

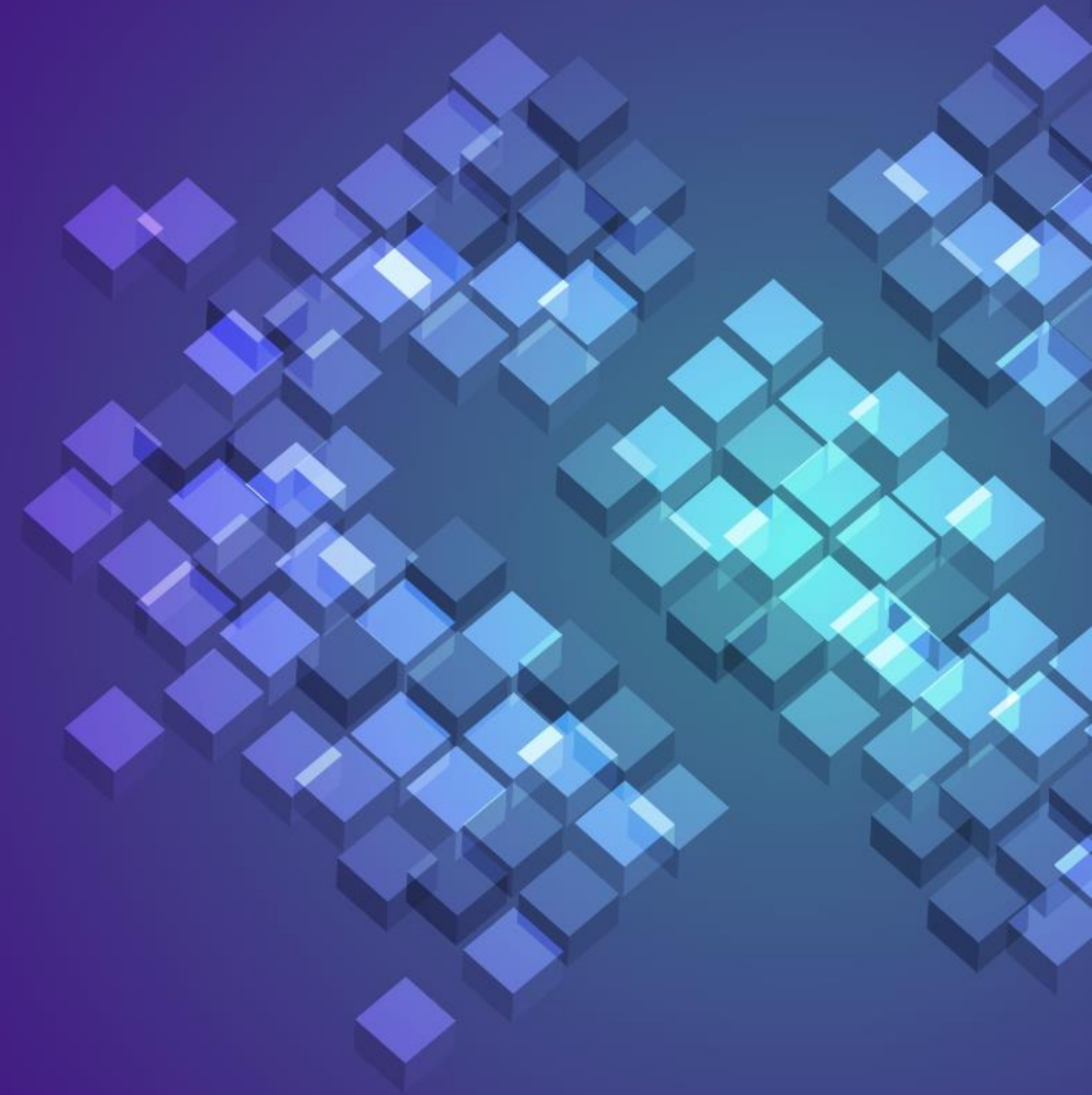
# 9th SDMX Global Conference

Empowering Data Communities

## BIS Fusion Metadata Registry meets IMF SDMX Central: A Strategic Partnership

Marco Marini (IMF) and Rafael Schmidt (BIS)

October 30, 2023



# Outline

---

- IMF SDMX Central
  - SDMX tool for IMF's Data Dissemination Standards
  - Migration to Fusion Metadata Registry (FMR)
- BIS Open Tech
- [sdmx.io](https://sdmx.io)
- Next steps

