

10TH EXPERT GROUP MEETING ON

# Statistical Data and Metadata eXchange

JANUARY 25-28, 2021

## **National Accounts Data Exchange: The Experience of International Data Cooperation**

January 26, 2021

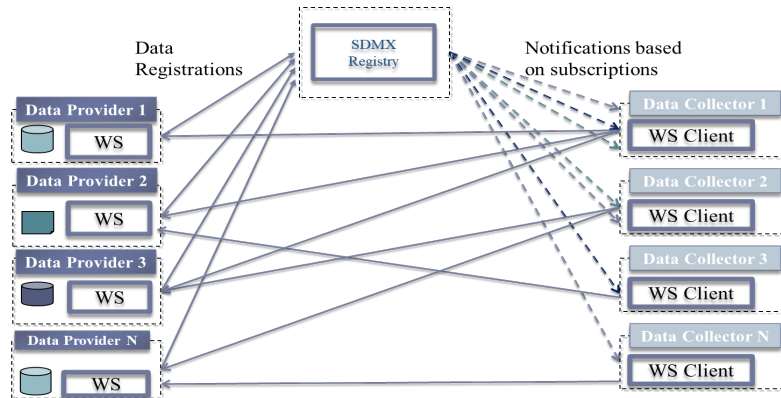
Nadezhda Vlahova

Team leader, IT Project manager/Eurostat

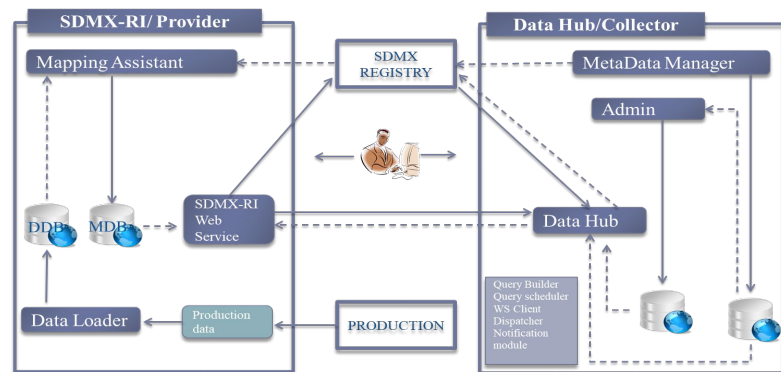
# Objectives

- Pull mode architecture recap
- Eurostat implementation for pull mode of data exchange
  - For data collectors
  - For data providers
- Lessons learned

# PULL mode recap.



- Data exposed by the data providers
- Data updates result into data registration messages, sent to the SDMX Global Registry
- Data notification messages sent to the data collectors based on subscriptions
- Data pulled by the data collector



- ESTAT architecture for both roles:
  - Data Collectors - Data Hub
  - Data providers - SDMX Reference Infrastructure (SDMX-RI)

# Technology

- SDMX Reference Infrastructure and DataHub
  - SDMX-RI – set of plug and play modules or use “AS IS” for provision of data in SDMX compliant format
  - DataHub – information system for visualisation, browsing and extraction of data stored remotely via SDMX WSs
  - Java, Oracle DB
    - The data provider`s side software also available in .NET
  - Based on the SDMX IM, SDMX WS specifications and SdmxSource
  - OSS (Nexus, Nuget)
- 3<sup>rd</sup> party applications
  - SDMX Global Registry
  - Edamis
  - Statistical data production system

