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Progress report of the Statistical Data and Metadata Exchange sponsors

Note by the Secretary-General

In accordance with Economic and Social Council decision 2018/227 and past practices, the Secretary-General has the honour to transmit the progress report of the Statistical Data and Metadata Exchange SDMX sponsors. The report contains a summary of achievements, recent developments and planned activities by the initiative in areas such as the Sustainable Development Goals and international merchandise trade statistics. An overview of capacity development in the area is also included. The Statistical Commission is invited to take note of the report.

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Progress report of the Statistical Data and Metadata Exchange sponsors

I. Introduction

1.   In 2001, the Bank for International Settlement, the European Central Bank, Eurostat, the International Monetary Fund (IMF), the Organization for Economic Cooperation and Development (OECD) and the United Nations joined together to develop more efficient processes and standards for exchanging and sharing data and metadata. The World Bank joined the initial group of sponsor organizations in 2003. The commitment of the sponsor organizations to the Statistical Data and Metadata Exchange (SDMX) initiative was reinforced in 2007 through a memorandum of understanding, which established an SDMX secretariat and set the framework for the creation of two working groups: the Statistical Data and Metadata Exchange Technical Standards Working Group and the Statistical Data and Metadata Exchange Statistical Working Group.

2.   The aim of the SDMX initiative is to create and maintain technical and statistical standards and guidelines, together with an information technology architecture and tools, to be used and implemented by the SDMX sponsors and other organizations dealing with SDMX. Combined with modern information technology, these SDMX standards and guidelines should improve the efficiency when managing statistical business processes. After more than 10 years of SDMX experience, the SDMX standards and guidelines are mature enough to be broadly implemented in different statistical domains and globally by statistical organizations.

3.   The Statistical Commission has received SDMX progress reports since 2002. The Statistical Commission recognized and supported the SDMX standards and guidelines in 2008 as the preferred standard for the exchange and sharing of data and metadata, requesting the SDMX sponsors to continue their work and to encourage national and international statistical organizations to increase the use and implementation of SDMX.

II. New developments

4.   The Working Group on Statistical Data and Metadata Exchange for Sustainable Development Goal Indicators was established by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators with the mandate to develop a solution for the exchange and dissemination of indicator data and metadata. The Working Group released the first draft data structure definition for the indicators in February 2018. SDMX data exchange of the indicators was subsequently piloted from March to September 2018, with the participation of five countries and five international agencies. Taking into account the findings of the pilot and general guidance on data disaggregation from the Inter-Agency and Expert Group, the Working Group is planning to release the first official data structure definition by March 2019. A draft metadata structure definition is expected to be released at the same time.

5.   An inter-agency working group comprised of Eurostat, the International Trade Centre, OECD, the United Nations Conference on Trade and Development and the Statistics Division of the Department of Economic and Social Affairs of the Secretariat, with the latter acting as the secretariat and chair of the working group, was established in 2013 to support the implementation of SDMX standards in international merchandise trade statistics. After releasing version 1.0 of the implementation of SDMX standards in international merchandise trade statistics in 2016, the working group further improved the data structure in 2018, taking into

account results of pilot implementation projects in Mexico and Morocco, which were completed in the second half of 2017. The objectives of those pilot projects were to apply version 1.0 in a national context, identify implementation challenges and prepare recommendations for amendment to version 1.1. The working group plans to submit the most recent version of the data structure definition to the SDMX secretariat for review, with an endorsement by the SDMX sponsors expected early in 2019.

6.   Following the implementation of SDMX for the exchange of macroeconomic statistics in the national accounts, balance of payments and foreign direct investment domains, the development of a global SDMX framework for price statistics became a priority. The first version of a global data structure definition for consumer price indices was officially published in 2018, and implementation is scheduled to begin in 2019.

7.   A project on the implementation of SDMX for the global exchange of education statistics is under way. The project involves Eurostat, OECD and the UNESCO Institute for Statistics. The data structures are expected to be published over the course of 2019.

