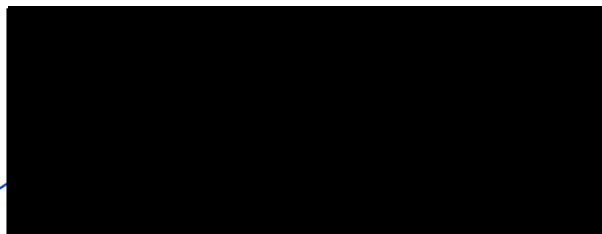
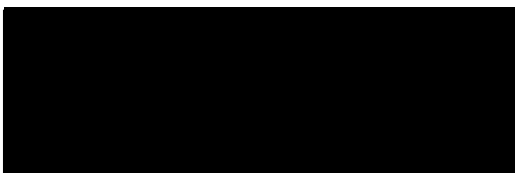


TECHNICAL SPECIFICATIONS
FOR A PUBLIC PROCUREMENT CONTRACT WITH THE OBJECT OF
‘UPGRADE OF THE CURRENT VERSION OF THE FOREIGN EXCHANGE
RESERVE MANAGEMENT SYSTEM *TREMA FINANCE KIT* (WITH A NEW
TRADE NAME *WALLSTREET SUITE*) FROM VERSION 6.5. TO VERSION 7.4.’



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1 Introduction

The Bulgarian National Bank (“BNB” or “the Bank”) currently uses version 6.5 of Wallstreet Suite to support a number of its business processes. The BNB is assessing a potential upgrade to the version 7.4 of Wallstreet Suite, in order to retain continued support for the system and to implement support for additional instruments and functionality not provided by the current version.

2 Business processes

The system must provide support for the Bank’s business processes relating to its foreign currency operations – those relating directly to the maintenance and use of the Bank’s foreign reserve and other business processes involving foreign currency operations:

- Reserve management and FX policy
- External managers
- FX Bank Notes
- Currency Board
- Payment services
- IMF operations
- Non-Treasury Assets and Liabilities

3 Main areas of functionality

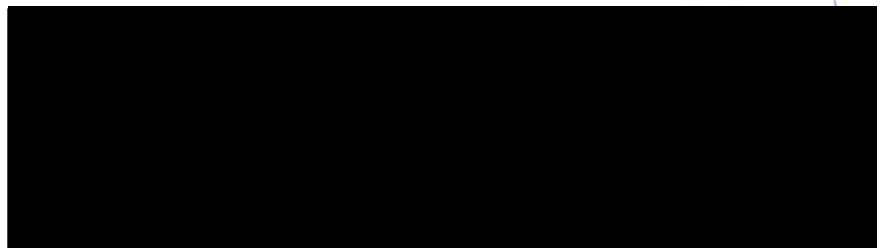
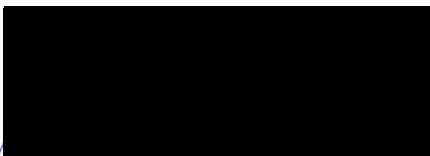
The system must support the following main areas of functionality:

- Entitlements
- Static Data Management
- Market Data
- Transaction Capture
- Transaction Workflow
- Position Monitoring and Valuation
- Financial Transaction Administration
- Limits and Compliance
- Confirmations and Settlement Processing
- Performance Management
- Accounting
- Reporting

4 System Users and Entitlements

The system must support the work of users in the following functional areas:

- Investments (front office)
- Settlement (back office)



- Risk management (middle office)
- Accounting (accounting office)
- Administration (IT support)

The system must support permissions based on Access Profiles (access to portfolios, objects, applications etc.) and Roles (collection of Access Profiles). Access to various functionalities is controlled directly or by assigning Roles to users, whereby their permissions are determined by the Access Profiles assigned to those Roles. Each Access Profile controls access to a specific type of functionality or data.

5 Reference Data

The system must support static data management functionality with regards to:

- Client structure and details
- Calendars and calendar groups
- Currencies
- Yield curves
- Rules
- Properties and parameters
- Time zones

6 Portfolio structure

The system must allow for a portfolio structure that supports each of the Bank's business processes described in Section 2 above. Portfolios will be single-currency and multi-currency.

