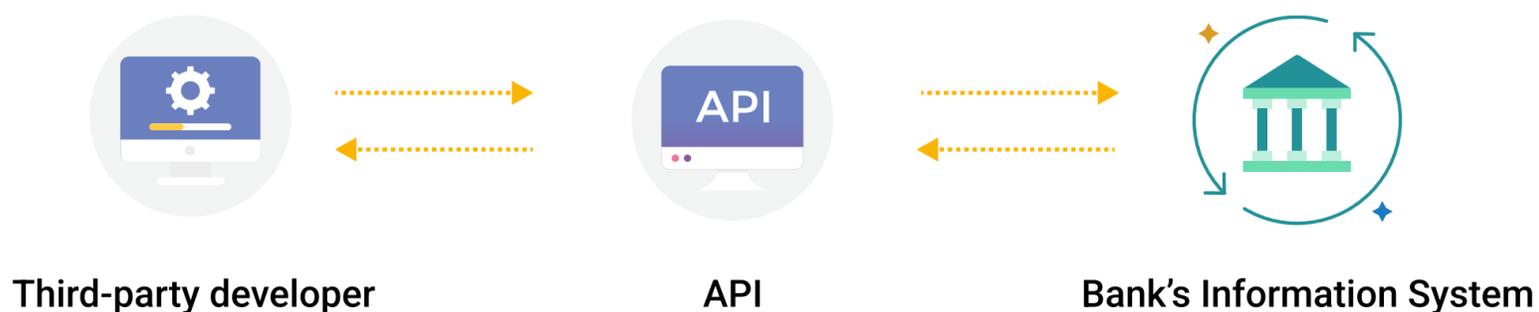


***The exchange itself of client data between information systems of banks, other financial institutions and fintech companies is implemented with the use of the API (Application Programming Interfaces) technology known since 1968.***

API technology is a set of functions and tools with which any developer can get connection to programming interfaces of the organization and, through interaction with data available to it, create a new product or a separate service. That is why APIs are widely regarded as a 'bridge' between data, product, and service to create greater value and efficiency of interaction.

Key features of the API technology within the Open Banking concept are account aggregation, personal finance management, instant credit risk assessment, subscription management, opening new accounts, etc.

For example, account aggregation includes use of an API that allows customers to use credit card, investment, bank, mobile accounts, etc. in one interface (Plaid, Tink, Nordic API, Gateway).



Also, Open Banking has contributed to expansion of personal finance services designed to provide customers with a complete overview of their financial situation from various accounts in one place (application). Data centralization can help banks and financial service providers to develop innovative solutions with the use of customer preferences both when a bank connects its own APIs and when connects to APIs of other banks, and also provides customers with an ability to assess their financial condition and current liabilities (Spiir, Yolt, mint).

Instant review of loan applications is another benefit of using Open Banking, allowing lenders to get an almost instant overview of an applicant's credit history, service consumers to use loan comparison sites and quickly find products and services (Klarna, Afterpay, Zip Pay).

Obtaining information about various transactions can allow to effectively use Open Banking to manage subscriptions. In this case, the service aggregates regular payments of the client in one interface, such as utility bills, loan payments, subscriptions, etc., allowing the client to manage them, for example, canceling unwanted subscriptions or receiving notifications of upcoming payments.

Benefits for the bank could include lower customer support costs for recurring payments, lower outflow rates for current customers, and the ability to cross-sell financial products (Subaio, ApTap).



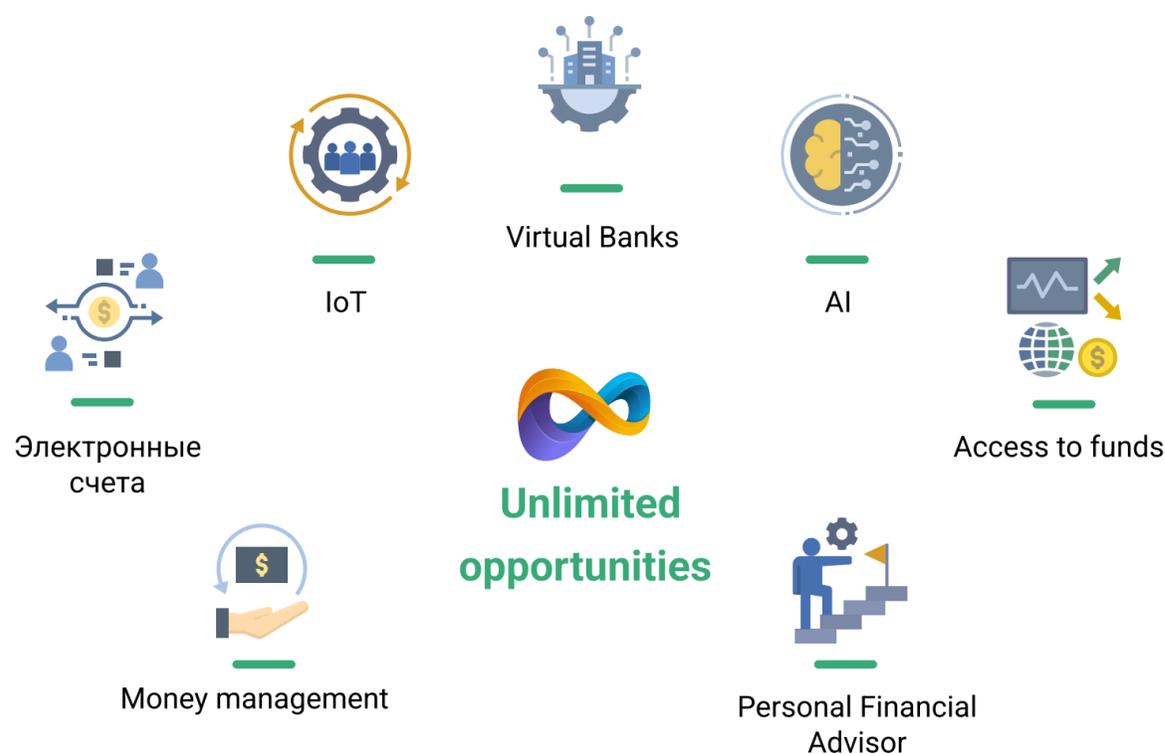
The process of opening a new digital account, bank accounts, and carrying out Know Your Customer (KYC) transactions can be much easier and faster with the use of open APIs.

*Today, a key issue in development of the Open Banking, in addition to maturity and ambition of the fintech industry, availability of government initiatives to develop innovation and an extent of public trust in digital services, is a sustainable digital infrastructure with harmonized regulatory requirements.*

Use of the Open API technology by banks, that is, open and accessible sets of functions in order to exchange financial and personal data of clients subject to their consent with third-party service providers, underlines the Open Banking concept.

Thus, Open Banking is designed to enable clients to manage their own data and transfer the ability to manage account to the most technological and advanced authorized fintech companies in order to receive personalized innovative services and products.

