



NATIONAL BANK OF KAZAKHSTAN



NATIONAL PAYMENT  
CORPORATION OF  
KAZAKHSTAN



# OPEN API И OPEN BANKING

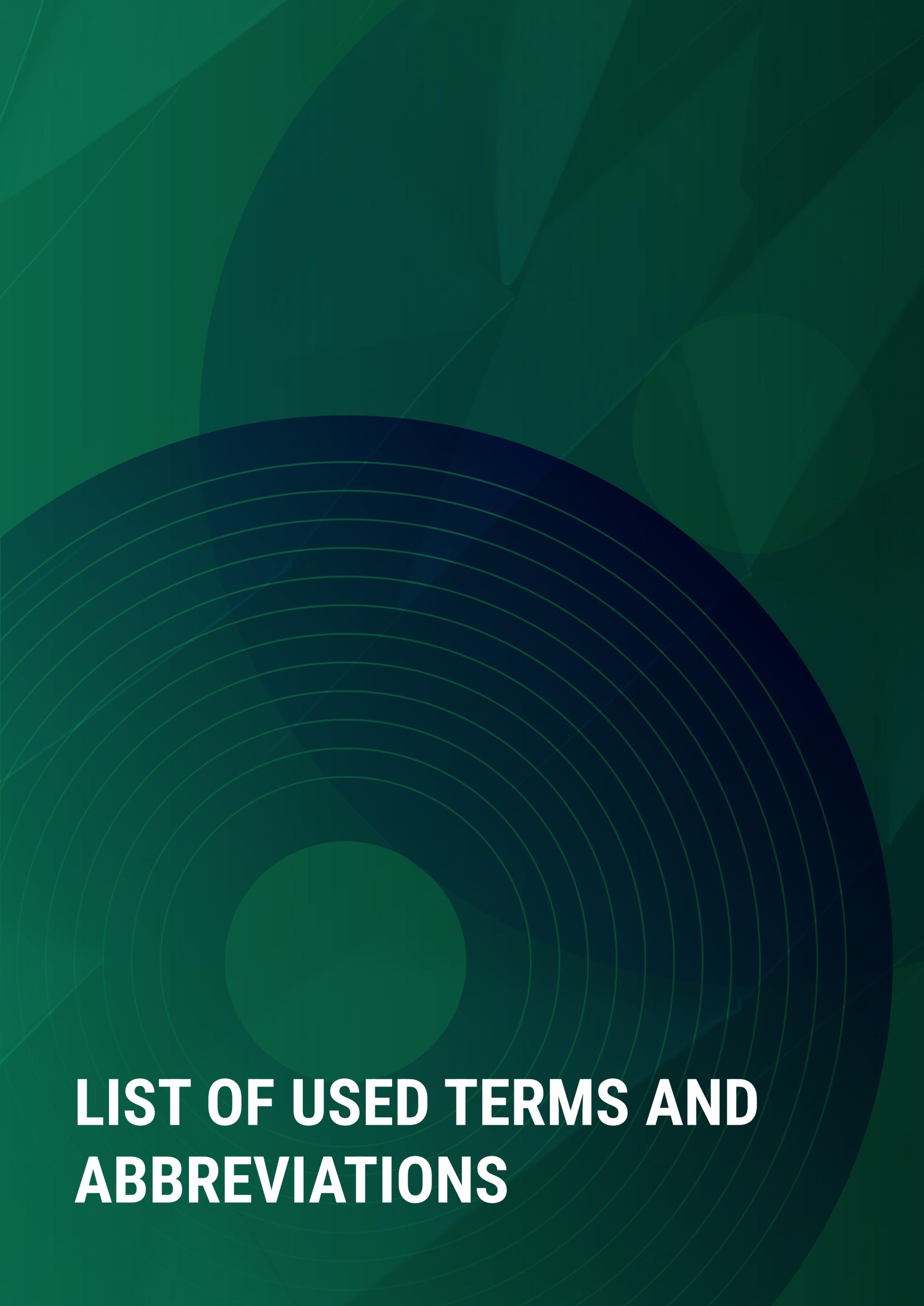
Report on the results  
of the pilot project

JANUARY, 2024

# TABLE OF CONTENTS

---

|           |   |
|-----------|---|
| <u>03</u> | List of used terms and abbreviations                                |
| <u>07</u> | Summary   |
| <u>09</u> | International experience overview                                   |
| <u>12</u> | Current state of the financial market of the Republic of Kazakhstan |
| <u>15</u> | About the open banking project                                      |
| <u>24</u> | Key stages of the project in 2023                                   |
| <u>27</u> | Pilot project overview  |
| <u>35</u> | Results of the pilot project  |
| <u>42</u> | Conclusions and next steps  |
| <u>46</u> | Roadmap for the implementation of Open API & Open banking in 2024   |
| <u>49</u> | Appendixes  |
| <u>53</u> | List of used literature   |



# **LIST OF USED TERMS AND ABBREVIATIONS**

# LIST OF USED TERMS AND ABBREVIATIONS

---

|   |   |
|---|---|
| <b><u>Access</u></b>                              | One party obtaining the ability to use the resources of another party through informational interaction   |
| <b><u>Access token</u></b>                        | An authorization certificate issued to the client by the authorization server with the approval of the resource owner. The access token contains indications of specific scopes to which access is granted, access duration, and other parameters   |
| <b><u>Accessibility</u></b>                       | The period of time during which the Platform and published services are available   |
| <b><u>AFK</u></b>                                 | Association of Financiers of Kazakhstan   |
| <b><u>APDC</u></b>                                | Agency for Protection and Development of Competition of the Republic of Kazakhstan  |
| <b><u>API (Application Program Interface)</u></b> | Application Programming Interface provided by the Supplier that allows third-party services to securely connect and interact with banking and financial systems   |
| <b><u>API supplier</u></b>                        | legal entity registered in the API Providers Registry that has published a developed API on the Open API Platform   |
| <b><u>API user</u></b>                            | a legal entity registered in the API Users Registry that has connected to the published APIs on the Open API Platform   |
| <b><u>ARDFM</u></b>                               | Agency of the Republic of Kazakhstan for Regulation and Development of Financial Market   |
| <b><u>Authentication</u></b>                      | The actions to verify the authenticity of an access subject and/or access object, as well as to check the ownership of the access subject and/or access object of the presented access identifier and authentication information  |
| <b><u>Authorization</u></b>                       | verification, confirmation and granting of rights to a participant in the common process to perform specific actions in the system  |
| <b><u>Authorization server</u></b>                | A server that issues access tokens to the client after successfully authenticating the resource owner and obtaining authorization.  |
| <b><u>Biometric verification</u></b>              | The procedure for establishing a customer's identity with the aim of unequivocally confirming their rights to access electronic financial/payment services based on their physiological and biological characteristics includes facial "liveness verification" and matching the customer's photo image with images from available sources |
| <b><u>Client</u></b>                              | An individual who has requested a service from the API User   |
| <b><u>CPU</u></b>                                 | Central processing unit   |
| <b><u>Dispute</u></b>                             | A disputed and/or conflict situation in which a participant, within the scope of their interaction with the Platform, contests certain aspects of services, procedures, or decisions taken by another participant, service, or the Platform as a whole  |

# LIST OF USED TERMS AND ABBREVIATIONS

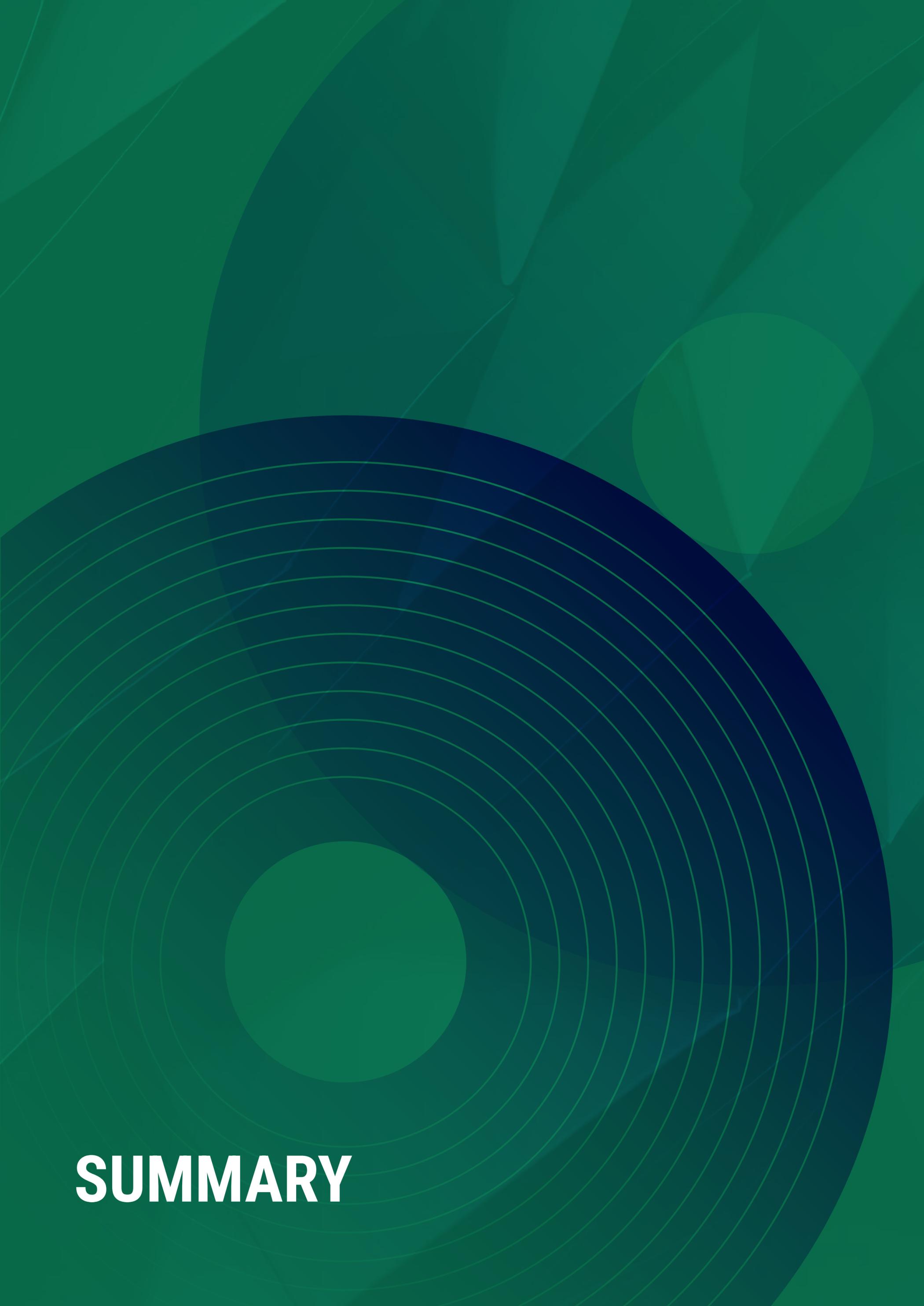
---

|   |  |
|---|--|
| <b><u>EU</u></b>                            | European union   |
| <b><u>Event log</u></b>                     | Logs or log entries containing information about the system's operation, used to monitor its performance and identify the causes in case of failure  |
| <b><u>Financial data</u></b>                | information about bank customers, their transactions, and relationships with banks related to receiving banking services   |
| <b><u>Identification</u></b>                | Actions related to assigning identifiers to subjects and objects of access and/or comparing the presented identifier with a list of assigned identifiers.  |
| <b><u>Information security incident</u></b> | Single or recurrent failures in the operation of the information and communication infrastructure or its individual components, creating a threat to their proper functioning and/or conditions for illegal access, copying, distribution, modification, destruction, or blocking of electronic information resources. |
| <b><u>JSC “NPCK”</u></b>                    | Joint stock company “National Payment Corporation of Kazakhstan”   |
| <b><u>JWT (JSON Web Token)</u></b>          | Access token, based on the format JSON   |
| <b><u>MVP</u></b>                           | Minimum viable product   |
| <b><u>NBK</u></b>                           | Republican state institution “National Bank of the Republic of Kazakhstan”   |
| <b><u>Personal account</u></b>              | The page on the platform available to the user after confirming their identity through authentication, where users can manage their personal settings, data, and interact with the Platform  |
| <b><u>OAuth</u></b>                         | Open authorization protocol (scheme)   |
| <b><u>Open API</u></b>                      | Public application programming interfaces that provide developers with programmatic access to a closed software application, data exchange program   |
| <b><u>Open API portal</u></b>               | Part of the Open API Platform, an external portal designed for interaction with individuals and legal entities in the publication of APIs, connecting to APIs, and providing financial services  |
| <b><u>Open Banking</u></b>                  | The concept of open, technological data exchange of customers between financial, payment organizations, and third-party service providers with their consent to promote innovation and enhance competition in the financial market   |
| <b><u>Open Banking platform</u></b>         | a component of the Open Banking ecosystem, consisting of software and hardware tools designed for the technological and secure exchange of data using Open APIs  |

# LIST OF USED TERMS AND ABBREVIATIONS

---

|   |   |
|---|---|
| <b><u>Operator</u></b>                  | department of the Joint-Stock Company "National Payment Corporation of the National Bank of the Republic of Kazakhstan," providing comprehensive support and moderation of participants, as well as management of the Open API platform   |
| <b><u>Petition</u></b>                  | an inquiry initiated by a Platform participant, intended, depending on the nature and purpose, for obtaining information, submitting proposals, resolving disputed or conflict situations, eliciting responses, and carrying out actions by relevant entities or regulatory authorities   |
| <b><u>Platform participant</u></b>      | subject of information interaction within a platform who operates in accordance with regulatory documents   |
| <b><u>PSD2</u></b>                      | Payment Service Directive 2   |
| <b><u>PSD3</u></b>                      | Payment Service Directive 3 (in development)  |
| <b><u>RAM</u></b>                       | Random Access Memory  |
| <b><u>Regulator</u></b>                 | representatives on behalf of the National Bank of the Republic of Kazakhstan, the Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market, and the Agency for Protection and Development of Competition of the Republic of Kazakhstan controlling the development and implementation of the project in its infrastructural, organizational and regulatory parts |
| <b><u>Request management system</u></b> | request registration system facilitating interaction and information exchange among participants  |
| <b><u>RLA</u></b>                       | regulatory legal acts   |
| <b><u>Service</u></b>                   | product or service offered by financial institutions to meet the financial needs of customers   |
| <b><u>SLA</u></b>                       | Service Level Agreement   |
| <b><u>TLS</u></b>                       | Transport Layer Security  |
| <b><u>"Trust" infrastructure</u></b>    | a part of the Open API platform consisting of identity verification and digital consent system  |

The background is a vibrant green with a complex geometric pattern. It features several overlapping circles and arcs in various shades of green, from dark forest green to bright lime green. A prominent feature is a large, dark green semi-circle at the bottom left, which contains a series of concentric, thin white circles. The overall effect is a modern, layered, and abstract composition.