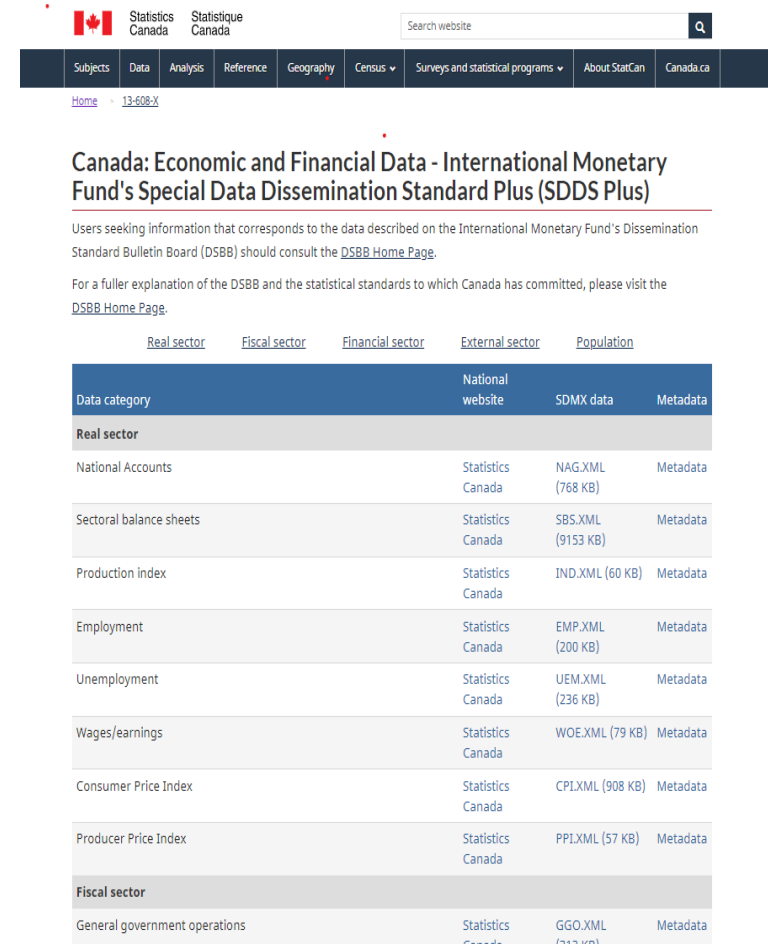
# IMF Data Dissemination Standards

---

- Developed to enhance the availability of macro economic and financial statistics through dissemination of data on National Summary Data Pages (NSDPs)
- Promote the development of sound statistical systems
- Three tiers with progression encouraged:
  - Enhanced General Dissemination Standard (e-GDDS 2015 - SDMX)
  - Special Dissemination Standard (SDDS 1996 - optional SDMX)
  - Special Dissemination Standard (SDDS Plus 2012 – SDMX)

# National Data Summary Pages (NSDPs)

- Single page for key indicators
- Easy access to SDMX data, link to national dissemination, metadata
- Via national websites or IMF Dissemination Standards Bulletin Board (DSBB)



Statistics Canada / Statistique Canada

Search website

Subjects Data Analysis Reference Geography Census Surveys and statistical programs About StatCan Canada.ca

Home - 13-608-X

## Canada: Economic and Financial Data - International Monetary Fund's Special Data Dissemination Standard Plus (SDDS Plus)

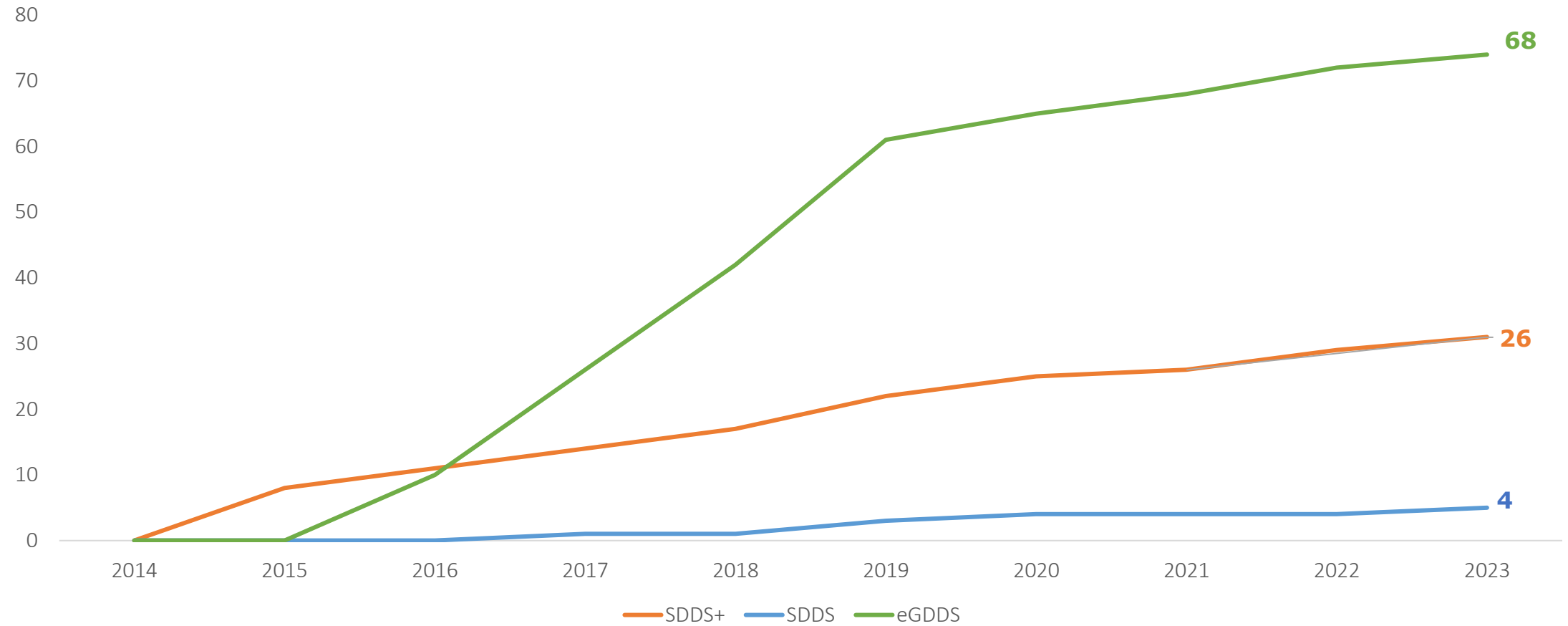
Users seeking information that corresponds to the data described on the International Monetary Fund's Dissemination Standard Bulletin Board (DSBB) should consult the [DSBB Home Page](#).

