

Terms of Reference

Name of component: System for integration of corporate income tax data and e-barimt /electronic payment system/ system for statistical data consistency

Mongolia: Smart Government Project

Credit No.: 5483-MN

Reference No.: 3.2.9

1. Background

The Government of Mongolia has approved a regulation on government data exchange - “XYP” system of the National Data Center (NDC) through government data exchange system- “XYP” of NDC. NDC provided services to the National Statistics Office of Mongolia (NSO) for its Population and Household Database (PHDB) and Business register systems to use registration database of GASR.

NSO is planning to integrate and cross-reference its economic and social statistical surveys, national accounts, and statistical business register with annual and quarterly taxation report of General Department of Taxation (GDT) and data on electronic payment system (e-barimt system) of Value-added tax of Information Technology Center for Customs, Tax and Finance (ITCCTF). Logical model of Integration system with GDT and ITCCTF is shown in Annex 1.

The administrative data are used for improvement of data quality, surveys coverage and estimation of official statistics such as economic and social statistics, national accounts and statistical unit database. Administrative data are collected from the General Department of Taxation, Ministry of Finance, Bank of Mongolia, General Custom Department and the Financial Regulatory Commission etc.

Currently, there is not any application program for automatic cross-checking, editing and processing to compare the administrative data with economic-social statistics surveys, national accounts and business register.

First of all, NSO is eager to have an application program that uses data of taxation and e-barimt for economic and social statistics, national accounts and business register.

The taxation data covers tax payers’ information including the amount of taxes reported by over 100 thousand enterprises and the e-barimt data includes all kind of payment information of enterprises, entrepreneurs and individual purchaser.

NSO is using the MS SQL, however GDT and ITCCTF are using the Oracle database.

Therefore, NSO needs to develop an application program to enable much faster and smarter estimation processes and data can be disseminated quickly and make it more understandable to users, enterprises

and government organizations. Also, the application program will be user friendly, work in high speed and in cloud as dashboard.

For that account, NSO is seeking to recruit a qualified consultancy firm to develop an application program to link data of NSO with the data from the GDT and ITCCTF.

2. Objective

The objective of the Consultancy Service is to develop an application program for automatic cross-checking, editing, validating and processing to compare the economic-social statistics surveys, national accounts and business register data with the Tax reports of GDT and Data on electronic payment system of VAT from ITCCTF. Databases to be integrated are attached in the Annex 2.

3. Scope of work

The consultancy firm shall be responsible for the following:

Planning and Requirement Analysis. The vendor shall draft the project plan which shall include purpose, assumptions, deliverables, schedule, roles and responsibilities, project tracking mechanism, technical process plans, configuration management, quality assurance requirements, problem resolution and identification of the risks associated with the project. The vendor shall undertake a series of stakeholder consultations to gather and analyze user requirements.

Defining Requirements. Once the requirement analysis is completed, the vendor shall clearly define and document the requirements through a Software Requirement Specification (SRS) document which consists of all the requirements to be designed and developed during the project life cycle and get the SRS approved from the Client.

Designing the Architecture. Based on the requirements specified in SRS, the vendor shall develop the Design Document Specification (DDS). Within the DSS, the vendor shall document the evaluation and assessment of the structure of the databases of NSO, GDT and ITCCTF and investigate and analyze the system requirements, technical and technological solutions and software design.

Building the Solution. The vendor shall develop a complete application program and build-up functional and technical designs of the application program based on the SRS and DDS. The application program should meet the following requirements:

- user-friendly system;
- high-level working speed (online/offline);
- the comprehensive structure of a database with warehouse database;

- work in cloud system/dashboard;
- reporting & mailing system and OLAP cube to be implemented;
- minimum use of server and network capacity;
- work without interruption (disruption of connection, low PC capacity, uploading incorrect data);
- prevent and solve the emergency conditions;
- make it possible to recover after technical and network malfunctioning or errors in the program;
- database should be Microsoft SQL server and language should be in T-SQL
- should be developed on .NET framework
- able to access to previous years database;
- able to develop classification /add, remove, combine/;
- security and confidentiality are provided at all level;
- solve archiving and backup service; and
- an additional component of the application program is able to work at least 5 years without any interruptions or errors if it is used.
- The vendor is expected to conduct system specific testing inclusive of interface, performance, load, and integration testing.

Testing the Solution. The vendor shall develop the test plan, test scenarios and conduct the user acceptance testing with the Client to ensure all requirements have been implemented in accordance with the SRS.

Training. The vendor shall develop a training plan and conduct training suitable for all relevant staffs for use and program and system developers of NSO for maintenance. The vendor shall train NSO's IT staffs for maintenance.

Deployment. The vendor shall install the final version of the application program on the relevant staffs' computer of the NSO. The vendor is responsible for the warranty of the application program to be carried out at most for 1 year after submission of the final application program along with final report of the assignment.