# **SUMMARY**

# SUMMARY

---

In December 2022, the National Bank of the Republic of Kazakhstan and the Agency for Regulation and Development of the Financial Market of the Republic of Kazakhstan, with the participation of the Agency for Protection and Development of Competition of the Republic of Kazakhstan, developed and approved the Concept for the Development of Open API and Open Banking in the Republic of Kazakhstan for the years 2023-2025.

**The concept of Open Banking involves standardized exchange of financial information between various financial institutions and third-party providers at the initiative and consent of the customer. The exchange is facilitated through Application Programming Interfaces (APIs) that provide secure access to consumer data.**

Since the beginning of 2023, work has been initiated to prepare and implement the Open API and Open Banking concept in Kazakhstan. Regular meetings have been held with stakeholders and the market to discuss the implementation and widespread adoption of the concept. Considering the complexity of technical implementation and assessed risks, a decision was made to introduce the project in stages. The initiators of the concept have identified a foundational scenario for the first stage launch, which is the pilot project "Exchange of Information on Customer's Current Accounts."

This document provides information about the work carried out and the results of the Open API and Open Banking pilot project, as well as the next steps in implementing the concept. In order to successfully and timely fulfill the task, a number of priority tasks have been completed, including the development of the target architecture of the project, the formulation of the operational model methodology for open banking, and the establishment of the infrastructure, namely:

- development of unified requirements for participants in the Open Banking ecosystem, as well as rules for their interaction;
- development of Open API standards;
- creation of the Open API platform;
- establishment of a technological environment for testing Open API;
- creation of a centralized customer consent management system.

The key focus of the work is on ensuring equal conditions and opportunities for all participants, transparency of processes, a high degree of confidentiality, and the protection of customers' personal and financial data.

The pilot project for the first stage involved banks such as JSC "Bank RBK", JSC "Altyn Bank", JSC "Home Credit Bank", JSC "Банк ЦентрКредит", JSC "Otbasy Bank". The scenario for exchanging information about customers' current accounts was implemented. A focus group consisting of more than 100 people actively participated in testing the developed scenario.

The results of the pilot project confirmed the hypotheses regarding technological feasibility and the effectiveness of the chosen approach to implementing open banking in Kazakhstan. Further steps for developing the concept were identified, and the Roadmap for implementing the Concept in 2024-2025 was updated. This underscores the initiative's focus on the long-term development of digital financial services in the country.



# **INTERNATIONAL EXPERIENCE OVERVIEW**

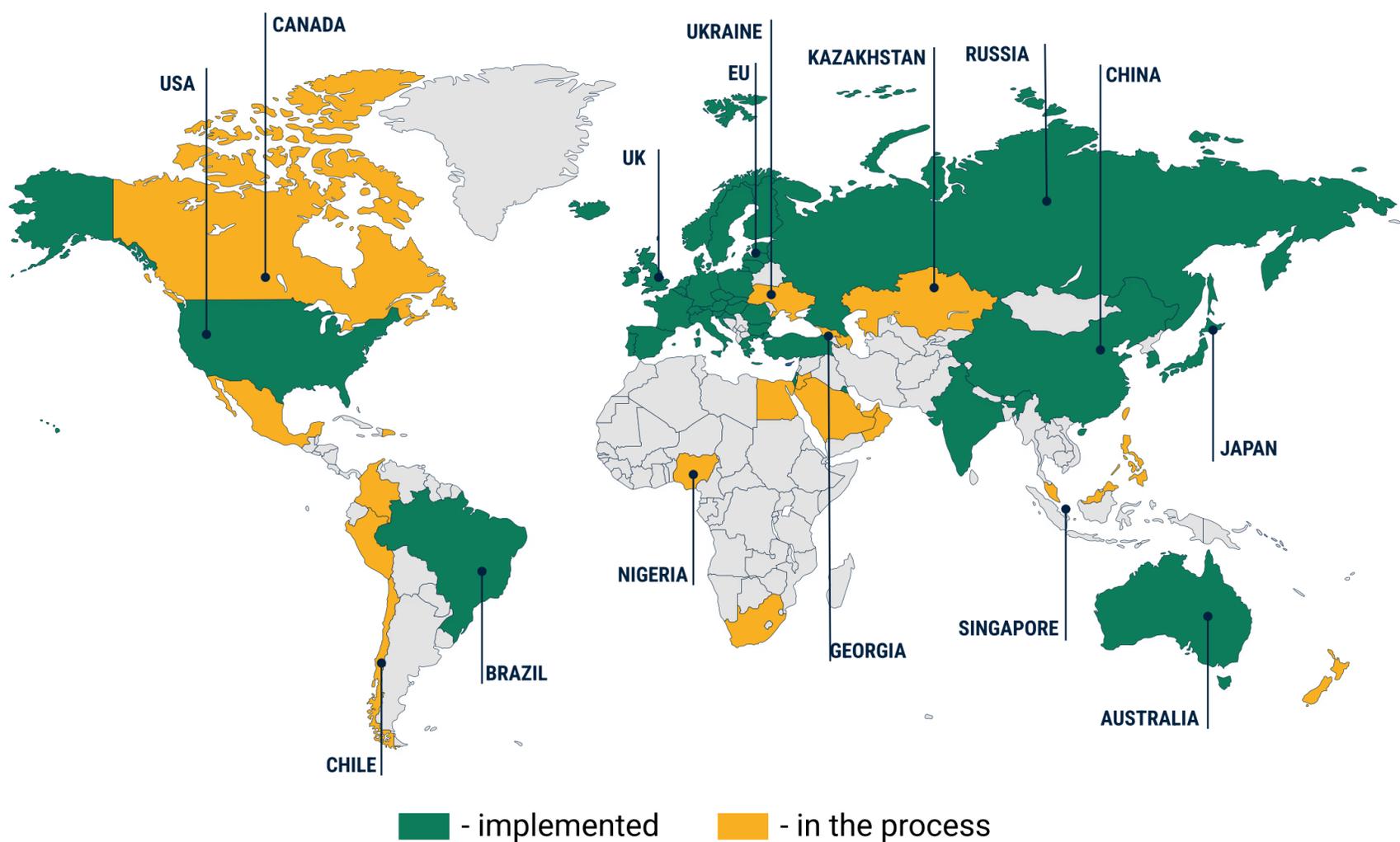
# INTERNATIONAL EXPERIENCE OVERVIEW

Open Banking is fundamentally transforming the global financial industry by enabling secure sharing of customer financial data among banks, non-bank financial institutions, and third-party financial service providers.

In 2023, a global trend was seen towards the development of Open Banking. Approximately 100 countries have either already implemented the Open Banking model or are in various stages of initiation or implementation [3].

The benefits and value of Open Banking-based solutions have become evident after successful implementations in the UK, EU, USA, Brazil, and Asian countries such as Singapore, Hong Kong, Japan, and others.

Below is a global map showing the state of open banking development in terms of initiative stages [4]:



Today, the volume of transactions in the world within the framework of Open Banking is estimated at \$57 billion. It is expected that by 2027, this volume will increase to \$330 billion, and the number of transactions will grow from 102 billion to 508 billion units [5].

The concept is not limited to just banking operations but extends its influence to adjacent industries such as insurance, real estate, and trade, offering new ways to create value and enhance business process efficiency. Collaboration and the synergy of innovations stimulate the emergence of new products and services, thereby not only intensifying competition and customer-centricity in financial markets but also facilitating rapid adaptation to changes in the world of financial technologies. Regulatory support in terms of enshrining principles and rules also plays a crucial role, ensuring data standardization and security within the framework of open banking.

# INTERNATIONAL EXPERIENCE OVERVIEW

---

Having proven its effectiveness and demand during its development, open banking in the world has established itself not only as a modern solution but also as a strategic foundation for the future of financial services, ensuring sustainability, innovation, and customer-centricity in the long-term perspective.

The background is a vibrant green with a complex geometric pattern. It features several overlapping circles and arcs in various shades of green, from light to dark. A prominent dark blue arc is visible in the lower half of the image, partially overlapping the text. The overall effect is modern and dynamic.

# **CURRENT STATE OF THE FINANCIAL MARKET OF THE REPUBLIC OF KAZAKHSTAN**

# CURRENT STATE OF THE FINANCIAL MARKET OF THE REPUBLIC OF KAZAKHSTAN

---

Digital transformation and the development of the financial market, including the payment sector, are essential components of achieving competitiveness in the global economy [6].

Digitization leads to the emergence of new business models, improves financial accessibility, positively impacts the competitive environment, and stimulates economic activity. Additionally, digitization allows for the optimization and automation of business processes, thereby reducing costs and increasing organizational efficiency.

**The financial market in Kazakhstan is actively developing towards digitization and increased accessibility of services. The Republic has ranked among the top 3 countries in Central and South Asia for innovations [7], and its growth rates have positioned it as one of the fastest-growing fintech markets in the region.**

The development of the fintech market in Kazakhstan is evident in several key directions:

**1** There is a growth in cashless payments, with the introduction of contactless payment methods such as NFC, QR codes, and mobile P2P transfers, enabling 24/7 operations and simplifying processes through remote identification mechanisms.

**2** Market participants are actively striving to create and develop digital ecosystems, building a range of products tailored to diverse user needs. As of today, virtually every bank in the country offers its own mobile application to users. Kazakhstan's fintech industry is also represented by payment companies and independent players who create multifunctional payment services and applications, such as TypiPay, Simply, and Wooppay. These companies are gradually entering the B2B segment, represented by Buhta.kz, Uchet.kz, and MyBuh.kz.

**3** There is active implementation of new trending technologies and digital innovations. Projects that use artificial intelligence and machine learning for analytics and forecasting, as well as blockchain technology for security, are becoming increasingly popular among market participants.

