



BrightOS

General description

BrightOS is a fully integrated system, based on a modern open and flexible architecture. It encompasses all aspects of banking activity and creates an opportunity for effective solutions, consistent with the customers' specifics.



Architecture

Our products are based on an optimized, highly efficient code. This allows our clients to effortlessly manage their current and future technical infrastructure. CSoft solutions can be the answer to the challenge of the explosive growth in the volume of processed data. Parallel access to data and its distributed processing make working with large volumes of financial information possible, meanwhile guaranteeing impressive operating speed when processing online requests and drastic optimization of the time duration of technological procedures. CSoft uses the benefits of multithread architecture and the possibility for parallel data processing available with modern information technologies, to ensure an optimal load on all available hardware resources.

Built upon an open platform, CSoft products are easily integrated with other existing applications and systems. Usage of widely distributed software standards (SOAP XML, JSON REST API, Web API, RPC, Message Queueing Protocols) provides a beneficial technology and platform data transfers.

The modules of the **BrightOS** bank information system are 64-bit applications, fully integrated and based on Microsoft® Windows UI. The uniform approach to constructing the screen dialogue windows and menus, the universal system of context-dependent relationships and the comprehensive active control ensure for the end users an easy to master, standardized access to all of the bank's information resources.

Specific characteristics

The internal logic and philosophy forming the basis of **BrightOS** determine its specific characteristics:

- ensures an effective mechanism for the management of access to the information resources;
- allows for parameterization, adjustment and definition of new bank products;
- guarantees a high degree of security and operational speed and a continuous working mode (24x7);
- automates the procedures for interest accrual and compounding, collection of fees and commissions, provisioning, amortization, maturity and others;
- provides flexible means for the formation, distribution, storage and use of a wide range of built-in and user-defined queries and reports.

Digital channels

The integrated banking system **BrightOS** supplements traditional ways for customer servicing with new web based, mobile and other access channels to banking products, services and information. The system guarantees protection against unauthorized access and inviolability of personal data and provides servicing in real time, in a working mode 24x7, through each of supported Digital Channels.

- Internet and Mobile banking, providing to customers current information about the balance and activity on their accounts.
- Phone Banking for customer servicing through telephone calls to Bank operators.
- Email and SMS notifications upon occurrence of different events - activity on customers' accounts, deposit maturity or loan payments, etc.

Functional scope

BrightOS is built as a fully integrated operational system, encompassing the Bank's entire activity. It provides information support for processes related to:

- processing of all bank transactions in real time;
- customer registration and maintenance of their electronic files;
- receiving and processing of all types of term and demand deposits;
- granting and servicing loans and loan substitutes;
- performing cash and cash-free payments in BGN and in foreign currency;
- conclusion of deals on the interbank market and exchange trade;
- maintenance of the bank's operational accounting;
- risk management;
- compiling queries and financial reports.



BrightOS enables Banks and Financial Institutions to

- Work with a uniform, centralized database, meanwhile minimizing the expenses and increasing the effectiveness of its administration.
- Effectively manage the expenses for building technical infrastructure without concern that drastic database growth will necessitate replacing the entire available hardware.
- Perform their regular activities in a uniform homogenous accounting environment, complying with all regulatory requirements. An environment, where every bank transaction, initiated by a random system module, is formalized and documented in a uniform manner.
- Register and trace the entire lifecycle of all deals concluded with their customers. Use context-dependent functions leading to a high degree of automation of accounting for bank transactions.
- Use a convenient, automated interface with other institutions and systems related to performing of all types of payments in BGN and foreign currency: SWIFT, TARGET, RINGS, BISERA, SEBRA, BORICA, VISA center, Central Depository, etc.
- Define and receive, at time intervals and of a scope chosen by themselves, queries and financial reports necessary for operational activity, economic analysis, risk management, internal control and for representation before external institutions.

Technical Aspects

BrightOS is an integrated banking system, built with cutting-edge technological means. All system modules are based on Microsoft® Windows graphical interface, fully integrated, and practically provide to end users a standardized access to all of the Bank's information resources. This working method, large data volumes and the multiple users place especially high-performance demands, which **BrightOS** completely covers. The system is fully localized. A continuous 24x7 working mode is ensured.

BrightOS is developed utilizing powerful C++ and .NET object-oriented platforms, offering flexible means for building complex systems operating in extreme operational loads – carrying requirements for large volumes, fast batch procedures, and real-time processing of online requests.

Separation of the individual business levels has been observed when constructing each system tier, meaning that, in case any one of them needs to be expanded, the rest do not have to be adjusted.

BrightOS contains standardized means used for compression and encryption of information exchanged over communication channels which contribute for the increase of general effectiveness and security.

From a technological point of view, the system is based on a multi-tier client/server architecture.

Client tier

The client modules of the **BrightOS** system are standard Microsoft Windows x32 bit stand-alone applications. They contain minimal business logic and provide the necessary user interface for initiation of requests to the application servers and displaying the received results.

All requests are exceptionally optimized from the point of view of resource use and necessary traffic over the net. RPC technology with a TCP/IP protocol with an option for adjustment is used for communication with the other system tiers.

Dispatch tier

The tier performs optimum distribution of the flow of user requests to application servers. To this end, servers are monitored in real time and the least loaded one is identified.

The dispatch tier guarantees achieving two functions that are especially important for the system's operation:

- Load Balancing – ensuring even server load;
- Failover support – redirection of requests when a server drops out.