Maintenance. The vendor shall responsible for maintaining on further improvement or system enhancement of the application program and database management for 30 man-days over a period of 2 years.

Documentation. The vendor is required to document all phases of the project and develop manuals for users and program developers.

4. Deliverables

All reports and materials should be prepared in Mongolian and English. The consultancy firm shall submit the following deliverables to NSO:

- Inception report of the project with the project plan and consultation briefs on user requirements;

- Software Requirement Specification (SRS);
- Design Document Specification (DDS);
- Test plan and user acceptance testing report that includes occurred errors and solutions;
- Training plan, program and report;
- Final version of the complete application program including full set of code; with two-year warranty
- Manuals for users and program developers;
- Final project report with documentation of all phases of the project.

5. Qualifications

Consultancy firm shall meet following requirements:

- Have at least 10 years of experience in developing and implementing data processing programs;
- Have an experience on developing program on integrating databases.
- Have an experience on finding solutions on connections between data and making report on it;
- Have an experience in program development using C#, ASP.NET C#, ASP.NET MVC, MSSQL, OLAP cube, Datawarehouse, BI;
- Have a good time management, skills and knowledge to complete the proposing work and human resources;
- Able to adapt possible changes that might occur during the proposed activity;
- Need to prove experience in conducting a similar assignment in the software development.

A consulting firm should comprise a minimum (7) the following members to accomplish above mentioned task within 9 months:

Team leader

- Bachelors or higher Degree in Software engineer, IT, Business Analytics, Data Science, mathematics or other related field;
- A minimum of 10 years of professional work experience, including 5 years on system development;
- A minimum of 3 years of experience managing ICT projects;
- Fluency in Mongolian and English languages;
- Knowledge in work flow and process modeling tools is essential;
- Database architecture capable of organizing /Oracle, MSSQL /;
- Knowledge about Interactive dashboard and Smart reports;
- Knowledge of programming languages;
- Technical requirements for server and hosting;
- Maintenance and system update requirements;
- Application design and development;
- Web and data security & cyber/IT security;
- System testing and control mechanisms;

- Solution life-cycle management;
- System Architecture and Integration;
- Training and capacity building;
- Project proposal and documentation;
- Developing and implementing web portals;
- Requirement analysis skills to ensure that system conform;
- Team leadership and ability to work with stakeholders;
- Highly capable of processing papers;

Database administrator

- Bachelor's degree in Database management, Computer Science or equivalent is a must;
- A minimum of 3 years of experience with Database Administration for MSSQL Server and database management;
- Database design and development especially for web-based systems;
- Experience in System development using MSSQL server, OLAP cube, Datawarehouse, BI;
- Experience in troubleshooting and resolving database problems;
- Experience with backups, restores and recovery models, data transfer and database history/log;
- Good skills of English and Mongolian would be an advantage;
- Ability to accommodate addition demands by the Client on timely manner;
- Good communication and documentation skills;

System analyst

- A minimum of 5 years of experience in Systems Analysis or IT and software development;
- Experience in all phases of Software Development Life Cycle (SDLC) / System Development Life Cycle;
- Experience translating business requirements into a detailed system specification;
- Relational database experience;
- Proficiency with MS Project, Word, Excel, Visio, PowerPoint;
- Requirement analysis skills to understand business process and requirement;
- System analysis skills to determine best feasible solution and ensure that system conforms to business needs;
- Experience mapping data from web services or database to user interface;
- Experience working with test plans and test cases;

Senior Developer

- Bachelors or higher Degree in IT with emphasis in Software Development;
- A minimum of 4 years of Software Development with Microsoft Visual Studio - C#, ASP.NET C#, ASP.NET MVC, MSSQL, OLAP cube, Datawarehouse, BI, JavaScript and HTML. Excellent debugging, problem solving and testing skills;
- Experience with relational databases such as MS SQL Server;
- Extensive knowledge of web based applications, web analytics coding and tools, programming and systems, analysis and procedures;

- Extensive knowledge of application server technologies such as WebLogic, WebSphere, etc;
- Advanced knowledge of and experience with HTML, CSS, IIS and .NET technologies and languages such as C#, T-SQL, SSIS, WCF, JavaScript, Web Applications, Web Services, Etc;
- Ability to coordinate and implement data exchanges and conversions;
- Knowledge of secure web application development practices;

Developer – at least 2

- Bachelor's degree in Software engineer, Computer Science, Information Systems, or related field or equivalent experience is required;
- A minimum of 2 years agile software development experience;
- Strong knowledge of .NET web framework;
- Working with APIs and web services;
- Systems programming using Visual Studio, C#, HTML, CSS, ASP.NET C#, ASP.NET MVC, JavaScript, and jQuery;
- Technical Information Systems, Application programs, and web design and development;
- Good understanding of system architecture, integration and data security;