# CURRENT STATE OF THE FINANCIAL MARKET OF THE REPUBLIC OF KAZAKHSTAN

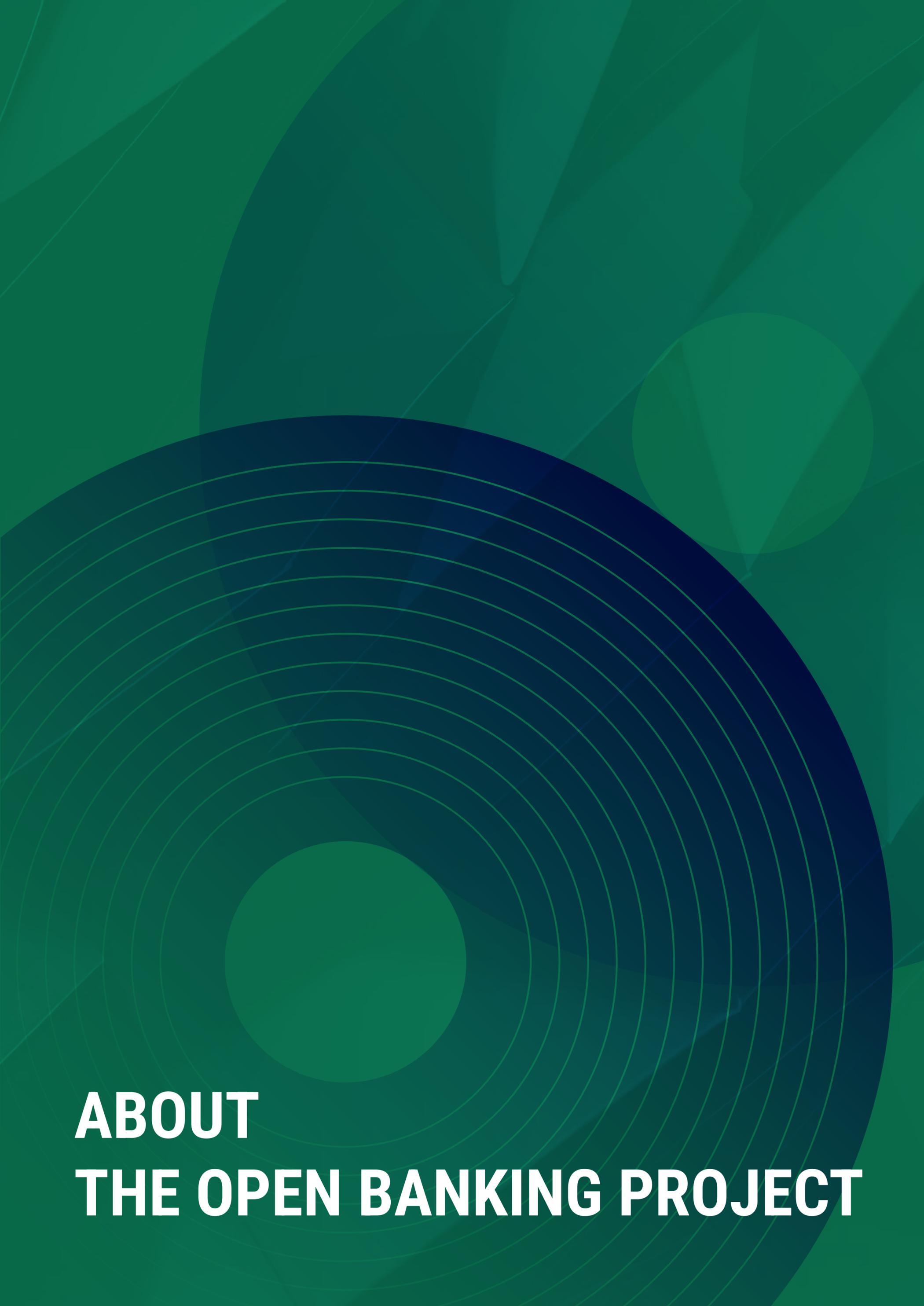
---

At the same time, the financial system of the Republic of Kazakhstan is characterized by a relatively bank-centric model. Today, banks form closed ecosystems, which in turn promotes high concentration of financial services and hinders the development of competition and cooperation in the financial market.

One of the key principles outlined in the Concept for the Development of the Financial Sector of the Republic of Kazakhstan until 2030 is the need for the comprehensive construction of a reliable and accessible foundation. This involves establishing unified regulatory rules and standards to ensure the security and integrity of the entire payment system for all market participants.

As expected, stimulating the market through the implementation of the Open Banking concept is expected to have a positive impact on the development of the financial market and affect the following factors:

- 1** Establishing **an open and transparent** financial environment in the country  
в стране
- 2** Supporting and enhancing **competitiveness** in the financial market
- 3** A conceptually **new level of access, control, and management** of financial data for citizens
- 4** **Stimulating innovation** and expanding the range of offered financial services and products
- 5** Ensuring **consumer rights protection** in the digital economy
- 6** Creating **an accessible digital financial infrastructure** for all participants in the financial market



**ABOUT  
THE OPEN BANKING PROJECT**

# OBJECTIVES AND TASKS

---

## 4.1. OBJECTIVES AND TASKS

To create a balanced competitive environment that aligns with the interests of all participants in the financial market, goals have been identified for participants within the framework of implementing the Open API and Open Banking concept, as well as the immediate tasks.

Main goals of developing Open API and Open Banking in Kazakhstan:



Formation of an open financial ecosystem in the country



Stimulation of innovations



Supporting and enhancing the competitiveness of financial market participants.



Protection of citizens' interests and data

As part of the implementation of the established goals, the following tasks have been formulated:

**1** Development and standartization of technical infrastructure

**2** Development and support of competition among financial market participants

**3** Ensuring a safe environment in the field of financial and payment services

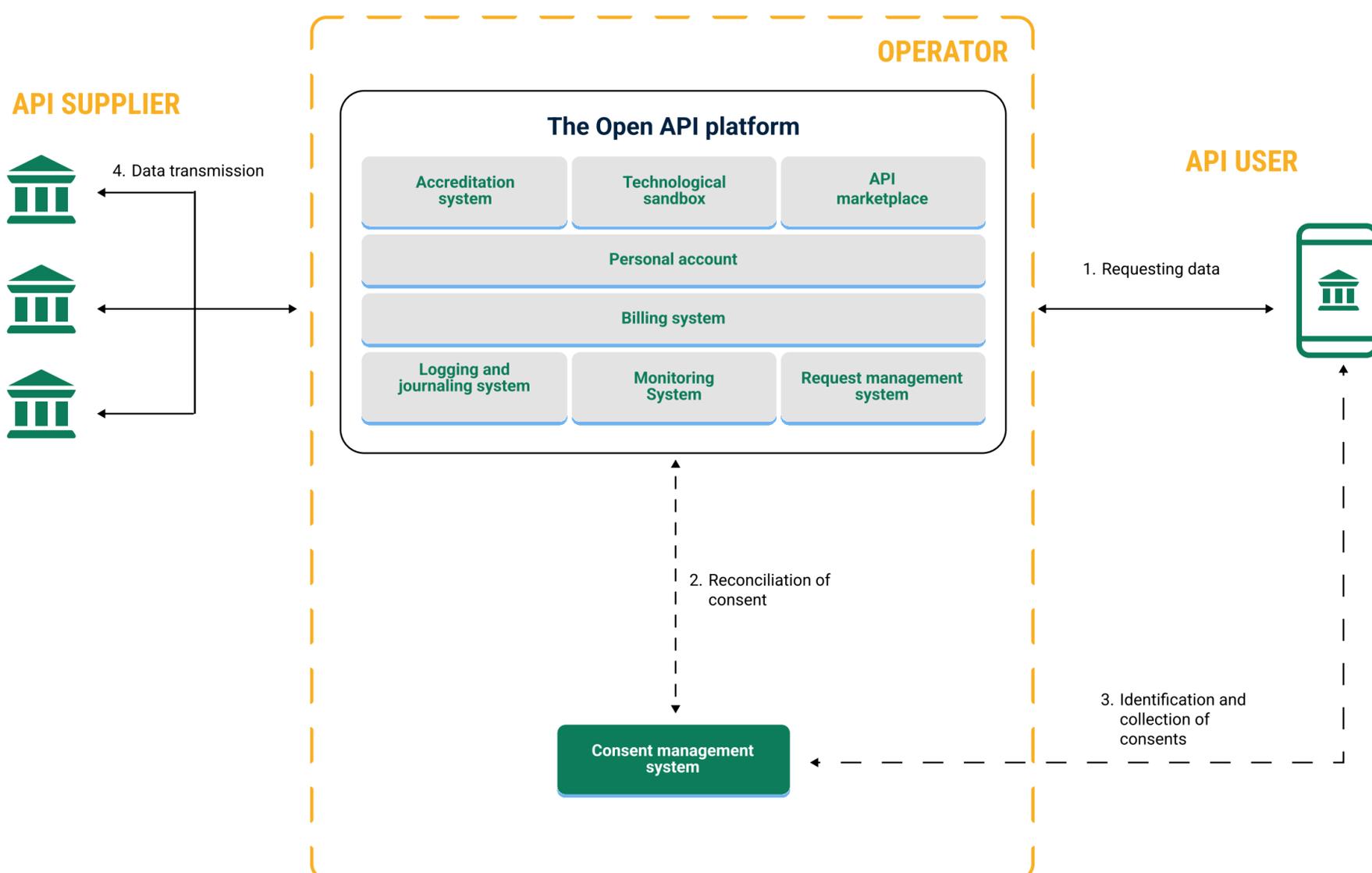
# TARGET OPEN BANKING SCHEME

## 4.2. TARGET OPEN BANKING SCHEME

In Kazakhstan, the open banking model is customer-centric, providing the customer with full control over their finances and the ability to make informed decisions regarding their management and shaping them according to their individual needs.

The customer-centric model is supported by a centralized consent management system and an Open API platform, which are becoming key tools in interacting with financial services. This approach not only allows for the creation of an infrastructure where security and control over the customer's finances are paramount but also promotes the dynamic development of the financial market, aligning with modern customer requirements and expectations.

Below the target scheme of operation and interaction within the Open Banking ecosystem is shown.



Picture 1. Target Open Banking scheme

# TARGET OPEN BANKING SCHEME

## The Open API platform serves as a unified coordination center that:

1. provides participants with tools to carry out fundamental processes, including accreditation, API publication, service integration, billing, reporting, and query management;
2. ensures a dedicated (isolated) environment - a technological sandbox for safe API testing and code debugging
3. facilitates technological data exchange between participants

Thus, the centralized platform ensures compatibility among participant systems and simplifies the process of integrating them with various technologies and services within the open banking ecosystem. Centralization achieves resource management unification, including infrastructure, data, and applications. This reduces operational costs and enhances overall efficiency. Additionally, the centralized architecture provides flexibility and scalability to the platform, allowing it to adapt quickly to changing market conditions and easily integrate new participants and services.

Throughout the entire lifecycle, the chosen approach enables the management and control of security measures.

As a result, the unified Open API platform not only provides the technical infrastructure for the functioning of the Open Banking ecosystem but also represents a strategic approach that contributes to the standardization, security, and efficiency of processes.

The platform consists of the following components:

**1 Personal account** – a component available to participants for verifying their identity through two-factor authentication via the platform. This component provides participants with centralized access to manage platform functions and services: managing employee access to the platform, submitting accreditation applications, configuring the organization's profile (changing the logo, descriptive information, etc.). Additionally, participants have the ability to control and publish their API services, view the list of connected APIs and user applications, as well as monitor their status.

**2 Accreditation system** – a functional component of the platform that requires participants to undergo an accreditation procedure as API providers and/or users, in compliance with established requirements.

**3 Technological sandbox** – a component that provides participants with an environment for testing and verifying API services for compliance with standards developed by the regulator and operator automatically on a regular basis.

# TARGET OPEN BANKING SCHEME

---

# 4

**API marketplace** – a component containing information with a list of published API services on the platform, their owners, with the ability for quick searching, viewing, and connecting.

# 5

**Billing system** – component responsible for tariff creation and management for the usage of paid API services, as well as facilitating financial transactions between ecosystem participants.

# 6

**Logging and journaling system** – a component that records events and actions within the platform, enabling the tracking and analysis of records and timely response to potential issues and threats.

# 7

**Monitoring System** provides statistics and analytics to participants regarding their services. This component allows participants to track the performance of their services and provides graphical monitoring for data visualization and analysis.

# 8

**Request management system** – a component that provides a unified platform for interaction between participants and handling inquiries, including disputes and incidents within the platform.

# CONSENT MANAGEMENT SYSTEM

## 4.3. CONSENT MANAGEMENT SYSTEM

The concept of open banking and any exchange of financial or personal information within its framework is only possible with the client's consent. Within the Open API platform, the use of a centralized consent management system for the collection, processing, and transfer of personal and financial customer data is envisaged. This service is based on two-factor authentication of identity to ensure maximum protection of rights and data security.

The client's consent contains a specific set and purpose of using the transmitted data, the date of issue of the consent, the name of the organization in respect of which the consent is issued and its validity period.

The operation of the Consent Management System is ensured by the operator, who considers the following priorities:

- centralized infrastructure for digital consent exchange, reducing the risks associated with distributed or duplicated data;
- prevention of uncontrolled use of customer data, minimizing the potential risks of misuse.

Key functions of the Consent Management System:

- registration and storage of customer consents for the provision of their data;
- registration and tracking of customer revocations of previously provided consents;
- providing detailed information to customers about the current status of their consents.

**Customers can easily view, modify, or revoke their consents at any time, giving them full control over how their personal and financial data is used and shared.**

The methodological approach places emphasis on customer rights and establishes robust frameworks for interactions between financial institutions and third parties. With such an approach, customers have the ability to actively influence market offerings and services. In Open Banking, the influence of customers on the market manifests in several aspects. Customers can choose financial products and services that best align with their needs, thereby fostering competition and promoting the development of innovative and customer-centric offerings. By providing their data, they enable financial institutions to create personalized services that precisely meet their individual requirements and preferences. Customer feedback directly impacts the quality and effectiveness of products and services, thereby enhancing the overall market offering. Additionally, Open banking contributes to increased transparency in the actions of financial institutions and third parties, strengthening their accountability to end-users.