III. Ongoing statistical and technical work

8.   The European Central Bank Statistics Committee created the Task Force on the Development of Shared Statistical Data and Metadata Exchange Tools with the objective of fostering the collaboration and sharing of SDMX software tools primarily within the European System of Central Banks. The Task Force intends to provide tangible benefits for central banks in terms of supporting development efficiencies, increased analytical functionality, information-sharing and the establishment of a visible and accessible support network. The Task Force monitors the continuously evolving landscape of software that is built to deal with SDMX, collecting key information relating to the tools' features, quality and support and, on the basis of this information, identifies those that are most likely to be efficiently used by central banks and to promote awareness of the benefits of their usage. To this end, the Task Force maintains a relationship with other SDMX software development communities. The European Central Bank also continues to support the SDMX Global Registry and the SDMX website.

9.   IMF has continued to facilitate data-sharing through assisting national authorities in the implementation of National Summary Data Pages for its data dissemination standards and through the Task Force on International Data Cooperation.

10.   The Statistical Data and Metadata Exchange Technical Standards Working Group and the Statistical Data and Metadata Exchange Statistical Working Group are responsible for the management and enhancement of SDMX technical and statistical standards and the related SDMX information technology applications. The Statistical Data and Metadata Exchange Statistical Working Group has been working on a number of improvements to the standards, including the business case for SDMX, a new version of the SDMX glossary, the global metadata concept scheme, based on the glossary, the checklist for the design of SDMX projects and a number of cross-domain code lists.

11.   The Statistical Data and Metadata Exchange Technical Standards Working Group has worked to deliver a number of technical improvements, namely, the following:

    (a)   SDMX-JSON format, oriented to data discovery and visualization on the Internet, has been updated for performance improvement;

(b)   SDMX-CSV format has been published. This lightweight format improves the interoperability of the standard and makes it possible to easily import SDMX flows into commonly used software tools. Thanks to the optimization of the representation of information, it paves the way for using SDMX for the exchange of large volumes of aggregated statistics and microdata;

(c)   SDMX RESTful application programming interface has been updated. Version 1.3.0 is now available with several new features and other improvements that facilitate the optimization of computational and communication resources;

(d)   Much effort has been invested in the enhancement of the information model in order to, among other features, enable support for multiple measures and improve the versioning of code lists that will help to simplify the maintenance of data structure definitions and other artefacts and keep them in sync in fast-changing data exchange environments;

(e)   A test compatibility kit to validate the conformance of SDMX software implementations is under development.

12.   The Statistical Data and Metadata Exchange Technical Standards Working Group continued its work on the development of the Validation and Transformation Language (VTL). VTL can be used in conjunction with SDMX to express and share validation and transformation rules applicable to data. New technical specifications for VTL 2.0 were published in July 2018.

13.   In the context of international data cooperation for macroeconomic statistics, the use of pull techniques supported by web services was piloted over the course of 2017 and 2018. The ultimate objective of this initiative is to improve and further the automation of statistical data exchange.

14.   Further work is under way on new features that will be incorporated into SDMX 3.0, VTL, support for microdata exchange and geo-referencing capabilities, among others.

IV.   Capacity-building

15.   With the spread of the SDMX standard, the demand for capacity-building activities has been growing in recent years. In the light of this, the SDMX secretariat concluded that an increase in capacity-building coordination among the sponsor organizations was needed. The secretariat is therefore developing a global capacity-building framework, a first draft of which was discussed at the 2018 SDMX Expert Group Meeting.

16.   Eurostat has set up regular courses on SDMX for both beginners and information technology developers. While the courses target European Union member States, they are also open to participants from other countries. In the framework of its international cooperation activities, Eurostat has also financed SDMX capacity-building activities in South America, North Africa and Eastern Europe. Eurostat also maintains the SDMX InfoSpace, which provides access to information in three languages (English, French and German) about the SDMX standard, the SDMX tools developed by Eurostat, upcoming training initiatives and the progress of SDMX implementation in the European Statistical System.

