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Terms of Reference

Project No	139 628
Project Name	Improving the Production and Dissemination of Statistics
Beneficiary	State Statistical Office of Republic of North Macedonia
Contracting Authority	The EU Delegation to the Republic of North Macedonia
Component	4B Developing the IT system for Statistical Business Register
Position	Front End Developer
Type	Junior Non-Key Expert
Days Allocated	Up to 55 work days
Location	Skopje, Republic of North Macedonia
Start/End of Assignment	January 2021 – December 2021

1. Background

Developing a statistical system compliant with the EU standards is a long-term task, requiring solid investments in establishing a political, institutional and financial framework to allow full harmonisation with the EU acquis and the implementation of the European Statistics Code of Practice. The State Statistical Office (SSO) of Republic of North Macedonia is responsible of coordinating the statistical system in the Republic of North Macedonia, producing statistics and managing the international relations in statistical sector. The SSO produces more than 70% of the official statistics. The SSO is an independent professional organisation whose competences and scope of work are regulated by the Law on Organisation and Operation of the State Administration Bodies and the Law on State Statistics. In accordance with the Law on State Statistics, the SSO, on the basis of scientific methods, provides users (legal and natural persons) with data on the economy, demography, social life, environmental protection and other areas. Official statistical data, as well as the time and content of all forms of dissemination, are protected from any kind of influence, and all users are treated equally.

The SSO performs its role in cooperation with other authorised bodies that are also responsible for producing official statistics under the Programme of Statistical Surveys 2018-2022. The Programme is a by-law that determines the statistical surveys that are implemented within a certain period of time and specifies the authorised bodies that collect, process and disseminate statistics. The Programme of Statistical Surveys lists all statistical surveys that produce official statistics. The authorised bodies are: National Bank; Ministry of Finance; Ministry of Interior; Ministry of Justice; Hydro-meteorological Service; Institute of Public Health; Pension and Disability Insurance Fund and the Employment Agency. In the Programme for 2018-2022, a total of 319 statistical surveys are included and 252 of them are implemented by SSO.

In its regular work the SSO cooperates with other stakeholders and has signed memoranda on cooperation with them: Central Register, National Bank, Agency for Electronic Communications, Ministry of Agriculture, Forestry and Water Management, Ministry of Finance, Institute for Public Health and Office for Civil Registration, Public Revenue Office, Employment Agency, Pension and Disability Insurance Fund, Customs Administration and Community of Local Self-government Units. These memoranda cover topics linked with: format of data delivery from administrative data sources to SSO, content of data and periodicity for data



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delivery. Inter-institutional collaboration and analysis of administrative data in terms of assessing the statistical concepts and definitions have been crucial in the procedure for obtaining data from administrative sources. Variables included in administrative databases are delivered to SSO on a regular basis and are subject of additional statistical processing.

The SSO of Republic of North Macedonia receives support to improve its statistical system mainly through the EU Instrument for Pre-accession Assistance (IPA). From February 2019, SSO is a Beneficiary to the IPA funded project “Improving the Production and Dissemination of Statistics” (IPDS). The purpose of the IPA EU funded project “Improving the Production and Dissemination of Statistics” is further support of the State Statistical Office (SSO) of Republic of North Macedonia in harmonization with *acquis* and upgrading its statistical and ICT infrastructure for increased efficiency of the statistical production and improved data quality in order to respond better to emerging challenges from the changing EU *acquis*.

The activities of the current assignment are related to the Component 4 of the project: Further improvement of ICT infrastructure. This component aims to re-engineer the statistical IT system in line with EU and international standards, increasing the system efficiency and improving the processing of surveys. This component is divided into 3 subcomponents (A Revising and drafting functional specification for re-engineered IT system for statistical production, IT system development and evaluation of deliverables; B Developing the IT system for Statistical Business Register; C Preparation of technical specification for supply contract for replacement of the computer network, the data centre and equipment for the Disaster Recovery Centre).

The current assignment is related to the Subcomponent 4B – Developing the IT system for Statistical Business Register. It is closely linked with and follows on the creation of functional specifications and technical specifications for a new Statistical Business Register in the Republic of North Macedonia by the Component 2A – Statistical Business Register. The technical specifications have determined that the software solution will be based on Microsoft platform (Windows, MS SQL Server and .Net). The functional specifications and the technical specifications will be provided to the experts that will form the SBR Software Development team. After the Software development is completed a functional testing of the new SBR will be conducted in Component 2A jointly by the SSO and the project team.