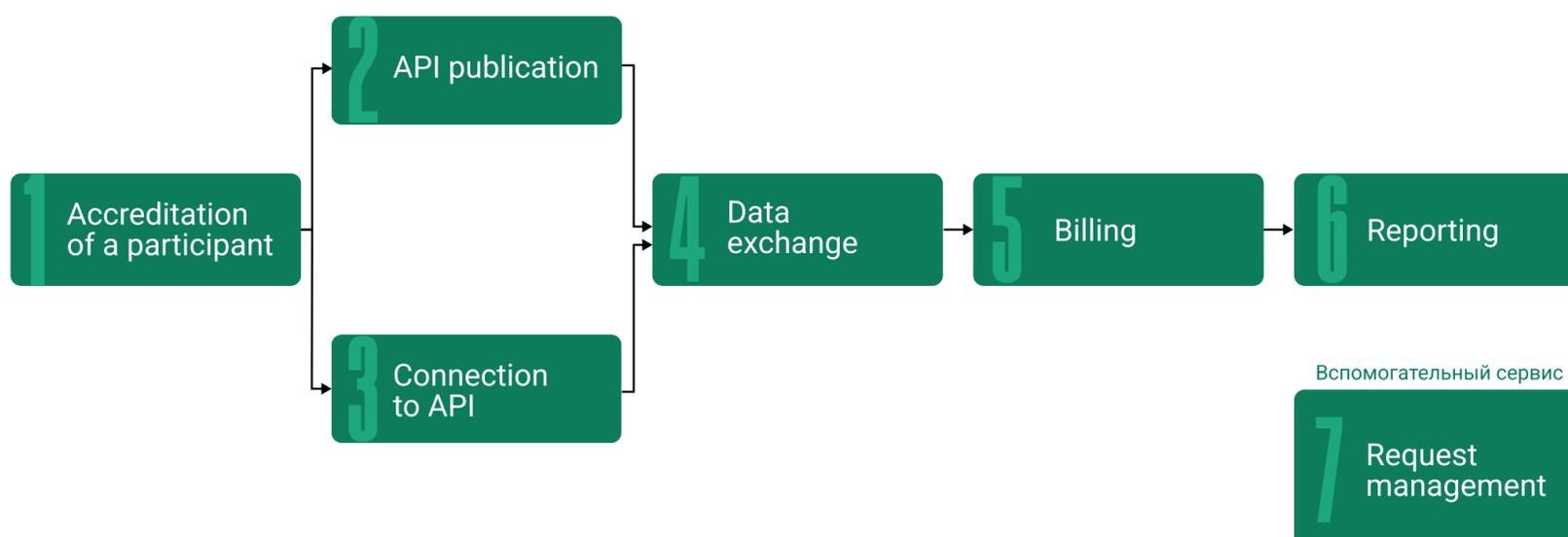
## 4.4. OPEN BANKING LIFE CYCLE

Within the lifecycle of open banking, the essential processes necessary for transparent and secure interaction within the Open Banking ecosystem have been defined. The lifecycle represents a clear sequence and standardization of actions for participants.

A comprehensive approach was applied in the formation of lifecycle processes, resulting in the automation of all processes, allowing participants to quickly and easily connect and integrate into the ecosystem.

Each Open Banking process serves a specific purpose and is designed to address the tasks within the framework of building an inclusive digital financial infrastructure, and the embedded metrics help track and improve the processes.

For organizations wishing to join and become part of the unified ecosystem, compliance with and successful execution of the established processes are mandatory requirements.



Picture 2. Open Banking life cycle

### ACCREDITATION

The lifecycle of Open banking begins with the accreditation of a participant. Accreditation is the process of officially confirming that a participant complies with the established requirements. This process ensures equal conditions for all and is mandatory for gaining access to further opportunities on the platform

The accreditation process is conducted by the operator based on the application submitted by the participant in the platform's personal account. Upon successful accreditation, the participant is issued an accreditation certificate and is included in the API provider registry. Subsequently, the participant is entitled to proceed with the next processes of API publication and/or connection.

## API PUBLICATION

After successfully completing accreditation, a platform participant in the role of an API provider can proceed with API publication.

Publication is the process of placing the provider's service on the API Marketplace, allowing other participants to access the provided data or functional capabilities as part of providing services to the customer.

To publish, an API provider develops and tests the API in accordance with the established unified requirements and Open API standards. Testing is conducted in the automated technological sandbox of the platform. Participants test services in both the sandbox's test and production environments.

Based on automated tests, the API is checked for the correct handling of requests, exceptions, and errors. After successful testing and completion of the API service passport, the provider's API is published on the API Marketplace and is available for connection to participants in the Open Banking ecosystem.

**To ensure continuous service quality and reliability after publication, the technological sandbox automatically checks the API for compliance with Open API standards on a regular basis. In case of errors, the API is removed from publication.**

## CONNECTION TO API

Accredited participants acting as API users have access to the API Marketplace, where they can view information about published services and their owners. After this, an API user is entitled to submit an application for the required service and proceed with automatic API connection. With access to the API, users can create innovative products that meet customer needs.

The process of connecting to the API involves deploying one's own application and initiating integration with the services published on the platform.

## DATA EXCHANGE

After successful testing and connection to services, data exchange occurs between accredited providers and API users.

**The exchange between the participants takes place exclusively through the platform and with the consent of the client, who, using the API user's application, initiates requests within the established procedures.**

It is important to note that in the integration interaction between participants, the key principle is infrastructure transparency with full preservation of customer data confidentiality and security.

In order for the interaction to be secure and standardized, unified Open API Standards are developed by regulators and the operator.

The standards consist of a set of technical documents that regulate the data exchange processes between participants in the Open Banking ecosystem using open application interfaces. These documents define the procedures for describing, developing, and implementing these interfaces to ensure technical compatibility, information security, integration interaction, and application.

The main advantages for participants in the platform are technical compatibility, information security, and harmonization of integration interaction. By adhering to unified standards, ecosystem participants standardize their services, eliminating the need for adaptation for each individual integration and enabling integrations without additional costs and efforts.

Additionally, to protect data, a range of technologies and standards is used, such as OAuth 2.0 for client identity identification and authentication, the JWT access token standard, the cryptographic data transfer protocol TLS, and the use of secure data transmission channels.

## **REPORTING**

Reporting - process of generating reports with statistical data on API usage, which is generated on the platform and available to participants in their personal accounts. Reports are generated considering various parameters such as the number of requests, types of requests, time intervals, and other metrics. This information allows participants to make more informed decisions about service development and adaptation to changing customer needs. Reporting also contributes to ensuring transparency and compliance with rules in the Open Banking ecosystem, which is an important aspect of its effective operation.

## **BILLING**

Billing is the process that allows certain platform participants to charge fees to other participants who use their services to provide services to customers. The rates for using the services are determined by the owners, taking into account the maximum rates set by the regulator. Interaction within the payment framework occurs on the platform through the operator, ensuring transparency and reliability of the processes.

## **REQUEST MANAGEMENT**

Request management is a process that provides participants with a centralized environment for interaction on issues, disputes, and/or incidents that arise during integration or platform operation. Participants can create request with descriptions of problematic issues through their personal account. Based on an established classifier, the request is automatically assigned to the responsible executor for processing and resolving the issue within predetermined timelines. The execution progress and case history are recorded in the system to track all stages of request processing.

The background is a vibrant green with a complex geometric pattern. It features several overlapping circles and arcs in various shades of green, from light to dark. A prominent feature is a large, dark blue-green arc that curves across the bottom half of the page, framing the text. The overall aesthetic is modern and professional.

# **KEY STAGES OF THE PROJECT IN 2023**

# KEY STAGES OF THE PROJECT IN 2023

As part of the phased implementation of Open Banking, a series of measures and initiatives have been implemented, including the development of infrastructure, regulatory, and organizational measures. The main milestones of the project are detailed below:

|                      |  |
|----------------------|--|
| <b>December 2022</b> | <b>Discussion of the project's development (NBK, ARDFM, APDC, AFK)</b> <ul style="list-style-type: none"><li>• Conducting meetings to discuss the implementation of the Open Banking concept.</li><li>• Approval of the Concept and Roadmap<sup>1</sup> for the implementation and adoption of Open Banking and Open API in Kazakhstan.</li><li>• Establishment of a working group for the implementation of activities within the framework of the Concept.</li></ul> |
| <b>January 2023</b>  | <b>The scenario "Exchange of information on the client's current accounts" has been determined</b> <ul style="list-style-type: none"><li>• Adhering to the main principles of the phased implementation of the concept, the main scenario has been defined as the exchange of information on the client's current accounts.</li></ul>  |
| <b>February</b>      | <b>The scenario for the pilot project has been developed</b> <ul style="list-style-type: none"><li>• The main processes of the Open Banking lifecycle have been defined.</li><li>• The target architecture of the Open API platform has been developed.</li></ul>  |
| <b>April</b>         | <b>A list of participants for the pilot project has been compiled</b> <ul style="list-style-type: none"><li>• A list of pilot banks that have expressed their desire to participate in the pilot launch of the Concept has been determined.</li></ul>  |
| <b>May</b>           | <b>Open API standards have been developed</b> <p>A set of technical documents has been developed to regulate the data exchange processes among participants in the Open Banking ecosystem:</p> <ul style="list-style-type: none"><li>• Open API standard: Retrieval of information about the customer's current account.</li><li>• Open API standard. Informational security.</li></ul>  |
| <b>July-october</b>  | <b>Signing of memorandums</b> <ul style="list-style-type: none"><li>• In the legitimate conduct of work on the implementation of the concept, memorandums of interaction and cooperation were signed with banks participating in the pilot.</li></ul>  |
| <b>September</b>     | <b>Documentation on the operating model</b> <ul style="list-style-type: none"><li>• An essential list of documents for integration with participants and the launch of the pilot project has been developed and approved (provided in Appendix 1).</li></ul>   |

1 - In May 2023, changes were made to the Roadmap for the implementation of the pilot project

# KEY STAGES OF THE PROJECT IN 2023

|                       |  |
|-----------------------|--|
| September             | <b>Development of the platform and consent management system</b> <ul style="list-style-type: none"><li>• The components of the MVP platform have been developed based on the target scheme.</li><li>• A centralized consent management system for data access has been implemented.</li></ul>  |
| September             | <b>Provision of test access to the platform and consent management system</b> <ul style="list-style-type: none"><li>• The participants have been connected to the platform's test environment.</li><li>• The scenario for exchanging information about current accounts has been tested on the test environment.</li></ul>           |
| September-<br>october | <b>Integration with the pilot participants</b> <ul style="list-style-type: none"><li>• Participants have been connected to the platform.</li><li>• Testing of the functionality of the platform and the developed banking services.</li></ul>  |
| November              | <b>Pilot launch</b> <ul style="list-style-type: none"><li>• Conduction of the pilot project for the scenario of exchanging data about customer bank accounts.</li><li>• Verification of the viability of key scenarios of the pilot project.</li><li>• Active interaction with customers as part of pilot project scenario</li></ul> |
| December              | <b>Summing up the results</b> <ul style="list-style-type: none"><li>• Making of decisions on project development and scaling. Actualization and detailing of the activities outlined in the Roadmap of the Concept for 2024-2025 based on the results of the pilot project.</li></ul>  |

The background is a vibrant green with a complex geometric pattern. It features several overlapping circles and arcs in various shades of green, from light to dark. A prominent feature is a large, dark blue-green arc that curves across the bottom half of the page, containing a series of concentric, lighter green circles. The overall effect is a modern, layered, and abstract design.

