

Implementation of Statistical Data and Metadata  
eXchange (SDMX) at Reserve Bank of India -  
Strengthening Data Governance, Data  
Management, and Data Visualization

Debasis Nandi  
Sudipta Dutta

# Agenda

- ✓ Overview of Existing Data Management
- ✓ Experience of SDMX – Data Reporting
- ✓ SDMX Current Implementation
  - Overview
  - Workflow - Collection, Dissemination and Analytics
  - Converter Engine
  - Data Query Engine
- ✓ How will SDMX enhance Data Governance?
- ✓ Other Advantages
- ✓ Challenges

# Existing Data Management

Public

SAARC  
Countries

RBI Internal Users/  
Regulated Entities  
(10,000+)

International  
Organisation

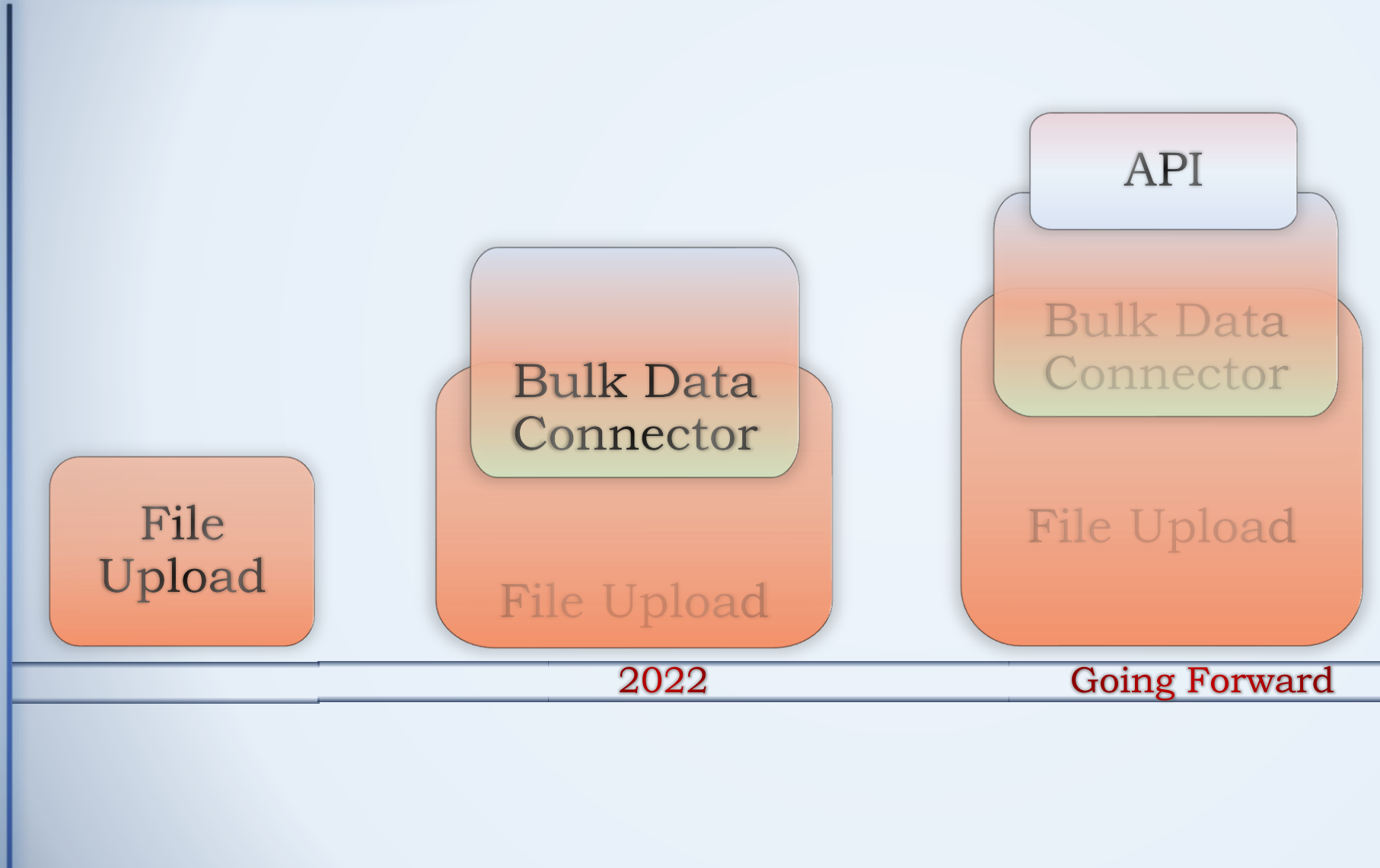
Macroeconomic  
and financial  
data series  
through DBIE  
(1200 Reports)