2. Objectives and Description of the Assignment

2.1. Objectives

The activities of the assignment are part of the “Improving the Production and Dissemination of Statistics” (IPDS) project Component 4B: Further improvement of ICT infrastructure. This component aims to re-engineer the IT system for the Statistical Business Registers in line with EU and international standards, increasing the system efficiency and sustainability, speeding up survey processing and data production.

The objective of the assignment is to develop, test, implement and document two modules of the SBR information system of the State Statistical Office of the Republic of North Macedonia.

The software modules are implementing activities related to the creation of the predefined and user defined reports, frozen frames, tables related to the business demography and other required outputs from the system.



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All reports are using data from the main database of SBR for the legal and statistical units and store the results in the output database. The output database contains also the definition of the parameters for the user defined reports.

2.2. Scope of work

Statistical Business Register (SBR) Information System is developed separately from the Statistical metadata driven Information System (SIS), but it is expected to use the data structures for the users, users' roles, users' rights, classifications and code lists analogical to these in the SIS. This will make possible to use the SIS modules Classification and Security for maintenance of this information.

The detailed functional requirements and methodological base of the new System are described in the document "SBR Logical Design". The used data models are described in the Chapter IV of the document "SBR System Requirement Document". The final versions of the both documents will be made available to the expert before the start of the assignment.

The activities to be carried out under this TOR include development, testing and documenting two software modules.

2.2.1. Reporting module

SBR has to provide various reports to satisfy the all business statistics domains. This functionality includes producing the predefined output tables for FATS and SBS statistics, aggregated summary tables for loading directly into the SSO web database for the external users.

- Produce predefined tables

The list of the predefined tables, which have to be prepared annually from the annual frozen frame are as follows:

- Monthly and annual summary of the registered and deregistered legal units in SBR;
- Monthly and annual summary of the born and death enterprises in SBR;
- Enterprises by status of activity;
- Number of LUs and ENTs distributed by NACE Rev.2 (section level) and size class;
- Number of LUs and ENTs distributed by regions and by regions and size class;
- Number of ENTs distributed by NACE Rev.2 (section level and number of employees
- Number of active ENTs by NACE Rev.2 and by number of employed.

The outfit of the tables is available in the Annex 24 of SBR Logical Design.

- Display and export of predefined reports

The following reports have to be produced from the SBR database

- Historical report for a single legal unit and its relations
- Historical report for a single statistical unit and its relations
- "to date" report for a single legal unit and its relations
- "to date" report for a single statistical unit and its relations
- Structure of EG (legal view)
- Structure of EG (enterprise view)
- List with selected properties of the selected legal entities by defined conditions
- List with selected properties of the selected statistical units by defined conditions
- List of EG by selected properties
- Number of units by NACE Rev.2 and number of specific enterprises



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- Number of enterprises by institutional sector and sub-sector
- Response burden for the enterprises by selected criteria

All lists could be produced by the list of identification data instead of selected conditions

- Define, register and run specific reports

The system has to provide opportunity to the user to define reports with specific conditions and selected variables. This reports' definition together with the possible parameters has to be stored into the output database and has to be run again with new parameters.

2.2.2. Module for creation of SBR outputs

SBR has to provide various outputs to satisfy the all business statistics domains. This functionality includes producing the frozen frames, annual BR questionnaires, summary aggregated tables for loading directly into the SSO web database for all external users.

- Produce FATS output tables

FATS tables contain aggregated information for economic characteristics of the enterprises - number of enterprises, number of persons employed, number of employees and turnover.

The first table presents the performance of enterprises by activity, kind of control, measures and year. The second table presents performance of enterprises by country code, measures and year.

The structure of the output tables for FATS are described in Annex 23 to the SBR Logical Design.

- Generate data for the SBR annual questionnaire

The SBR is the annual questionnaire, which contains information for the data stored in SBR, completeness of the register in terms of units and variables. The predefined table, which have to be prepared by the SBR automatically, can be consulted in Annex 22 to the SBR Logical Design.

- Preparing SBR frozen frames

The key role of the statistical business registers is the coordination of statistical surveys defining single frame populations called "master" frames. The annual master frame is selected from the live business register and consists of the populations of statistical units and their relationships active at the end of the reference year (YYYY) according to state of information in the national statistical business register on the point in time of selection (31.12.YYYY).

It is possible to define also monthly and quarterly sub-annual frames. The annual and sub-annual frame populations should be coherent. The list of the included variables for the units are described in the Annex 20 of the document SBR Logical Design.

For the Business Demography Statistics have to be created 'volume frame populations', which includes not only units active at the end of a reference year, but also units active during a part of the reference year.

- Define and register sample frame

The functionality shall make available for the users to define conditions to extract sample frames for a statistical survey. The defined sample frames should be materialized (run) for the selected reference period by user request and displayed on the screen. The selected units with predefined variables could be exported in an Excel book.