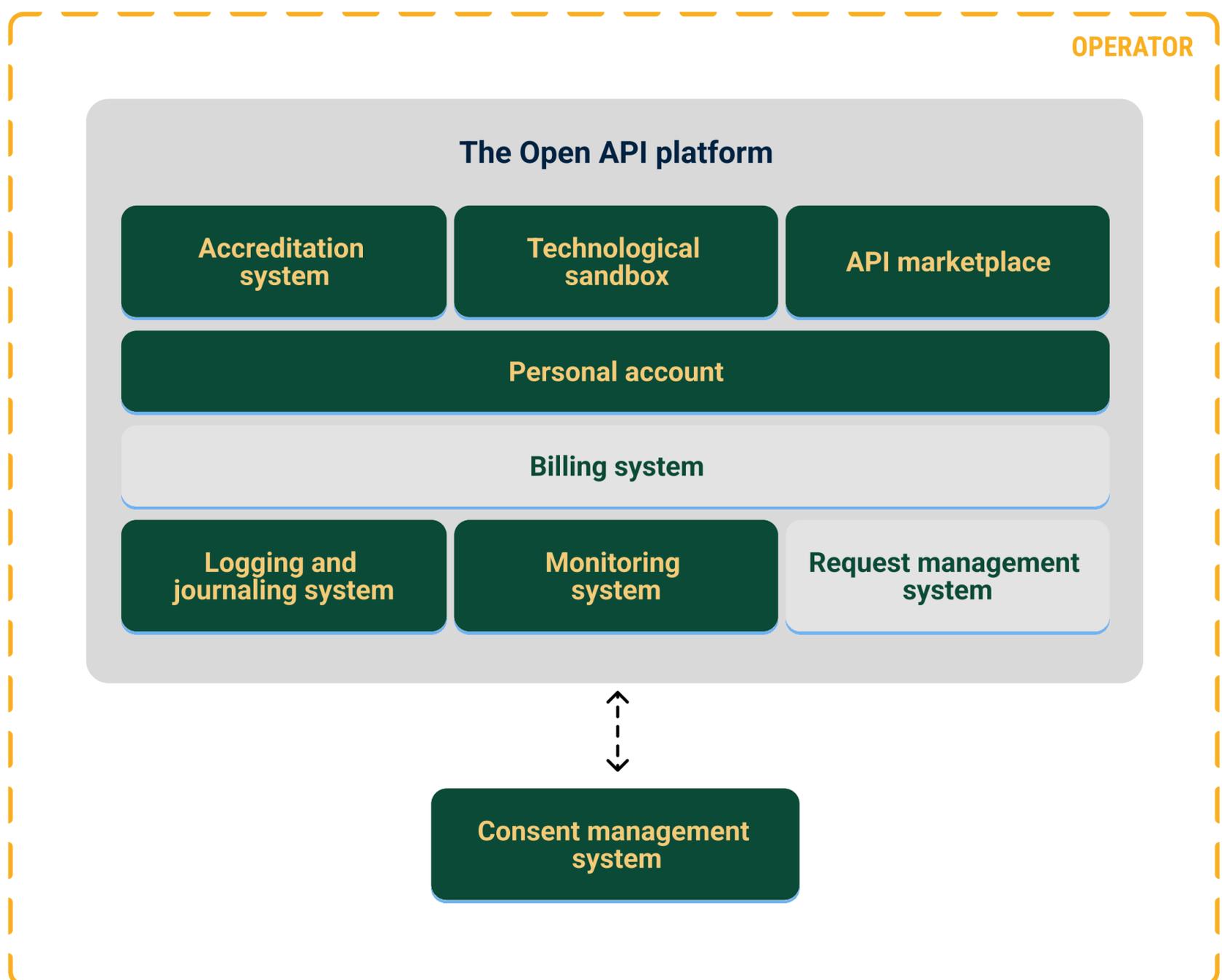
# **PILOT PROJECT OVERVIEW**

# PILOT PROJECT OVERVIEW

Based on the analysis of the technical complexity of implementing the project and the assessment of associated risks, a decision was made to implement the Open Banking Concept with the exchange of information about clients' current accounts.

Access to banking data using the Open API standard is an essential foundation for the development of subsequent Open Banking scenarios, including scenarios involving third-party payment initiation and transfers. The full implementation of these scenarios will allow individuals to manage their finances and make payments using third-party services or applications without being tied to a specific mobile app or bank card, thereby streamlining and enhancing the process of financial transactions. In the future, scenarios for exchanging information about financial products through Open API will be developed, giving customers the ability to compare various products and services from different financial organizations, such as loans, deposits, insurance, and investments.

Within the pilot project for exchanging information about customer's current accounts, a Minimum Viable Product (MVP) was developed. This MVP includes the essential components required for the platform to function and for participants to interact:



■ - implemented as part of the MVP    ■ - will be implemented during scaling

# PILOT PROJECT OVERVIEW

---

Ensuring the security, confidentiality, and integrity of transmitted data and transactions within the MVP (Minimum Viable Platform) of the platform is one of the fundamental principles of Open Banking, where information security standards and secure protocols (such as TLS, OAuth, and others) are employed.

The platform development process has been implemented based on the principles of secure software development. In addition, regular scanning of the platform for vulnerabilities in source code, software, and hardware infrastructure, penetration testing, comprehensive functionality testing, load and stress testing, intrusion detection systems, hardware security modules, and other information security measures are employed.

Continuous monitoring of software, system events, and supporting infrastructure is maintained to detect any breaches of confidentiality, integrity, and availability of transactions conducted through the platform.

A key component of secure data exchange in Open Banking is the trust infrastructure, which includes two-factor authentication services, consent management, and authentication center services. Access to customer data in Open Banking applications is granted only with their consent and is used purposefully. Customer authentication is based on OAuth 2.0 mechanisms, with limited access tokens issued to applications in accordance with the customer's consent.

## 6.1. CUSTOMER JOURNEY OF THE PILOT PROJECT

The process of a customer using open banking functionality to access information about their current bank accounts from other banks begins with them logging into the mobile application of the participating bank. After that, the customer performs the following actions<sup>2</sup>:

- 
-  In the accounts section, initiates a request to obtain information about their accounts from other banks **01**

---

  -  Selects the necessary bank(s) from the list for data exchange and displaying information about current accounts in the application **02**

---

  -  Is redirected to the two-factor authentication service for identity verification, where:
    - a) Undergoes biometric identity verification by:
      - *liveness identification (live verification)*
      - *photo comparison with a reference database*
    - b) enters the OTP code received via SMS on the linked bank phone number**03**

---

  -  Receives a notification that the identity verification was successful **04**
- 

2 - The presented customer journey serves as an example for implementation, and the sequence of actions can be modified by participating banks when designing screen forms. :

# CUSTOMER JOURNEY OF THE PILOT PROJECT

- 
- 05**
- 

The bank requests consent to access data on the customer's external bank accounts. The name(s) of the organization(s) from which the data is requested, as well as the specific data being accessed as part of the service, are displayed on the customer's mobile app screen
- 
- 06**
- 

The customer gives consent to access their financial data from other banks
- 
- 07**
- 

In one application from the bank, the customer can see information about their accounts from various banks
- 
- 08**
- 

If a customer decides to revoke access to their data, they can do so through the consent management system by withdrawing the previously granted consent.
- 
- 09**
- 

In this case, the customer will no longer see accounts from other banks in their banking application. It's important to note that banks are not allowed to retain the information after the customer has revoked their consent.
- 

Bank participant in the pilot project, when providing their applications to customers, adheres to the following requirements for creating the customer experience:

- ensuring that customers have equal and unrestricted access to services and information;
- simplicity and convenience: aiming to simplify processes and interfaces so that customers can easily and comfortably achieve their goals;
- consistency in the design of user path elements: fonts, colors, button styles, and icons.;
- intuitiveness: striving for the client to easily understand how to interact with the interface without complex explanations or instructions, except for elements that allow for ambiguous interpretation;
- customer support: Providing support is aimed at ensuring that clients receive the necessary assistance, information, and solutions to their problems, which contributes to improving the customer experience.

Taking into account the above-mentioned requirements, the participating bank enhances the functionality of its mobile/web application so that the customer can access their accounts in different banks using a single application.

## 6.2. **HYPOTHESES TESTED WITHIN THE PILOT PROJECT**

The pilot project on exchanging information about customers' current accounts is designed to demonstrate the potential applications of open APIs and the implementation of additional scenarios within the services and products of market participants, thereby involving them in the ongoing Open Banking initiatives.

To assess the technological feasibility and effectiveness of the proposed regulatory approaches within the concept, a decision has been made to verify assumptions and hypotheses regarding the development model, implementation of Open Banking, and the operation of the Open API platform.

**The following hypotheses have been identified for the pilot project:**

### **Performance and scalability**

The pilot project aims to verify whether the software and infrastructure can handle the expected workload for exchanging data about customer bank accounts, operate effectively under various conditions, and remain resilient in the face of failures. Additional load tests may be conducted to simulate peak loads.

### **Security and compliance with information security requirements**

Whether a high level of information security of access to data will be ensured. Obtaining data on clients' bank accounts should be accessible only with their consent.

### **Feasibility of the technology**

Whether APIs will be successfully implemented by the pilot project participants and whether the use of open application programming interfaces in the process of exchanging data on customer accounts will allow convenient and quick integration of information and providing access to it to the customer.

### **API testing**

Whether technological verification, in the form of API analysis service for compliance with established standardized requirements (data structures, error handling, etc.), provides a high level of assessment of readiness of information systems for data exchange between the pilot project participants.

### **Easy access**

Whether a clear and transparent mechanism for gaining access through the platform has been implemented

### **Convenience of the design of the user interface platform**

Whether the user interface (UI) and user experience (UX) design is conveniently implemented, ensuring user satisfaction.

## 6.3.

### PILOT PROJECT SCENARIOS

To ensure the successful implementation and deployment of the project, it was initially decided to conduct testing of the functional scenarios of the platform's operation that were selected for piloting.

The selection of functional scenarios was based on the following criteria:

- compliance with the aspects of the control-stimulating approach (within the concept);
- potential feasibility in terms of development complexity, both on the platform side and the side of project participants - users and API providers;
- the need for scenarios for the basic functionality of Open Banking.

In the result, in the list of implemented functional scenarios the following were included:

---

#### Scenario “Registration of API suppliers and API users”

---

---

The scenario implies an initial registration process for participants on the platform. After registration, participants gain access to a personal account where they can manage their activities within the platform.

The main task of the scenario is to provide convenient, efficient, and secure conditions for participant registration.

---

#### Scenario “API publication”

---

---

Within this scenario, API providers have the ability to publish information about the services they offer in their personal account.

The API provider fills out a form to publish a service in their personal account.

After the automatic check of the API's functionality is completed, information about the API is placed on the platform. Information about the published version of the API will be accessible to all participants.

Based on this scenario, it is assumed that all available APIs will be accounted for, and participants can view and search for the necessary services in the general list of published APIs on the API marketplace.

---

#### Scenario “Connection to the published API”

---

---

In order to develop innovative products based on Open Banking, a user selects an available API published by a specific API provider and connects to the service. Based on the connected services, the API user develops or enhances their mobile applications and/or web interfaces.

## Scenario "Receiving the list of client accounts"

---

---

1. The client initiates in the API user's application the retrieval of information about their bank accounts, specifying from which banks the information should be obtained.
2. The API user establishes a secure communication channel and requests the issuance of an access token to the authorization server for subsequent retrieval of the client's account list.
3. Through the platform's services, the client is authenticated, and the client authorizes consent to access the list of their accounts from the selected banks for the API user:
  - access to the list of accounts;
  - information about the bank account balance;
  - information about the transactions on the bank account.
4. The API user is given an access token.
5. The API user receives the list of the client's current accounts provided by the API provider using the obtained access token. Data is provided only if the authentication data of the API user passes successfully.
6. In the API user's application the client is notified of the result of receiving a list of his accounts.

## Scenario "Obtaining Information about Customer's Account: Balance, Transaction List"

---

---

Within the scenario, the API user will develop functionality in the application to view information about the balance or transactions of their account. The client initiates the viewing of information about their account.

The API user, after receiving information about the client's account (balance or transactions) provided by the API provider through the platform and using the obtained access token, provides the data to the client. The data is provided only if the authentication data of the API user passes successfully.

The API user can view the results of obtaining data about their bank account (balance or transactions) in the user's API application.

## Scenario "Inability to obtain account information by participants without appropriate permissions"

---

---

The advantage of implementing this scenario is to ensure that participants who do not have the appropriate permissions or rights, such as unregistered or blocked users, cannot access customer data. This helps maintain data security and privacy by restricting access to authorized individuals or entities.

The API user establishes a secure communication channel and requests an access token from the authorization server for subsequent retrieval of the list of accounts/account data.

The authorization server rejects the request because authentication data verification has not been successful.

# PILOT PROJECT SCENARIOS

---

---

## **Scenario "Inability to obtain account information without the client's consent"**

---

---

Access to a client's data is excluded in the absence of their explicit consent.

The API user establishes a secure communication channel and requests the issuance of an access token from the authorization server for subsequent access to the list of accounts/account data. Client authentication is performed through the platform's services. If authentication fails or the client rejects consent to access information about their account, the API user's request is denied.

## **Scenario: "Inability to obtain account information after customer consent revocation"**

---

---

Access to a customer's data is guaranteed to be impossible after the customer has revoked their consent.

The customer initially consented to provide a list of accounts/account data to the API user but later revoked it. The API user requests information about the customer's account through the platform using the obtained access token.

The platform checks the registered consent of the customer: if no valid consent is found, the request is rejected. Client authentication and authorization of new consent by the customer must be performed. Without the customer's consent, it is impossible to obtain the data.

The background is a vibrant green with a complex geometric pattern. It features several overlapping circles and arcs in various shades of green, from light to dark. A prominent feature is a large, dark blue-green arc that curves across the bottom half of the page, containing a series of concentric, thin green circles. The overall effect is modern and dynamic.

# **RESULTS OF THE PILOT PROJECT**

# RESULTS OF THE PILOT PROJECT

Within the framework of the strategic plan for the phased implementation of the Open Banking Concept, the main project milestones planned for 2023 have been achieved and implemented.

The pilot project for implementing the scenario "Exchange of Information about Customer's Current Accounts" was launched on November 1, 2023, with the participation of:

- banks;
- focus group consisting of a limited number of real customers from participating banks, which consisted of 128 people.

**Participants of the pilot project from banks were<sup>3</sup>:**  
**JSC "Bank RBK", JSC "Altyn Bank", JSC "Home Credit Bank",**  
**JSC "Банк ЦентрКредит", JSC "Отбасы Банк".**



During the pilot project, according to the operational model, the participating banks were connected to the Open API platform. This allowed them, after the necessary checks, to publish their developed APIs and connect to the APIs of other participants. Banks acting as API users successfully improved their mobile applications, providing focus group participants with the ability to view information about their accounts with other participating banks, and manage their data consents.