SAARC  
Finance  
Database

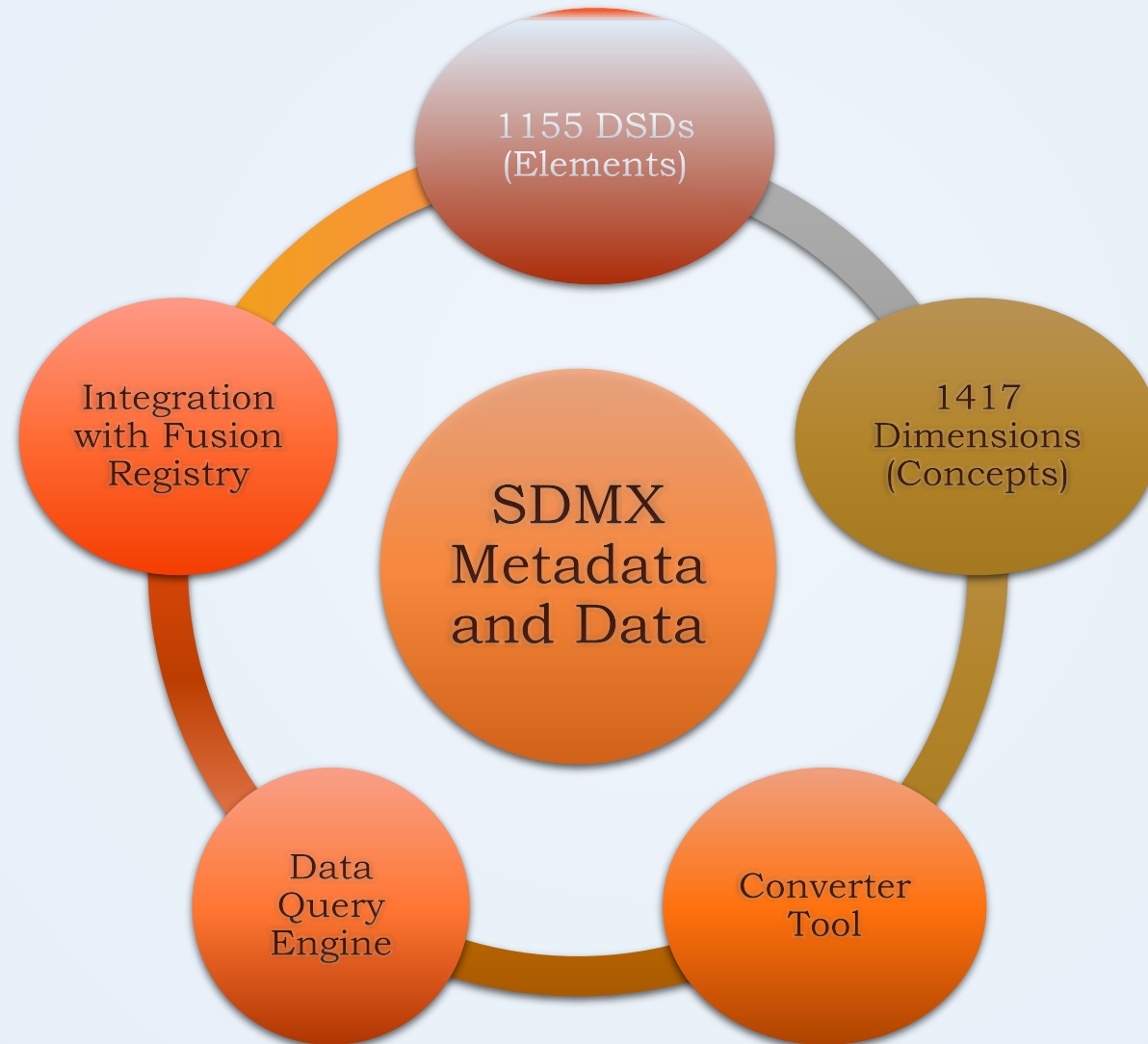
Regulatory,  
Supervisory,  
Financial  
Sector and  
Payment  
Systems