### Open Banking application scenarios, examples, opportunities



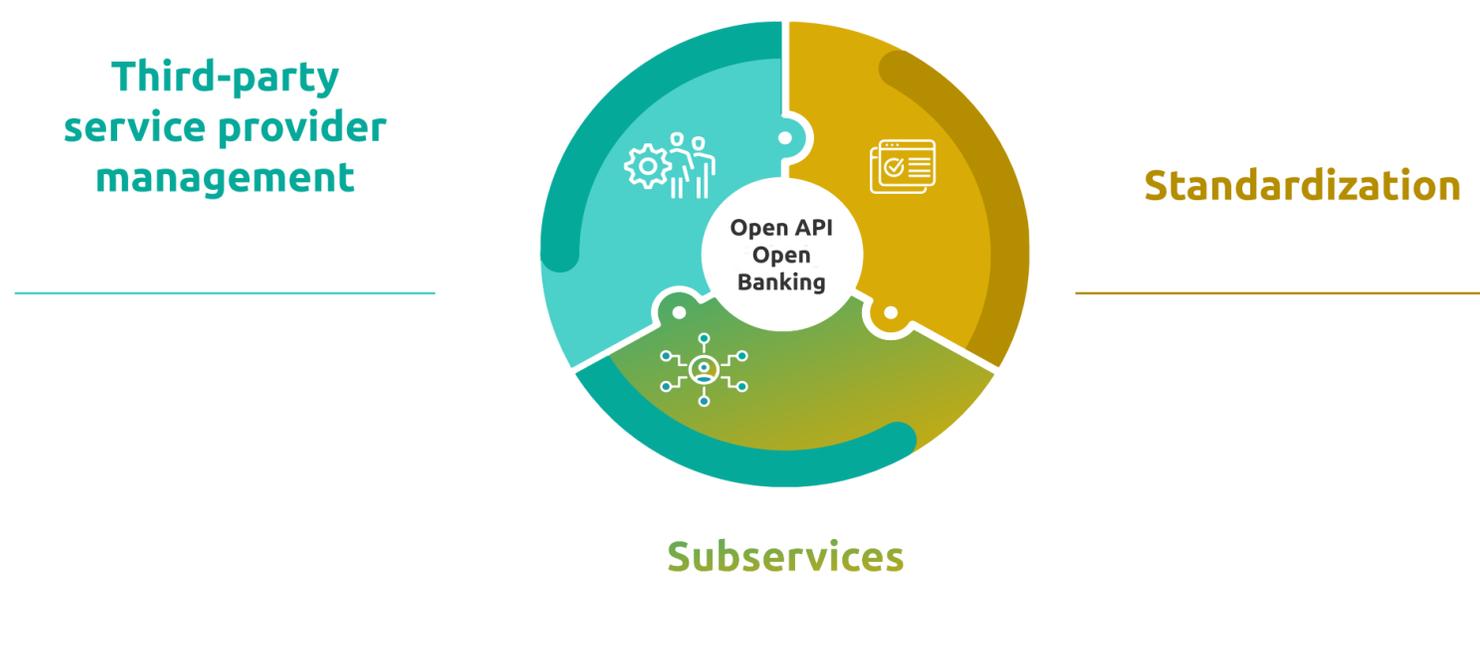


Pro-active actions of financial regulators in different countries to regulate API technology have created prerequisites for development of the Open Banking based on the use of the Open API.

Given the range of potential risks and constraints, public and market readiness, some regulators have approached development of the Open Banking based on a phased model, starting with recommendations for stakeholders on regulatory and infrastructure issues. These countries include Singapore, Japan, Russia. Along with that, countries of the European Union, Great Britain, Australia have obliged participants of the financial market to open their APIs in order to boost competition on the market and protect consumer rights, viewing this as a stronger need in connection with current conditions for development of the financial sector.

Creating a secure and technological environment for data exchange between financial payment institutions and third-party service providers with an obligation to obtain client's consent for developed economics, including the UK and EU countries seems to be a cornerstone and at the same time the most labor-intensive task of the entire concept of the Open Banking.

Highlighting the need to develop infrastructure and regulatory conditions of the Open Banking, their main elements can be divided into three categories: standardization, management of third-party service providers and ancillary services.



## Standardization

***Development of uniform standards and guidelines can help lower entry barriers, ensuring equal conditions for digital development:***

- API and Data Standards: unified API design and definitions of data standard, including validation of third parties, consent management, and data specifications.
- Security Standards: Standards for client authentication and authorization, and management of information security.
- Operational recommendations: Recommendations how to deal with clients and other best practices.



Standardization of Open APIs is a process of creating a unified system, infrastructure requirements for subsequent implementation of the Open API, while Open API standard is a set of documents that regulate processes of data exchange between participants of the financial market and third-party service providers using Open API, and also determine a procedure of their descriptions, development and implementation, for the purpose of technical compatibility, information security, integration interaction and application.

## Management of Third-party Service Providers

***Target infrastructure of Open API, Open Banking includes a management system for interaction with third-party service providers, including:***

- Onboarding: a standardized registration or licensing process for third-party vendors and access to formalized open banking standards.
- Identification of third-party service providers: electronic certificates for secure identification of third-party providers.

This structure will help mitigate risk by developing a reliable service that guarantees to financial institutions identity and security of third-party service providers. It also reduces a systemic risk from unverified third-party service providers throughout the ecosystem.

## Subservices

***Integration of subservices into the infrastructure can further lower barriers to entry into Open API ecosystem:***

- Digital identification and consent management: digital identity and consent management services, including record and revocation consents to share data with third-party service providers;
- Dispute management: Unified incident reporting and dispute management services to manage client disputes on behalf of participants.
- Data/Information Display: reporting and analytics related to KPI and API for participants

01

**INTERNATIONAL  
REGULATORY  
APPROACHES TO  
OPEN API AND OPEN BANKING**



# INTERNATIONAL REGULATORY APPROACHES TO OPEN API AND OPEN BANKING

Key objectives of financial regulators that stimulate development of Open API and Open banking are:



COMPETITION  
DEVELOPMENT



PROTECTION OF  
CONSUMER RIGHTS



INNOVATION  
DEVELOPMENT

API technology is successfully adopted and implemented in financial sector worldwide. International practice demonstrates a significant pace of development of the Open Banking concept with a fixed controlling role of the regulator. Key reasons for comprehensive support and supervision are accelerated development paces of digital financial services and platforms, as well as development of innovative potential with participation of fintech companies and new start-up projects.

It is important to point out that different countries have different approaches to implementation and development of the Open Banking system, regulations for admission of third-party service providers, licensing systems differ, requirements and procedures.

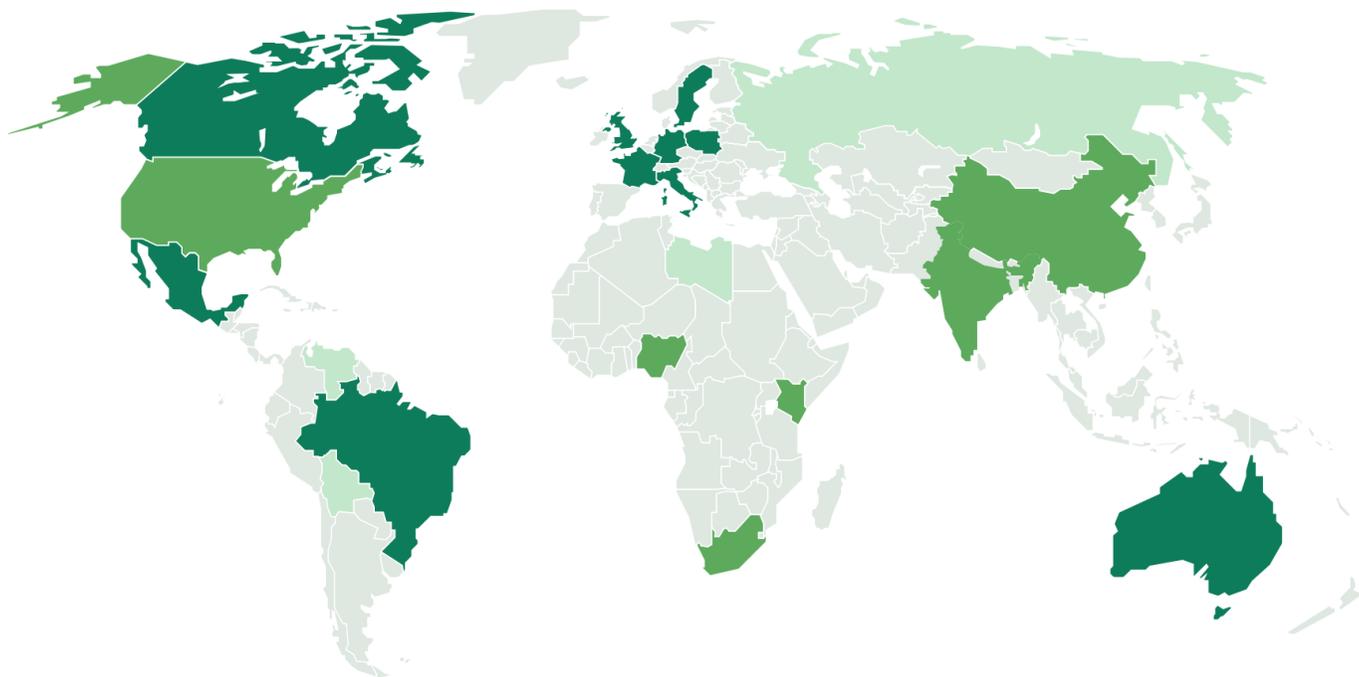
In addition to different practices in building the regulatory environment, infrastructure solutions, prioritization of financial services and products, key difference between countries, as a rule, is a definition of a party which seeks development of the Open Banking between the regulator and the market.