7 Instrument support

The system must support financial instruments for the Bank's operations in foreign exchange markets, money and repo markets, bond markets, derivatives markets, gold and gold derivatives markets. The system must support payment instruments for making payments, injections, and cash transfers. The system must support liability instruments. The system must support valuation based on a theoretical and a quoted method. The system must support interest rate risk measures based on a Base IR Exposure method and Risk Yield method.

8 Market Data

The system must support importing market data from Bloomberg and internal sources. The system must provide the ability to store multiple different rates/prices/etc. for a variable on any date, to be used for different purposes, storing these in different Scenarios.

9 Workflow support

The system must support straight-through processing of operations with controls. The system must support the workflow related to front office and back office transactions.

10 Valuation and Position Monitoring

The system must support the real time monitoring and valuation of positions. The system must support the monitoring of the effects of simulated changes in market variables. The system must provide support for two types of simulation – simple and scenario-based – for different types of market variables. The system must support Parametric Value-at-Risk calculations.

11 Performance management

The system must enable consistent measurement of portfolio performance and attribution in absolute and relative terms. The system must support:

- Basic performance measurement
- Risk-adjusted return measurement
- Performance attribution

12 Limits and compliance

The system must support the application and real time monitoring of the following types of limits related to reserve management operations:

- Market risk limits
- Credit limits
- Currency and Liquidity limits

The system must allow for the handling of limit violations.

The system must support the setup of portfolio rules and transaction conditions for compliance purposes.

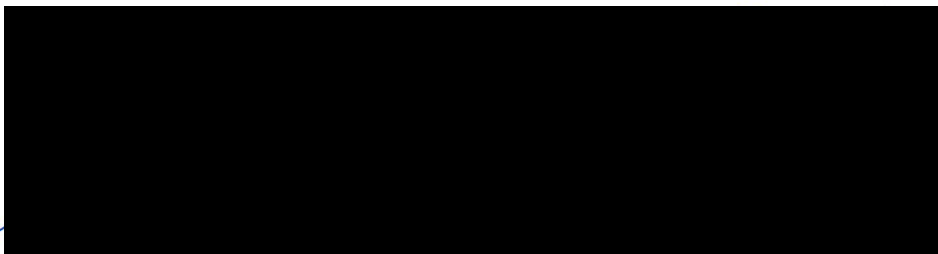
13 Confirmations and Settlement processing

The system must support the various aspects of the Bank's Back Office processing:

- Standard settlement instructions
- Cash accounts
- Custody accounts
- Settlement and confirmation messages
- Netting, pair-offs and splitting
- Reconciliation

14 Accounting

The system must support accounting rules, corresponding to the ESCB Accounting Framework and IASs. Reporting of and generating of accounting entries and calculation of results according to various accounting rules/methodologies/frameworks (ESCB Accounting Framework and IASs).



15 Reporting

The system must support functionality for generating reports or other outputs on data in the system. These outputs will be used for position monitoring, risk management, decision support, auditing, and other functions to support each business process.

16 Implementation Environment

Wallstreet Suite v7.4 will be implemented and hosted on the Bank's premises.

16.1 Hardware and software components

The hardware and third-party software, including RDBMS (relational database management system), application server and third-party products that will be used are:

- Database servers – IBM xSeries and/or pSeries
- Application servers - VMware vSphere 6.5
- The system database on Oracle 19 or later version
- Database server operating system - AIX 7.2 or later version
- Application server operating system – RHEL 7 x84_64 or later version
- Virtualization environment –VMWare
- Work stations – Microsoft Windows 10 64-bit, Microsoft Office 2013 or a higher version, Microsoft Edge

16.2 Software components of Wallstreet Suite

- Transaction & Risk Management Module (TRM)
- Accounting Module (ACM)
- Delivery & Confirmation (D&C)
- ION Bus – the middleware and integration layer that allows ION components to exchange data as part of the Service Oriented Architecture (SOA)

16.3 Environments

- Development environment
- Production environment
- Disaster and recovery (DR) environment (located on the second BNB datacenter)

Each physical environment will consist of at least two dedicated servers. One to host Wallstreet Suite server-side processes (usually referred to as application server) and one to host database server processes (usually referred to as database server).