Application tier

This tier manages user requests, performs the business logic and ensures data exchange between the other tiers. Application servers are multi-thread applications allowing the simultaneous processing of multiple requests. X64 bit architecture, based on a Microsoft® Windows platform, is used. This way, the application servers, where the load is highest, take advantage of the latest hardware solutions on the market, and, combined with the use of latest Microsoft SQL Server editions, an optimally configured working environment is achieved.

After a set of requests is received on a given application server, they are prioritized and processed in parallel by the fully controllable Request pool manager. This proprietary technology maintains a pool of resources for processing of requests, ensuring their competitive performance. This contributes for the maximum use of server resources of each application server and its stable operation. The technology offers an opportunity for prioritization of requests by groups depending on their type.

An interface allows the system administrator to monitor active users and the requests they have initiated that are not yet completed. Information on the resources currently used by each request to the database, and parameterization of the resources used by the pool are available. Active requests can be terminated, a limitation can be applied toward user requests to the system, and messages can be sent to users.

Communication between the application server and the remaining tiers is implemented over a TCP/IP protocol, using the RPC (Remote Procedure Call) standard, one of the latest technologies for distributed processing of information.

Client

User Interface
Presentation Services



Dispatch Tier

Load Balancing
Dispatch Request
Failover Support



Application Server

Middleware Interface
Business Logic
Data Access



Data Server

Data Services
Data Validation



Database tier

BrightOS supports all latest Microsoft SQL Server editions, utilizing Always On availability groups and an open database, available for additional queries and analysis. Processing of all data is transactionally secured. The interface between the application tier and that of the database is based on the highly productive Microsoft® technologies.

In order to optimize access to stored data, BrightOS maintains an online and an archive base.

CSoft has developed proprietary means that capsule the functionality of interfaces for access to databases. This provides an opportunity to use various databases and a fast, efficient and reliable access.

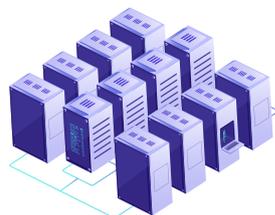
Multi-server environment

A special merit of **BrightOS** is the proprietary technology for the parallel work of up to 10 application servers. Transactional independence is achieved, as well as capsulation and atomism of elementary requests, permitting their implementation on a random server.

Additionally, competitiveness among requests and optimum load on the used server resources are ensured. In the client request management process, they are directed by the dispatcher tier to a particular application server, prioritized and executed simultaneously. The implementation of this technology ensures the following exceptionally important solutions:

- Load Balancing – even distribution of the load among individual servers;
- Failover support – continuous work when a part of the servers drops out;
- Scalability – easy scalability of the system when volumes are increased.

Cluster



Failover Server



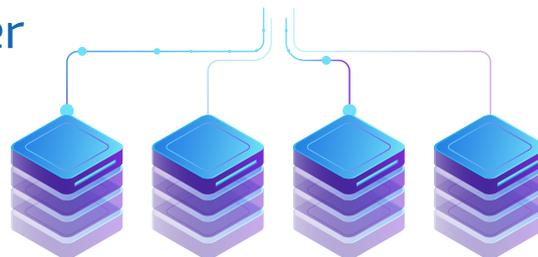
Online DB Server



BrightOS multiserver environment

Application Server

TCP/IP



Load Balancing, Failover support, Scalability



Workstations

Multi-server environment

An interface for monitoring and administration of the multi-server environment is provided. Real-time monitoring of the load on each server, the resources used by it and comprehensive information on its active requests. An option is available for adding and removing of an application server from the multi-server environment while the system is operating. Thus, adding application servers is possible at a time of unusual load.

The joint operation of a large number of application servers is a solution developed entirely by CSoft, and along with the standard schema for cluster solutions for server database scaling, it offers practically boundless opportunities for increase of the processed volumes and the system's span.

After a set of requests is received on a given application server, they are prioritized and processed in parallel by the fully controllable Request pool manager for user requests. This proprietary technology ensures the competitiveness of requests, maximum load and use of server resources of each application server. An opportunity is available for prioritization of requests by groups depending on their type. An interface allows monitoring active users and their active requests. Information on the resources currently used by each request to the database, and parameterization of the resources used by the pool are available. Active requests can be terminated, a limitation can be applied toward user requests to the system, and messages can be sent to users.

Application cache

Another proprietary development is the maintenance of system cache at application server level. This contributes for the multiple increase in the speed of operation of online and batch processing within the system. This is achieved by caching of data that is exceptionally sensitive to the time of access to it. In order to ensure the correct operation of the multi-server environment and the maintenance of system cache, a procedure for real-time synchronization between the application servers is implemented. Definition of data to be cached, as well as cache settings, can be managed by a system administrator.



Distributed batch procedures

Each prolonged operation can take advantage of the technology for distribution of batch processes to the active application servers. The mechanism for distribution of batch processes helps achieve even use of available resources, as well as reduction of the time duration of their performance. Batch processes can take advantage of parallel performance, either on one or several active servers.

Localization

The system is localized, and resources are stored in the database. This contributes for the easy adding of a new active language, and the corresponding translation can be performed by a system administrator. A basic system language and a language at user level are maintained. This allows each application to operate in a different language.

Interfaces with other systems

BrightOS allows an easy integration with other legacy applications and systems. The use of widely distributed software standards makes providing a beneficial environment for bilateral data exchange possible.

- JSON REST API
- SOAP XML
- Web API
- Message Queueing Protocols
- RPC
- OLE DB
- SQL Native Client





BrightOS

System administration

All modules of the **BrightOS** banking information system are based upon a uniform concept for providing security and data protection. Using a multitude of parameters and entry data, system administrators are able to describe peculiarities of the business logic, entry and resulting data and documents and the hardware platform of each particular implementation. The starting, tracing and documenting of technological and periodic procedures is automated to the maximum.