# Eurostat as a data collector

- Set up (Data Hub)
  1. Download/upload the structural metadata

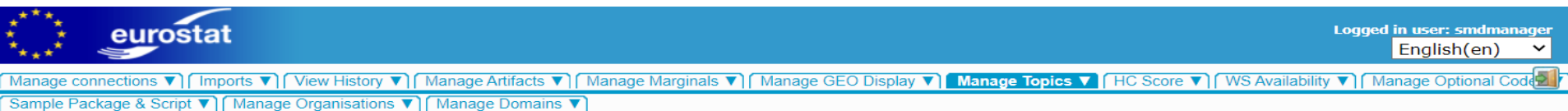
The screenshot shows the Eurostat Data Hub interface. At the top left is the Eurostat logo. On the right, it says "Logged in user: smdmanager" and "English(en)" with a dropdown arrow. Below the logo is a navigation bar with several menu items: "Manage connections", "Imports", "View History", "Manage Artifacts", "Manage Marginals", "Manage GEO Display", "Manage Topics", "HC Score", and "WS Availability". Below this is another row of menu items: "Manage Optional Codes", "Sample Package & Script", "Manage Organisations", and "Manage Domains". At the bottom of the navigation bar are "DSD", "Concepts Schema", "Code Lists", "Category Schema", "Data flow", and "Constraints". Below the navigation bar, there are two dropdown menus: "Select DSD: HC01" and "Select version: 1.0". To the right of these are the labels "Name: Marital status" and "Agency: ESTAT". Further right are two buttons: "Delete" and "Set default".

Dimension	CodeList	CrossSectional Attach Observation	Concept Schema	Breakdown Level
AGE	CL_AGE		CENSUSHUB_CONCEPTS	M
CAS	CL_CAS		CENSUSHUB_CONCEPTS	L
COC	CL_COC		CENSUSHUB_CONCEPTS	L
GEO	CL_GEO		CENSUSHUB_CONCEPTS	L
HST	CL_HST		CENSUSHUB_CONCEPTS	H
LMS	CL_LMS		CENSUSHUB_CONCEPTS	
POB	CL_POB		CENSUSHUB_CONCEPTS	L
SEX	CL_SEX		CENSUSHUB_CONCEPTS	

# Eurostat as a data collector

- Set up (Data Hub)

## 2. Visualisation configuration



**Select domain:** NATIONAL ACCC ▾

**Select language:** English(en) ▾

**Select Topic or Breakdown:** ⓘ

- Main Aggregates
  - Reference area
    - Area**
  - Adjustment indicator
  - Counterpart area
  - Reporting institutional sector
  - Counterpart institutional sector
  - Accounting Entry
  - Stocks, Transactions, Other Flows
  - Instrument and Assets Classification
  - Activity classification
  - Expenditure (COFOG, COICOP, COPP or COPNI)
  - Unit
  - Prices
  - Transformation

**Explanation note's preview:**

Reference Area

Edit Show history

**Assign dimension:**

Currently assigned dimension:  
Reference area (REF\_AREA)

Breakdown level group:  
 National  Broad  Intermediary  Detailed

# Eurostat as a data collector

- Set up (Data Hub)
- ### 3. Rules for the exchange (Inventory)

The screenshot shows the 'Manage Organisations' page in the Eurostat system. The header includes the Eurostat logo and a navigation menu with options like 'Manage connections', 'Imports', 'View History', 'Manage Artifacts', 'Manage Marginals', 'Manage GEO Display', 'Manage Topics', and 'HC Score'. The main content area is titled 'Manage Organisations' and contains a form for creating or managing an organization. The form includes dropdown menus for 'Select domain' (NATIONAL ACCOUNTS), 'Data provider type' (Internation Organisations), and 'Full name' (Eurostat). There are also input fields for 'eDAMIS ID (OCCURRENCE)' and 'eDAMIS ID (ORGANISATION)', both containing the value 'ESTAT'. To the right, there is a 'Username' section with radio buttons for 'aaaaa' and 'bbbbbb', and buttons for 'Add user' and 'Delete user'. At the bottom of the page, there are buttons for 'Add organisation', 'Remove organisation', 'Modify organisation', and 'Cancel'.

