

Key achievements in the strategic programs in 2017

Unified Front-End System (UFS)



The purpose of the UFS program is to create a unified service standard in all channels in which we interact with clients: in bank offices, in the mobile app, the browser and by telephone. The UFS is based on the cross-channel principle, involving the ability to identify the Sberbank client in all channels. The program is designed to help employees work more efficiently and to make the customer's experience more pleasant and convenient.

In 2017 we developed a new version of the platform – UFS 7.0, with greater reliability and productivity by supporting deployment mode in a multiblock architecture and Stand-In mode, ensuring higher fault tolerance and seamless upgrades of the functional subsystems of UFS.

We have begun mass implementation of a new targeted development process of the UFS using the Development Tools. This will allow a single team to implement a solution for all channels, by reusing as much as possible existing objects and services, reducing the number of errors by auto-generating standard functional units, and reducing the time required to train new employees.

The expected effect from the implementation of the UFS target development process is to reduce the amount of manual software development by half.

In 2017 we received a certificate from Rospatent of state registration of the Unified Front-End System platform, confirming our intellectual property rights and securing additional legal protection for software.

Key implementations in the UFS in 2017

Functionality	Channel	Effect
Application for consumer loan	Sberbank Online (web)	More than 300 thousand consumer loans issued for more RUB 100 billion in total
Opening and adding to brokerage accounts	Sberbank Online (web)	More than 3 thousand brokerage accounts opened
Remote reserving of corporate accounts	Bank website sberbank.ru	- Makes it possible to reduce the time the client spends at the bank to open an account from one hour to 30 minutes - In an average month, legal entities reserve more than 25 thousand accounts remotely
Payments and transfers for premium segments	Sberbank First zones in offices	- Ability to place an application without visiting the bank office - Increase in client satisfaction
Mobile work place for CIB client managers	Sberbank Online (mobile app)	Increased speed and better servicing of corporate clients
Mobile work place for Retail Business unit employees	Sberbank Online (mobile app)	Increased speed and better servicing of individual clients
Test operation in offices: - Operations on individual deposits - Issue of debit cards - Acceptance and issue of funds to legal entities - Applications for automobile loans - Mortgage loans - Issue of credit cards - Receipt of statements and excerpts	Offices	- Reduction in time required for operations - Reduction in time spent by the client in the office - Increase in client satisfaction
Sale of insurance and retail products by outgoing calls (Telemarketing)	Contact center	Increase in the Bank's income through active sales
Test operation in the Internet bank channel: - Application for automobile loan - Sales of Wealth Management products - Applications for letters of credit - Government services on the transfer of pensions and excerpts from the Pension Fund of Russia - Calculation of the creditworthiness limit - Issue of credit cards	Sberbank Online (web)	Simplify the acquisition of products and allows for applications to be submitted without visiting offices

The UFS project “Mobile Work Place of Retail Business unit Employees” won in the category “Best IT Solution for Retail Banks” at the Retail Finance Awards 2017.

The UFS project “Mobile Work Place for CIB Client Managers” won the Project of the Year 2017 of Global CIO in the category “Analytical Solutions”.

Both work places substantially increase the level and speed of client service.

The DevOps practices implemented for all UFS applications. The use of DevOps reduces the amount of time needed to update applications and makes it possible to avoid errors caused by manual setting of parameters. Up to 80% of code was covered by automatic unit tests, which led to the number of errors at the testing stage falling by half.

In 2017 The Bank determined the quality standard for the UFS platform. Its performance is monitored based on 12 metrics. The use of this standard has helped to cut the number of errors at the testing stage in half, and allowed us to eliminate 50% of errors within 8 hours.

For the professional growth of UFS employees, 850 have been trained in a special program. A non-material incentive program UFS-bonus is in place for active colleagues. Contests are held as part of the working process, allowing us to accelerate the implementation of a new product through the promotion of healthy competition.

The Bank strives to attract talented employees into the UFS program. To this end, in 2017 we:

- started a mentorship program for UFS developers and analysts;
- opened the UFS Design School, the first graduates of which are already interning in The Bank;
- organized the “Advancement” IT conference and technological competition to find innovative ideas and concepts for mobile client services;
- UFS program specialists took part in internal and external conferences and meetups, aimed at attracting the best specialists;
- on the Habrahabr website we maintain a blog, which already has 36 original articles, with more than 310 thousand views.