Security and data protection

The system offers a broad functionality for access administration:

- parameterized requirements for access passwords: size, frequency of change, number of unsuccessful login attempts before automatic freezing is triggered;
- definition of types of standard users related to the standardization of rights of access to modules, data and system functions;
- registration and banning of users, assigning specific rights (job descriptions), association with accounting groups, size of maximum permitted transaction;
- audit traces of the performed user actions – log in/ log off, added/ edited data, initiated system procedures, produced queries;
- dynamic monitoring of active users and their requests, group and individual messages, locking of the system, statistics and analysis of the satisfied requests.



Settings

A wide variety of parameters allows setup of system functions according to the specific requirements of each individual bank. System parameters determine:

- the logic of specific business procedures;
- standard accounting correspondence;
- limitation terms and sums;
- interpretation of the requirements for running of some of the queries;
- peculiarities of printing devices;
- hardware settings.

Technological procedures

The sequence of actions related to end of day, month, and year, are included in specialized technological procedures. All events occurring during the process of their implementation are strictly documented.

The formation of all necessary queries and reports is implemented according to a user-defined list. The system used for naming of all resulting files ensures their unambiguous identification and their distribution to financial centers.

| Край на деня | | |
|-------------------------------------|-------------------------------------|--|
| За изпълн. | Вече изпълн. | Име на процедура |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Приключване на валут... |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Приключване на сделките с ДЦК |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Закриване на партиди по закрити сделки |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Приключване на операциите за деня |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Задаване на курсовете за валута |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | Преценка |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Актуализиране на лихвените планове |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Приключване на депозитните сделки |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Приключване на влоговите сделки |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Приключване на разплащателните сделки |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Подготовка за извлечения |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Подготовка за дневни отчети след приключване |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Подготовка на месечни отчет след приключване |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Подготовка на тримесечни отчети след приключване |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Архивиране на валутните курсове и ОЛП |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Архивиране на базата след края на деня |

Настройки на график на процедури

Процедури:

| Код | Име на процедура | Тип на стартиране | В график | Активиране на |
|-----|--|-------------------|----------|------------------|
| 1 | Подготовка на преводи за RINGS | Атоматично | Да | Ежедневно08:1... |
| 2 | Обработка на преводи за RINGS | Автоматично | Да | Ежедневно08:1.. |
| 3 | Подготовка зна файл за ЦДАД | Ръчно | N/A | N/A |
| 4 | Обработка на файл за ЦДАД | Ръчно | N/A | N/A |
| 5 | Експорт на клиенти за FlexCube | Ръчно | N/A | N/A |
| 6 | Експорт на валутни сделки за FlexCube | Автоматично | Да | Ежедневно08:1.. |
| 7 | Импорт на данни от FlexCube | Автоматично | Да | Ежедневно08:1.. |
| 8 | Експорт на ДЦК сделки за FlexCube | Ръчно | N/A | N/A |
| 9 | Обработка на файлове за и от ЦД | Автоматично | N/A | N/A |
| 10 | Превключване в режим на приключване..... | Ръчно | Да | Ежедневно08:1.. |
| 11 | Изтегляне на инф. гайл от ЦД | Автоматично | N/A | N/A |
| 12 | Инициализиране на тестови процедури | Ръчно | Да | Ежедневно08:1.. |
| 13 | Тестова процедура преводи 1 | Ръчно | N/A | N/A |
| 14 | Тестова процедура преводи 2 | Ръчно | N/A | N/A |

График:

Процедури:

| | | | | |
|---|---|--|---|--|
| <input type="button" value="Стартиране"/> | <input type="button" value="Добавяне"/> | <input type="button" value="Преглед"/> | <input type="button" value="Редакция"/> | <input type="button" value="Изтриване"/> |
| <input type="button" value="Спиране"/> | <input type="button" value="Еднокр. стартиране"/> | <input type="button" value="Добави в график"/> | <input type="button" value="Спри от график"/> | <input type="button" value="Изход"/> |

Banks using this system have at their disposal

- a specialized interface for the monitoring and management of active users and their requests;
- a specialized tool for management of periodic background procedures ensuring an automated interface with other systems – SWIFT, BISERA, RINGS, etc.;
- an option for dynamic monitoring of the load on application servers in use;
- extensive system logs, reflecting the events that have occurred in the system's working process;
- an option for definition of additional User Defined Fields in various registers.