17.   The Division has carried out a number of capacity-building activities in several areas, including the Sustainable Development Goal indicators and international merchandise trade statistics. With regard to the Goals, the Division is running a project, funded by the Department for International Development, which is establishing SDMX-based data and metadata exchange with 20 countries in Africa

and Asia. Technical assistance has been provided to two countries that have already successfully established a pilot data exchange of the Goal indicators. Capacity development in data-sharing and metadata-sharing has been provided to all 20 countries. As part of another large-scale initiative, namely, the United Nations Development Account tenth tranche, the Division has co-organized with the Economic Commission for Africa (ECA) and the Economic Commission for Europe the first two workshops on SDMX-based data-sharing and metadata-sharing. The Division will continue to work with all the regional commissions to complete the planned capacity-building programme on data and metadata exchange. With respect to international merchandise trade statistics, the Division and the African Union Commission conducted the first in a series of training workshops on SDMX and those statistics in September 2018. Similar technical assistance activities are planned in 2019.

V. Software tools and applications

18. Eurostat has continued to upgrade the SDMX tools that it develops and maintains. In particular, its SDMX converter and SDMX structural validation services have extended their support of various formats such as Excel, fixed-length record formats and SDMX-CSV, while its Euro-SDMX registry has improved its support of more experimental SDMX features such as structure sets and data registrations. Moreover, several technical improvements were made to the Eurostat SDMX reference infrastructure, which provides a set of reusable modules that organizations can use to expose their data through SDMX web services. The Eurostat tools are available as open source.

19. Fusion Registry is a fully-fledged SDMX registry supported by the Bank for International Settlements. The governance of Fusion Registry has been modified to allow for a freely available community edition and an extended commercial edition. The community edition supports the standard application programming interfaces, comes with an enhanced interface and enables the management of all SDMX structural metadata and data validation and transformation. Furthermore, a metadata-driven feature was added that supports the creation, ingestion, validation and transformation of Excel templates for reporting data, thus lowering the entry barrier for new or infrequent data reporters. The most relevant extensions of the commercial edition consist of management capabilities for the full SDMX information model, in particular data and metadata flows. The Bank remains committed to funding the maintenance of and improvements to the free community edition.

20. Since 2007, the Statistical Information System Collaboration Community, led by OECD, is a group of statistical organizations sharing similar strategic objectives that has pooled resources and ideas to innovate and produce a state-of-the-art digital solution in support of official statistics. This solution, the dot.Stat Suite, is an SDMX-based modular open source platform that enables the design of tailored data portals or lightweight reporting platforms in a fluid and agile manner. The product road map is aimed at progressively covering the full data cycle, enabling organizations to bring further value as trusted quality data producers, empowering them with quality assurance by design and advanced workflow and reporting mechanisms, high performance calculation and import and export tasks to enable efficiency gains and improved quality of user experience in data operations. The Collaboration Community also works in close partnership with Eurostat to enable the reuse of open source and common modules from the SDMX reference infrastructure package. The dot.Stat Suite is developed under a continuous user-driven product delivery model, with a beta version delivered at the end of 2017 and a production-ready version scheduled for early in 2019.

VI. Events

21.   The sixth SDMX Global Conference was held in Addis Ababa from 2 to 5 October 2017. The conference was jointly hosted by ECA and the African Development Bank, with support from the SDMX sponsor agencies. A two-day conference was followed by a two-day capacity-building session. The presentations and discussions at the Global Conference highlighted two important recent developments in the SDMX world. First, SDMX implementation has now spread beyond the borders of advanced economies: there have been a high number of successful SDMX projects in the developing world that have shown that SDMX has the potential to be a truly global standard. Second, SDMX has begun to attract interest and investment from the private sector: the industry, which participated for the first time in the event, identified SDMX as an ambitious, powerful and versatile standard that has the potential to modernize statistical production systems. The event was attended by more than 260 participants from more than 90 countries, including all 54 African countries.

22.   The 2018 Workshop of the Expert Group on Statistical Data and Metadata Exchange was held in Paris from 22 to 25 October 2018 at OECD. The meeting brought together more than 60 experts from international agencies, governments and the private sector, and had a forward-looking agenda, in which participants evaluated statistical modelling issues and looked at the technology and evolution of related standards and software tools and the capacity-building material available. The meeting also saw a review of recent improvements and helped to further the development of a new version of SDMX.

23.   The seventh SDMX Global Conference will be held in Budapest on 16 and 17 September 2019, followed by a capacity-building session on 18 and 19 September. The Global Conference will be hosted by the Hungarian Central Statistical Office. Its programme is currently under preparation.

VII. Action required by the Statistical Commission

24.   The Statistical Commission is invited to take note of the present report.

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