TWINNING CONTRACT

JO 21 ENI ST 01 22

Strengthening the capacity of Jordan's Department of Statistics in terms of compilation, analysis and reporting of statistical data in line with International and European best practices

MISSION REPORT

on

Component 1
Roadmap for the development of an integrated administrative data system in Jordan with pilots on Statistical Business registers (SBR) and population statistics

Activity: 1.6.3: Data and Metadata structure I
Introduction to SDMX to facilitate the exchange of statistical data and metadata using modern information technology

Mission carried out by
Mr. Francesco Rizzo

Amman, Jordan
30 September – 03 October 2024

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دائرة الإحصاءات العامة
Department of Statistics
STATISTICS DENMARK
DESTATIS Statistisches Bundesamt
Istat
STATISTICS LITHUANIA
STATE DATA AGENCY
Statistics Finland

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List of Abbreviations

- BC – Beneficiary Country
- DDI - Data Documentation Initiative
- DoS – Department of Statistics
- GAMSO - Generic Activity Model for Statistical Organisations
- GSBPM - Generic Statistical Business Process Model
- GSIM - Generic Statistical Information Model
- MS – Member State
- PL – Project Leader
- RTA – Resident Twinning Advisor
- SDMX - Statistical Data and Metadata eXchange
- STE – Short-term Expert
- DSD – Data Structure Definition
- TS – Time series
- DQ – Data Cube
- NDC – National Data Center

1. General comments

This mission report was prepared within the Twinning Project "*Strengthening the capacity of Jordan's Department of Statistics in terms of compilation, analysis and reporting of statistical data in line with International and European best practices".* This Mission related to the following Mandatory Results (MR) and indicators:

"MR 1.6: MR 1.6 A governance roadmap for decisions makers data access and use of a National Data Center (NDC) for model based analyses in Jordan prepared

- **Indicator 1.6.A:** Best international practices for NDC's outlined
- **Indicator 1.6.B:** Stakeholder awareness raised and needs from stakeholder mapped
- **Indicator 1.6.C:** Organizational structure and required skills for staffing the National Data Center outlined.
- **Indicator 1.6.D:** Requirements and standards for data and metadata layer outlined

The purpose of this activity was:

- to introduce the SDMX concepts, tools and demonstration of their utilization.

The consultant would like to express their sincere thanks to all officials and individuals met for the kind support and valuable information which they received during the online sessions which highly facilitated their work. The views and observations stated in this report are those of the consultant and do not necessarily correspond to the views of EU, ISTAT.

2. Assessment and results

According with the ToR, the mission was devoted in providing an SDMX training.
The trainer from Istat (Mr. Francesco Rizzo) prepared the entire course delivery including the training material.

The expected result of the mission was to introduce the participants to a structured process for SDMX implementation, including the steps needed in definign an SDMX implementation strategy for facilitating the industrialization of the reporting and dissemination business processes.

After an overview of the main conceptual and implementation statistical standards, the benefits and advantages in using SDMX were presented through use cases performed in Istat, in the Italian Statistical System and in other National Statistical Organisations.

The training course was divided into theoretical parts and practical parts; the latter involving also exercises on the computer (a computer for each of the participants). Attention was paid to keep the right balance between theoretical sessions followed by practical training.

The content course covered the main deliverables of the SDMX standard (Information Model, Content Oriented Guidelines and IT architectures and tools), the usage of SDMX tools and the steps needed to implement SDMX in a statistical organisation.

In order to better orient the reflections and discussions during the training, at the beginning Dr. Charlotte Nielsen presented an overview of dissemination and metadata management in DoS.

The training was attended by DoS staff from "Data Management Directorate", "Directorate of Electronic Transformation and Information Technologies", and from 3 consultants of the "National Data Center".

The activity was opened by Dr. Ali Ashebli, Operations Assistant of the Director General, DoS and the conclusions were participated by H.E. Dr. Haidar Fraihat, Director General, DoS.

The participants were open to collaborate each other and be proactive in the discussions.

The last day, during the conclusions, Mr. Francesco Rizzo presented to H.E. Dr. Haidar Fraihat, Director General of DoS the experience gained in Istat so far in implementing SDMX in data reporting and dissemination. Furthermore, the expert presented the project "Hub of the public statistics" as example of how SDMX can be used successfully within the Nation Statistical System to improve quality in the data exchange.

3. Conclusions and recommendations

The participants gave close attention to the topics faced during the training session. All of them performed the exercises successfully. They understood the benefits in using SDMX and the advantages of the standardization and industrialization activities as "core" activities of a modernisation program.

Most of the discussions focused on how to use SDMX in real use case, how SDMX could facilitate the introduction of the databases as instruments to manage, store and analysis data and metadata, and how SDMX could improve dissemination process offering to the data users more usable and performing products.