BrightOS General ledger

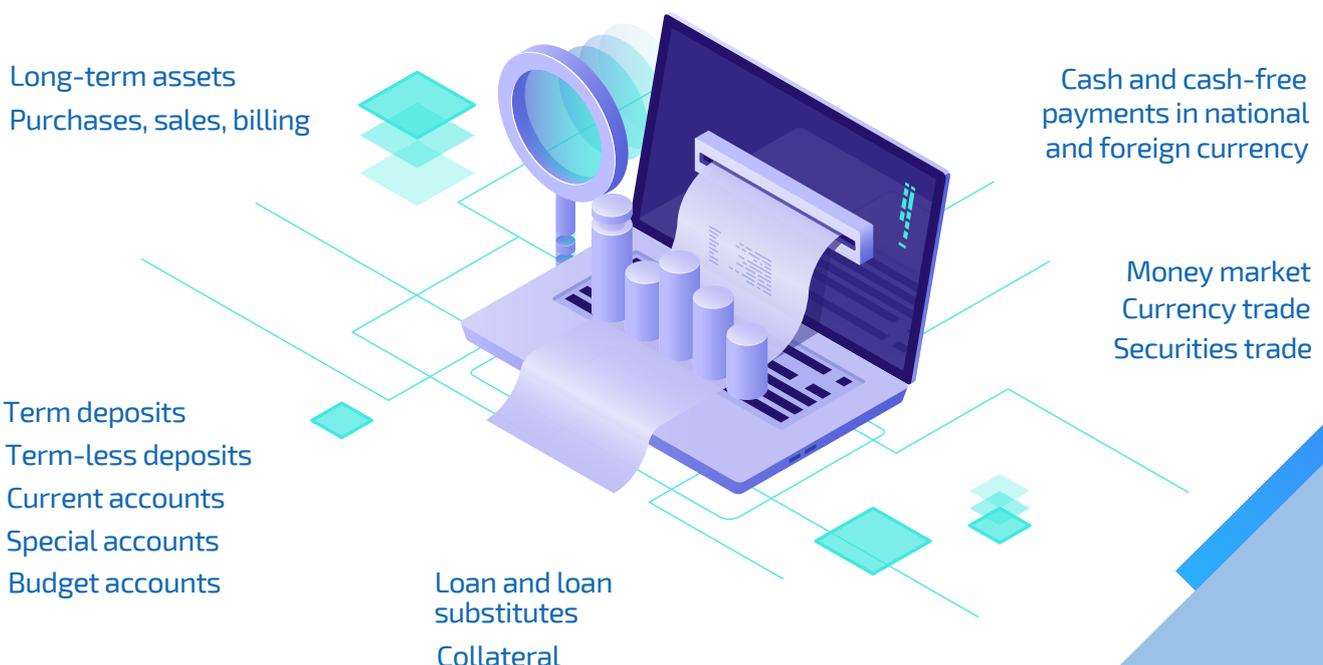
General ledger is the basis of the logical architecture of the **BrightOS** integrated banking system.

At this level, basic accounting objects are maintained – determinants of analytical bookkeeping, bookkeeping accounts, accounting operations. Using data and references, general ledger interacts with all other system modules, and reflects in a uniform manner the specific peculiarities of the business logic implemented in the higher-level registers.

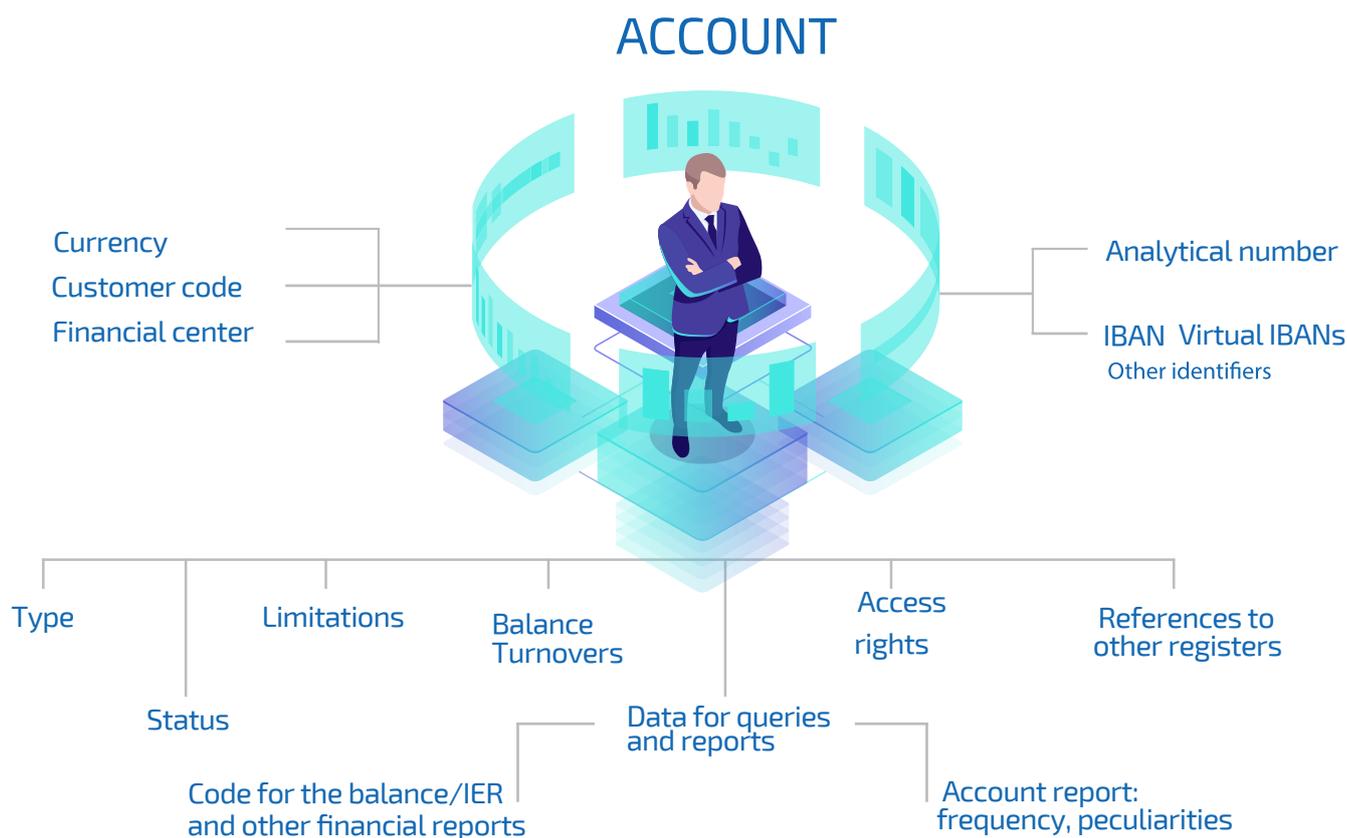
The “General Ledger” level combines the logic of basic financial principles with the efficiency and speed of computer technologies and guarantees not only speed of processing, precision and fullness of calculating procedures, but also prevention of user errors. General ledger ensures:

- A flexible, adjustable chart of accounts with the corresponding synthetic and analytical accounting, based on user-defined determinants of financial accountancy. Both client and internal balance sheet and off-balance sheet accounts are treated in a uniform manner.
- An option for definition of the hierarchical structure of the financial centers and branches. Preparation of financial reports and definition of access rights at branch and financial center level. Automatic transactions for settlement between financial centers.