**Manage Organisations**

Select domain	NATIONAL ACCOUNTS ▼
Data provider type	Internation Organisations ▼
Full name	Eurostat ▼
eDAMIS ID (OCCURRENCE)	ESTAT
eDAMIS ID (ORGANISATION)	ESTAT

**Username**

aaaaa

bbbbb

**Add user** **Delete user**

**Add organisation** **Remove organisation** **Modify organisation** **Cancel**

# Eurostat as a data collector

- Data extraction (Data Hub)
  1. Data preview (based on the structural metadata)

The screenshot displays the Eurostat Data Hub interface. At the top, the European Statistical System logo is visible. The main navigation bar includes 'Data browser', 'Metadata', and 'Data sets'. The current step is '1. Select data', with other steps being '2. Select layout', '3. Display data', and '4. Download'. The interface shows the following configuration:

- Domain: NATIONAL ACCOUNTS
- Select dataflow: NAMAIN\_IDC\_N
- Reference area - Area: (0 of 739)
- Adjustment indicator: (0 of 12)

The 'Adjustment indicator' section is expanded, showing a list of options with checkboxes:

- all entries in level 0
- Calendar adjusted data, not seasonally adjusted
- Seasonally adjusted data, not calendar adjusted
- Calendar and seasonally adjusted data
- Neither seasonally adjusted nor calendar adjusted data
- Calendar component
- Irregular component
- Seasonal and calendar components

At the bottom of the adjustment indicator section, there are buttons for 'Select all', 'Deselect all', and 'Find code list'. A summary bar indicates 'Cells selected: 0' and 'Maximum selection: 100 000'. Navigation buttons 'Back' and 'Next' are also present.



# Eurostat as a data collector

- Data extraction (Data Hub)
  2. Defines the providers

The screenshot displays the Eurostat administration interface. The top navigation bar includes the Eurostat logo and the text 'Logged in user: censusadmin' with a language dropdown set to 'English(en)'. The main menu on the left lists various configuration options, with 'Data Provider Configuration' highlighted. The central panel is titled 'Modify web service configuration' and contains several sections:

- Data provider:** Fields for Id (IM), Domain (NATIONAL ACCOUNTS), Data provider type (International organisation), Display name (imf), and Unit name (International Monetary Fund).
- Web service:** Fields for Server (http://dataservices.imf.org), Path (/sdmx20/SDMX\_Web\_Service.asmx), WS Type (SOAP selected), WS Implementation (Java selected), Soap Action (http://www.imf.org/SDMX/GetCompactData), WS Service Name (ASMXSDMXService), WS Service Port (ASMXSDMXServiceSoap), Authentication (NONE), User Name, and Password.
- EDAMIS:** Fields for Type of eDAMIS organisation (International organisation), eDAMIS organisation (IMF), and eDAMIS user (STATFIDC).
- Other:** Fields for Use Proxy (True), Email Addresses (nadezhda.vlahova@ec.europa.eu), Available Full Hypercube Data (True), Main query element (Dataset selected), and Data flow availability check (NAMAIN\_IDC\_N : 1.0 : ESTAT).

At the bottom of the form, there are instructions: '\* Please fill in all mandatory fields.' and '\*\* Please fill in case Authentication is not None.' Buttons for 'Test Connection', 'Save', and 'Cancel' are located at the bottom of the form.

On the right side, a table lists providers under the heading 'a provider type'. The table has columns for 'Action' and 'International org'. The table content is as follows:

International org	Action
ernational organisation	[Edit] [Copy] [Delete]
ernational organisation	[Edit] [Copy] [Delete]
ernational organisation	[Edit] [Copy] [Delete]
ernational organisation	[Edit] [Copy] [Delete]
ernational organisation	[Edit] [Copy] [Delete]

Navigation links for the table include 'First', 'Previous', 'Next', and 'Last'.