It is strongly suggested that, as next step, DoS should define a short/middle period SDMX implementation strategy in the following use cases:

- Metadata management and related harmonization among different statistical domains
- Data management (database based)
- Reporting and data exchange
- Dissemination via GUI and APIs

Furthermore, a pilot exercise could help in:

- Strengthen the know-how
- Increase the collaboration between statisticians (domain experts) and IT staff
- Identify institutional, statistical, IT and skill-related issues

Finally, a maturity model could allow to assess the level of organizational maturity against a set of pre-defined criteria and to plan a set of actions for the followign criticities:

- IT solutions selection (many free and open source are available)
- Effort and Budget
- Priorities identification
- Changes in the Data Life Cycle
- Staff and capabilities
- Learning Curve
- Implementation plan

Annex 1. Terms of Reference

Terms of Reference

EU Twinning Project JO 21 ENI ST 01 22

Component 1:
Roadmap for the development of an integrated administrative data system in Jordan with pilots on Statistical Business registers (SBR) and population statistics

Activity 1.6.3: Data and Metadata structure I - Introduction to SDMX to facilitate the exchange of statistical data and metadata using modern information technology

Dates: 29 September – 03 October 2024

Content

List of abbreviations

BC Beneficiary Country
DDC Data dissemination ecosystem platform
DMC Data Management Center
DoS Department of Statistics
ESS European Statistical System
MS Member State
NDC National Data Center
RTA Resident Twinning Advisor
STE Short Term Expert
ToR Term of References

1. Objective and Mandatory Results for the component

1.1 Objective

To prepare a roadmap for the development of an integrated administrative data system for Jordan, and conduct pilot projects on creating an SBR and strengthening population statistics.

As the development of a fully integrated administrative data system is a long-term project. The main focus of the Twinning project will be on specific pilot projects where the use of administrative records can address key challenges currently faced by the DoS. These pilot projects will constitute the first steps in rolling out a roadmap for the Jordanian statistical system by providing a template for expanding the use of administrative data across the wider statistical system over time. The project will take outset in establishing the following core registers: (a) A Statistical Business Register (SBR); (b) A Population register and (c) A Dwelling and housing Register/Address register

The lack of a comprehensive SBR was identified as an obstacle to future improvements of DoS statistics back in the 2015 Twinning project led by Statistics Denmark. This gap still remains - developing and maintaining an SBR for Jordan would, therefore, greatly enhance the ability of the DoS to monitor and analyze developments in a rapidly changing business environment. The pilot project will examine available administrative data sources on business entities. In relation to business statistics, the development of a SBR it is essential to integrating different data sources, and providing additional analysis without increasing costs.

SBR is an essential component in supporting the coherence, consistency and quality of statistics produced as well as providing data on the population of business units. The SBR provides a basis for selecting and monitoring samples, integrating administrative and other data sources and providing a framework for deriving business demographics and National Accounts.

Recently the Jordan Economic Modernization Vision 2030 was launched and "Smart Jordan" was identified as one of the eight Growth Drivers to implement the Economic Modernization Vision. The 'Smart Jordan Driver' includes seven sectors where data is one of them. This indicates the national interest to ensure constant and reliable data sources, and robust statistical systems that contribute to timely and informed policy making. It is expected that one of the measures that will be taken is to transform Jordan's Department of Statistics (DoS) into an interactive National Data Center (NDC).

The NDC will be built around the following four pillars:

I. **A Data Management Center (DMC)** that will support all internal operations and production of statistics in accordance with best international practices with a high level of security to protect data
II. **Governance tools** e.g. such management, organizational structure, security and confidentiality policies etc.
III. **Data dissemination ecosystem platform (DDC)**
IV. **A platform for uploading external data** to the DDC e.g. administrative data owner in Jordan, NSI's from other countries as well as International organizations