16.4 Interfaces

The following standard interfaces need to be installed and configured during the implementation:

Table 1: Standard Interfaces

Area	Description
Market Data	Bloomberg Data License polling Market Prices
Market Data	ECB FX Rates import
Market Data	Market Prices import
Static Data	Bloomberg Data License polling Credit Ratings
Static Data	Bloomberg Data License polling for Instrument Information
Static Data	Benchmark Manager Import of Indices with their Composition
Middle Office - Risk Management	MSCI RiskMetrics / FEA: volatility and correlation data Interface
Back Office - Confirmation / Payment	SWIFT Net connectivity (trade confirmations and payments/settlements)
Market Data	Email confirmations and trade tickets

The following custom interfaces need to be delivered as part of the implementation project.

Table 2: Custom interfaces

Area	Description	Description
Trading	Generic transaction import	To be used for external manager(s) trades import (xls & csv files), Liability Positions (xml file), Currency positions (xml file)
Accounting	Accounting data export	
Back Office Payment	Client Payment Instructions	Processing of client payment instructions received from through various channels (SAP, SWIFT, etc)
Accounting	Overall currency positions	Calculation of overall currency positions and export of calculated values to SAP.

17 Customizations

The following Customer Specific Developments must be delivered in the project:

Table 3: Customer Specific Developments

Area	Description
Middle Office	Key figure saving, through pre-specified tables and views stored in system database. Simultaneous support of 2 covariance matrices in both Treasury and Limit Monitors. Calculation of VaR based on absolute changes in risk factors in addition to system approach, based on proportional changes.
Back Office	Reconciliation – generation of outgoing MT535 and MT950
Reporting	Custom reports to be specified during the project.
Confirmations & Settlements	Custom SWIFT messages
Back Office	Copy of transaction parameters into settlement parameters
Middle Office	Transaction Parameter will be automatically filled either by instrument id (where unique e.g. securities) or by concatenation of transaction keys (instrument, date, rate, etc). The value will be used as unique identifier of the instrument.

18 Project management requirements

The WSS7.4 upgrade implementation must follow a standard approach for project management that enables governance and management review, decision-making and delivery management activities. These activities should focus consistently on business value and goals (i.e., requirements, risk, costs, schedule and quality targets).

The objectives, scope, and formal deliverables for the upgrade implementation must be clearly defined and agreed between the Contracting Authority and the Contractor.

The upgrade implementation approach must include description of the strategy that will be applied to execution of the project, the main project activities and related these activities to the overall project plan.

Project plan and milestones must be defined to assess project progress contractually, and to estimate the resource effort that will be needed to execute the project.

Organization, roles and responsibilities of the Contracting Authority and the Contractor for different aspects of the project must be clearly specified and agreed.

Change Control Process must be established so that all changes to the project baseline (e.g., scope, expected business benefits, schedule, quality, cost, risk level) are appropriately reviewed, approved and incorporated into the integrated project plan.

The Software Upgrade must be divided into four major phases in the Contractor's Technical Offer as follows:

a) Project initiation: The activities needed to finalize planning for the project; introduce those involved in the project to the work that they will be doing; and to carry out the training needed to introduce BNB core team to the System and provide them with the skills they will need to conduct the project.

b) Solution assembly: All of the components of the System are assembled, developed, or configured, and undergo individual testing where appropriate.

c) Acceptance: The completed System undergoes a series of structured end-to-end tests to prove that it meets the agreed requirements and will support BNB's operations once live, that all the components work together and that it will operate safely and effectively in production. This process is used to determine contractual acceptance of the System.

d) Commissioning: Where the operational data needed to support BNB's business is loaded into the System and validated, the System and its links to BNB's other systems are migrated into BNB's production environment, the modified organization, business processes and operational procedures required to use the System are activated, and the System starts to be used for production.

The criteria for acceptance of the System is the provisioning according to the plan of the following deliverables:

- The logical infrastructure required to enable the System use and support in production. This will include project and production physical environments comprising server and BNB hardware, together with the operating software needed to implement and support the System (operating systems, database software, operational and development tools, etc.).
- The Wallstreet Suite software (including required product options such as standard interfaces) as well as any customer specific developments and interfaces, installed, configured, tested and integrated into BNB's overall production environment to provide the agreed functional support specified in the Project Scope Statement.
- An operational production System consisting of the standard software, any customer specific developments and/or interfaces together with a database containing BNB operational data to provide the initial basis for production use of the System, with all interfaces and links to other BNB systems migrated to work with the new System.
- Users, user support staff and technical support staff trained so that they can effectively use and support the final System in production.
- Standard documentation, operational procedures, user documentation, and support procedures necessary to effectively operate and support the System in production.