GENERAL LEDGER



- Work with accounts in national and foreign currency. Re-evaluation. Currency balance. Open currency position.
- Maintenance of online information on turnovers and balances on all accounts.
- An option for description of a second, alternative chart of accounts.
- Automated procedures for import and export of accounting entries from/ to external systems.
- Operational queries and journals: operational journal, turnover register, account report, state of accounts, exception reports.
- A flexible mechanism for description, execution and archiving of financial reports: balance, profit and loss statement, etc.;
- End of month and end of year procedures.



Banks using this system are able to

- Define their own individual chart of accounts, based on bookkeeping accounting determinants defined by themselves. Use a convenient specialized interface for access to each analytical account or subset of accounts, filtered by values or parts of values of its valid determinants.
- Take advantage of current information on online balances and turnovers for all accounts, at any moment in time, and an option to detail this information by levels: at the beginning of day; from confirmed current operations, from pending current operations, from operations with future value date.
- Describe the relations between types of clients and the types of accounts appropriate for them, which guarantees the correct automatic opening of all analytical client accounts and assigning the corresponding IBAN numbers to them.
- Define an alternative chart of accounts and perform full daily transformation of data on accounts and activity on them.
- Describe the hierarchical structure of their financial reports (balance and profit and loss statement) and define the rules for describing each analytical account in them.

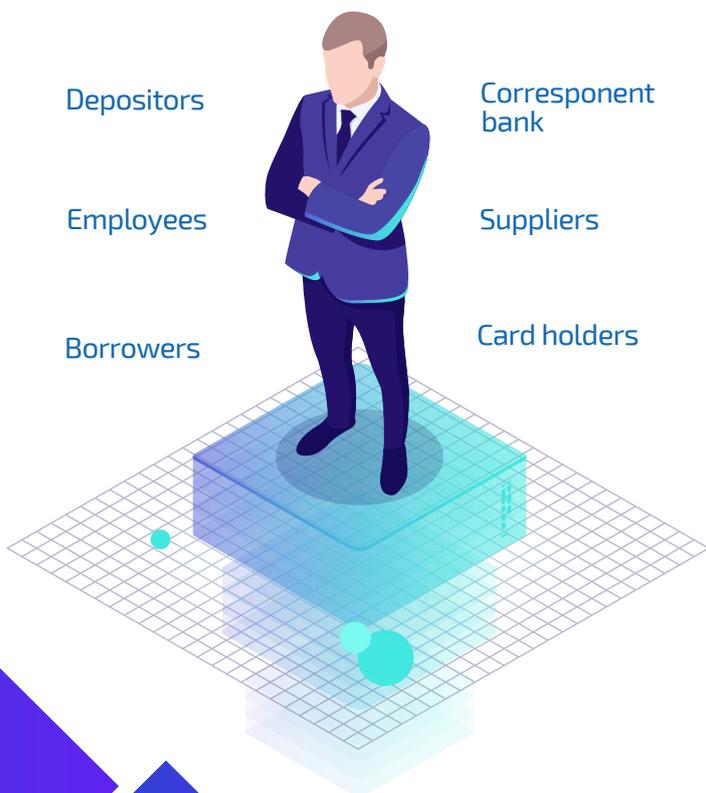


BrightOS Customers

BrightOS is a customer-orientated system. The unified customer index is the basis for the construction of accounting and non-accounting information. The interface of the modules designated for direct customer servicing is based on working with it.

Every subject interacting with the bank is defined as a customer. Customer information is maintained by a specific financial center, but it is used by all offices and bank departments.

Customers



Customer's information file

Customer data is maintained as a uniform register where various types of data are stored:

- about customer identification – name, customer number, type of customers;
- about contact with the customer – address, telephone, e-mail address, etc.;
- about scanned images of customer's documents;
- about analysis and queries – customer classification according to various indicators: Sector Classification of Institutional Unit, economic field, legal status, country, etc.;
- about loans and loan limits: credit rating, category, customer's relation to the bank, limits;
- related to using the Internet banking service;
- additional data, depending on the type of customer: for legal entities, for private individuals, for budget spending units.

Customer's information file

Data on legal entities

Data on private individuals

Data on correspondent banks

Data on budget spending units

General data

Loans/limits

For analysis and queries

For Internet banking

Basic data

For contact

Scanned images

For identification

Related registers

The customer index is directly linked to some additional registers:

- Authorized individuals – where text and graphic information about the customer's representatives and his/ her authorized individuals is stored.
- Related individuals – the register is based on declarations of relation, submitted by the borrowers. Lists of groups of individuals related to the bank are generated from it. Except for declared relation, groups can be logically expanded, based on derived relation to third parties.
- Internet banking terms. For customers using this service, additional data on rules for signing electronic documents received over the Internet is defined, and for individuals having access rights for remote banking – identifications, access rights, affiliation to groups, certificates.
- A specialized register with data related to the measures against terrorism financing.
- For customers trading in corporate securities, data necessary for the formation of messages to the Central depository is stored in an additional register.