Reporting to  
BIS/IMF –  
LBS, CBS,  
Macro-  
economic  
series

# Experience of SDMX – Data Reporting



# SDMX- Implementation Overview



# SDMX-driven Data Lifecycle Workflow

Regulated Entities

Reserve Bank of India, CIMS

Data Collection



SDMX-ML Metadata

API

Fusion Metadata Registry

SDMX Metadata Management

Data Dissemination

SDMX-ML Data Flow

Processing and storage



Internal Data

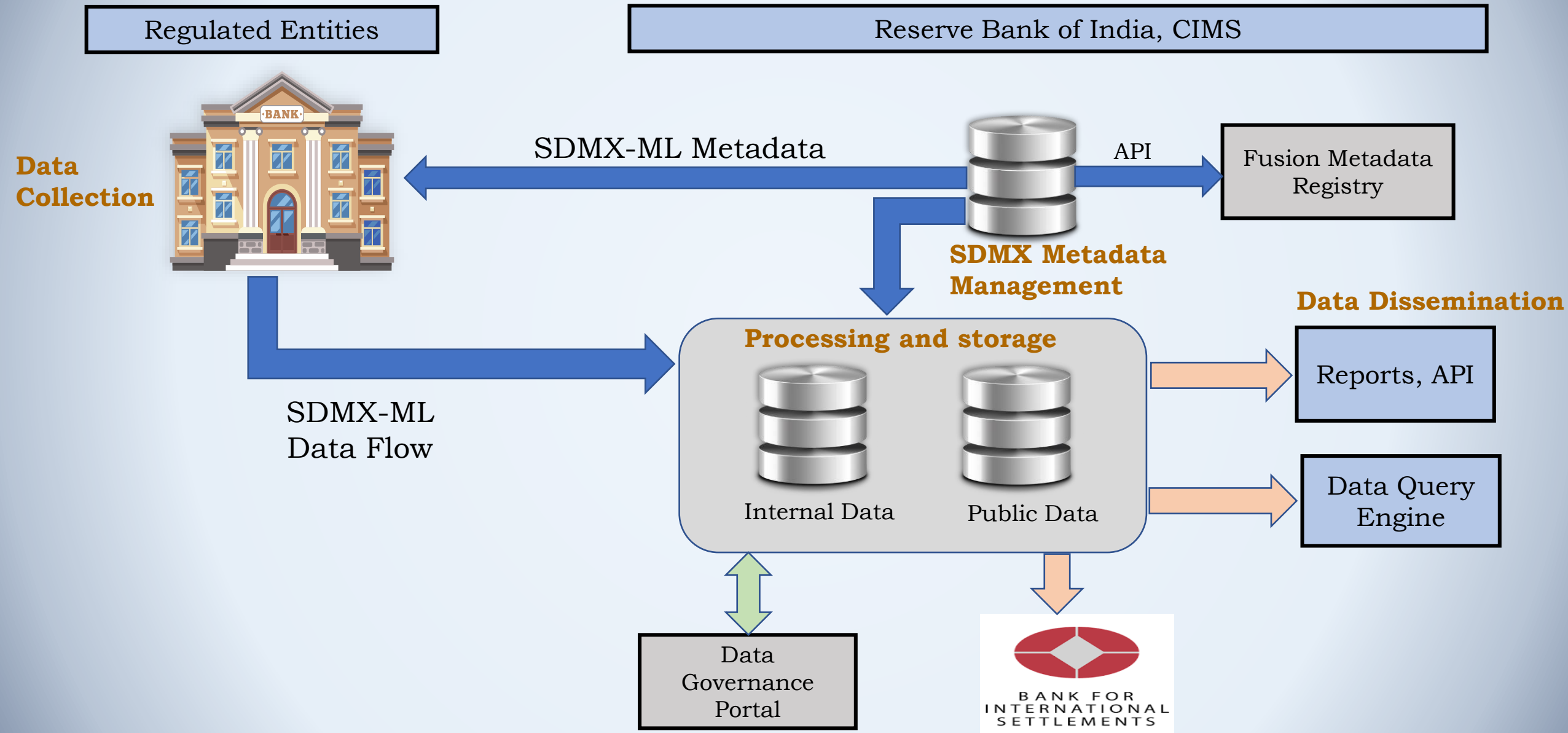