¹ <https://habrahabr.ru/company/efs/>

Business Development Support Platform (18+)



The program Business Development Support Platform (BDSP) is a universal tool to create business applications. Development of the platform employs the modern technologies of In Memory Data Grid – technologies for distributed automatic computing in the memory of applications that work with large amounts of data in real time.

BDSP is implementing at the Bank the concept of a Marketplace – an online space that brings together significant amounts of different information that clients need.

Expansion of the Business Development Support Platform program in 2017

Topic	Key measures
Improvement of internal system processes	• The platform cluster was expanded to 160 nodes, which provides data storage in geodistributed mode • Mechanisms for fault tolerance and platform reliability were implemented • The restoration of the platform's operation with no loss of data in the event of an incident was ensured • Interface integration with the Data Factory was implemented • Technological and base applied services for the platform core were implemented, required for the product factories, and the app development tools was expanded • The DevOps end-to-end process is implemented in the technological core, the basic platform services, the client module, and the BDSP transfer module • Stand-In has been implemented for the Unified Client Profile

Topic	Key measures
Business Hub	• Key services were implemented: “Unified Retail and Corporate Client Profile (URCCP)”, “Unified Product and Rate Catalogue”, “Dynamic Pricing”, “Service Packages”, “Client Data Access Management”, “Online Compliance Control” • A pilot version of integration between the URCCP and the Sberbank Online mobile app was launched • Data was added to the unified client profile on the deposits, card and loan agreements of individuals of all regional banks • Migration of client data of legal entities from the EKS automated system for three regional banks • A decision-making process using machine learning and artificial intelligence was implemented
Product Factories	• A pilot operation of the following product factories was started: › “P2P³ transfers for a limited number of clients with the functionality of cross-border transfers and demand transfers” (including Kazakhstan and Belarus subsidiary banks); › for the retail business: “Transaction Wallet and Debit Cards”, “Retail Deposits and Accounts”, “Retail Loans”; › for the corporate business: “Cash Management”, “Corporate Cash and Settlement Services”, “Corporate Deposits”, “Corporate Loans”, “CSS Conversion” • A launch of commercial operation was given to the Trade Acquiring factory, deployment was completed for the functionality of maintaining acquiring contracts, trade service outlets and POS terminals. The use of dynamic rate-setting by contract was begun • Launches of commercial operation were given to the factory “Trade Finance and Documentary Operations”, functionality of the Pledge factory on pledged items (real estate, equipment and transport, goods in circulation, automobiles) • A Tape Recorder² technology of the product factory “Retail Deposits and Accounts” was developed, which makes it possible to check the quality of the software of product factories prior to implementation

¹ CSS – cash and settlement services.

² Tape Recorder – technology for testing new software that makes it possible to record all banking transactions for a selected period on the old automated system and then “reproduce” them on the new automated system with a comparison of results from the old and new code.

³ Person-to-person

Data Factory



The Data Factory program plays a significant role in the transformation of The Bank into a data-driven company. The foundation of the Data Factory is the creation and development of data services and data storage infrastructure. The program is intended to meet the following objectives:

- increasing the quality, completeness and availability of data;
- ensuring the reliability of business-critical services;
- increasing the quality and speed of management decision-making;
- reduction of time costs on the launch and change of products and services;
- receipt of additional profits from the use of data analysis;
- reduction in the cost of receiving and possessing data;
- monetization of data;
- behavioral analysis of clients and employees to adjust the strategy for working with various segments.

In 2017 we put into full-scale commercial operation key systems for working with big data using Hadoop technologies – Data Cloud and Data Laboratory.

Currently, information has been loaded into the Data Cloud from 34 systems containing data from both internal and external sources. In 2017, on the basis of data received in the Cloud the first data marts with information on individuals and corporations were created. Data marts are layers of a data warehouse according to the different areas. Also the first data domains of the Unified Semantic Layer (USL) of the Data Factory were created. By 2020 we plan to ensure the receipt by the Cloud of all needed consumer data, export all data necessary for business in the form of a data marts and complete the construction of the USL.