Web Designer

- Bachelor's Degree in Graphic Design or related field (Preferably in web design);
- A minimum of 3 years of professional experience in web designing and maintaining public-facing websites;
- Impressive portfolio with a proven track record in designing for the Web;
- Ability to quickly build modern CSS layouts;
- Outstanding skills in Adobe Creative suite (Photoshop, Dreamweaver, Illustrator, Lightroom);
- High level of design skill and technical proficiency;
- Knowledge of web design conventions, user experience, web standards, optimization and best practices;
- Experience using JavaScript;
- Knowledge of HTML5 and CSS3;

6. Timeframe and work location

Timeframe

The contract shall enter into force on the date of signature by NSO and the selected firm. The duration of the tasks shall not exceed 10 months. The target date of commencement is November 1, 2019 and the completion date is September 1, 2020.

Work location

The task will be performed on the client's premise in Ulaanbaatar, Mongolia.

7. Reporting requirements and institutional arrangements

Reporting requirements

The consultancy firm will report to NSO during the execution of this assignment. Key reporting requirements include the following:

- Reports on specific aspects of the assignment.
- Final Project Report.

The firm will provide a hard copy and an electronic copy of the final version of each deliverable to the client in Mongolian and English languages. Draft versions of deliverables will be submitted electronically and finalized versions of reports will be marked to show changes from the previous draft. Final approval of all deliverables, linked to payments to the firm, is the responsibility of NSO.

NSO's roles and responsibilities are as follows:

- Appoint a focal point from NSO to work with firm;
- Provide project related information if necessary;
- Support with contacting and getting support from government organization for assessments, surveys, access to information and materials;
- Provide guidance to other government organizations to support for project.
- Review and provide feedbacks on reports and materials in two weeks after the submission. If there are no feedbacks within this time, reports and materials are considered as approved.

Institutional arrangements

The firm will collaborate with the following institutions and persons:

- NSO and PIU will be responsible for contract negotiation, signing, overall coordination and supervision throughout the implementation, monitoring and evaluation and approval of outputs.
- The Coordinating Person at NSO (Sub-component, Enabling Data Production Capabilities of NSO, "Smart Government" Project) will be responsible for preparing contract documents, arranging contract signing and execution, oversee timely delivery of outputs, and liaison with WB, NSO and PIU of "Smart Government".

8. Warranty and maintenance

The vendor shall be responsible for warranty of the final version of the complete application program including full set of code and database system update for 2 years. The vendor shall carry out the service of maintenance and system updates of the application program for 1-year period. This 1+1

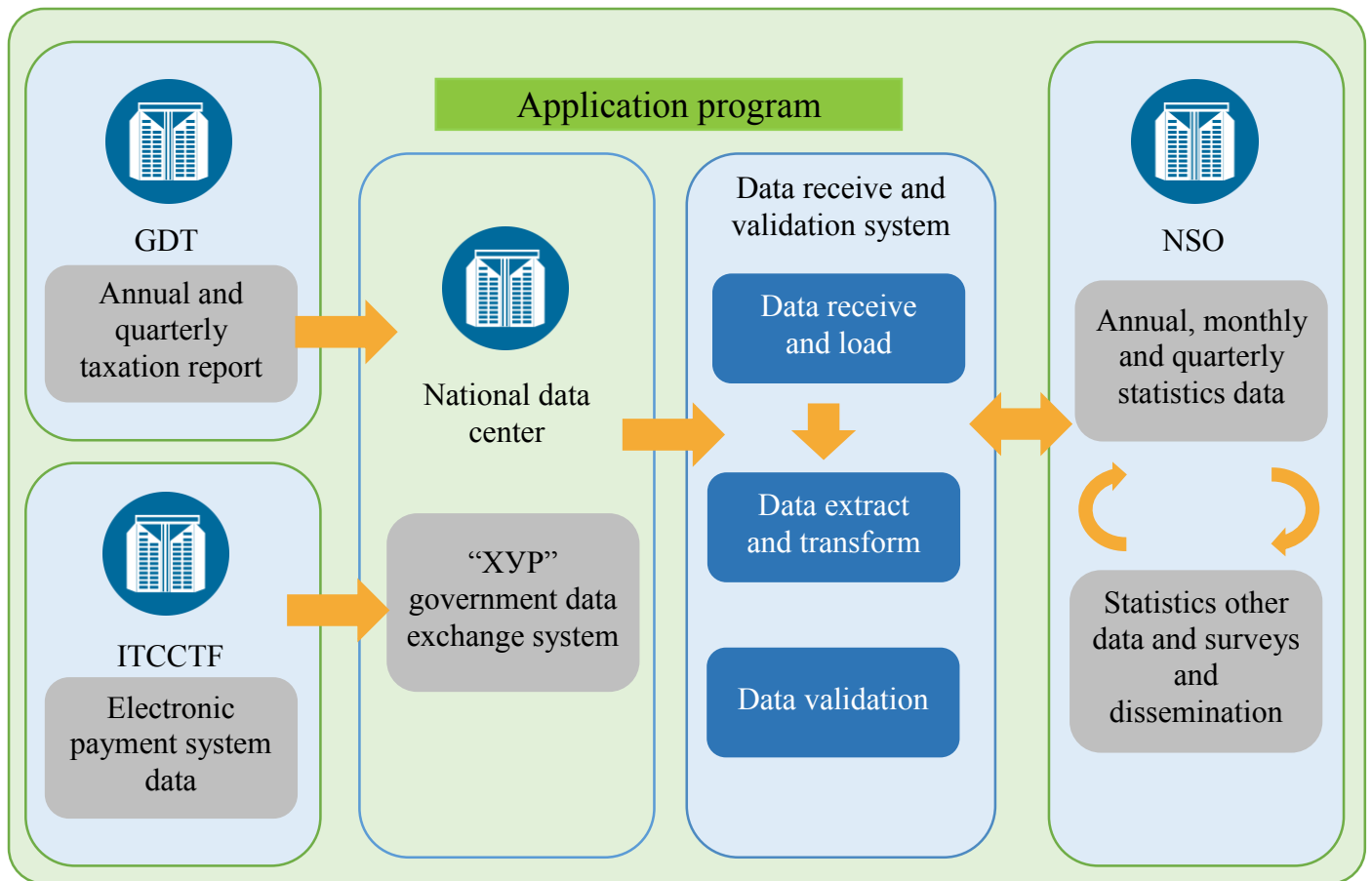
year will be aligned to the client’s request for 2 years support.