For a fuller explanation of the DSBB and the statistical standards to which Canada has committed, please visit the [DSBB Home Page](#).

Real sector Fiscal sector Financial sector External sector Population

Data category	National website	SDMX data	Metadata
<b>Real sector</b>			
National Accounts	Statistics Canada	NAG.XML (768 KB)	Metadata
Sectoral balance sheets	Statistics Canada	SBS.XML (9153 KB)	Metadata
Production index	Statistics Canada	IND.XML (60 KB)	Metadata
Employment	Statistics Canada	EMP.XML (200 KB)	Metadata
Unemployment	Statistics Canada	UEM.XML (236 KB)	Metadata
Wages/earnings	Statistics Canada	WOE.XML (79 KB)	Metadata
Consumer Price Index	Statistics Canada	CPI.XML (908 KB)	Metadata
Producer Price Index	Statistics Canada	PPI.XML (57 KB)	Metadata
<b>Fiscal sector</b>			
General government operations	Statistics Canada	GGO.XML (717 KB)	Metadata

# SDMX-enabled NSDPs



# What is SDMX Central?

---

- SDMX Central is a tool provided by IMF to help member countries to create and maintain SDMX files on their NSDPs
- Established in 2013 as a Software as a Service (SaaS) solution, developed and supported by Metadata Technologies
- Countries use SDMX Central to:
  - Convert datasets from Excel/CSV into SDMX format (and vice versa)
  - Validate the structure of SDMX artifacts
  - Register datasets in SDMX Central service (for SDDS Plus)
  - Library of DSDs (e.g., ECOFIN)

# How to access SDMX Central

<https://sdmxcentral.imf.org/>



The screenshot displays the IMF SDMX Central web application interface. The top navigation bar is blue and contains the IMF logo on the left, the text "IMF SDMX Central" in the center, a language dropdown menu set to "en" on the right, and a green "Login" button. Below the navigation bar is a dark grey sidebar menu with the following items: Home, Organisations, Data, Items, Metadata, Structure Maps, Web Service, Export Structures, Structure References, Activity, and Search. The main content area has a white background and features the title "IMF SDMX Central" in large black font, followed by "Version 9.8.6" with a help icon. A central graphic shows a tablet displaying a network diagram, with the word "Convert" below it. At the bottom of this graphic, it says "Verify and Convert Datasets". A blue "Support" button is located in the bottom right corner of the main content area.

# Transition to Fusion Metadata Registry

---

- In late 2022, IMF and BIS to discuss possibility to use Fusion Metadata Registry (FMR) for its SDMX Central services
  - FMR open-source tool owned by the BIS
  - SDMX Central and FMR are built on the same code
  - After successful feasibility assessment, IMF decided to align SDMX Central with FMR
- During 2023, BIS and IMF teams worked together to align FMR with SDMX Central functionalities
  - Requirements collected in the spring
  - Development work finalized in the summer
  - SDMX Central migration successfully completed in end-September



# How to access SDMX Central – powered by FMR

<https://sdmxcentral.imf.org/>



The screenshot displays the IMF SDMX Central web application interface. The header features the IMF logo and the text "IMF SDMX Central" on the left, and a language dropdown set to "en" and a "Login" button on the right. A dark sidebar on the left contains a navigation menu with the following items: Home, Organisations, Data, Items, VTL, Related Structures, Metadata, Web Service, Export Structures, Structure References, Activity, and Search. The main content area has a light blue background and displays the title "IMF SDMX Central" in large black font, followed by "powered by Fusion Metadata Registry" and "Version 11.11.1". A central graphic shows a tablet with a data visualization, with the word "Convert" below it. Underneath, the text "Verify and Convert Datasets" is visible. A vertical "Support" button is located on the right side of the main content area.