# Eurostat as a data collector

- Data extraction (Data Hub)
- ### 3. Define and execute the data extraction

The screenshot displays the 'Edit defined query' interface in the Eurostat system. The interface is divided into several sections:

- Header:** Eurostat logo and navigation menu (Administration, CensusHub, Property Configuration, Query Statistics, Manage Access, Manage Queries).
- Logged in user:** censusadmin, English(en).
- Manage Queries:** A sidebar on the left with links for 'Manage Queries', 'Schedule query', and 'Modify scheduled queries'.
- Edit defined query:** The main form area with the following fields:
  - Domain:** NATIONAL ACCOUNTS
  - Query name:** NAMAIN\_IDC\_N\_PROD
  - Dataflow:** NAMAIN\_IDC\_N
  - To:** A list of countries: RO, SE, SI, SK, UK, ESTAT.
  - Organisation ID:** (Empty)
  - Trigger query by SDMX registry notification:**
  - Notify about Query Execution:**
  - Synchronize with EDAMIS:** Includes options for manual triggering (Do not send automatically, Send ASAP, Send by scheduler) and scheduler configuration (Date and time: 2020-12-19 03:00).
- Data Provider:** A sidebar on the right with a dropdown for 'Type of data provider: NSI' and a list of countries with checkboxes: Slovenia, Slovakia, United Kingdom, Austria, Belgium, Bulgaria, Switzerland, Cyprus, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Croatia, Hungary, Ireland, Iceland, Italy, Liechtenstein, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Poland, Portugal, Romania, Sweden.
- Query dataset:** A text area containing XML code for the query dataset, including dimensions like REF\_AREA, AM, AZ, BB, BY, BZ, BK, BO, BW, BN, BF, CV, KH, and CM.
- Buttons:** 'Validate query', 'Save', and 'Cancel'.

# Eurostat as a data collector

- Data extraction (Data Hub)
4. Register the transmission and forward for processing

The screenshot displays the Eurostat 'Manage Queries' interface. At the top, there is a navigation bar with the Eurostat logo and menu items: Administration, CensusHub, Property Configuration, Query Statistics, Manage Access, and Manage Queries. Below the navigation bar, the 'Manage Queries' section is active, showing a table of queries. The table has columns for Domain, Dataflow, Query name, Last execution success rate, Edamis Fails, and Action. A single query is listed with the following details:

Domain	Dataflow	Query name	Last execution success rate	Edamis Fails	Action
NATIONAL ACCOUNTS	NAMAIN_IDC_N	NAMAIN_IDC_N_PROD	1/1		[Edit] [View] [Refresh] [Copy] [Delete] [Info]

Below the 'Manage Queries' section, the 'Query results' section is visible, showing a table of query execution results. The table has columns for Date, Data Provider, Query status, Edamis transmission success rate, Query trigger, File name, and Action. The results show a series of successful queries from 2020-12-15 17:28 to 2020-12-15 15:42, with varying Edamis transmission success rates (2/2, 1/1, 0/1, 1/2, 2/2, 3/3).

Date	Data Provider	Query status	Edamis transmission success rate	Query trigger	File name	Action
2020-12-15 17:28	imf	Success	2/2	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:28	imf	Success	2/2	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:28	imf	Success	2/2	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:28	imf	Success	2/2	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:27	imf	Success	1/1	Execute	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:24	imf	Success	0/1	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:24	imf	Success	1/2	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 17:11	imf	Success	2/2	Execute	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 15:42	imf	Success	3/3	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]
2020-12-15 15:42	imf	Success	3/3	Scheduler	NAMAIN_IDC_N_ZC_2018_0001	[Info] [Download] [Upload] [Delete]

# Eurostat as a data provider (will be part of the SDMX-RI)

- Set up
  - Data loading

DLBB

Statistical data loading and conversion

[Main Menu](#)

[Edit Profile](#)

[Delivery Spaces](#)

[Jobs](#)

[Data Management](#) →

[Administration](#) →

[Logout](#)

## Jobs' history

Jobs created by user admin

[Simple view](#)

[Show all jobs](#)

[Show my jobs](#)

[Clean whole history](#)

Jobs

[Management](#)

[History](#)

1,360 jobsHistory found, displaying 1 to 25.