Public Data

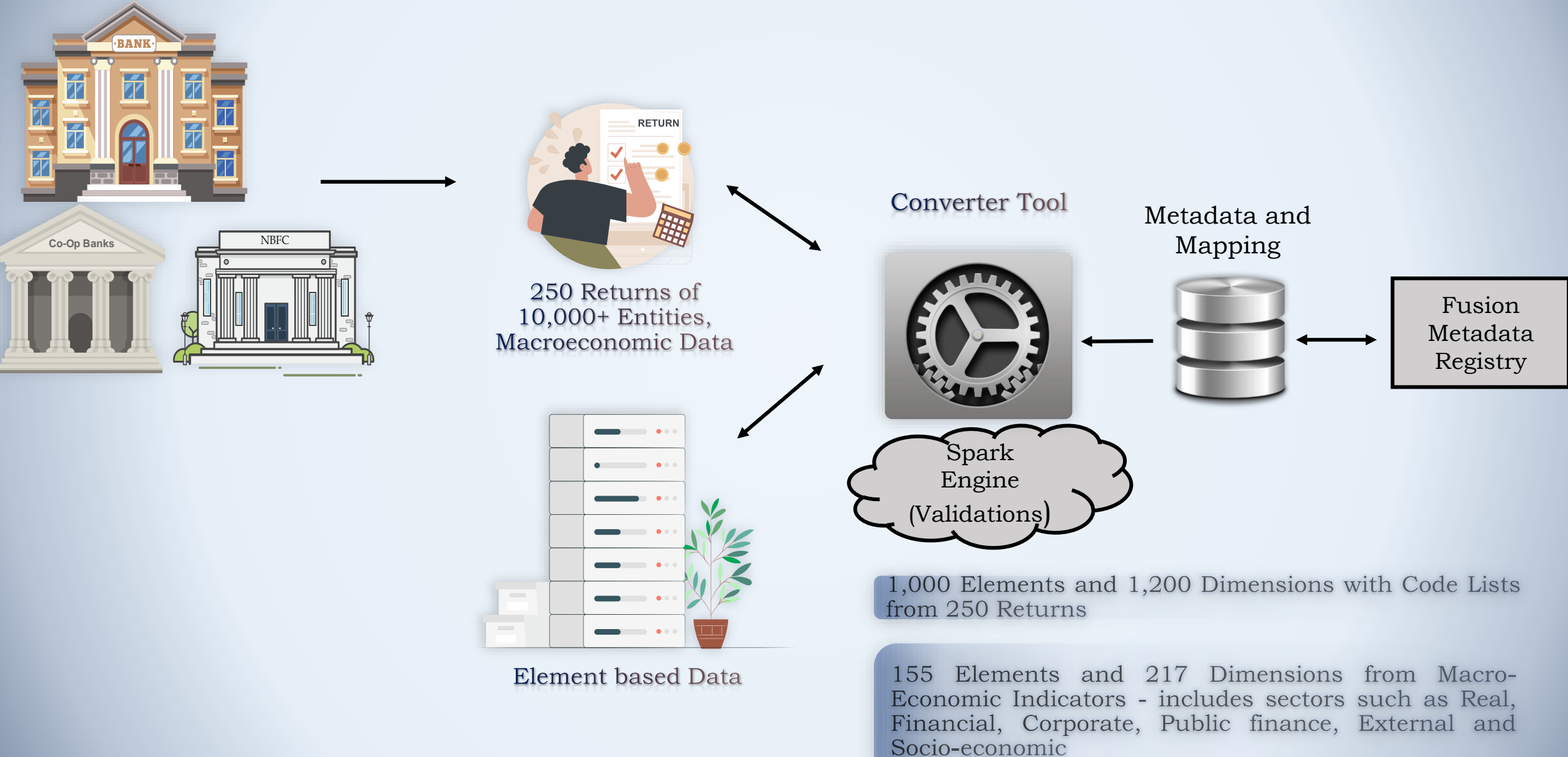
Reports, API

Data Query Engine

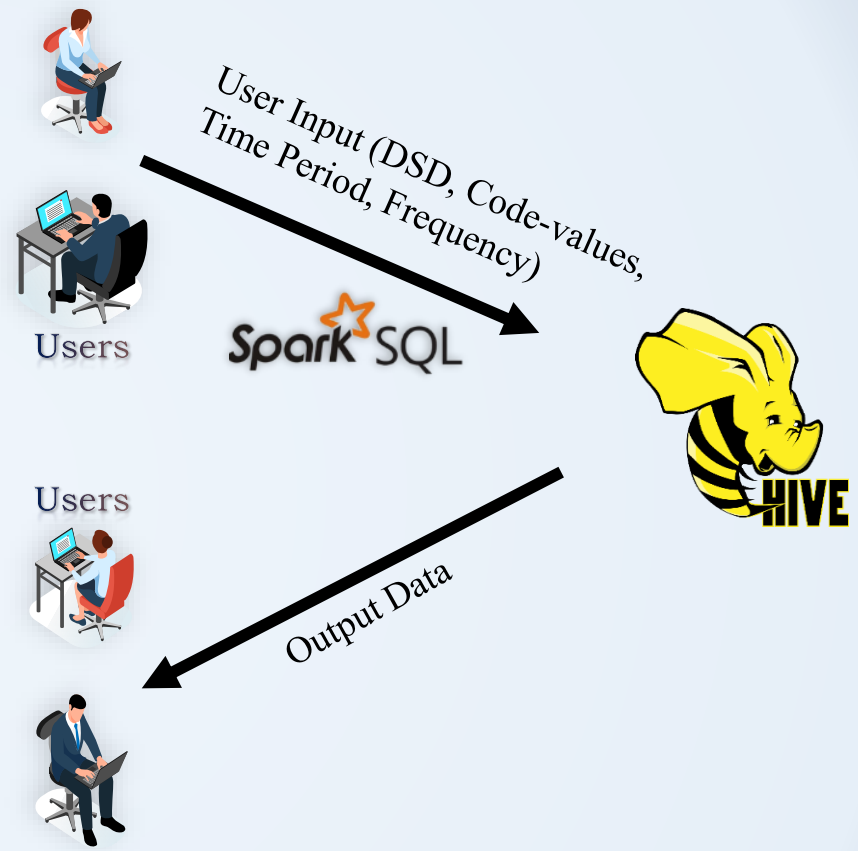
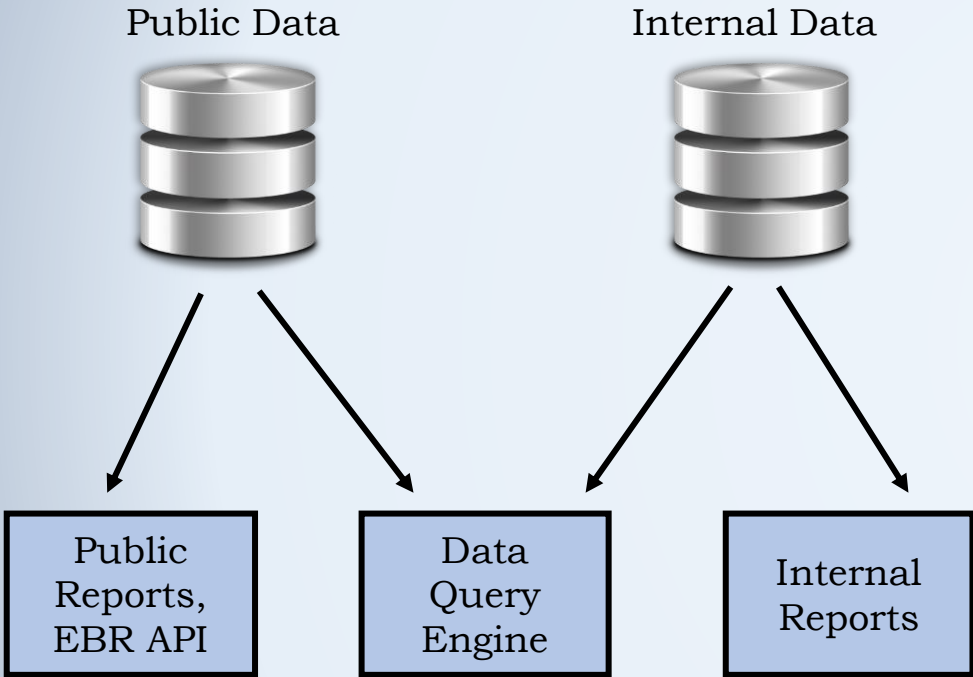
Data Governance Portal