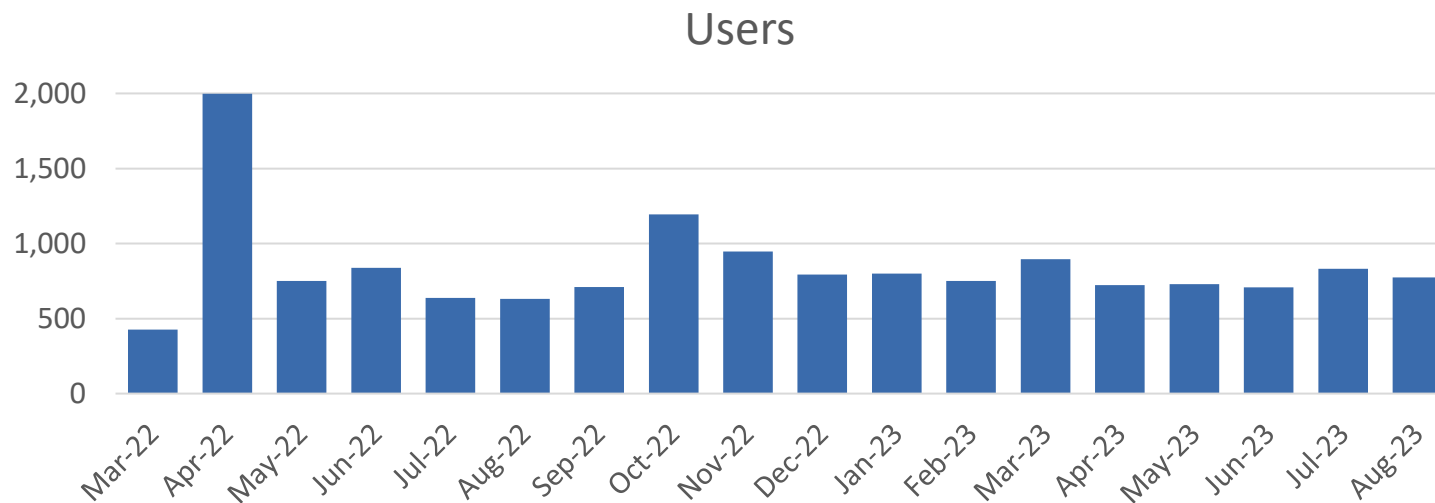
# Benefits of using FMR

---

- Upgraded features, including SDMX 3.0 compliance
  - Leapfrogged to FMR v11 – from v9 in SDMX Central
- Participate in FMR prioritization group
  - New and upgraded features can be requested
- Increase standardization of tools among SDMX sponsors
  - Facilitate interoperability
- Cost efficient solution
  - Financial contributions to sdmx.io community through Memorandum of Understanding

# BIS Open Tech

- Platform for sharing statistical/financial **software as public and community goods**, promoting international cooperation.
- Projects based on **open source principles**.
- Collectively, more than 15,000 users.



**BIS Open Tech**

The BIS Open Tech is a platform for sharing statistical and financial software as public goods, by promoting international cooperation and coordination. These software tools are developed according to international best practices and standards and can be reused and further developed in a wide variety of environments.

**Project SDMX/FMR** 05 May 2022  
The FMR enables organisations to 'get a grip of their metadata', by externalising their statistical structural metadata with the benefits of maintainability, re-use, standardisation, harmonisation and improved metadata and data governance.

**Ellipse and the Data and Knowledge Platform** 11 Mar 2022  
Ellipse is a proof-of-concept launched by the BIS Innovation Hub to explore the supervisory use of an integrated regulatory data and analytics platform. It is powered using the Data and Knowledge Platform (DKP), developed by the Monetary Authority of Singapore.

**Project Aurum**  
Aurum is a retail CBDC technology prototype, comprised of a wholesale interbank system and a retail e-wallet system, setting up two different types of tokens: intermediated CBDC and stablecoins backed by CBDC in the interbank system. While intermediated CBDC is a direct liability of the central bank, CBDC-backed stablecoins are liabilities of the issuing bank, with its backing assets held by the central bank. The prototype is designed under the principles of safety, flexibility and privacy. [Read more...](#)

www.bis.org/innovation/bis\_open\_tech.htm

# sdmx.io



[sdmx.io](https://sdmx.io) is not a single project but an **ecosystem of open source tools, patterns, guidance, learning materials and other resources** like pre-configured containerised environments that make the software quick and simple to deploy.

