TWINNING CONTRACT

AM/14/ENP/ST/15

Strengthening of the National Statistical System of Armenia – Phase II

STUDY VISIT REPORT

on

IT

Activity 2.9: Study visit

Study visit to Statistics Denmark

27-28 March 2017

Final version

National Statistical Service
Republic of Armenia

Table of contents

List of Abbreviations

EU	European Union
NSI	National Statistical Institute (e.g. NSSRA)
NSS	National Statistical System (of official statistics)
NSSRA	National Statistical Service of the Republic of Armenia

1. General comments

This study visit report was prepared within the Twinning Project " Strengthening of the National Statistical System of Armenia – Phase II " and organised under component 2, activity 2.9.

The purpose of the study visit was the following:

- To gain knowledge on the Danish experience about the IT management, strategy, security, data collection and other IT processes.
- To give an overview of the technical challenges, how to improve IT capacity, IT security and back-up systems.
- To prepare a draft of description on how this knowledge can be used in NSSRA.

This views and observations stated in this report are those of the participating staff of NSSRA and do not necessarily correspond to the views of EU, NSSRA or Statistics Denmark.

2. Lessons Learned

Topics discussed

1. **Introduction to the structure of Statistics Denmark**

    - Structural description, management, optimization of the organization, which allows to use IT resources more efficiently.
    It should be noted that the overall IT staff in SD consists of 86 employees, of which 2/3 are financed from the state budget, 1/3 of employees are financed from surveys, analysis, and other paid services.
    - Statistical data sources (administrative register and data received from surveys).
        - **Person ID: Person Number –**an identification number is given to every single person from the moment of birth, which is necessarily applied in all spheres: education, social, tax, employment, healthcare and other spheres.
        - **Building & Dwelling ID: Address Number** – the place of residence is fixed
        - **Business ID: Work Number**- the whole employment activity is fixed
    The statistical information system is built on registers.

2. **Introduction to 5 year strategy, which consists of 4 main areas:**
    - Transition to external sources of data and knowledge
        - production of statistics and analysis, communication, data collection, and collaboration with external stakeholders

    - Digital trust and security
        - National +EU, internal and external

    - IT and optimization of business processes
        - Ensuring digital security at work, obtaining knowledge and skills, exchange

    - Optimization: Transition from IT operation to development
        - Optimization of old systems,
        - The role of IT in the process of standardization

The efficient use of IT resources will lead to the development of productive IT strategy.

In case of new large-scale problem, a template of terms of reference is completed (template C), and any other IT related task (error correction, IT support, etc.) is performed with the help of IHELP system, which is installed in the internal website.

3. Data security

In order to ensure data security the term "Digital trust and security" is applied, which reveals specifically developed security software and expected initiatives for data and IT security process. IT has three directions:

- **National level and EU statistical system**
    o EU statistical system data protection regulation, ISO 27000 data protection certification
- **Internal security**
    o Data and systems, data confidentiality, integrity and availability are subject to protection. Individual data should be anonymized.
    o In order to neutralize internal threats (data outflow) the work done by the employees of SD are not kept on the computers, but are kept on File servers. All the Logs are saved (history of activities), which are controlled by Logpoint program. This software allows you to monitor any suspicious activity carried out by each employee at any time. USB ports are missing on the computers of SD employees and they are not allowed to used Skype either.
- **External security**
    o Data provided to users and exchanged data are also subject to protection. Logpoint system also provides the possibility to see how many hackers' attempted to attack SD website.

Security provision equipments (servers)
- Provision of electricity supply
  UPS and generator (UPS monitors the power fluctuations from time to time). In case of fluctuation or power failure it takes over the load and ensures power supply for 20 minutes. In the absence of power the generator ensures power supply for 24 hours.
- Cooling system
  There are 2 cooling systems and 3 reserve-ventilation systems, which ensure the temperature in the room for up to 25°C, and in the servers' room the temperature is 12°C. The cooling systems is operated in shifts – one week each.
- Fire Extinguishing system
There is a camera that monitors the entrance of the room as well as the system controlling the physical access into the room. Remote Access System (Remote Desktop Services) is used here, which is designed to do the work from the distance, but the files outflow is limited.
For the integrity of the system, as well as to ensure full and accurate information, periodically the information is being archived (storage of the copy - back up). In case of emergency situations, there is always a reserve system.

As an overall statistical production data storage DAF system is used (accumulated database), which represents a tool to implement experimental work in the long –term data management process.

4. **Data collection**

    Data on Business statistics and Social statistics are collected in Statistics Denmark. All the data are 100% digitalized.