Thus, a number of countries, including Japan, India, Singapore and South Korea, do not currently have mandatory requirements for open banking, but along with that, regulators are introducing measures to encourage and stimulate introduction of data exchange mechanisms in the banking sector.

Страны Европейского союза, Великобритания, Австралия являются примерами введения регулирования со стороны надзорных, контролирующих органов. Регуляторными органами были разработаны технические стандарты и правила взаимодействия с целью повышения уровня безопасности, технологичности и защиты прав потребителей. Например, ключевой основой по развитию и децентрализации банковских и платежных услуг на территории Европейского союза (далее - ЕС) стали директивы PSD (англ. - Payment Services Directive) и PSD2. Данные регуляторные документы представляют собой свод условий и требований в ЕС, целью которых является оптимизация и ускорение платежей для потребителей.



In order to develop optimal and mutually beneficial regulatory conditions, many banks, together with regulators, participate in discussions on approaches to implementing an access to accounts, initiating payments, other operations and tariffication of such interaction.



● **“Regulator”**  
(Strict regulation)

● **“Market”**  
(Market regulation)

● **“Beginner”**  
(first initiatives)

APPROACH	COUNTRY	SUMMARY
Regulator's measures and initiatives	<b>UK</b>	Great Britain is widely regarded as a leader in implementation of the Open Banking. The Open Banking Standard was issued in February 2016. Since January 2018, Open API has been mandatory for 9 major banks (Allied Irish Bank, Bank of Ireland, Barclays, Danske, HSBC, Lloyds Banking Group, Nationwide, RBS Group, Santander) to provide standardized Open API. Once the aforementioned nine UK banks were legally required to switch to Open API, others voluntarily took up the lead, including Revolut, Metro Bank, Tide and a lot of others.
	<b>European Union</b>	PSD2 technical standard has been developed with description of formats of interaction between the parties and related requirements. It was adopted in 2015 in the EU. It has been mandatory for participants of the financial market since January 2018. Thus, third-party providers gained an access to payment accounts held by banks and other payment service providers. Today, the EU has over 300 businesses which are allowed to provide account data or payment initiation services, which virtually did not exist prior to PSD2 introduction.
	<b>Australia</b>	In early August 2019, Australia adopted Consumer Data Right which enables clients to monitor their data and allow them to share their data with third parties. On July 1, 2019, four largest banks of Australia (ANZ, Westpac, Commonwealth Bank and NAB) used the Open API to transfer credit and debit card data, prepaid and transaction data within a pilot project, and since July 1, 2020 data about consumers, their credit and debit cards, deposit and transaction accounts have been available on compulsory basis.



<b>APPROACH</b>	<b>COUNTRY</b>	<b>SUMMARY</b>
	<b>Mexico</b>	Open banking in Mexico provides for a broader coverage than PSD2 and Open Banking of UK in terms of the number of engaged API and also all the financial establishments will subject to the laws
Market initiatives and interaction	<b>US</b>	National Automated Clearing House Association (NACHA) has formed a sectoral API work group involving over 100 banks, associations and consulting firms with a view to determine the API standard for exchange of data about account, initiate payments, prevent fraud and a lot of other.
	<b>Japan</b>	Regulation does not include obvious API standards or infrastructures and processes for licensing. By 2020 major Japanese banks must issue API which ensure an access to payment accounts and allow to initiate payments by third parties.
	<b>Singapore</b>	Implementation of open interfaces in Singapore itself is not mandatory, however there are different regulatory and infrastructure initiatives of MAS (Monetary Authority of Singapore), together with the Association Banks of Singapore (ABS), designed to introduce standards and technical recommendations in order to support innovation and promote competition.
	<b>India</b>	<p>For the past decade, India has carried out large-scale optimization of its digital infrastructure through development of the so-called IndiaStack API platform.</p> <p>Main objectives to develop open API ecosystem include promotion of financial inclusion through streamlined interaction between financial institutions, improved provision of government services and benefits, and stronger competition on the financial market of India. However, currently India lacks any regulations that require banks to share their client data with third-party providers.</p>
	<b>Hong Kong</b>	<p>MThe Hong Kong Monetary Authority (HKMA) is famous for its progressive approach to a role and importance of financial technologies in the system of economic development. First of all, the regulator treats Open Banking as a way to expand a choice of financial services, stimulate innovation and develop the local market (protection from expansion of global players). However, Hong Kong has implemented a market-based approach with no obligation for banks to provide API and certification of third-party service providers. Implementation of the Open API standards is also advisory but this issue is covered and discussed in detail by relevant departments of the HKMA.</p> <p>In early 2018, seven Smart Banking initiatives of HKMA launched the Open API platform. This platform consists of a four-stage implementation approach based on a risk assessment principle. Thus, banks will provide product information (stage 1), client information (stage 2), account information (stage 3), and payment initiation services (stage 4) through open APIs.</p>



First joint initiatives

### Canada

On August 4, 2021, the Open Banking Advisory Committee released a final report. It provides for guidance on how to upgrade financial service sector of Canada and implement a secure, open banking system.

### New Zealand

As in Australia, New Zealand has adopted consumer protection laws as a backbone of the Open Banking and follows an industry approach including banking, telecommunications, utility providers and government.

### South Africa

Given that South Africa has yet to develop a comprehensive open banking system, several countries have already developed roadmaps for digital transformation and open banking

## key conclusions:

The presented international experience in development and regulation of the Open API and Open Banking already demonstrates positive effects both for participants of the financial market and for an end consumer.

In the UK, more than 6 million consumers and business clients use Open Banking opportunities. In May 2022 alone, 5 million payments were made using the Open API.

Currently, the EU has more than 260 registered API users and has recorded over 183 million API requests.

Australia also can also boast a high level of the Open API adoption: more than 40 API users and 8 banks (API providers) with 10 million API requests.

Hong Kong, with a recommendatory implementation approach, has also recorded high development paces of the Open API and Open Banking. These are 900 authorized participants and more than 20 banks with 41 thousand API requests annually.

Broad geography of international initiatives in open banking and open programming interface technology, clearly demonstrates its impact on expansion of competition, access of the population to financial services, enhancement of financial stability and development of digital financial services and platforms.

Taking into account presented international practices, formed in view of features and specifics of the financial market, it is important to highlight a possibility to develop a unique and independent target model for development of the Open API and Open Banking project in the Republic of Kazakhstan with involvement of participants of the financial market themselves and representatives of the expert community, in an open discussion of regulatory and infrastructure issues.