- An **open-source SDMX software and resource portal**
  - Software releases (FMR, .Stat Suite, etc.)
  - E-learning courses and webinars
  - Knowledge and use-case articles
- **Governance in place, incl. Prioritisation and User Advisory Groups**
- **Officially public**, after the SDMX Sponsors approval

- Share software tools and components based on SDMX
- Complement existing tools in order to achieve statistical use-cases
- Interface SDMX with other standards or tools
- Promote reusability of SDMX software

Want to publish your open-source SDMX tool on sdmx.io? Please contact us [contact.sdmx.io@bis.org](mailto:contact.sdmx.io@bis.org)



# Next steps

---

## IMF

- FMR migration one step towards modernizing use of SDMX at IMF
- Continue to collect feedback on SDMX Central from participating agencies
  - Migration to FMR brings opportunities to improve user experience

## BIS

- Sdmx.io is being rolled out further
  - Software producers (national, international organisations but also commercial companies) are being contacted
  - MoU for organisations interested in participating to sdmx.io
  - SDMX articles, e-learning courses are being developed
  - Contributions from third parties

# 9th SDMX Global Conference

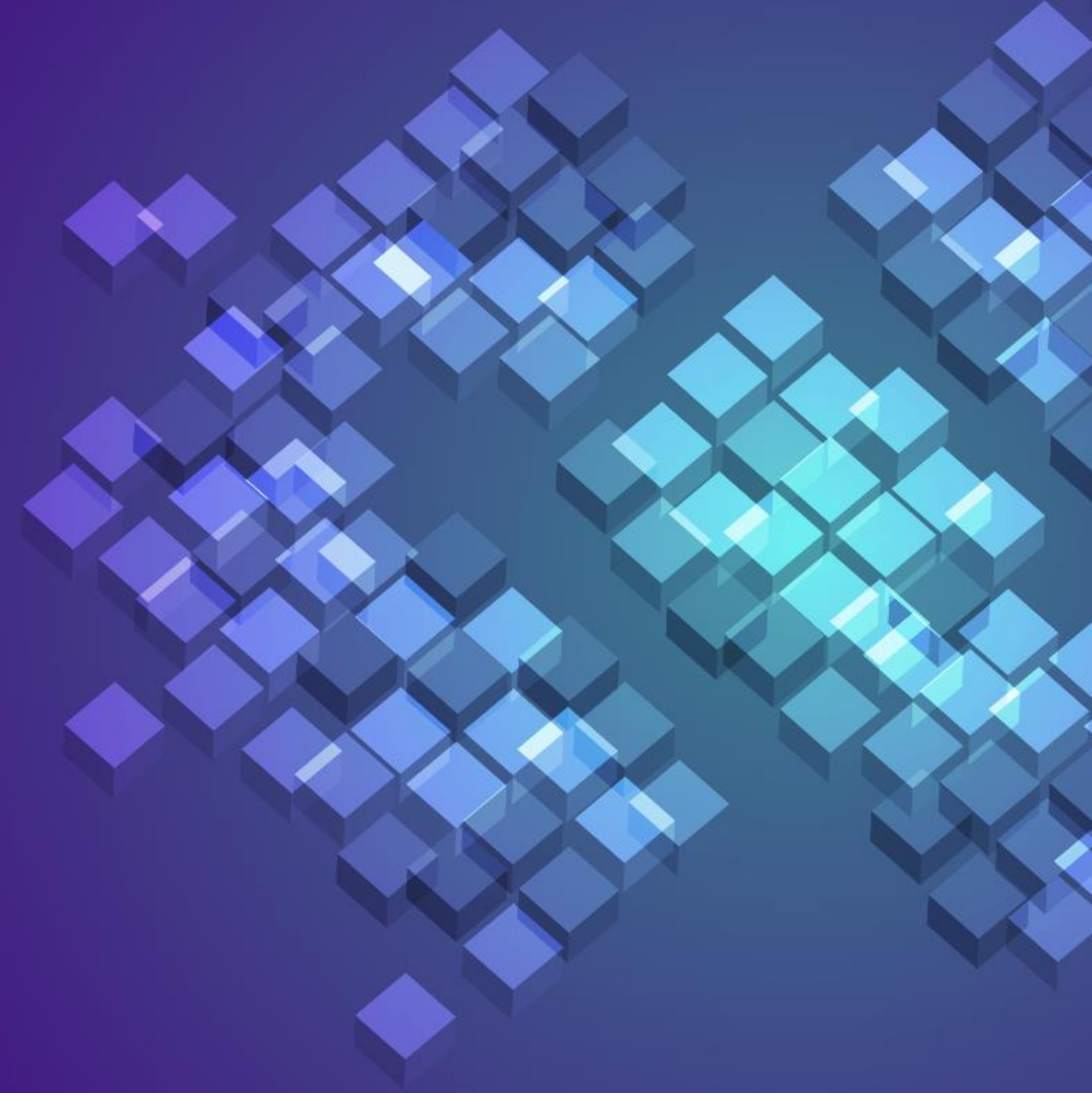
Empowering Data Communities

Thank you for your attention!

Questions?