Banks using this system are able to

- Furnish their customers' electronic files with scanned images of Personal ID cards and the specimens of company representatives and their authorized individuals.
- Receive complete and current information about the full exposition of each one of their customers.
- Define their own customer categorization and receive profit and loss statements on their activity on "customer category" level.
- Guarantee to their customers complete servicing in each of their bank parlors and offices (financial centers), regardless of where their accounts are registered.
- Offer to their customers a variety of innovative channels for a continuous access to bank services: Internet Banking, Phone Banking, SMS Notification, etc.

Deposits received

BrightOS provides means for description of the terms of all deposit products offered by the bank, allowing automation of all procedures for opening, current interest accrual and compounding, collection of fees and commissions, maturity, repayment and closing of deposit deals. Data on the term and sight deposits received is stored in special registers. A multitude of functions facilitating operating work are implemented in the context of each entry on a particular deposit (deal): generation of payment documents, queries, links to other registers – credits, cards, frozen amounts, periodic payments, etc.

Deposit products

When defining deposit products, multiple data reflecting the terms defined in the bank's tariff are entered. The particular entry for each product (standard contract) contains information on deposit terms (currency, term, interest rate, fees, additional terms and limitations) and accounting for them (corresponding accounts and specific accountancy determinants). During the process of registering a new deposit, terms of the corresponding product are applied. Some of the terms, in certain cases, can be specified individually.

When changes in the tariff occur, it is only necessary to change the described deposit products. The system offers an option for update of the changed terms in every individual deal related to the corresponding standard contract.

Types of deposits

Deposits are divided into the following types: term deposits, current accounts, sight deposits, special accounts, accounts of spending units. A specialized register, for which interactive and technological procedures characterized by security and convenience are ensured, is maintained for each type. These procedures allow processing automation and option for tracking of the entire life cycle of each individual deal (contract).

Servicing of various types of deposits has some common characteristics and specific features:





For all types of deposits

- Opening of accounts: standard/ individual deals, generation of contracts, generation of analytical account number and assignment of IBAN, relation to a financial center.
- Servicing joint accounts with more than one holder, created with the purpose of common assets management.
- Granting of a bonus interest to customers regular savers, defined on the basis of statistical indicators for maintaining an average monthly balance within certain limits, additionally deposited amount in certain limits, etc.
- Fees and commissions: periodic, for events, automatic currency conversion, queries, partial and subsequent collection.
- Current accrual of interest: interest terms (interest plan), minimum balance, standard correspondence, grace period.
- Freezing of amounts/ garnishing – automatic and manual freezing.
- Context-dependent cash and cash-free payments.
- Operational queries and documents for the customer – state and history of account, queries of transactions and documents, account report, etc.

For current, sight deposit, and special deals

- Maintenance of specialized accounts for servicing of the private enforcement agents activities.
- Payment of interest: grace period, periodicity of repayment, account for interest compounding.
- Frozen accounts.
- Periodic payments: amount, periodicity, confirmation – payments of a pre-determined amount or entire balance.
- Links to the register of credits granted – credit disbursement, upcoming credit payments; automatic disbursement/ repayment of overdrafts.
- Link to the register of bank cards.

For term deposits

- Interest payments: at maturity, periodic, advance; accounts for repayment.
- Additional amounts: disabling, interest accrual, freezing.
- Maturity: repayment of principal, automatic renewal, change of terms.
- Termination; Restructuring.
- Currency conversion.



For accounts of spending units

- Maintenance of various specific types: escrow accounts, current accounts in BGN and foreign currency, distributable (local and republican budget), income (transit and for available funds), non-budget accounts.
- Processing of payments to income and distributable accounts with dynamic maintenance of information on turnovers by codes for type of payment.
- Interest repayment – generation of payment documents for the transfer of interest to accounts external to the bank.
- Payments for budget centralization – local budget centralization and centralization of spending units participating in UBS.
- Budget payment order, interface with SEBRA – generation of payments through SEBRA.
- Specific queries: Forms 90, 91, 92, 93, parameterization; reports by payment code etc.

Banks using this system are able to

- Define the banking products offered by them through combinations of a large number of parameters and describe the relations between them, the types of customers and the corresponding book-keeping accounts;
- Describe their interest rates for all types of received deposits through basis levels, specific to the bank(e.g. the rate for current accounts);
- Automatically create and print contracts for all types of deals in a graphic format, according to frames designed by themselves;
- Guarantee the security of customer accounts, by applying special procedures for work with the so-called "Dormant accounts";
- Offer to their customers an opportunity to receive bank statements in various forms (general, detailed) with a chosen periodicity (daily, weekly, monthly), both on paper or in a digital format.