For Kazakhstan's banks and other financial and payment organizations, Open Banking will allow refocusing their efforts and strategies towards secure, standardized partner relations with fintech market, both by reducing costs of innovation and cooperation, and through new digital channels to attract customers.

In this connection, taking into account these opportunities and the described best international regulatory practices, as well as consistent development of digital infrastructure in the form of authentication and identity verification mechanisms, a system for granting citizens' consent to transfer of personal data, digital signing of documents and other tools, in the context of the current digital transformation of the financial sector of Kazakhstan, it is advisable to build a local, adapted approach to development of data exchange technologies using Open API between financial, payment organizations and third-party service providers and the development of Open Banking in the Republic of Kazakhstan using potential of services of the national payment system and the Identification Data Exchange Center at RSE KISC NBK, etc.

**Thus, the most appropriate approach to development and regulation of the Open API and Open Banking in Kazakhstan is a control and incentive approach, expressed in its regulatory and infrastructure conditions.**

**Control-incentive approach itself involves providing the whole range of necessary technological, operational and regulatory processes for the safe and efficient data exchange using the Open API.**

**Indicating significance of maintaining conditions for harmonious development of innovations and balanced regulation, which would take into account interests of the financial market and the fintech industry as a whole, implementation of the control and incentive approach involves development of a functional Open API platform with its standardized interaction, registries and digital identification and consent services.**

**In general, implementation of the control and incentive approach to development of the Open API and Open Banking will ensure innovative, technological development of the entire banking sector of the country with increased control over use of personal data, and financial institutions and third-party providers will expand a list of financial services and products through accessible and open cooperation between themselves.**

022

**MAIN GOALS AND  
OBJECTIVES OF  
DEVELOPMENT OF  
OPEN API AND OPEN BANKING  
IN KAZAKHSTAN**



# MAIN GOALS AND OBJECTIVES OF DEVELOPMENT OF OPEN API AND OPEN BANKING IN KAZAKHSTAN

In Kazakhstan, the ecosystem of digital financial services and platforms is mainly developed at facilities of second-tier banks (hereinafter referred to as the 'STBs').

Already now, a number of large, technologically advanced banks create e-commerce trading platforms, marketplaces, integrate new channels to apply for public services and delivery services, orders, online purchases, and with the help of applications, payment systems for travel, foreign travel and much more are streamlined.

Such banking integration solutions create a whole range of interacting services with a single interface on information technology infrastructure.

It is important to indicate that in Kazakhstan participants of the financial market and regulators pro-actively implement initiatives and activities to develop Open API technology and other digital transformation projects.

Leaders in implementation of digital banking solutions, including the use of the Open API, are Kaspi Bank JSC, Bank CenterCredit JSC, First Heartland Jusan Bank JSC, Bank Freedom Finance Kazakhstan JSC, Eurasian Bank JSC, Halyk Savings Bank of Kazakhstan JSC, Bank RBK JSC.

The Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market carried a survey for the second quarter of 2022 covering 22 STBs. It demonstrated the following indicators in the use of the Open API technology: 8 STBs indicate that they already employ this technology, 5 STBs conduct or prepare to pilot the technology, the remaining 9 consider it possible to use the Open API technology only in the future.

STBs see legislative restrictions, information security risks, lack of appropriate infrastructure as reasons behind unavailability, limited or test development of the Open API.

Incentives for development of the Open API technology among financial institutions by the regulator include development of the Concept for creation of standards for Open Platforms, a recommendatory specification of software requirements (hereinafter the 'SSR') for the most common business processes.

Also, various government information systems and services designed to provide convenient and secure solutions in provision of public and financial services can serve as a technological basis for development of digital financial infrastructure.

Thus, today, for both public and private organizations in order to gain access to personal data contained in state information resources, it is possible to use personal data access control service developed by the Information Security Committee of the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan. For the financial market, in order to implement an effective and secure initial registration of a client and provide services in a digital format, a remote biometric identification service has been created for the Identification Data Exchange Center under RSE KISC NBK.

Moreover, RSE KISC NBK offers services to use the Certification Center, which carries out activities to certify compliance of a public key of the electronic digital signature with a private key of the electronic digital signature, as well as to confirm reliability of registration certificates.



As measures to further support development of the Open API by the regulator, banks come up with simplification of the procedures to identify clients and sign contracts, introduce compulsory execution of the SSR, create a technological infrastructure for implementation of the Open Banking and a test environment (API Sandbox), and also formalize requirements to information security.

Despite the variety of digital and innovative achievements, implemented and pilot projects for development of Open API, gradual replacement of the traditional type of service provision with an online environment, as well as initiatives taken by regulators, active digital transformation of the financial market in Kazakhstan requires further improvement.

In this regard, the API standardization process will allow to develop a unified approach to the implementation of programming interfaces and development of a common Open API infrastructure. It will also simplify implementation of software products, reduce a total cost of their support, and also make them more efficient. Standardization will speed up integration of the API into existing and new solutions in the banking and financial system, and ensure stability and compatibility of software products.

Thus, the main goal of development of the Open API and Open Banking in the Republic of Kazakhstan is to create a balanced innovation environment that promotes competition and security and also improvement of consumer benefits.

**To achieve the stated goal, the following 2 key tasks have been developed:**



**01**

**Develop and support competition between participants of the financial market**

- Reduce costs of financial institutions for integration and innovation development on a whole;
- Ensure an equal and transparent mechanism of access to client data and third-party services;
- Ensure balanced conditions for digital development.



**02**

**Ensure safe environment in financial and payment services**

- Create a complex trust infrastructure for participants of the financial market;
- Develop uniform standards in information security, data exchange;
- Create mechanisms to manage an access to data and solve disputes;
- Create a uniform platform of exchange of digital consents of client to ensure protection of personal data of clients.



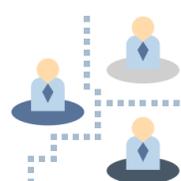
Overall, in line with the project for development of Open API and Open Banking, provided for by 2020-2025 Financial Technologies and Innovations Development Concept, availability of existing and pilot Open API projects in large and technological banks, as well as a wide list of offers and initiatives from STBs, implementation of the Open API development project and creation of the Open Banking infrastructure will allow to achieve consistent development and build a technologically secure, equal and accessible data exchange system between financial payment institutions and third-party service providers.

03

**ADVANTAGES OF  
IMPLEMENTING  
OPEN API AND OPEN BANKING  
IN KAZAKHSTAN  
FINANCIAL MARKET**



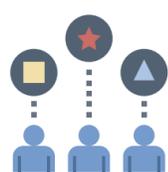
# ADVANTAGES OF IMPLEMENTING OPEN API AND OPEN BANKING IN THE KAZAKHSTAN FINANCIAL MARKET



01

## For end consumers

- Opportunity to manage their data;
- Stronger competition on the financial market which has an impact on a range of offers, quality, price availability;
- New services and products of technological participants of the financial market;
- Higher information security upon receipt of financial services;
- Personalized and data centric offers.



02

## For participants of the financial market

- Higher competitive abilities of small and medium-sized financial institutions and fintech companies;
- Development of new digital channels to attract clients;
- Reduced costs for innovations and cooperation;
- Equal development conditions;
- Higher public trust to digital services and products.



03

## For regulator

- Development of available and safe financial services;
- Development of financial and digital literacy;
- Creation of conditions for competition and an open financial market;
- Stimulation of innovations and cross-sectoral development.