The pilot project testing lasted for two months. The focus group tested mobile applications of banks (IOS/Android) – Bank RBK, Altyn Bank, Bank Centercredit, Homecredit Bank.

The implementation and deployment of the pilot project demonstrated qualitative and practical results, which were grouped according to the following indicators:

- performance and scalability;
- information security;
- feasibility of the technology and API testing;
- user interface satisfaction level;
- customer satisfaction level.

## Performance and scalability

The pilot project included continuous monitoring of the performance of the platform's software and hardware, both as a system as a whole and its individual components. The system was also tested to ensure it could provide the required level of performance with real users, through load modeling (tests) and real user workload.

On a continuous basis, measurements of RAM and CPU usage by the Open API platform were conducted automatically. The measurement results indicated that the infrastructure resources were being utilized optimally, and no suboptimal usage of hardware resources by the Open API platform was observed.

3 - JSC "Банк ЦентрКредит", JSC "Отбасы Банк" were a supplier of data

# RESULTS OF THE PILOT PROJECT

---

At the same time, containerization technology was utilized to optimize deployment using CI/CD processes, enabling rapid scalability. The use of containers also facilitated resource utilization and management optimization.

It's also essential to note the use of load balancing and multi-threaded data processing by the Open API platform. This allowed for operations to be conducted in parallel and effectively utilize hardware resources. This approach also enables horizontal scalability of the Open API platform's performance.

Within the pilot project, the target level of performance was achieved. The results of the pilot project demonstrated the technological feasibility and future scalability of the chosen architectural approach.

## **The following performance indicators can be noted:**

- The availability of the Open API platform was ensured at 99.5%.
- The total number of requests routed through the Open API platform as part of the exchange of information about the client's accounts was – 322 952.
- The total number of registered consents was 497.

It's important to note that to achieve the highest overall performance, optimization is required at all levels:

- **at the API user level** – focusing on the user experience and optimizing at the application level;
- **at the Open API platform level** – focusing on optimizing message routing processes, network interactions, and managing customer consents for access to their data;
- **at the API provider level** – focusing on the quality and performance of published APIs.

Therefore, it was important to organize collaborative work and synchronization among all participants to track performance issues.

During the pilot project, difficulties were encountered in ensuring the stability of network connections, especially in the testing environment. Network failures and instability could lead to unpredictable service behavior, emphasizing the importance of paying special attention to network infrastructure aspects.

In addition, at the initial stages, some participants encountered difficulties in ensuring the proper processing time (according to SLA) of requests on the API side. These issues were identified by the Open API platform, and information about them was provided to the participants. As a result, participants carried out optimization work on the API to address these problems.

The results of the pilot project have demonstrated the technological feasibility and scalability of the chosen approach.

## **Information security**

A comprehensive approach to ensuring information security was applied during the project implementation, utilizing both organizational and technical solutions.

# RESULTS OF THE PILOT PROJECT

---

**Based on the threat model and attacker model, enhanced security measures have been implemented, including:**

- ensuring the development of the Open API platform with consideration of all necessary technical tools, secure development principles, and practices in the field of information security. Regular scanning for vulnerabilities in source code, software, and hardware infrastructure is conducted, along with penetration testing, comprehensive functionality testing, and load and stress testing;
- control over access to customer data is only granted with their consent. Access to customer data is exclusively granted after explicit consent is obtained, utilizing two-factor authentication of the customer's identity based on biometric verification and SMS verification using a one-time code. Additionally, after the customer revokes consent or when the consent expires, access to information within that consent automatically becomes unavailable;
- comprehensive logging of operations performed. Event logs contain a sufficient set of data for potential investigation of security incidents, excluding the logging of redundant or confidential information (token values, encryption keys, data constituting bank or other legally protected secrets, etc.);
- network protection for the Open API platform and communication channels. A dedicated secure communication channel is utilized for transmitting information between banks and the Open API platform, ensuring data encryption;
- utilization of intrusion detection systems, antivirus tools, and other means of information security;
- other measures in accordance with existing policies and practices in the field of information security.

**During the pilot project:**

- successful unauthorized attempts to obtain consent – 0;
- informational security incidents – 0.

## **Feasibility of the technology and the verification of the API**

All participants in the pilot project successfully implemented the API for information exchange in accordance with the established specifications:

- about the client's current accounts,
- about the balance of the client's current account,
- information about transactions on the current account.

One of the key aspects of the pilot project was to ensure the high quality of the APIs published by the participants.

A mechanism for regular checking of the functionality of APIs published by participants was implemented. If an API is not working or does not comply with the specifications, it is automatically taken offline.

Each API published by a participant underwent regular technological checks through a service that analyzed the API for compliance with established standardized requirements, including data structure and error handling, among other aspects.

# RESULTS OF THE PILOT PROJECT

---

**As a result, up to 1920 automated tests were conducted daily for each API published by a participant to monitor its functionality,** ensuring a high level of API quality for data exchange among project participants. It's important to note that the frequency of API functionality checks is configurable. Additionally, an efficient process for interaction and coordination of actions with the teams of project participants has been established.

During interviews conducted with representatives of banks participating in the pilot project, the integration process was characterized by a high level of convenience and promptness in their interactions.

## **Level of satisfaction with the platform's user interface and ease of access**

An important aspect of implementing Open Banking is the convenience and ease of integration for participating organizations.

Within the pilot project, an intuitive personal account was implemented to automate key processes for connecting participants to the Open Banking ecosystem.

As a result, participants went through the full lifecycle of connecting to the Open Banking ecosystem: from registration and accreditation of participating banks to the registration of applications, API testing, and publication on the platform. A survey of participants showed that these functions were successfully implemented within the pilot project.

## **Level of satisfaction with the customer journey**

To assess customer satisfaction with the implemented user journey, a quantitative evaluation method based on an online survey is used. It is important to note that this method is the most common one according to international practice for research in the field of digital economy and Open Banking.

The survey included not only questions about the experience of using the capabilities implemented within the pilot project but also about the characteristics that applications based on Open Banking technologies may have in the future.

In addition, individual interviews were conducted with some participants of the pilot project to gather detailed feedback on functionality and user interface.

All of these measures not only allowed for the assessment of the current level of customer satisfaction but also identified key directions for the further development and scaling of the concept.

**The results of the survey and interviews showed that clients evaluated their participation in the pilot project testing as: 11.9% –noted that they were satisfied, 81%– satisfied but want to expand functionality, 7.1%– not satisfied.**

The surveyed participants expressed a desire to see the functionality of applications based on open banking expanded. For example, customers expressed needs to make transfers between accounts at different banks in one application.

Graphical representation of the customer journey developed and implemented by the participating banks. It is presented in Appendix 2.

# RESULTS OF THE PILOT PROJECT

**5**  
  
BANKS

**3**  
  
MOBILE  
APPLICATIONS

**128**  
  
CLIENTS

NUMBER OF ISSUED  
TOKENS:

**492**

NUMBER OF GENERAL  
REQUESTS:

**322 952**

NUMBER OF AUTOMATED  
TESTS ON API PER DAY:

**1920**

NUMBER OF ISSUED  
CONSENTS:

**497**

**100%**

OF PARTICIPATING BANKS NOTED THE CONVENIENCE AND  
USER-FRIENDLY INTERFACE OF THE OPEN API PLATFORM

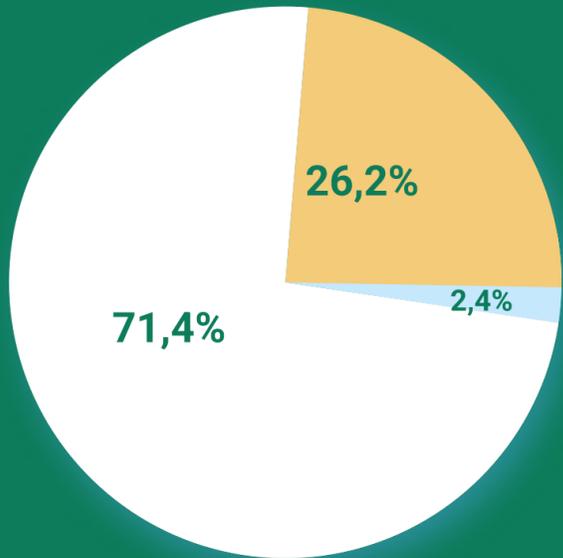
**97,6%**

OF CLIENTS FOUND THE CONVENIENCE AND INTUITIVE  
INTERFACE OF OPEN BANKING FUNCTIONALITY IN MOBILE  
BANKING APPS TO BE EXCELLENT, RATING IT ABOVE 5 ON A 10-  
POINT SCALE

**100%**

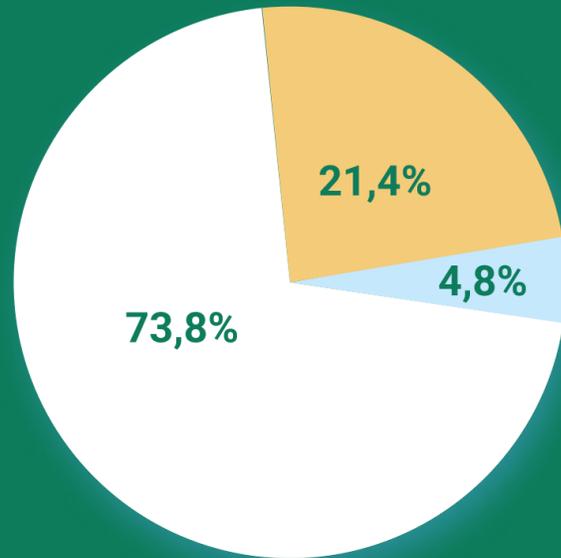
OF SURVEYED CLIENTS WOULD RECOMMEND THIS PRODUCT TO  
THEIR FRIENDS AND ACQUAINTANCES

# RESULTS OF THE PILOT PROJECT



How important is it for you to have the ability to view, provide, and withdraw consent for access to your personal and financial data?

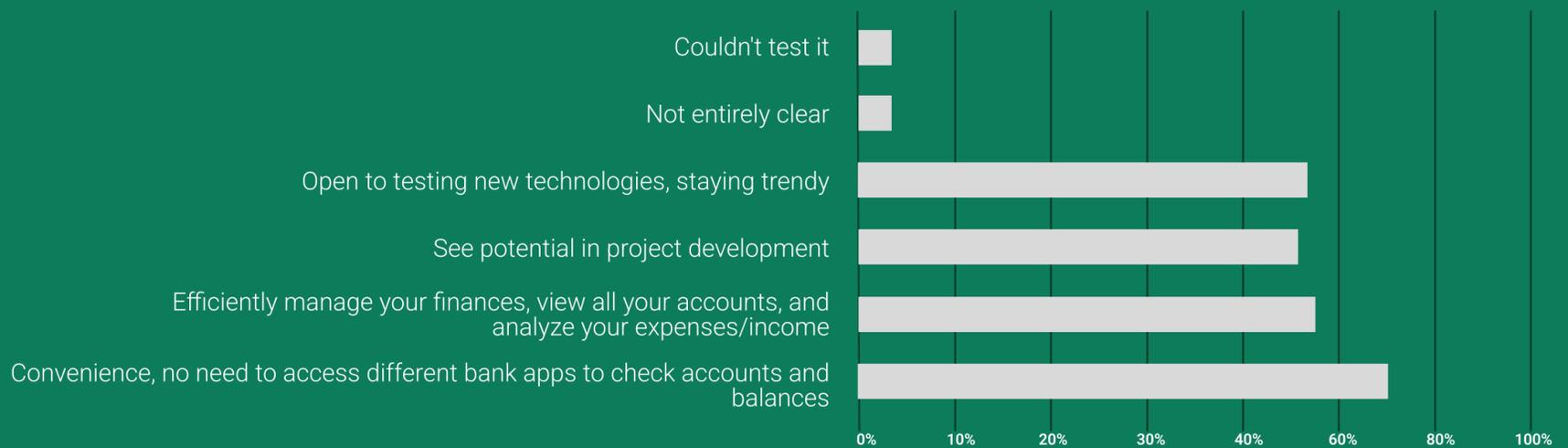
- Very important
- Important
- I don't attach any importance to this



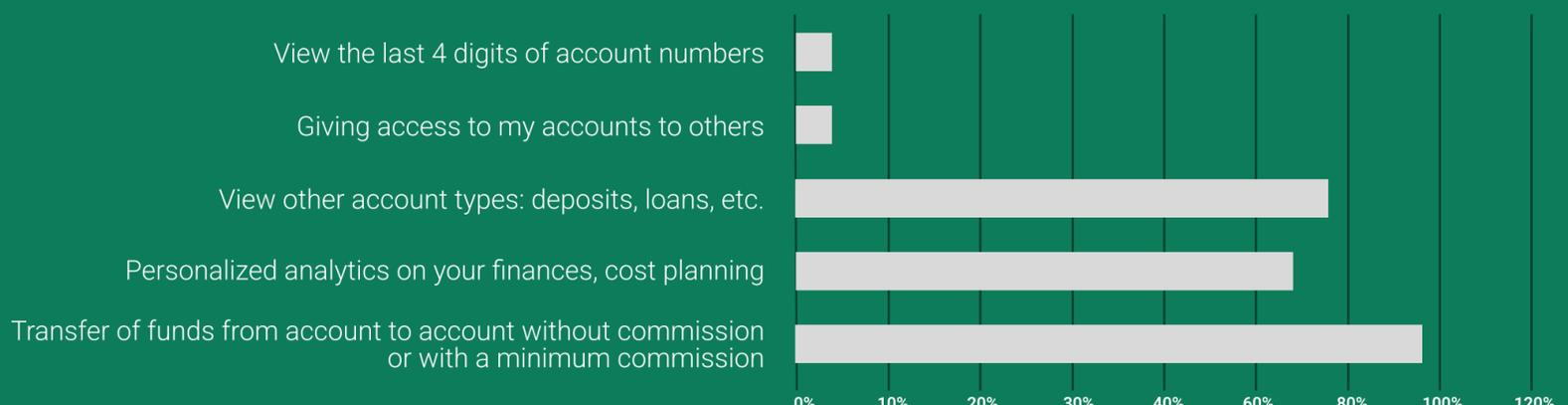
Would you continue to use the account viewing feature for different banks in the future?