BrightOS

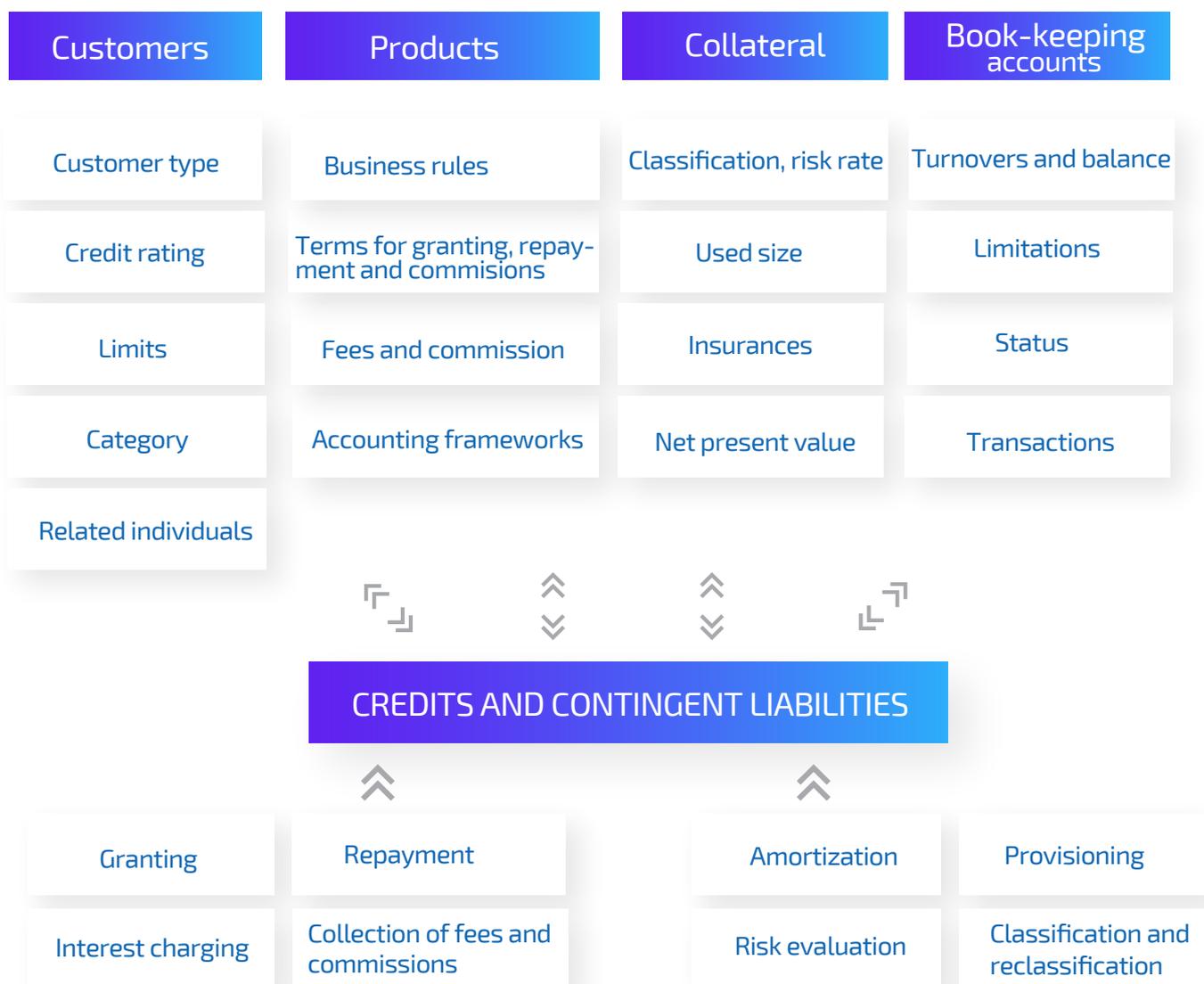
Loans and contingent liabilities

The **BrightOS** integrated banking system ensures the maintenance of specialized registers of loans granted and the undertaken contingent liabilities. The procedures for principal disbursement and repayment, accrual and repayment of interest, collection of fees and commissions are automated. Flexible algorithms for amortization, evaluation and classification of risk exposures, computation of necessary provisions are implemented.

Products

The system is product-oriented. When defining credit products, bank guarantees and documentary operations, the following data is included: type of customer; business rules; terms for repayment, disbursement and interest accrual; fees and commissions; accounting framework.

Products application significantly facilitates registration of new deals, reduces the opportunities for error and raises the operational control level.





BrightOS Payments

All types of cash-desk and cash-free payments in BGN and foreign currency are covered in the **BrightOS** banking system. Payment documents are registered and processed according to the regulatory requirements and the bank's internal rules.

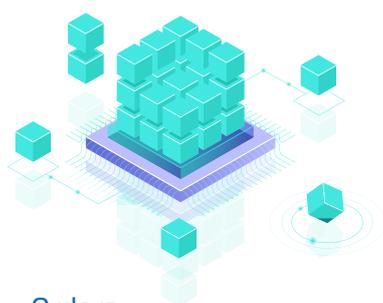
A high degree of automation and utmost traceability are ensured at transactions

General functionality

At initial registration of each payment document, thorough active control is implemented: default requisites are loaded, the correctness of interrelated fields is monitored, an option for selection from lists of permitted values is ensured. The fee collection procedure is flexible and efficient. Document processing goes through a sequence of queues, access to which is precisely detailed.

Generation of accounting operations is completed using a chart described by the customer. Generation of files with outgoing SWIFT messages and their sending to external operators is automated. All registered documents can be printed according to user-defined graphic templates. Queries related to the measures against money laundering and statistics of the payment balance are generated automatically. Convenient interactive payment document queries are provided.