9. Time schedule for deliverables

National Statistics Office of Mongolia will hire consultancy firm by making agreement for the proposing work for 9 months’ period.

Outputs	Time frame after contract signature
Inception report of the project	15 days
Software Requirement Specification (SRS)	1 months
Design Document Specification (DDS)	2 month
Development of the application program	6 months
Test plan and user acceptance testing report	6.5 months
Developing user manuals and training materials	6.7 months
Developing guidelines for program developers	7 months
Training agenda, program, organization and report	8 month
Final version of application program commissioning and installation	8.5 months
Drafting final project report	8.7 months
Final project report	9 months
Total	9 months

Annex 1. Logical model of Integration system with GDT and ITCCTF



Description of Logical modules:

NSO has agreement with GDT and (ITCCTF) under Ministry of Finance to use Tax related data through government data exchange system - “XYP” system of NDC. According the agreement, taxation database of the General Department for Taxation and database of e-barimt system is located at the NDC. In addition, NDC developed a customized data exchanging services to NSO for use of taxation database through “XYP”.

NSO need to develop the Data receive and validation system from “XYP”. However, administrative databases are arrived in various channels and formats including SOAP web services and datasets.

Thus, this system should include following 3 steps: (1) Data receive and load (2) Data extract and transformation into NSO system and (3) Data validation with NSO .

Annex 2. List of databases and its functionality

1. NSO data

- Household-socio economics sample survey data(Income and Expenditure);
- Business register data(Business registration);
- Annual, quarterly and monthly surveys and reports of enterprises(Revenue, Expenditure);
- National accounts data (GDP, Supply and Use tables, Input and Output table and etc.);
- Price statistics (CPI, PPI and etc.);

2. GDT and ITCCTF data

- Taxpayers and individual purchaser registration data(ID, unit name, location, legal type, ownership status and related information);
- Enterprise income tax data (ID, unit name, location, reference period, sales and expenditure data);
- Wage and Salary and Income tax data (ID, name, reference period, social security and income tax)
- Taxpayer data(ID, reference period, tax type, tax amount);
- VAT payer data(ID, reference period, sales, tax amount, VAT related data)
- VAT system's e-barimt/scanned data from shops/ data (ID, location, reference period, types of goods and services, sales, VAT, address)
- Individual income tax data (ID, reference period, income, expenditure, tax related data)
- Tax audit data (ID, location, reference, period, corrected tax amount)

List of Abbreviations

DDS	Design Document Specification
GASR	General Authority of State Registration
GDT	General Department of Taxation
ICT	Information Communication Technology
IT	Information Technology
ITCCTF	Information Technology Center for Customs, Tax and Finance
NDC	National Data Center
NSO	National Statistics Office of Mongolia
PIU	Project Implementation Unit
PHDB	Population and household database
SDLC	Software Development Life Cycle
SOAP	Simple Object Access Protocol
SRS	Software requirement Specification
VAT	Value Added Tax
WB	World Bank