- Yes
- Yes, I want more additional features to appear (transfers, payments, etc.)
- No

## What advantages do customers see in the pilot project?



## What features would you like to see in the next stage of the pilot project?



The background is a vibrant green with a complex, abstract pattern. It features several overlapping circles and semi-circles in various shades of green, from light to dark. A prominent feature is a large, dark blue semi-circle at the bottom, which contains a series of concentric, thin green circles. The overall effect is a sense of depth and movement.

# **CONCLUSIONS AND NEXT STEPS**

# CONCLUSIONS AND NEXT STEPS

---

The implementation of Open Banking holds significant potential for the development of the financial market and offers the banking system the opportunity to become competitive on a global scale by aligning with modern trends. Therefore, Open Banking becomes a universal tool that provides prospects for the entire economy.

During the pilot project on Open Banking in Kazakhstan, important conclusions were drawn, emphasizing the significance and success of this concept in the context of modernizing the country's financial sector.

The results of the pilot project confirmed that Open Banking is indeed an essential part of modern user requirements and, at the same time, provides the foundation for the active development of the financial market.

**Customer-centricity becomes not only a strategic choice but also a key factor for success in the rapidly changing banking industry.**

The infrastructure developed within the project demonstrated high performance and scalability. This allows for the effective implementation of Open Banking technology and, most importantly, prepares it to support the growing needs of both the market and end-users. The standards proposed during the project not only formed the technological foundation but also ensured the feasibility of Open Banking technology. Standardization ensures compatibility and consistency in the interaction between various market participants, greatly facilitating the implementation and operation of the system.

An important conclusion is the necessity for active scaling of Open Banking development scenarios. Considering the successful results of the project, expanding functionality, introducing new services, and attracting more market participants are strategically important steps to strengthen the success of Open Banking in Kazakhstan. Thus, the pilot project not only confirmed the relevance of Open Banking in Kazakhstan but also provided valuable directions for its successful future development.

The results of the pilot project have been carefully analyzed and studied to identify opportunities for further improvement. This includes enhancing the organizational and technological aspects of the project through active collaboration with financial market participants.

For the full realization of the concept's potential, a comprehensive and phased implementation of the following scenarios is required. During the pilot project for the introduction of open banking in Kazakhstan, key strategic directions for scaling were identified, determined through the successful implementation and evaluation of the project. These strategic milestones are aimed at expanding functionality and increasing market participants' coverage.

# CONCLUSIONS AND NEXT STEPS

---

The main stages of scaling for 2024 are presented below:

---

## 01

### **Scaling the account aggregation scenario:**

- Involving other market participants in the account aggregation process.
  - Developing account aggregation scenarios adapted for use by legal entities.
- 

## 02

### **Expanding business case standards:**

- Expanding the capabilities of business cases, including the development and implementation of a scenario for initiating transfers between accounts of a single system participant (Me2Me).
  - Implementing a scenario for transfers between accounts of different system participants (C2C), which promotes broader interaction among market participants.
- 

## 03

**Creating and implementing an OPEN API technology sandbox**, a collaborative platform providing market participants with access to open application programming interfaces (APIs), in testing their scenarios and developing innovative products. This platform serves as a kind of "sandbox" where various participants can test and refine their ideas, thereby contributing to the creation of innovative solutions in the field of financial technology.

---

In 2025, there are plans for further expansion of functionality and deepening of interaction within the open banking framework in Kazakhstan. One of the key development directions will be the expansion of business scenarios to the level of product-based Open APIs. This involves integrating more complex and diverse products and services, enabling deeper digital transformation in the financial sector. The plan for 2025 includes:

### **Expansion of business scenarios:**

- Implementing product-based Open APIs that allow interaction with specific financial products and services through open interfaces.
- Adapting business case standards to include new product-based scenarios.

# CONCLUSIONS AND NEXT STEPS

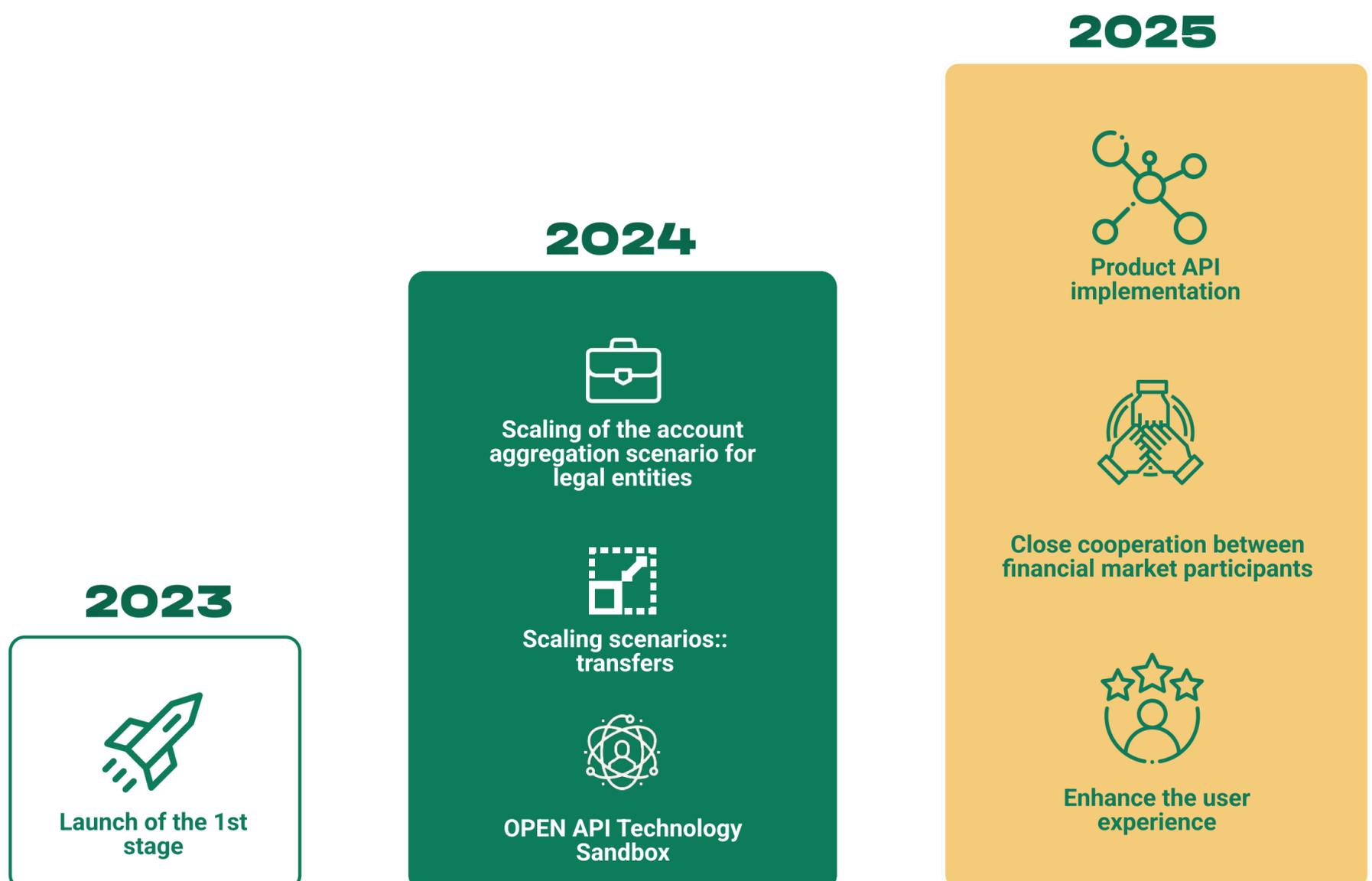
## Deepening collaboration:

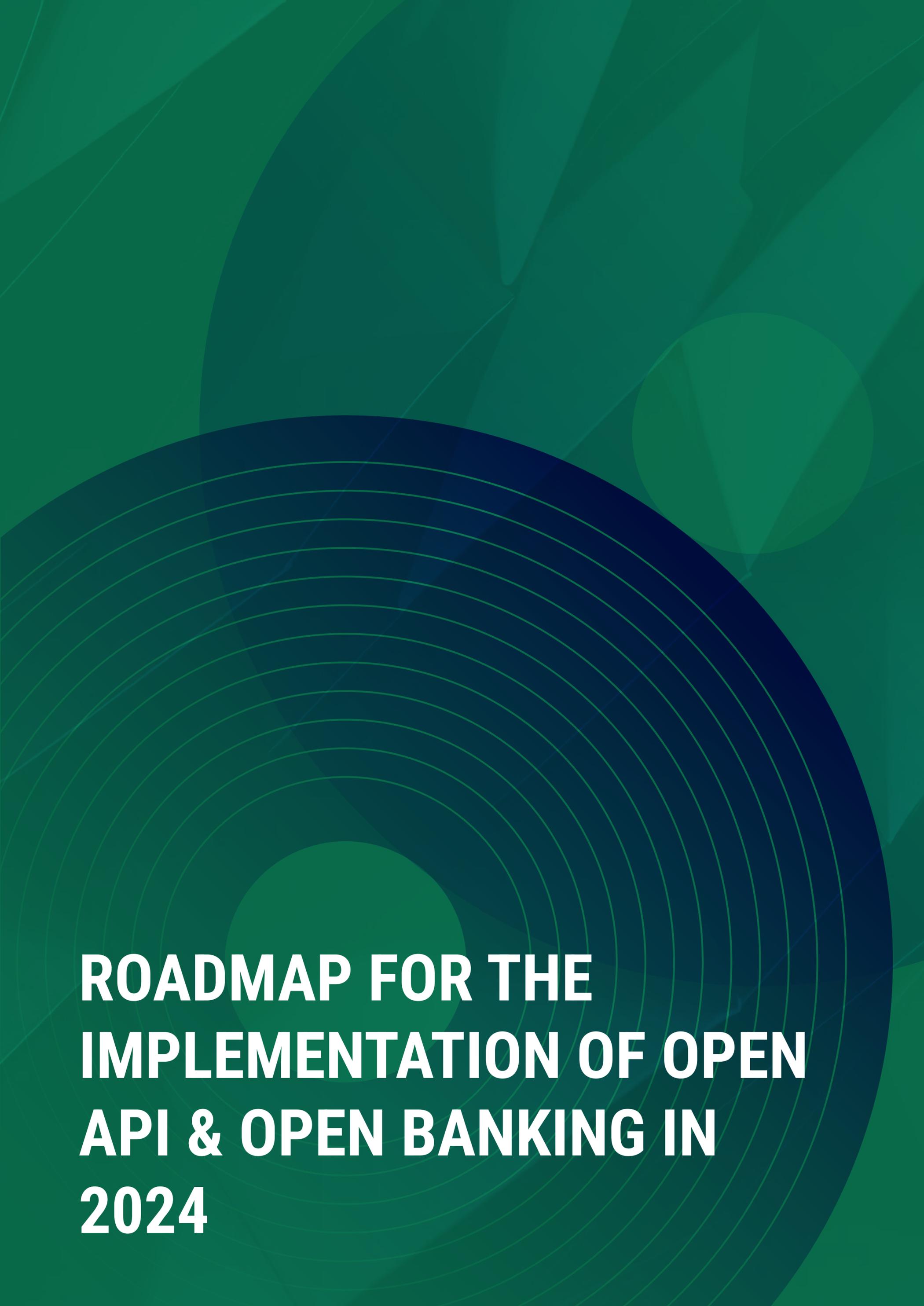
- Facilitating closer collaboration among market participants through the expansion of product-based Open API capabilities.
- Promoting innovation and co-development of new financial products with market participants.

## Enhancing user experience:

- Enhancing customer satisfaction by providing access to a wider range of advanced financial products through improved Open APIs.