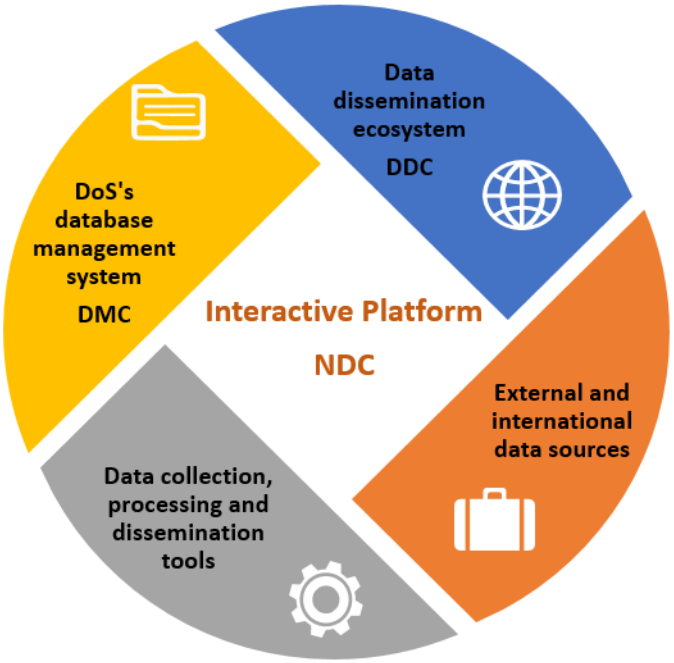

Figure 1: *Illustration of four pillars of the the future National Data Center (NDC). The souring blue boxes List completed or planned activities that directly can serve as input for the DMC. Blue activities are already completed activities and green activities are planned activities (Figure kindly provided by the World Bank=.*

The current activity will focus on introducing SDMX, which stands for Statistical Data and Metadata eXchange, is an ISO International Standard (ISO 17369) designed to describe statistical data and metadata, normalize their exchange, and improve their efficient sharing across statistical and similar organizations.

The SDMX standard provides an integrated approach to facilitating statistical data and metadata exchange, enabling interoperable implementations within and between systems concerned with the exchange, reporting and dissemination of statistical data and their related meta-information.

It consists of:

- Technical standards (including the Information Model)
- Statistical guidelines
- IT architecture and tools

Howevet, SDMX is not just a format for data exchange. Taken together, the technical standards, the statistical guidelines and the IT architecture and tools can support improved business processes for any statistical organization as well as the harmonization and standardization of statistical metadata.

1.2 Mandatory results and indicators for achievement for each sub-component

Component 1 is sub-divided in six sub-components each with a Mandatory Results (MR) and two to four indicators of achievements associated with the sub-component. In table 1 the MR and related indicators of relevance for the current Mission listed in black.

Table 1: *Mandatory results and indicators for achievement (IA) for each sub-components within Component 1: an integrated administrative data system for Jordan. The current activity is related to MR 1.6 and associated Indicators of achievements*

MR from the Twinning Fiche	Indicator
MR 1.1: Compile an inventory of administrative data on business and households and an indicative roadmap for inclusion in an integrated system	**Indicator 1.1.A:** Inventory of administrative data variables and detailed supporting metadata prepared **Indicator 1.1.B:** Tentative roadmap prepared for inclusion of data in integrated system
MR 1.2: Pilot project to develop strategy for integrating administrative data sources for the purposes of creating an SBR	**Indicator 1.2.A:** Administrative data sources identified and assessed and plan developed for integrating these with Census of Establishments (CoE) information in an SBR **Indicator 1.2.B:** Documentation prepared on database structures and compliance with statistical standards, classifications (e.g. ISIC, Rev 4) etc. and use of common identifiers etc. **Indicator 1.2.C:** Explore how SBS can benefit other statistical domains in the DoS
MR 1.3: Undertake pilot project on how administrative records can be used to strengthen population statistics and inform framing of the 2025 CoP questionnaire	**Indicator 1.3.A:** Inventory of data sources prepared and assessed and action plan for incorporation in DoS statistics developed **Indicator 1.3.B:** Methodology developed for incorporating administrative data **Indicator 1.3.C:** Documentation prepared on statistical standards, classifications, identifiers, mapping etc. **Indicator 1.3.D:** Review of how administrative data can assist in developing the COP 2025 questionnaires
MR 1.4: Develop strategy for ensuring flows of data between the DoS and counterpart institutions are established on an ongoing basis for pilot projects above	**Indicator 1.4.A:** Review of technical infrastructure for data transfers and action plan prepared based on 1.1 and 1.2 above **Indicator 1.4.B:** MoUs agreed between DoS and partner institutions **Indicator 1.4.C:** Agreement on statistical standards, classifications, identifiers etc. between DoS and partner institutions **Indicator 1.4.D:** Review of data flows within the DoS
MR 1.5: Implement training programmes and develop training materials both within DoS and with partner institutions on the use of administrative records for statistical purposes, based on pilot projects above	**Indicator 1.5.A:** Detailed documentation on statistical standards, classifications, identifiers etc. developed **Indicator 1.5.B:** Comprehensive training programs and workshops provided for DoS staff and partner institutions **Indicator 1.5.C:** DoS leadership role in ensuring proper statistical standards applied across the Jordanian statistical system reinforced.
MR 1.6: A governance roadmap for decisions makers data access and use of a National Data Center (NDC) for model based analyses in Jordan prepared	**Indicator 1.6.A:** Best international practices for NDC's outlined **Indicator 1.6.B:** Stakeholder awareness raised and needs from stakeholder mapped **Indicator 1.6.C:** Organizational structure and required skills for staffing the National Data Center outlined **Indicator 1.6.D:** Requirements and standards for data and metadata layer outlined

2. Purpose of the activity

The purpose of this activity is to introduce the SDMX concepts, tools and demonstration of their utilization.