شكرًا لكم على اهتمامكم!

أسئلة؟



# Annex slides

---

## What is Fusion Metadata Registry (FMR)

Wikipedia:  
“A **metadata registry** is a central location in an organization where metadata definitions are stored and maintained in a controlled method.”

### “Structural metadata registry to the SDMX specification”

All SDMX **structures**, e.g. Concepts, Codelists, Data Structure Definitions.

Plus: **reference metadata reports** which are treated like structures in SDMX 3.0

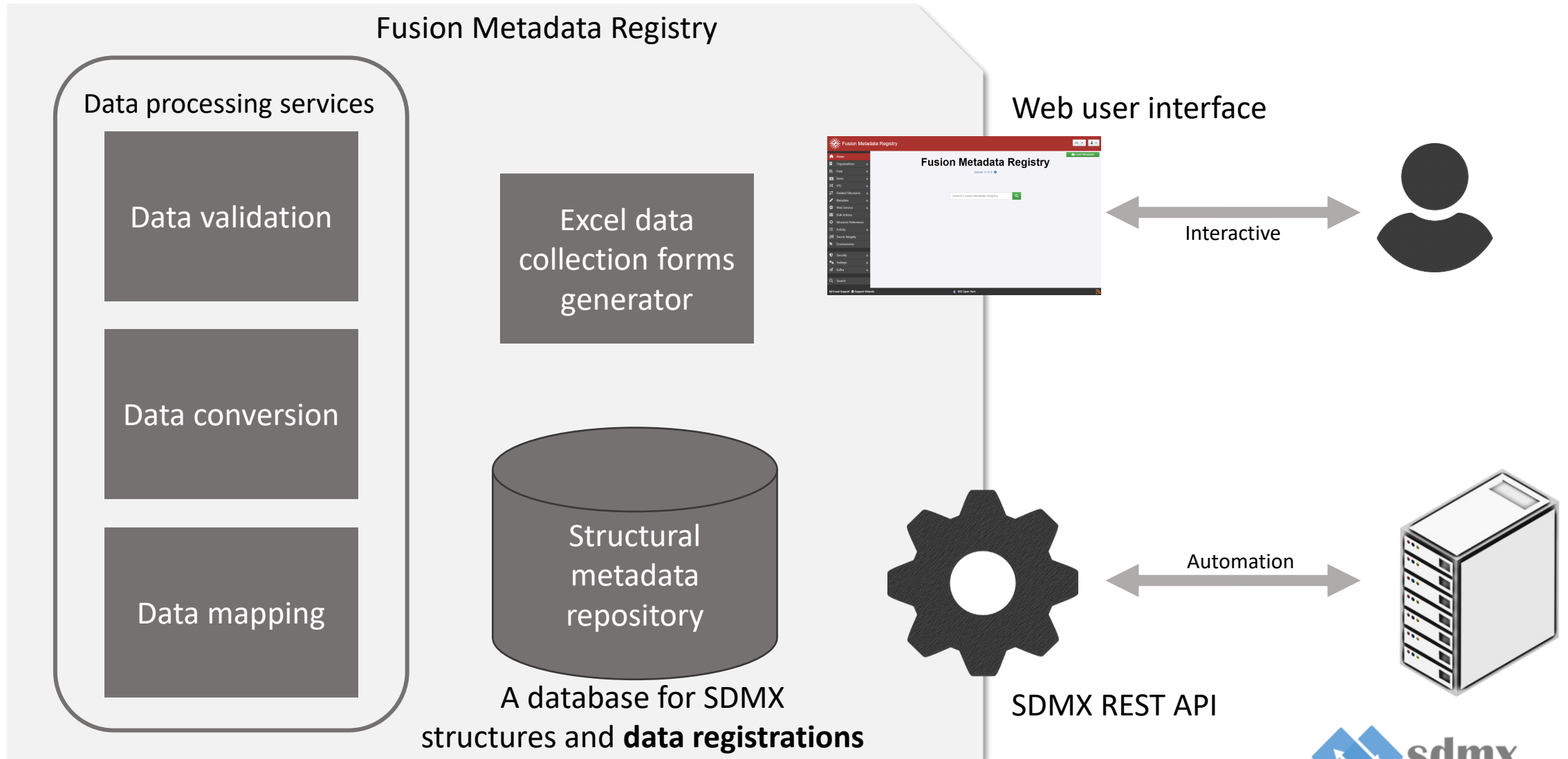
Uses the SDMX 3.0 ‘**metamodel**’

SDMX 2.1 model backward compatible

SDMX uses the term ‘**information model**’ rather than ‘**metamodel**’