04

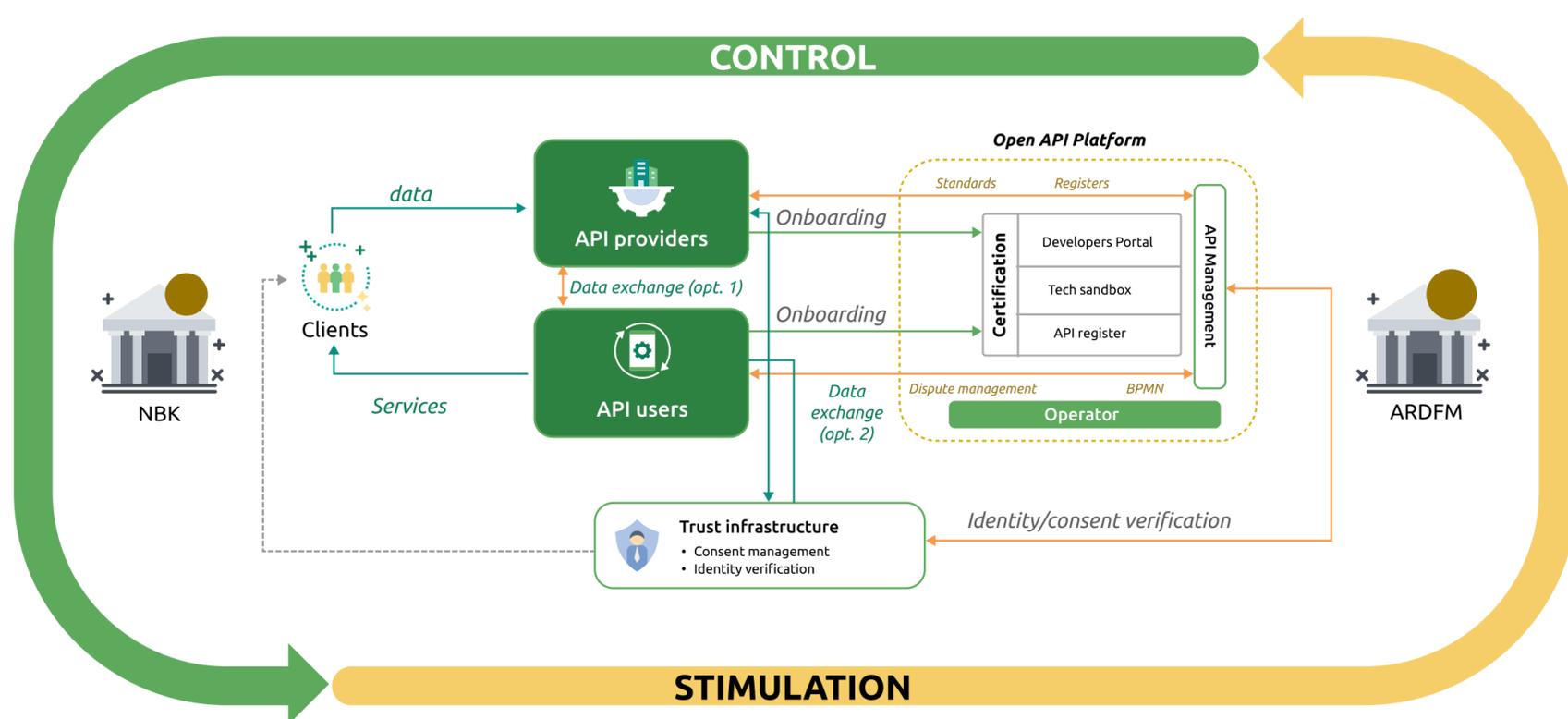
**GENERAL MODEL OF  
IMPLEMENTATION OF  
OPEN API AND OPEN BANKING  
IN THE REPUBLIC  
OF KAZAKHSTAN**



# GENERAL MODEL OF IMPLEMENTATION OF OPEN API AND OPEN BANKING IN THE REPUBLIC OF KAZAKHSTAN

Given a need for further development of digital financial transformation of Kazakhstan, its potential and advantages as significant promotion of digital innovations by major market players and consistent provision of existing digital infrastructure as mechanisms for providing authentication and identity verification based on Identity Data Exchange Center at the RSE KISC NBK, system of citizens' consent to transfer personal data from government databases on request of third parties, possibility of digital signing

of documents and other tools, as part of the general implementation model of Open API and Open Banking, a control and incentive approach is offered. This approach implies provision of centralized authorization and certification systems, as well as technological exchange data and open, equitable interaction between financial payment institutions and third-party service providers



Development of the Open API technology with its technological and optimizing capabilities, new types of business models enhances the process of involving potential participants in this innovation. These include consumers of financial services, regulators, participants of the financial market and technology providers. Each participant is a significant element both in implementation of the Open Banking concept, development of digital financial services and technologies.



<b>Nº</b>	<b>Participant</b>	<b>Role</b>	<b>Function</b>
1	NBK ARDFM	Regulators	The authority to control the development and implementation of the Open API and Open Banking project in its infrastructure, organizational and regulatory parts
2	Other state authorities and organizations	To determine	Carry out activities to develop Open API to the extent of their competences
3	Financial institutions	API provider*	Provide open program interfaces for certain business processes/ data subject to a consent of a data holder (individual and legal entity)
4	Third-party service providers and financial institutions	API user*	Use open program interfaces under certain business processes/ data after they get client's consent
5	Organization determined by a regulator	Operator	Ensure management of the Open API platform: Moderation of participants, Open API, call center, support center/ competences and other functions
6	Individuals and legal entities	Client	Grant or ban an access to their personal or banking data and other legally protected data for exchange and/or transfer to third-party service providers

\* Financial institutions, payment service providers and third-party service providers may act as both an API Provider and an API User.

# The main provisions of regulation of the development of Open API and Open Banking

## 01

For the purpose of safe, sustainable and mutually beneficial development of the Open API and Open Banking in the Republic of Kazakhstan, a control and incentive model for development and regulation is offered which contains relevant implementation rules and requirements.

## 02

Process of providing an access to and exchange of data of clients of financial and payment institutions with third-party service providers using the Open API is proposed to be carried out in compliance with Open API standards developed by regulators together with participants of the financial market.

## 03

The publication of the Open API is carried out selectively, based on the types of priority banking Open APIs.

## 04

To access Open APIs of financial and payment institutions, third-party service providers must meet requirements prescribed for API users on the Open API platform.

## 05

Overall requirements for participants, as well as their accreditation and certification, are carried out by the Open API Platform Operator as determined by a regulator.

## 06

Transfer of data using Open APIs by financial, payment institutions, and third-party service providers is carried out only after obtaining consent of the client (data owner) through digital consent exchange platform. Method to obtain consent is determined within developed service solution on the Open API platform.

## 07

Disclosure by a financial and payment organization of information about the client's account and other data to a third-party service provider is carried out only after obtaining the client's consent obtained through the digital consent exchange platform, within which the client is identified.

## 08

To ensure efficiency, security and control in the exchange of financial and personal data of customers between financial, payment organizations and third-party service providers, it is necessary to develop an Open API platform with an appropriate "trust" infrastructure consisting of identity verification services, digital consents and a certification center.

Components of the so-called ‘trust infrastructure’ of the Open API platform will ensure secure mutual exchange of personal and financial data in the interests and on behalf of the client. These will include identity verification services, consent management, as well as certification center services owned by RSE “KISC NBK”.

Verification of the client's identity and the personal data provided by them, as one of the most effective ways to counter fraud, requires the use of modern tools and technologies, such as identity verification by biometric parameters.

To achieve such goals, the NBK arranges several systemically important infrastructure solutions designed to enhance financial stability and develop healthy competition, including development of the National Payment System, National Digital Biometric Identification Platform, and a platform for secure data exchange based on open programming interfaces (Open API) and implementation of KYC procedures by banks.