Experiments and data research are being conducted on the basis of the Data Laboratory, including the creation of the infrastructure to work with data science models that use intelligent data analysis methods. This work supports the Sberbank initiatives in the field of artificial intelligence.

Data Processing Center

-  33 thousand square meters of total floor space
-  30 megawatts – maximum capacity
-  2 thousand – maximum number of rack spaces
-  Capability of storing up to 1 exabyte of information
-  From -42 °C to +40 °C – operating range of temperatures
-  TIER III – fault tolerance (Uptime Institute)
-  2N – backup power supply
-  LEED Silver – environmental parameters

Opening of the largest Data Processing Center in Russia

An important milestone of the reporting year was a launch of the first phase of the new Data Processing Center at the Skolkovo innovation center, the largest DPC in Russia and one of the largest DPCs of its class in Europe. Four phases of construction have already been completed and the fifth phase of construction is coming to a close.

The DPC is a high-technology center for the storage, processing, and transfer of large amounts of data, which houses a powerful set of network and server equipment. This project is a significant step for Sberbank in developing information technology and using big data.

The purpose of the DPC includes development of Sberbank's IT infrastructure, provision of information centralization, automation of business processes, and optimization of computing processes. In addition, launch of the new DPC will increase the reliability of the IT systems of Sberbank and optimize operating costs.

The DPC project ensures a degree of reliability equal to Tier III in the international classification system (Uptime Institute). This corresponds to a system availability indicator of not less than 99.98%, which means it provides almost complete continuity of its functioning.

The energy systems of the DPC are constructed on a 2N arrangement and comply with the highest level of energy savings and energy protection, Tier IV. The cooling system uses the principle of direct cooling of outside air and can work without energy expenditure more than 330 days per year. The use of these systems will allow Sberbank to save approximately RUB 100 million in energy each year.

In addition, the new DPC was evaluated under the standard Leadership in Energy and Environmental Design (LEED) in the United States. It was awarded 51 points, and on completion of construction, the building received a certificate of compliance with LEED Silver.

At the initial stage of operations, the DPC will function as a backup facility, which will allow Sberbank to no longer lease external backup facilities. In the future the Skolkovo DPC will fully duplicate the South Port DPC (commissioned in 2012), ensuring the uninterrupted functioning of the Bank's automated systems. We also plan to operate the DPC for the needs of new lines of business and the location of new IT systems as part of the development of the Bank's infrastructure.

Reliability 99.99

The purpose of the Reliability 99.99 program is to increase the availability of client services regarding the Bank's critical automated systems and supporting infrastructure:

In 2017 a great deal of work was done and substantial results were achieved in this area. We implemented a georeservation of part of the automated systems in order to guarantee the safety of client data and full restoration of the automated systems operations at the backup facility.

This year the key system duplication regime Stand In (99.99%, 24/7) was implemented for all critical automated systems. This regime ensures that client services are maintained in a limited functionality regime agreed on with the business in the event of breakdowns in the automated systems and when performing technical maintenance work. This allowed us to avoid more than 530 hours of system downtime.

We launched in commercial operation the pilot zones for the automated systems. The use of pilot zones minimizes the risks of implementing a new business functionality.

Other important activities of the reporting year:

- All CIB systems in a short time were migrated from the leased data processing center to a more reliable target facility with no service interruption. A tech-refresh of some of the equipment was performed at the same time. The result was a substantial reduction in lease payments and improved reliability of service.
- We also put the automated system for capacity management into commercial operation, which allows us to forecast growth in the load on systems and the need for equipment resources.
- We revised the main processing system of the Way4 system, which allowed to increase the potential peak load to 5100 transactions per second (the current recorded maximum is 3.2 thousand transactions per second).
- The automatic retry of transactions in the event of an unsuccessful operation of adding cash to a card in self-service terminals and the automatic return of funds if no response is received in the payment system for acquiring operations were also put into commercial operation.
- We completed the migration of client payment servicing to a centralized target solution, which allowed to abandon the non-target facility. In addition we reduced the time for the automated processing of ruble payment orders of legal entities to 2.5 minutes.