# What is Fusion Metadata Registry



# FMR web user interface anatomy

SDMX organisations

DSDs, Dataflows etc  
plus: convert and map data

Item schemes:  
Codelists, Concepts etc

VTL transformation  
structures

Structure mapping rules

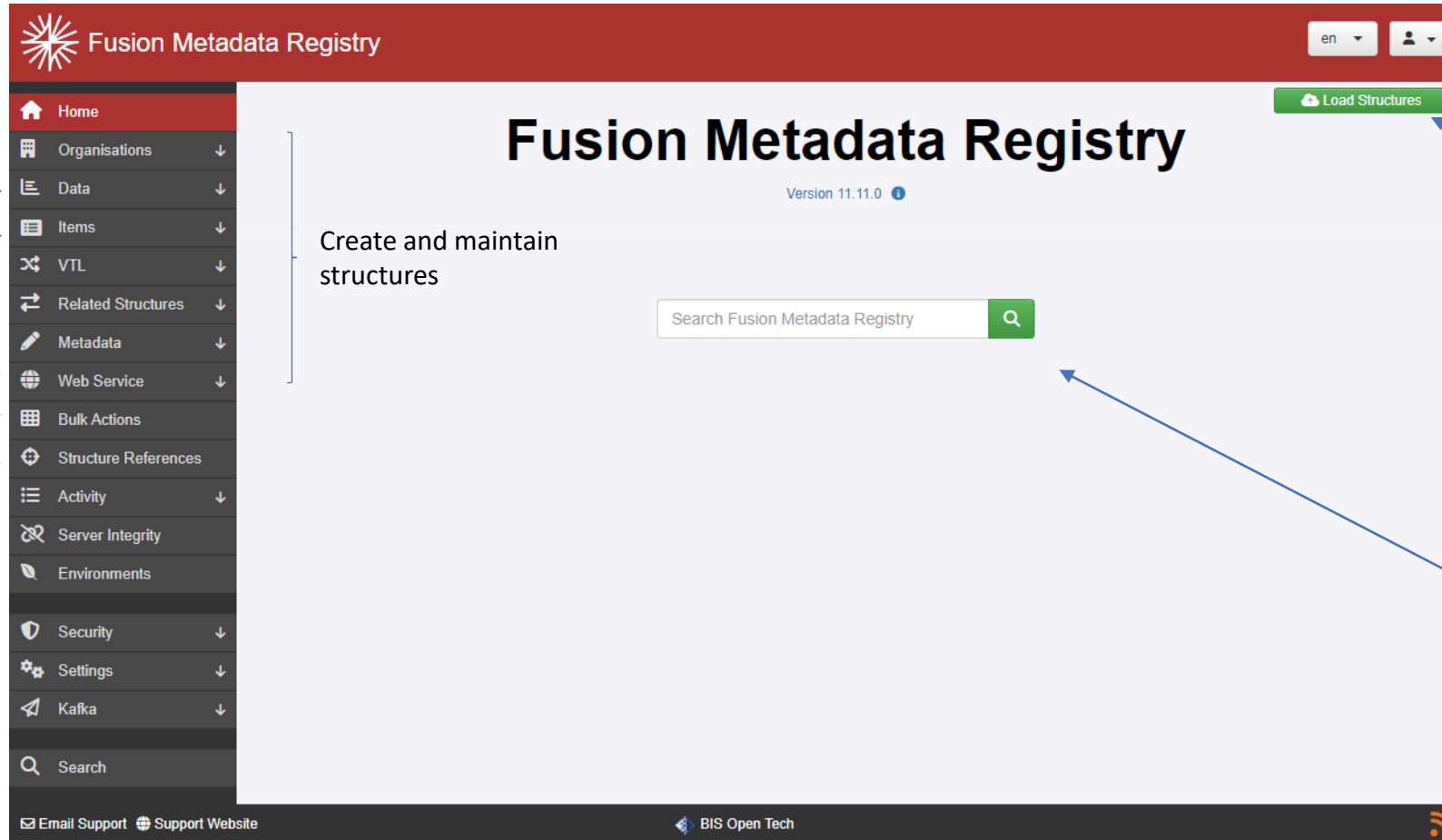
Reference metadata  
structures and reports

REST API query builder

Bulk download or delete

Structure references  
explorer

Administration and  
configuration



Set language

Log in, log out

Create and maintain  
structures

Load structural metadata  
from file or URL

Free text search  
structural metadata



## Key FMR use cases

### Centralise and govern statistical metadata

- Externalise and centralise metadata
- Metadata governance – gain control
- Improve metadata maintainability
- Metadata reuse
- Harmonisation of concepts

Enables  
'metadata-driven'  
solutions

### Data collection

- Publish structural metadata for data reporters
- Generate Excel data reporting forms
- Validate received datasets
- **Reporters register the URLs of their datasets**

### Data reporting

- Validate SDMX data prior to submission
- Convert data between SDMX formats
- Data mapping – transform data to the collector's DSD