At the Mission the following topics will be covered:

- Introduction to SDMX concepts and components;
- Requirements to data and metadata structure;
- Best practices in MS NSI's
- Machine-to-machine transferring;
- Web services;
- Tools including tools for queries conversion;
- Practical demonstrations;

3. Expected output of the activity

- Activity report;
- SDMX concepts introduced
- SDMX requirement for data and metadata structure outlined and known;
- SDMX tools demonstrated;

4. Participants

4.1 MS Short Term Experts (STE's)

- *Mr. Francesco Rizzo, Senior executive officer at Directorate for strategic planning, guidance of the National Statistical System, institutional relations and international affairs". Mr. Francesco Rizzo is in charge of the "Hub of the public statistics" initiative, within the National Statistical System.* rizzo@istat.it

4.2 DoS experts

Data Management Directorate

- Mr. Jaffar Ababneh, Director of Data Management Directorate and BC component Leader
- Mr. Mohammad Omari, Staff member of the Data Management Directorate and responsible for cereating a population register
- Abdalwahed Alharaizeh, Staff member of the Data Management Directorate and responsible the SBR

Directorate of Electronic Transformation and Information Technology

- Mr. Hussam AbuShukur
- Ms. Tamara Wadi
- Ms. Lama Bani-Milhem

4.3 National Data Center (NDC)

- Mr. Nabil Abu Sall, Director of the National Data Center, DoS
- Eng. Mohammad Al Janada, Consultant
- Mr. Mohammad Al Hiayri, Consultant
- Mr. Ayman Athamneh, Consultant

4.4 The Twinning Team

- Dr. Charlotte Nielsen (RTA), cln@dst.dk
- Ms. Zaina Amireh (Language Assistant), zainaamireh3@gmail.com
- Eng. Tamer AlRosan (RTA Counterpart), Tamer.AlRosan@dos.gov.jo

Invited for opening and closing sessions

- HE General Director Dr. Haidar Fraihat
- Dr. Tayseer Muqdadi, Technical Assistant to the Director General
- Dr. Ali Ashebli, Operations Assistant of DG, DoS
- Dr. Fozan Alhurout, Administrative Assistance of DG, DoS

Annex 2: Programme for the mission

Day 1 (09:30 – 15:00 with a one-hour lunch break):

- Welcome and round table
- Standardization activities in the statistical community and introduction to Information Models and Standards
- Dissemination/reporting and metadata management in DoS (**DoS presentation**)
    - Discussion
- SDMX basics
    - Information Model
    - Guidelines
    - Architectures and tools
- Examples of SDMX implementations
    - Statistics Italy (Istat)
    - State Statistical Office (Republic of North Macedonia)
    - African Information Highway (African Development Bank)

Day 2 (09:30 – 15:00 with a one-hour lunch break):

- SDMX Istat Toolkit
    - SDMX as part of the statistical data life cycle (demonstration)
- Managing structural metadata (hand-on session)

Day 3 (09:30 – 15:00 with a one-hour lunch break):

- Managing statistical datasets for dissemination and reporting (hand-on session)

Day 4 (09:30 – 15:00 with a one-hour lunch break):

- Disseminating/Reporting SDMX Data flows (hand-on session)
    - Visualizing Datasets from and SDMX source using a Graphical User Interface
    - Pull SDMX datasets from an SDMX web service
- Summing up and general discussion
- Conclusion

Annex 3. Persons met

Department of Statistics – DoS

Data Management Directorate

- Mr. Mohammad Omari, Staff member of the Data Management Directorate and responsible for cereating a population register
- Abdalwahed Alharaizeh, Staff member of the Data Management Directorate and responsible the SBR

Directorate of Electronic Transformation and Information Technology

- Ms. Tamara Wadi
- Ms. Lama Bani-Milhem

National Data Center (NDC)

- Eng. Mohammad Al Janada, Consultant
- Mr. Mohammad Al Hiayri, Consultant
- Mr. Ayman Athamneh, Consultant

Additional participants at the closing sessions

- HE General Director Dr. Haidar Fraihat
- Mr. Nabil Abu Sall, Director of the National Data Center, DoS
- Mr. Jaffar Ababneh, Director of Data Management Directorate and BC component Leader
- Mr. Abdullah AlSous, Web Dissemination section, IT and DoS SDMX expert

The Twinning Team

- Dr. Charlotte Nielsen (RTA), cln@dst.dk
- Ms. Zaina Amireh (Language Assistant), zainaamireh3@gmail.com
- Eng. Tamer AlRosan (RTA Counterpart), Tamer.AlRosan@dos.gov.jo