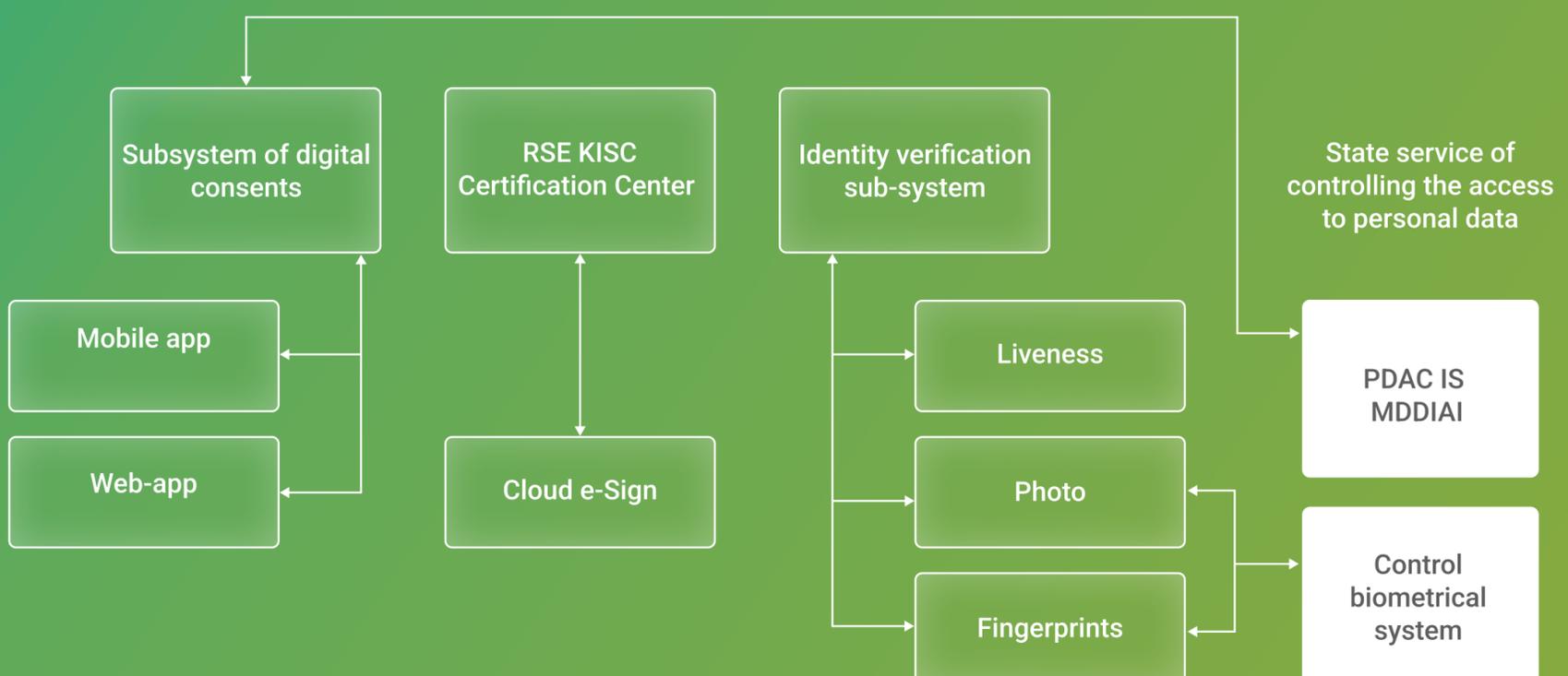
The NBK will act as an integrator for the project of the National Digital Biometric Identification Platform and will ensure:

- Determining the policy of granting access to participants of the financial market to digital biometric identification tools;
- Management of digital consents for access and processing of personal (biometric) data for participants of the financial market;
- Identification for the financial market, National payment system and other tasks.

As a result of improved identification, the financial sector will benefit from mitigated risks of digital fraud and theft, reduced time and operational costs for administration, compliance, and transactions. Expected positive effects also include an increased availability of digital services for citizens and an expanded client base for businesses. Separately, it is necessary to mention the expected generally improved confidence of citizens and businesses in digital services, creation of a more favorable business climate. In addition, the following expected effects can be identified for citizens and businesses:

- Possibility to receive new types of services (including payment services) in a fully digital form and remotely;
- Ability to independently manage access to personal data for third-parties;
- Reduced time and steps for provision of government and commercial services in a digital format;
- Reduced cost of digital services by optimizing the processes of their provision;
- Improving reliability and security of personal data;
- Emergence of new services and business models based on data processing.

## “Trust” infrastructure



Trust infrastructure – aggregated services of RSE KISC  
 -personal identification;  
 -consent management;  
 -certification center;

05

**TARGET MODEL OF  
DIGITAL FINANCIAL  
INFRASTRUCTURE  
DEVELOPMENT**



# TARGET MODEL OF DIGITAL FINANCIAL INFRASTRUCTURE DEVELOPMENT

General development concept of Open API and Open Banking and further development of the ecosystem of digital financial services suggest a target model of the digital financial infrastructure of Kazakhstan with the following key technological infrastructure components are:

- National payment system (Instant Payment System and Interbank Payment Card System) to provide online payment services and money transfers for interbank transactions;
- National platform for biometric identification with access to digital platforms for use of biometric data, digital consent, etc. in provision of financial and non-financial services;
- Open API platform for operational and secure information interaction of payment service providers based on open interfaces.

Regulatory policy of the NBK will be intended to create and develop these infrastructure components in order to meet needs of participants of the financial market and it is designed to create necessary conditions for effective interaction of participants of the financial market, which involve creation by financial institutions of their own business models, organization of services for online processing of transactions, ability to identify consumers of services in a remote digital format, client authorization and other necessary checks, a secure data exchange infrastructure, possibility of obtaining consent of an end consumer to open access to his data for third-party service providers, developing new services for service users, using the NBK shared infrastructure for client identification, fixing his consent to processing of personal data, implementation of interbank settlements.