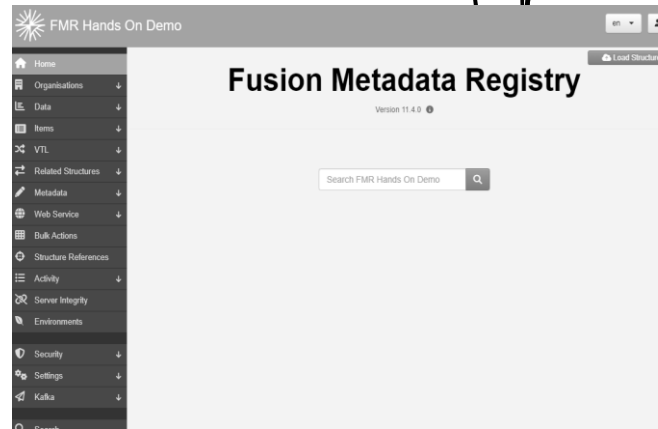
### SDMX structures authoring / maintenance

- Create and modify SDMX structures interactively using the web user interface
- SDMX REST API for structure maintenance automation

# Fusion Metadata Registry

Centralised  
SDMX  
metadata  
registry

Fusion Metadata Registry (FMR)  
is an enterprise-grade SDMX  
metadata registry



Structure  
authoring and  
maintenance  
tool

SDMX data  
validation,  
conversion  
and mapping

Personal  
SDMX  
structure  
store and  
workbench

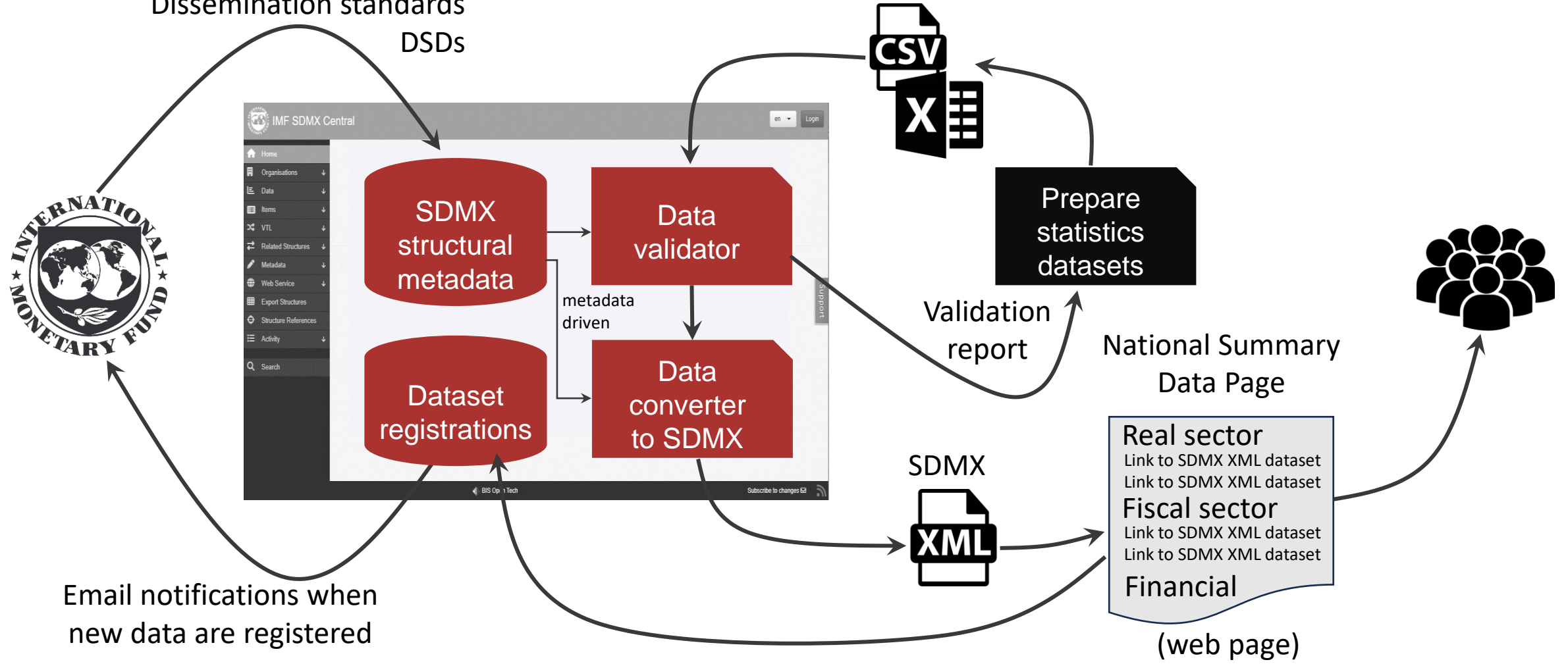
But can help with other tasks as well

Quick start in 10 minutes using [Docker](#)

# FMR SDMX Central use case

IMF                      FMR SDMX Central                      Disseminating country                      Data consumer

Dissemination standards  
DSDs



Email notifications when new data are registered

SDDS Plus countries register the URLs of their datasets