# Converter Engine



# SDMX-driven Data Query Engine



Cloudera Data Science Workbench

python

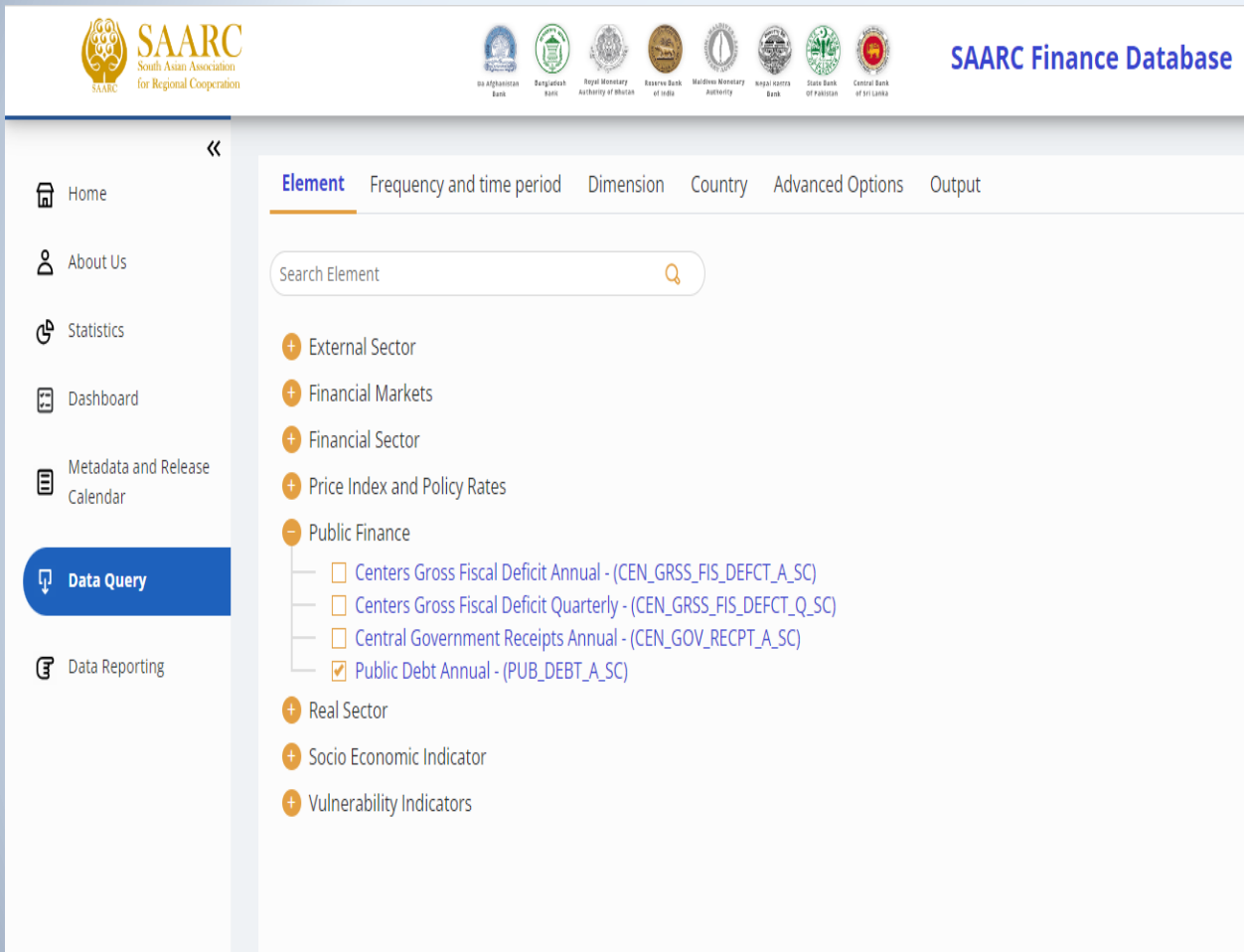
APACHE Spark

Studio R

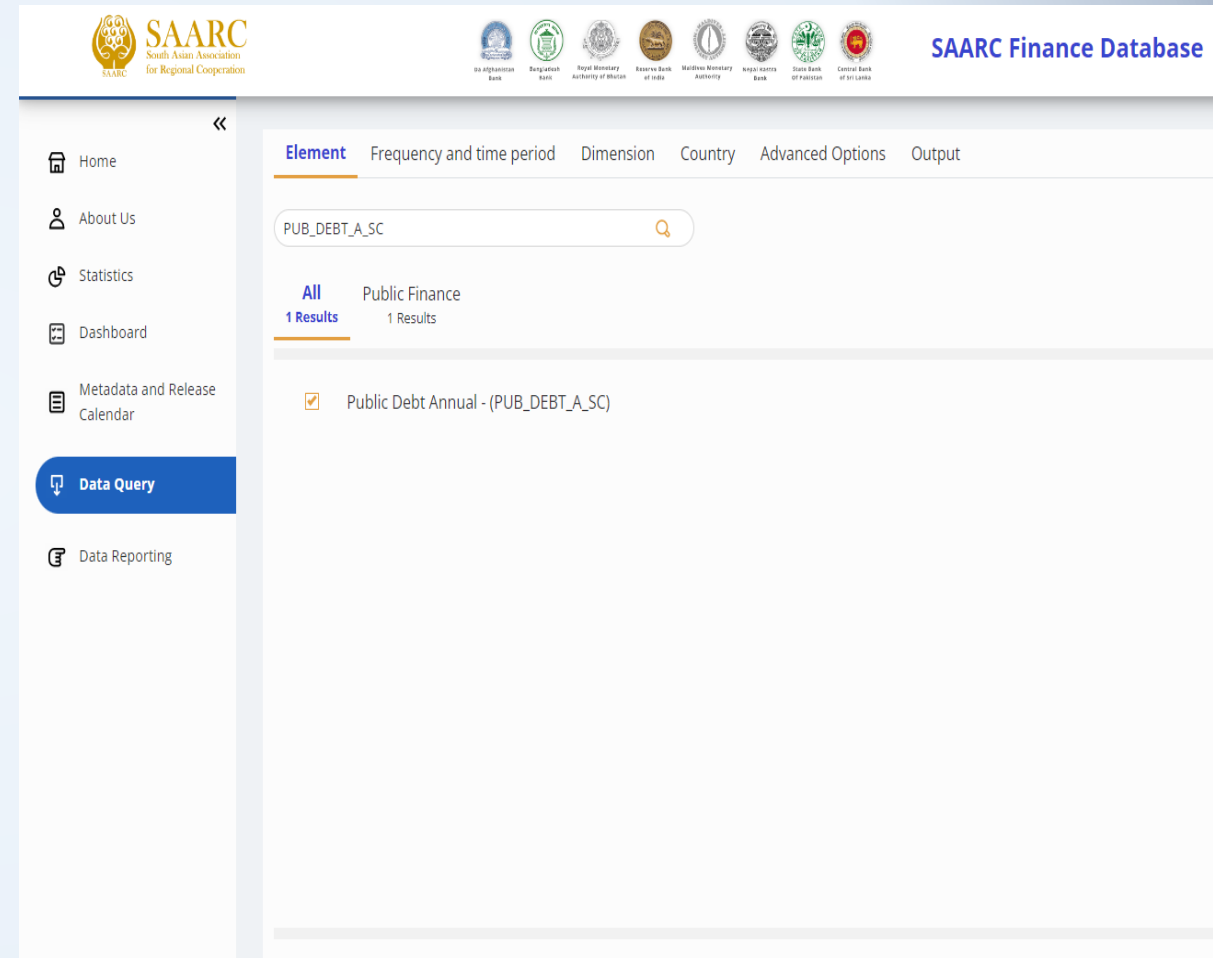
This block contains logos for Cloudera Data Science Workbench, Python, Apache Spark, and R Studio.



# SDMX-driven Data Query Engine







The interface features a top header with the SAARC logo and the text 'SAARC Finance Database'. Below the header is a navigation menu with icons for Home, About Us, Statistics, Dashboard, Metadata and Release Calendar, Data Query (highlighted), and Data Reporting. The main content area has a search bar with the text 'Search Element' and a magnifying glass icon. Below the search bar is a list of categories with expandable/collapsible icons: External Sector, Financial Markets, Financial Sector, Price Index and Policy Rates, Public Finance (expanded), Real Sector, Socio Economic Indicator, and Vulnerability Indicators. Under the expanded Public Finance category, there is a list of items with checkboxes: Centers Gross Fiscal Deficit Annual - (CEN\_GRSS\_FIS\_DEFCT\_A\_SC), Centers Gross Fiscal Deficit Quarterly - (CEN\_GRSS\_FIS\_DEFCT\_Q\_SC), Central Government Receipts Annual - (CEN\_GOV\_RECPT\_A\_SC), and Public Debt Annual - (PUB\_DEBT\_A\_SC) (checked).