[First/Prev] 1, 2, 3, 4, 5, 6, 7, 8 [Next/Last]

Job name	Job type	Status	Schedule name	Created by user	Start time	End time	Duration [ms]	Input
NAPSDatLoad_1.9	SEQUENTIAL_LOAD	SUCCEEDED	T_1602839269763	admin	2021-01-13 11:01:00.012	2021-01-13 11:03:36.352	156336	InputFile.Id=606 DeliverySpace.Path=/dlbb/delivery_space/input/ InputFile.Path=NAMAIN_IDC_N_4D_*.xml InputFile.PathWithRegularExpression=true InputFile.FileType=SDMX_COMPACT
NAPSDatLoad_1.9	SEQUENTIAL_LOAD	SUCCEEDED	T_1602839269763	admin	2021-01-12 11:01:00.019	2021-01-12 11:03:24.99	144942	InputFile.Id=606 DeliverySpace.Path=/dlbb/delivery_space/input/ InputFile.Path=NAMAIN_IDC_N_4D_*.xml InputFile.PathWithRegularExpression=true InputFile.FileType=SDMX_COMPACT

# Eurostat as a data provider (SDMX-RI)

- Set up
- ## 2. Data mapping

The screenshot shows the Eurostat Mapping Assistant interface. The top navigation bar includes 'Home', 'Metadata', 'Data', 'Mapping', and 'About'. The 'Mapping' tab is active, and the 'Editor' sub-tab is selected. The interface features several action buttons: 'Dataset rows', 'Auto map all', 'Validate Mapping', 'Last Updated Mapping', 'Update Status', 'Update Content Constraints', 'Select Content Constraints', and 'View Mapped Data'. A search and filter section includes a search box, a 'Filter' button, and a 'Clear Filters' button.

<input type="checkbox"/>	Type	Id	Name	Info	Dataset Columns	Status	Transcoding	
<input type="checkbox"/>	🏠	GEO*	Geographical area	📘	HC05_2021_Sample1_GEO x	📘	No Transcoding	Add
<input type="checkbox"/>	🏠	SEX*	Sex	📘	Please select	📘	No Mapping	Add
<input type="checkbox"/>	🏠	AGE*	Age	📘	HC05_2021_Sample1_GEO HC05_2021_Sample1_SEX HC05_2021_Sample1_AGE HC05_2021_Sample1_OCC HC05_2021_Sample1_IND HC05_2021_Sample1_SIE	📘	No Transcoding	Add
<input type="checkbox"/>	🏠	OCC*	Occupation	📘		📘	No Transcoding	Add

# Eurostat as a data provider (SDMX-RI)

- Result (data are published)
- <https://webgate.ec.europa.eu/nsi-jax-ws>
  - <https://webgate.ec.europa.eu/nsi-jax-ws/NSIEstatV20Service>
  - <https://webgate.ec.europa.eu/nsi-jax-ws/NSIStdV20Service>
  - <https://webgate.ec.europa.eu/nsi-jax-ws/NSIStdV21Service>
  - [https://webgate.ec.europa.eu/nsi-jax-ws/rest/data/ESTAT,NAMAIN\\_IDC\\_N,1.9/..LI...../ALL/?detail=full&dimensionAtObservation=TIME\\_PERIOD](https://webgate.ec.europa.eu/nsi-jax-ws/rest/data/ESTAT,NAMAIN_IDC_N,1.9/..LI...../ALL/?detail=full&dimensionAtObservation=TIME_PERIOD)

# Lessons learned

- Allows full automation and less human intervention needed
- More timely exchange of data where the full architecture is implemented
- Responsibility of the collector to pull the data
- Not all of the components or 3<sup>rd</sup> party applications might be needed
- Follow up and monitor the process
  - Include the pull under the generic validation architecture and allow feedback
- Any change might impact the pulling
  
- Next steps
  - More senders/receivers
  - More domains/datasets

10TH EXPERT GROUP MEETING ON

# Statistical Data and Metadata eXchange

JANUARY 25-28, 2021

**Thank you for your  
attention!  
Questions?**