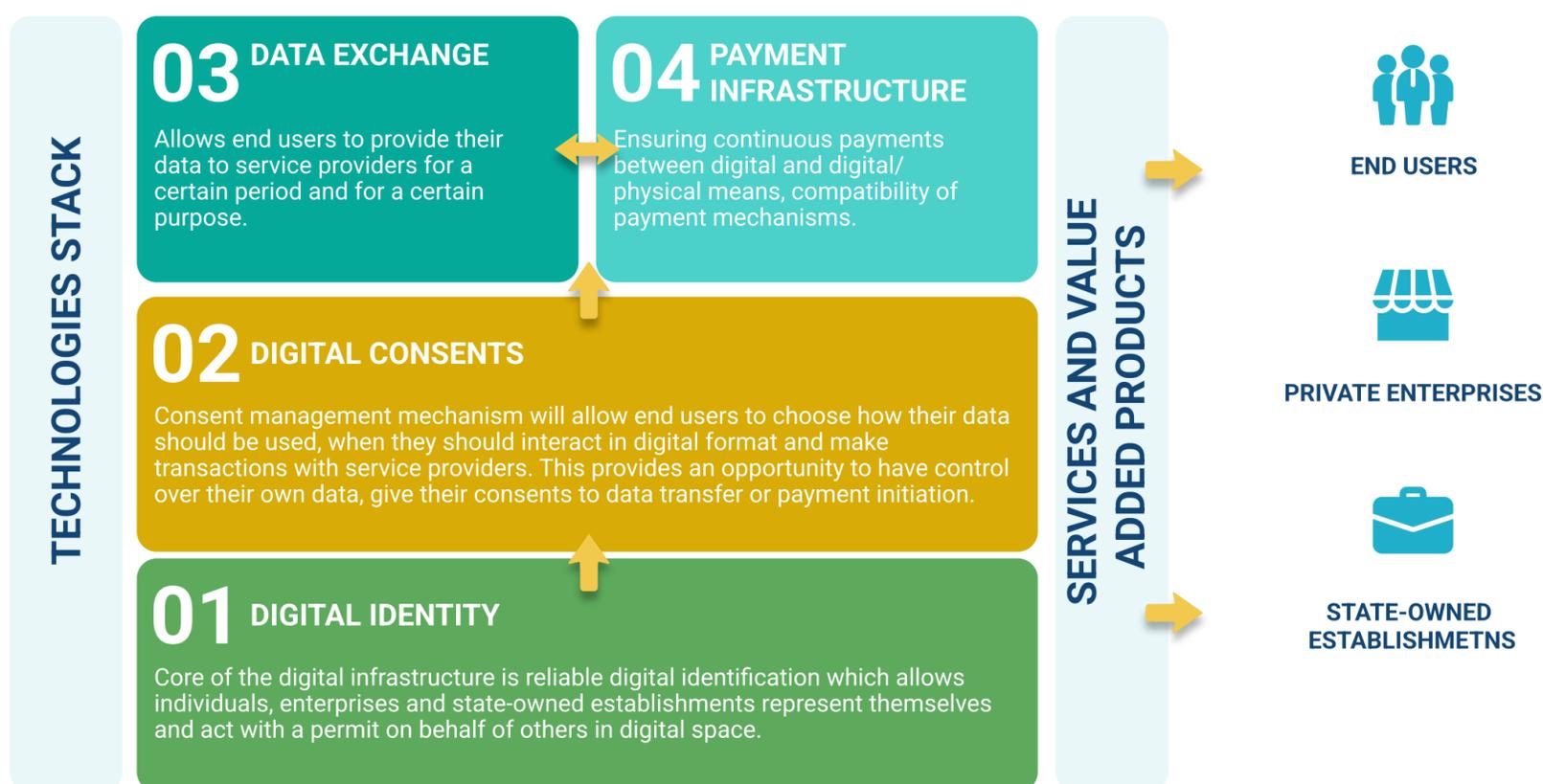
Therefore, the NBK provides participants of the financial market with a shared digital infrastructure (National Payment System, National Digital Biometric Identification Platform, OpenAPI Platform), which is available online 24/7, interbank settlements on transactions and guarantees their completion, determines main approaches and principles of interaction between participants and coordinates activities of participants of the financial market through development of a common digital infrastructure.

Therefore, given the achieved results of digital development of financial institutions of Kazakhstan, public interest and demand for innovation in the field of payments, financial services and products, as well as the need to further improve security and technological effectiveness of the financial sector, key infrastructure initiatives implemented by the NBK, such as development of the Open Banking and Open API, instant payment infrastructure, interbank digital user identification service will be focused to achieve a qualitatively new state of the financial services market that optimally meets long-term needs of building a modern and high-tech financial industry in Kazakhstan, taking into account ensuring a maximum balance of interests of market participants, consumers and the state.



## ЦЕЛЕВАЯ МОДЕЛЬ ЦИФРОВОЙ ФИНАНСОВОЙ ИНФРАСТРУКТУРЫ

DIGITAL FINANCIAL INFRASTRUCTURE is a set of key infrastructure components which allows service providers to create value offers for end users, ensure relevant protection of consumer rights, and also expand availability, quality and range of financial services and products.



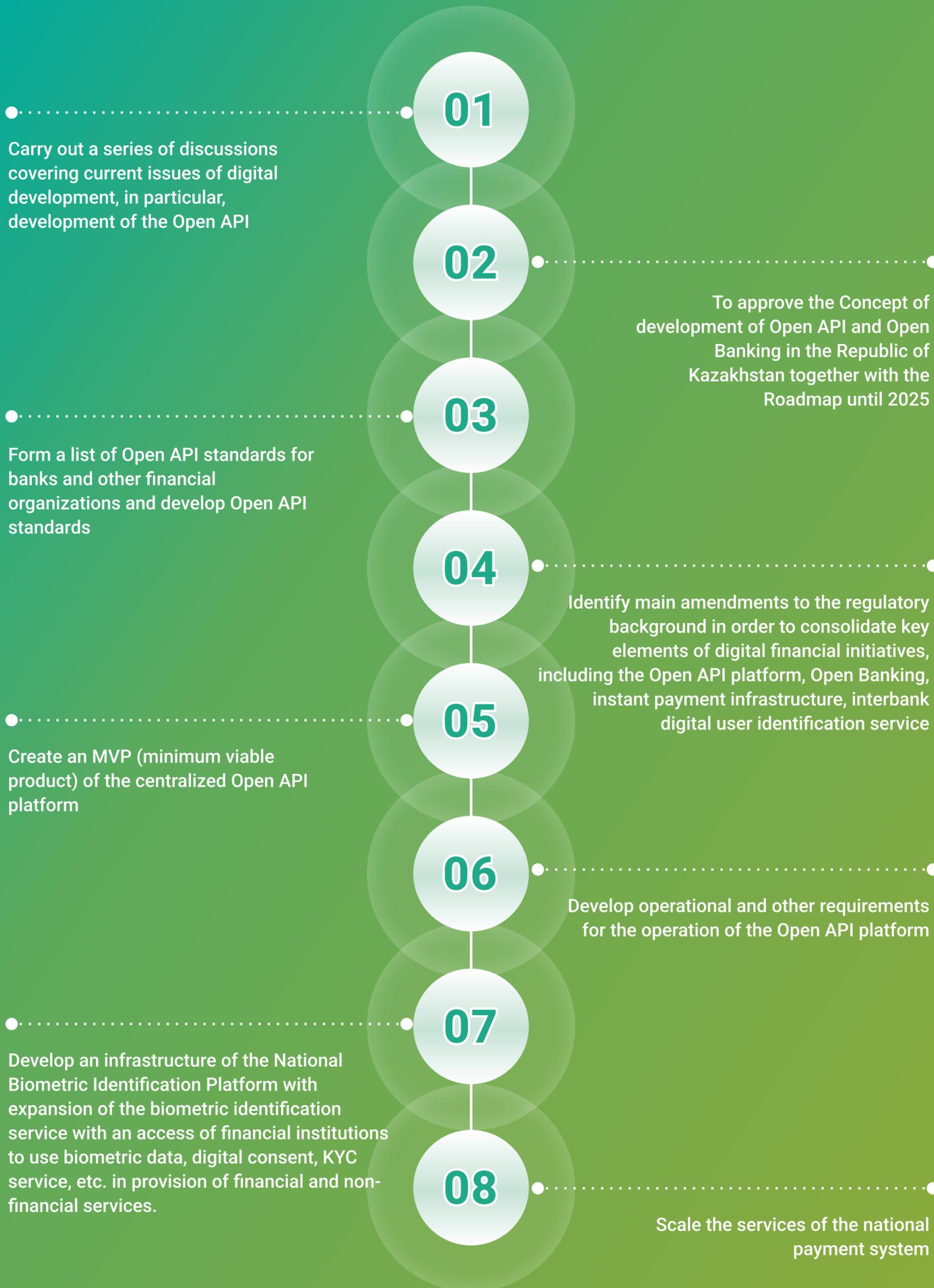
Overall, development of the target financial infrastructure will achieve the following specific results:

- 1) *guaranteeing to all citizens and business entities of the country the possibility of unhindered implementation of interbank payments and online transfers, including instant money transfers and payments using banking applications – elimination of an interbank barrier and formation of a single payment space for customers, regardless of a servicing bank;*
- 2) *providing citizens with access to their own money held in various banks with the use of a mobile application of any bank of client's choice based on Open API and Open Banking technology – eliminating client's dependence on technological and functional capabilities of their own bank or a limited range of available services;*
- 3) *providing citizens with access to control their personal data when receiving financial services – introducing a mechanism to manage client consents to access by financial institutions to personal data and preventing uncontrolled use, abuse when using customers' personal data;*
- 4) *creation of an equitable and promising digital financial infrastructure with focus on solving shared tasks of the entire financial industry for effective transition of the market to a new stage of digital transformation based on widespread use of biometric solutions to service everyday financial transactions of clients in correlation with future needs of the market and the state, analyzing and forecasting further penetration of innovations in the payments industry on the global scale.*

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**PROPOSED MEASURES  
AND INITIATIVES TO  
DEVELOP OPEN API,  
OPEN BANKING AND  
DIGITAL FINANCIAL  
INFRASTRUCTURE IN  
KAZAKHSTAN**

In order to develop Open API, Open Banking and digital financial services, regulators, interested government agencies together with financial market participants are offered to:



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**LIST OF TERMS AND  
ABBREVIATIONS USED**



<b>NBK</b>	RSE National Bank of the Republic of Kazakhstan
<b>ARDFM RK</b>	Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market
<b>ALE AFK</b>	Association of Legal Entities Association of Financiers of Kazakhstan
<b>SCB JSC</b>	State Credit Bureau Joint Stock Company
<b>Atameken NCE RK</b>	Atameken National Chamber of Entrepreneurs of the Republic of Kazakhstan
<b>STB</b>	Second-tier bank
<b>EAEU</b>	Eurasian Economic Union
<b>UIDB</b>	Unified Insurance Database
<b>SSR</b>	Specification of software requirements
<b>PFTDC NBK JSC</b>	Payment and Financial Technologies Development Center of the National Bank of the Republic of Kazakhstan Joint Stock Company «Национального Банка Республики Казахстан»
<b>Data-centricity</b>	Property of management, development, approaches which rest on data and their analysis
<b>Bank secret</b>	Article 50 of Law 'Banks and Banking Activities of the Republic of Kazakhstan' dated 31 August 1995 No. 2444: '...information about clients and correspondents of banks, their transactions and relationships with banks related to obtaining of banking services, including but not limited to information about availability, owners and numbers of bank accounts and correspondents of banks, balances and movement of money in these accounts and accounts of the bank itself, limitations on listed accounts (decisions and/or orders of state authorities on suspension of expenditure operations, arrests, pledges), transactions of clients and correspondents and the bank itself (except for general conditions of conducting banking operations), as well as availability, owners, nature and value of property of clients stored in safe boxes, cabinets and premises of the bank, information on raising of loans by clients (except for cases, determined in this Article), transactions on payments and/or money transfers, including those performed without opening a bank account'
<b>Insurance secret</b>	Article 830 of the Civil Code of the Republic of Kazakhstan (Special Part) dated 1 July 1999 No. 409: '...includes information about an amount of a sum insured, redemption amount and paid insurance premiums, other terms and conditions of an (re)insurance contract related to identity of the policy holder, insured or beneficiary. Data on signed (re)insurance contracts of the (re)insurance organization which is in the course of liquidation do not refer to insurance secret'
<b>Commercial secret</b>	Article 41 the Law 'Securities Market' dated 2 June 2003 No. 461-II: 'A commercial secret on the securities market is information about availability, balances, movement and owners of issuance securities and other financial instruments on personal accounts in the accounting system of the central depository and nominee holding, except for information about major shareholders of the issuer and a number of shares of this issuer belonging to them, about the issuer and balances of issuance securities on personal accounts of the issuer for accounting of declared issuance securities and for accounting of repurchased issuance securities in the accounting system of nominee holding and/or the accounting system of the central depository'
<b>Market-centric ecosystems</b>	A technological platform by means of which a wide range of financial and non-financial services is provided by market participants



<b>Bank-centric ecosystems</b>	A technological platform by means of which financial and non-financial services are provided by a bank on two and more service markets
<b>DeFi</b>	Decentralised Finance – a branch of financial services based on blockchain technology and smart-contract technology
<b>Open Banking</b>	Concept of an open, technological exchange of clients' data between financial institutions and third-party payment service providers with their consent in order to develop innovations and improve competition on the financial market
<b>OAuth 2.0</b>	Technologies used to facilitate compliance by financial institutions with requirements of the regulator
<b>RegTech</b>	Technologies used by regulators to improve efficiency of control and supervision over activities of participants of the financial market
<b>SupTech</b>	Технологии, используемые регуляторами для повышения эффективности контроля и надзора за деятельностью участников финансового рынка
<b>STET</b>	A standard which describes a process of payment initiation
<b>XS2A</b>	A standard which describes a process of providing an access to a client's account
<b>SCA</b>	Strong Customer Authentication – an authentication method set out in EU requirements for authorization of online payments
<b>Open API platform</b>	An information system consisting of software and hardware intended for technological and safe data exchange using Open API
<b>Open API Portal</b>	A part of the Open AP platform, an external portal intended for interaction with individuals and legal entities upon API issue, API connection and provision of financial services
<b>Integration platform of data exchange</b>	A part of the Open AP platform which ensures coherent interaction between internal components of the Open API platform, communications with external information resources, request routing, logging and information security upon data exchange
<b>Trust Infrastructure</b>	A part of the Open AP platform which ensures interaction with individuals upon personal identification, verification and obtaining a consent to collection and processing of personal and financial data
<b>EDS</b>	An electronic digital signature – a set of electronic digital symbols created by means of cryptographical methods and which confirms reliability of an electronic document, its belonging and invariability of its content
<b>Register</b>	A data set recorded in hard copy and/or using an electronic database
<b>API provider</b>	A legal entity registered in the API Provider Register which issued a developed API on the Open API platform
<b>API User</b>	A legal entity registered in the API User Register which made API connection on the Open API platform
<b>Client</b>	Individuals and legal entities which are provided with financial and other services using components of the Open API platform



<b>RSE KISC NBK</b>	Republican State Enterprise Kazakhstan Interbank Settlement Center of the National Bank of the Republic of Kazakhstan
<b>Fintech</b>	A sector which uses technologies to improve activities in the area of providing financial services and facilities. Financial technologies include Big Data, artificial intelligence, computer-aided instruction, robotization, blockchain, biometry, cloud technologies, tokenization and so on
<b>Fintech companies</b>	A company which uses technologies and innovations for provision of financial payment services along with traditional financial institutions as banks and intermediaries on the financial service market
<b>Third-party payment service provider</b>	Payment service provider which does not service a bank account of a client and provides a client with electronic banking services through its own remote access systems
<b>Robo-advising</b>	Investment consulting process which rests on mathematically based algorithms that do not require interference of a human consultant
<b>Personal data</b>	Data related to a certain or determined on their basis personal data subject recorded in soft, hard copies and/or on another physical data carried
<b>FAPI</b>	Financial-grade API – a program interface developed by a working group of OpenID Foundation based on OAuth 2.0 and OpenID Connect (OIDC) protocols which determine extra technical requirements for financial industry and other sectors that require higher API security
<b>BaaS</b>	A Banking-as-a-Service, BaaS – a model within which fintech companies or other non-banking organizations cooperate with traditional banks and get integrated by means of API in order to provide banking services on its interface through infrastructure of banks
<b>BaaP</b>	Banking-as-a-platform, BaaP – a model in which a bank integrates fintech services and offers them to its own clients. In practice, it a model reverse to BaaS model
<b>CaaS</b>	Capabilities-as-a-Service – a model of providing by banks to other companies of their own non-financial services (for instance identification, verification or scoring of clients) in a service format
<b>E-KYC</b>	Know Your Client – a proper verification of clients, partners, employees of the bank, monitoring subject.