    - **Business statistics**
        o Data received through registers + electronic questionnaires
        o Business statistics reporting forms should have electronic signature, which is uploaded into the Business portal (www.virk.dk) and immediately registered in the Oracle data base.
    - **Social statistics**
        o Data received through registers
        o Blaise questionnaire- data collection questionnaire, which is possible to install in different computers, as well as on tablets.
        o CATI system- computerized survey through telephones

    Registers are transferred via FTP (SFTP, FTPS and VPN) server. Statistical data is stored in the Oracle database. Also a free of charge FileZilla FTP server is used, which supports FTPS, but not SFTP.

5. **Big data**

    As a database of big data large register databases are used, of which for example the size of income register is about 3 TB. Another example is AIS database (automatic identification system), e.g. the database which identifies the location (coordinates) of ships, which is received from the Danish Maritime Administration and ensures continuously updated information flow through online network. Data is stored in Oracle database and are analyzed in Java/Scala environment through specially developed software.

    Negotiations are underway with large telecommunication companies in order to use mobile devices. For the analysis of big data "R" software package is used in SD.

3. Conclusions and recommendations

The study visit gave us the opportunity to get acquainted with the main IT related issues of Statistics Denmark, their strategy, security, solutions, standards and structure. The obtained knowledge will be used in NSSRA for the new IT strategy and new IT organization, for the assessment of the current situation and in the further steps of implementation process.

4. Notes

The staff of NSSRA would like to express their thanks to all officials and individuals met for the kind support and valuable information which they received during the stay in Denmark and which will highly facilitate their work.

Annex 1. Programme

Monday 27th:		Speech by:
9.00 – 9.30	Welcome address speech by International Consulting	International Consulting
9.30 – 11.00	Presentation and discussion of the IT strategy of Statistics Denmark and how this strategy supports the overall business strategy of SD.	AST
11.00 – 11.15	Break	
11.15 – 12.30	First part of: "A new strategy and a new IT organisation" o The background for the present organisation and information about the centralization of IT in 2016 o Main work tasks for IT in SD – the IT personnel ratio in SD. How do we work and what are our core tasks. o The Purchase-Delivery model – how do IT and statistics offices cooperate	AST
12.30 – 13.30	Lunch in the restaurant	
13.30 – 14.30	Second part of: "A new strategy and a new IT organisation" o Main work tasks for IT in SD – the IT personnel ratio in SD. How do we work and what are our core tasks in IT o The main tasks and functions specifically of Servicedesk & Operations	BGC
14.30 – 14.45	Break	
14.45 – 15.45	First part of : How does IT work with data and ensure continuous operations: o IT security (threats from within as well as from the outside) o Back-up systems o Integration and organisation and metadata of data in databases and datawarehouses	BGC POV
15.45 – 16.15	Evaluation of today's programme	plenary

Tuesday 28th:		

9.00 – 10.00	Second part of:
	How does IT work with data and ensure continuous operations:
	
	    o IT-security: The international ISO 27000 framework
	    o The organisation of IT security work in SD
	    o Requirements from the EU
		AST

10.00-11.00	Presentation: • Presentation of a homemade online reporting system; design and functionality (speaker to be confirmed)	POV
11.00-11.15	Break	
11.15-12.30	Operations: • Continued discussion and presentation of the server rooms	BGC
12.30-13.30	Lunch in the restaurant	
13.30 – 14.30	Big Data Presentation about Big Data: challenges and experiences with big data in SD. (speaker to be confirmed)	NJN
14.30-15.00	Discussion of focus for visit to Yerevan, Armenia	plenary
15.00-15.30	International Consulting: concluding speech	International Consulting

Annex 2. List of participants

National Statistics Service of the Republic of Armenia (NSSRA)

Mr. Vanush Davtyan, Member of State Council on Statistics

Ms. Aida Martirosyan, Information Resources Management and Technologies Department Head

Ms. Armenuhi Arushanyan, Information Technologies Development Division Head

RTA Office:

Ms. Liana Atoyan, Interpreter

Participants of Statistics Denmark:

Ms. Annie Stahel, Head of IT, IT Department

Mr. Bo Guldager Clausen, Deputy Head of Division, IT Department

Mr. Povl Valeur, Head of IT, IT Department

Mr. Niels Jespersen, Chief Adviser, IT Department

Mr. Mads Nielsen Thrane, Senior Adviser, IT Department

Ms. Charlotte Juul Hansen, Senior Adviser, International Consulting Division