Initial data



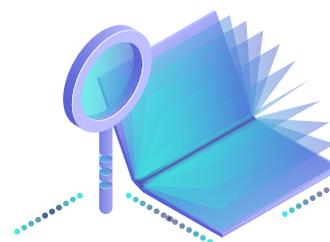
- Orders
- Interactive entering
- Internet banking
- Initial file
- Ordering party data
- Name, address, ID
- Proxies
- Limits
- Accounts
- Available balance
- Limitations
- Number/ BULSTAT

Procedures



- Registration and formal contion
- Fee collection
- Second control
- Posting
- Billing, sales journal confirmation

Resulting data



- Document printing
- Declarations printing
- Resulting files with SWIFT messages
- MML queries and balance of payments
- Queries for customers, analysis, and verification



Cash-free payments in foreign currency

- An interface with different local and international currency payment systems (BISERA7, TARGET2, SWIFT) is ensured.
- A unification of processing is achieved. This allows the direction of each payment instruction to be determined either automatically – at the basis of pre-defined priorities and criteria (amount, currency, receiver), or individually – at registration of a new document or at a certain stage of its processing.
- The processing of issued and received transfers is organized in a sequence of queues. The queue servicing discipline and the accounting framework are subject to user customization. The queues main states are registration, verification, available currency, posting, authorization, nullification, message creation and cancellation, processing of validation and settlement results, termination.
- Procedures for data transfer with different payment systems are most automated. Processed by them messages conform to the approved international standards SWIFT, ISO 20022.
- Specialized interfaces for: deposits of amounts according to bills of entry, cash-desk payment of local taxes and fees, POS withdrawal;
- Registration and processing of withdrawal notifications;
- Cash-desk journals and cash-desk manuals at various levels: cash-desk, teller, financial center, bank.

Cash-desk payments

Cash-desk payments encompass all types of orders for deposit and withdrawal of amounts in BGN and foreign currency, and the following is ensured:

- Working modes – one-stop-desks, specialized cash-desks, virtual cash-desks;
- Maintenance of denomination composition of all cash-desk funds;

Cash-free payments in BGN

All types of standard documents and notifications on cash-free payments in BGN are processed. For this purpose, the following are maintained:

- Interfaces with BISERA, RINGS, SEBRA;
- Register of received unresolved transfers;
- Register of consents with direct debit payment;
- Queries on ordered, received payments to correspondent banks.



Recurrent payments

An option for the registration, at deal level, of various types of documents for intra-bank and interbank payments. The more important characteristics of recurrent payment definition are as follows:

- Document type and requisites;
- Periodicity – duration and total number of periods;
- Specific conditions for payment amount – a fixed amount, minimum balance after payment.

Banks using this system have at their disposal

- a parameterized mechanism for a secondary control of payments in BGN that may be activated at various levels: type of document, financial center, size of the ordered payment, user who has initiated the payment;
- a possibility for a flexible organization of the cash-desk servicing of customers and an additional control for the actual processing of the requested cash-desk payments;
- automation of servicing payments from end customers of duties, VAT, excise duties and other specific charges for the custom practice;
- a mechanism for automated collection of fees and commissions related to performed payments, including an invoice issuing and registration in the sales journal, in cases of services subject of VAT;
- unified, centralized registers of documents and transactions related to processing of all types of payments in BGN and in foreign currency.

Bills payment

The subsystem is designated for automatic payment of the bank customers' liabilities to companies for utilities provided (electricity, telephone, heating). Data exchange is conducted according to a pre-agreed format. The following are ensured:

- Maintenance of a register of consents with utility payments.
- Exchange of initial and resulting files with the companies providing utility services.
- Automatic procedure for payment generation.





Technological procedures

All events throughout the lifecycles of the corresponding deals are included in the developed specialized mass and interactive procedures: request registration, analysis of related individuals and their exposure to the bank, receiving of collateral, registration of a new contract, reporting of commitment, disbursement, annexation, repayment, delinquency, full prepayment, settlement. All accounts and transactions related to accounting for events are created automatically, based on a schema described in the corresponding products.

Some of the more specific characteristics of working with various types of deals are:

Specialized procedures

Data on deal contract terms, supplemented with information on customers, products, collateral and state of the corresponding book-keeping accounts is used as an initial data for the developed specialized procedures.

THE AUTOMATED PROCEDURE FOR DETERMINATION OF AMORTIZABLE VALUE OF THE CREDIT is based on the effective interest method according to the requirements of IAS39. The generation of money flows, computation of effective interest rate and computation of the size of amortization for each period is implemented for each particular deal individually.

THE AUTOMATED PROCEDURE FOR EVALUATION AND CLASSIFICATION OF RISK EXPOSURES AND DETERMINATION OF THE SPECIFIC PROVISIONS FOR CREDIT RISK

uses data on the borrower's financial state, the quality of credit servicing, the deal contract terms and its current state. The risk value of the exposure is computed by applying the corresponding business rules for discounting of expected money flows, taking into consideration the net present value/ insurance value of highly liquid collateral. The specific provisions for credit risk are defined as the disparity between the balance and risk value of the exposure.



Loan deals

- Working with credit limits: common limit for a customer or a group of customers, provisioning within the confines of the group.
- Intelligent tracing of the observation of plans for disbursement and repayment.
- Automation and transparency of overdrafts use and repayment.
- Daily current accrual of interest. Parameterization of interest accrual, option for off-balance-sheet accounting for unpaid interest.
- Parameterization, planning and automatic collection of fees and commissions. Fee amortization.
- Specialized procedure for automatic collection of delinquent receivables.
- Servicing of borrower property and life insurances through specialized procedures for monitoring and collection of insurance premiums payment by customers and automated processing of the insurance claims paid.



Bank guarantees, documentary operations

- Deal registers for: guarantees; import and export letters of credit; import and export collection.
- Collection of fees and commissions.
- Register of guarantee frame contracts. Limits.

Banks using this system have at their disposal

- A unified collateral register. Organization of the relations between risk exposures and their collateral of the many-to-many type – i.e., a single loan can be related to several collaterals, and a single collateral can be related to several loans. Detailed classification, net current value.
- Specialized calculator for computation of annual expense rate for consumer loans.
- Option for generation of queries and Oversight reports related to: the unified credit register (Ordinance 22); the evaluation and classification of risk exposure (Ordinance 9); capital adequacy

CSoft

Imagine. Reinvent. Accelerate.