These strategic scaling directions, including expanding business scenarios to product-based Open APIs, aim to create a more flexible and innovative financial ecosystem in Kazakhstan. They provide an opportunity for various market participants to offer and use new products and services through open banking APIs, promoting the development of the digital economy in the country.





# **ROADMAP FOR THE IMPLEMENTATION OF OPEN API & OPEN BANKING IN 2024**

# ROADMAP FOR THE IMPLEMENTATION OF OPEN API & OPEN BANKING IN 2024

| EVENT  | DEADLINE                | CONCLUSION FORM  | RESPONSIBLE            |
|--|-------------------------|--|------------------------|
| Conducting a working group meeting to discuss and detail the project scaling plan                            | <b>I quarter 2024</b>   | Working group protocol   | NPCK, NBK, ARDFM, APDC |
| Determination scenarios for a pilot project for the exchange of public data                                  | <b>I quarter 2024</b>   | List of scenarios for the pilot project on the exchange of public data             | NPCK, NBK, ARDFM, APDC |
| Connecting new participants of the financial market to the account aggregation service and Open API platform | <b>I quarter 2024</b>   | Memorandum of intent and cooperation   | NPCK, NBK, ARDFM       |
| Development of open API standard for payment initiation  | <b>II quarter 2024</b>  | Open API standard for payment initiation   | NPCK, NBK, ARDFM       |
| Open API standard for exchanging information about corporate current accounts                                | <b>II quarter 2024</b>  | Open API standard for corporate current account information exchange               | NPCK, NBK, ARDFM       |
| Connecting participants and testing M2M and C2C scenarios  | <b>III quarter 2024</b> | Test results report  | NPCK, NBK, ARDFM       |
| Implementation of the scenario for exchanging information on legal entity current accounts                   | <b>III quarter 2024</b> | The developed scenario for exchanging information on legal entity current accounts | NPCK, NBK, ARDFM       |
| Development of the Open API standard for open data exchange  | <b>III quarter 2024</b> | Open API standard for open data exchange   | NPCK, NBK, ARDFM       |

# ROADMAP FOR THE IMPLEMENTATION OF OPEN API & OPEN BANKING IN 2024

| <b>EVENT</b>  | <b>DEADLINE</b>            | <b>CONCLUSION FORM</b>    | <b>RESPONSIBLE</b>     |
|---|----------------------------|---------------------------|------------------------|
| Determination of the list of Regulatory Legal Acts (RLA) and proposals for stimulation of the implementation of Open API and Open Banking | <b>III-IV quarter 2024</b> | List of RLA               | NPCK, NBK, ARDFM, APDC |
| Implementation of the scenario for initiating transfers in the pilot environment  | <b>IV quarter 2024</b>     | Certificate of commission | NPCK, NBK, ARDFM, APDC |
| Update of the roadmap for 2025 (if necessary)   | <b>IV quarter 2024</b>     | Updated roadmap           | NPCK, NBK, ARDFM, APDC |

# APPENDIXES

# APPENDIX 1

---

## List of documents in the operation model:

1. Pilot project implementation procedure
2. Open API and Open Banking development and implementation guide
3. User guide
4. Developer's guide
5. Procedure for accreditation of participants in the "Open API Platform" information system
6. Electronic message exchange procedure
7. Participant interaction procedure
8. Information security threat model
9. Rules for registration and handling of participant inquiries in the Open API Platform
10. Service level agreement (SLA) between the Operator and Participant of the Open API Platform
11. Agreement (accession) with API users for the provision of services in the "Open API Platform" information system
12. Agreement (accession) with API Providers for the provision of services in the "Open API Platform" information system
13. Open API standard. Information security
14. Open API standard. Obtaining information about the client's current account

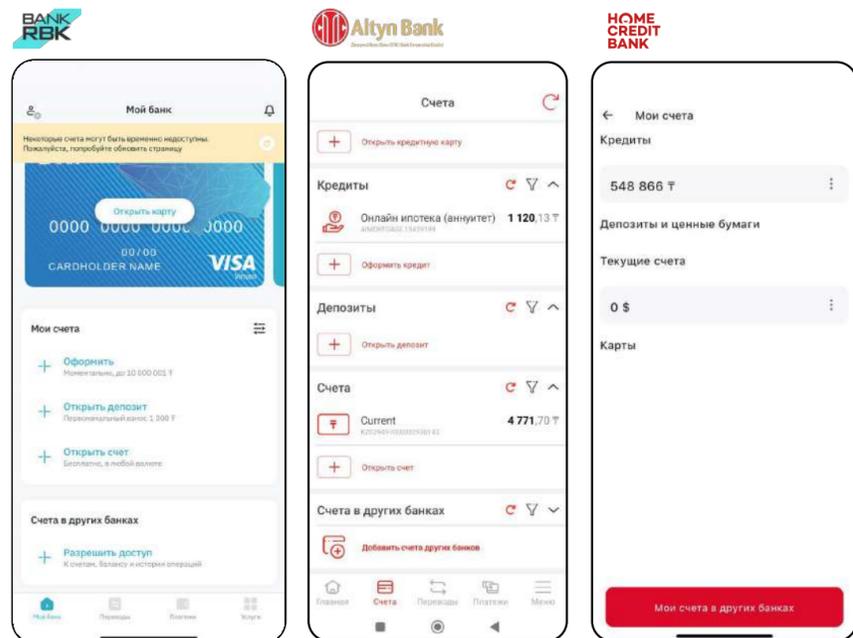
# APPENDIX 2

The user journey implemented within the framework of the pilot project in the applications of participating banks

Each of the steps in the user journey provides a new customer experience and unlocks additional functionality for customers.

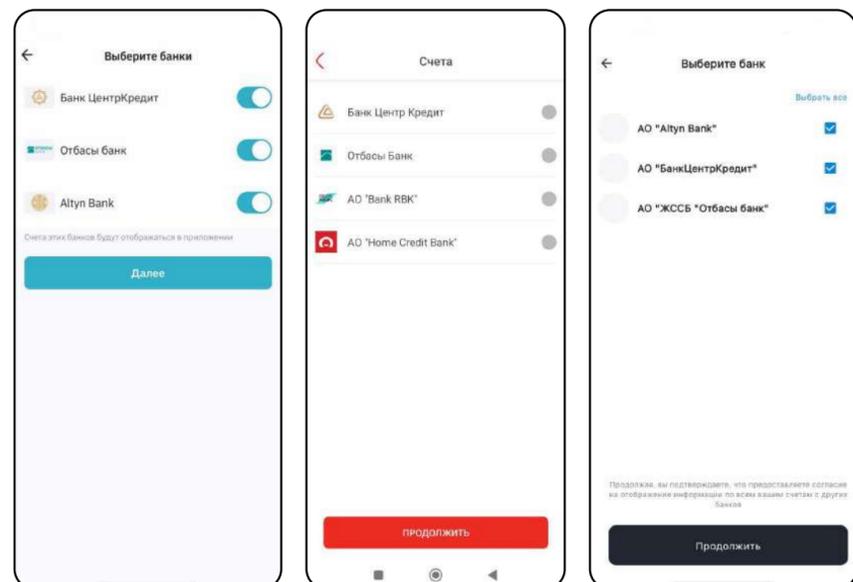
01

The customer logs into the bank's mobile application



02

The client chooses banks



03

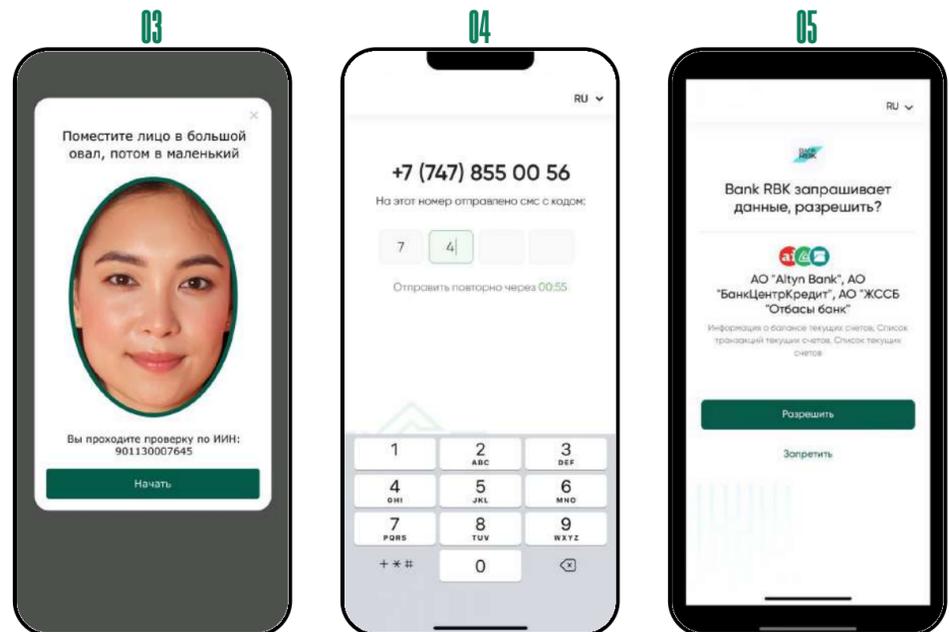
1-factor: The client undergoes biometric identity verification

04

2-factor: The client undergoes SMS verification using the OTP code

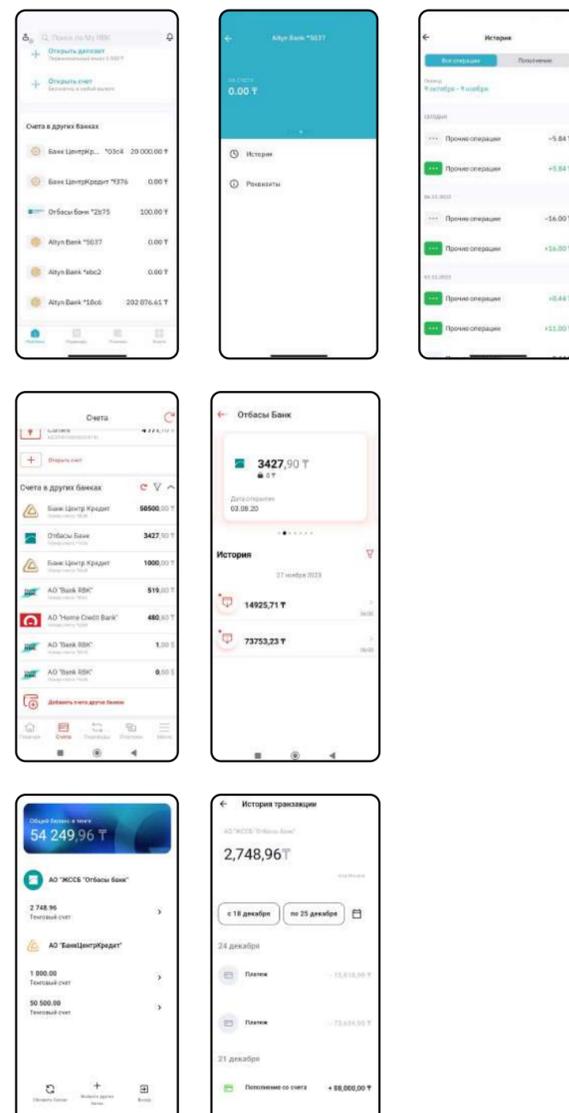
05

The Client agrees to transfer his data from other banks



06

Now the client sees his current accounts from other banks in the bank's mobile application, as well as detailed information in the form of details, transaction history for each account



The background is a vibrant green with a complex, abstract pattern. It features several overlapping circles and arcs in various shades of green, from a deep forest green to a lighter, almost teal hue. The most prominent feature is a large, dark green circle in the lower-left quadrant, which contains a series of concentric, lighter green circles. The overall effect is a sense of depth and movement, with the shapes appearing to float and overlap in a three-dimensional space.

# **LIST OF USED LITERATURE**

# LIST OF USED LITERATURE

---

1. Concept of Open API and Open Banking Development in the Republic of Kazakhstan for 2023-2025
2. Decree of the President of the Republic of Kazakhstan dated September 26, 2022, No. 1021, On the approval of the Concept for the development of the financial sector of the Republic of Kazakhstan until 2030 <https://adilet.zan.kz/rus/docs/U2200001021>
3. Regulating Open Banking 2023: A snapshot of global progress, <https://www.openbankproject.com>
4. The world of Open Banking & Open Finance. Konsentus 2023: <https://www.konsentus.com/wp-content/uploads/The-World-of-Open-Banking-and-Open-Finance-Oct-2023.png>
5. Open banking - statistics & fact : <https://www.statista.com/topics/11010/open-banking/#topicOverview>
6. [Economic Review of the National Bank of the Republic of Kazakhstan: Key Trends of the Payment Industry, 2022](#)
7. Global Innovation Index 2023: Innovation in the face of uncertainty, <https://www.wipo.int/edocs/pubdocs/en/wipo-pub-2000-2023-en-main-report-global-innovation-index-2023-16th-edition.pdf>