- Import the data for the statuses of the questionnaires sent and completed



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The exported data from the Primary Registers database of SIS, containing the unit identifier, the status of questionnaire and the time for completion (if such question is included in the questionnaire), are imported into the SBR database.

2.2.3. Testing and documenting

Following activities are also in the scope of the TOR:

- Preparation of test plan and test scenarios for functional testing of the above-mentioned modules.
- Functional testing of the above-mentioned modules.
- Preparation of User Manual for the above-mentioned modules.
- Preparation of Operational Manual for the above-mentioned modules.
- Participation in the SSO users training.

3. Deliverables

3.1. Software resources

The following types of source-code files shall be delivered for the developed modules:

- ASP.NET files generated as result of the compilation process e.g. *.aspx*, *.ascx*, and *.master* files ASP.NET-related files (**.ASPX* files) and assemblies/compiled files such as **.DLL* files;
- Web application configuration files such as **.config*, **.web* or **.xml*
- Web pages and styles such as html, CSS, JavaScript libraries, etc.;
- Media files such as images used for the graphical user interfaces;
- Any third-party library or software on which the System depends;
- Any other relevant resources needed for the operation of the System.

3.2. Source Code

The following types of source-code files shall be delivered the Classification & Messages, Survey Management, Validation & Editing and Security modules:

- ASP.NET Project file: **.SLN* files
- All declarative mark-up ASP.NET pages – **.aspx* files;
- All code-behind classes and server-side code (e.g. developed in C#) – **.aspx.cs* and **.cs* files;
- All ASP.NET components that provides various building blocks of ASP.NET pages.
- All ASP.NET web forms – which extend the event-driven model of interaction to the web applications of the new IT System;
- System configuration files which shall be almost XML-like files (e.g. **.config* and *.xml* files);
- Any client-side scripts such as JavaScript and similar;
- Web-pages and everything related to them e.g. *HTML*, *CSS* style files, *XML*, *XSD* and *XSLT* files.
- Any other relevant source-code files that are used within the software solution;

3.3. Users' Manual

The JNKE shall deliver in English instructions and guidelines to SSO users on how to use the functionalities of the developed modules.



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3.4. *Operation Manual*

The JNKE shall deliver the sections of the Operation Manual which has provide good understanding and guidelines on how the above mentioned modules are organized and how further adjustments can be made.

3.5. *Test Documentation*

The test documentation will be provided for all developed under this TOR modules according the development plan and includes:

- Test Plan - complete planning document, which contains the scope, approach, resources, schedule, etc. of testing activities.
- Test scenario(s) – items or events of the new modules, which could be verified by one or more test cases;
- Testing Report(s) – a summary report document which summarizes testing activities conducted as well as the test results and well documented identified deficiencies;

4. Indicative work schedule

The assignment is expected to be performed in Skopje in the period January - December 2021.

5. Required profile of the expert

General Professional Experience

University Degree in Informatics, Computer Science, Information Technologies, Mathematics, Statistics or another relevant subject

At least 3 years of general work experience and experience in building IT solutions

Good knowledge of English

Good communication skills

Professional IT Certificates (e.g. MCSE, MVP, etc.) will be considered as an advantage

Specific Professional Experience

Experience with MS SQL, .Net, Visual Studio

Experience in the development and implementation of IT reporting solutions

Experience in projects with National and/or International Institutions

Understanding of statistical data processing will be considered an advantage

Knowledge of a local language in the country will be considered an advantage

6. Logistics

6.1. *Reporting*

The Junior NKE shall work under the guidance and follow the instructions of the Key Expert 3. All deliverables should be submitted to Key Expert 3 and the Project Director.

The NKE shall collaborate with the project team, other experts involved and representatives of the beneficiary institution, as relevant.

Each of the missions, its timing and duration shall be agreed with the Project Director and Key Expert 3 prior to each mission.



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6.2. Working language

The working language of the assignment and the deliverables must be English. The interface should be in Macedonian

6.3. Starting date

It is expected that the work will be performed starting from January 2021 onwards. However, exact starting date will be agreed at a later stage.

6.4. Location/Place of assignment

The NKE have to deliver the assignment in Skopje.

6.5. Applications

Applications (EUROPEAID format CV in English) need to be submitted by e-mail to the Project Coordinator: Ms. Raya Litova at: r.litova@bim-bg.com no later than 21 January 2021.

References must be available on request. Only short-listed candidates will be contacted.

The Project is an equal opportunity employer.

All applications will be considered strictly confidential.

Advertised post is not available to civil servants or other officials of the public administration in the beneficiary country, Republic of North Macedonia.