19 Training requirements

The training during the project must be provided as a separate Training Proposal and must cover:

- A training course (5 days) carried out at BNB's premises to introduce the core team to the functionality of the Wallstreet Suite v7.4., focusing on new functional topics available in version 7.4. It must be intended for users who already have knowledge for Wallstreet Suite v6.5. in the following functional areas:
 - front office;
 - middle office;
 - back office;
 - accounting;
 - system administration, including security administration.
- A specific technical foundation course to introduce the technical staff in the core project team (up to 5) to the Wallstreet Suite v7.4. and provide them with the skills needed to operate and maintain it.
- A specific course designed for front, middle and back office staff providing more details on portfolio, counterparties, instrument and limits set-up, as well as transaction management and monitoring.
- A specific course designed for middle office staff focusing on valuation, risk and performance calculation.
- A specific course designed for functional administrators (up to 5) providing more details about menus and transaction boards add-ons in design, group/user's permissions set-up, as well as transaction's STP changes.

- A specific course designed for accounting staff (up to 5) on an in-depth exploration of accounting functionality in the area of central bank accounting, e.g. currency position, security position, daily delta activity.
- End user training, i.e. training of users that have not been involved in the project in the use and operation of the new System. A training plan must be developed that identifies the training requirements for the End user training (up to 20), i.e. training of users that have not been involved in the project in the use and operation of the new System. The end user training must be delivered twice – once to those involved in acceptance testing and again for remaining users immediately prior to conversion.
- A technical course focusing on set-up and maintenance of SWIFT and ComKit interfaces, TRM-SWIFT message development for up to 3 technical staff members.

20 Warranty support requirements

The Contractor undertakes, as of the date of the acceptance and handover document, to provide for period of 1 (one) year warranty support of the System, and of any Development of the System after signing of the relevant protocol.

Within the warranty support the Contractor undertakes to eliminate all incidents, deviations from the set out functionalities, errors and/or problems arising during the operation of the System.

The Contractor provides the warranty support of the System in compliance with the requirements of Standard ISO/IEC 20000 and the best practices of Information Technology Infrastructure Library (ITIL). The Contractor is not obliged to be certified under ISO/IEC 20000.

The Contractor performs the warranty support of the System via some of the following channels: phone, e-mail, incident registration system, remote access or sending a specialist to the Contracting Authority's site.

Persons authorized by the Contracting Authority notify the Contractor of any problem /incident/error in the operation of the System, arising within the warranty support period via some of the warranty support channels.

System warranty support is done on business days from Monday to Friday from 08:00 to 18:00 h (EET), hereinafter referred to as "warranty support period". Commenced activities for the elimination of incident/problem/error with Priority 1 – "critical", registered within the warranty support period continue and are completed outside the warranty support period.

The Contractor provides ongoing (24/7 –twenty four hours a day, every day) access for acceptance/registration of warranty support requests in the Registration System. If the request is registered outside the warranty support period, the time for response and elimination starts counting from 08:00 h on the next business day.

For the purposes of this Contract, any problem/incident/error during warranty support are classified by the Contracting Authority by level of priority, as follows: Priority 1 – "critical", Priority 2 – "high", Priority 3 – "medium" и Priority 4 – "low".

The Contractor undertakes to eliminate problems/incidents/errors, conforming to the following deadlines:

a) Incident/problem/error with Priority 1 “critical” – response up to 1 (one) hour after acceptance/registration of the request of persons authorized by the Contracting Authority, time for elimination up to 4 (four) hours;

b) Incident/problem/error with Priority 2 “high” – response up to 4 (four) hours after acceptance/registration of the request of persons authorized by the Contracting Authority, time for elimination up to 24 (twenty four) hours;

c) Incident/problem/error with Priority 3 “medium” – response up to 24 (twenty four) hours after acceptance/registration of the request of persons authorized by the Contracting Authority, time for elimination up to 240 (two hundred twenty four) hours;

d) Incident/problem/error c Priority 4 “low” – response up to 48 (forty eight hours after acceptance/registration of the request of persons authorized by the Contracting Authority, time for elimination up to 360 (three hundred and sixty) hours, or another deadline agreed between the parties.

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