The interface features a top header with the SAARC logo and the text 'SAARC Finance Database'. Below the header is a navigation menu with icons for Home, About Us, Statistics, Dashboard, Metadata and Release Calendar, Data Query (highlighted), and Data Reporting. The main content area has a search bar with the text 'PUB\_DEBT\_A\_SC' and a magnifying glass icon. Below the search bar, there are tabs for 'Element', 'Frequency and time period', 'Dimension', 'Country', 'Advanced Options', and 'Output'. The 'Element' tab is active, showing 'All' and 'Public Finance' with '1 Results' and '1 Results' respectively. Below this, there is a list of results with a checkbox:  Public Debt Annual - (PUB\_DEBT\_A\_SC).

# SDMX-driven Data Query Engine

**SAARC Finance Database**

Home | About Us | Statistics | Dashboard | Metadata and Release Calendar | **Data Query** | Data Reporting

Element **Frequency and time period** | Dimension | Country | Advanced Options | Output

Element Name	Element Frequency	Element Type
Public Debt Annual	Annual Other	Stock

Required Frequency: **ANNUALLY**





Select Time Period

From: 2016

To: Select To Year

2011-2020			
2011	2012	2013	2014
2015	2016	2017	2018
2019	2020		

Previous Next

**SAARC Finance Database**

Home | About Us | Statistics | Dashboard | Metadata and Release Calendar | **Data Query** | Data Reporting

Element | Frequency and time period | **Dimension** | Country | Advanced Options | Output

Search Dimension

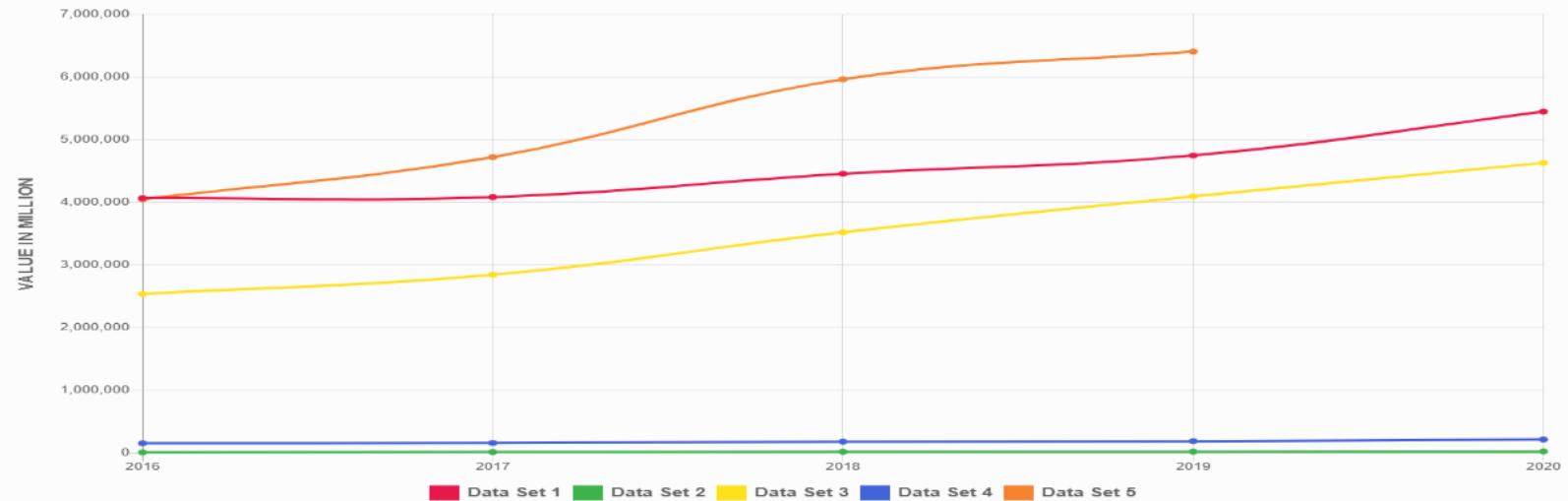
- Type of Public Debt
  - Select All
  - Public Debt (External)
  - Public Debt (Internal)
- Unit
  - Select All
  - Domestic Currency
  - US dollar

# SDMX-driven Data Query Engine



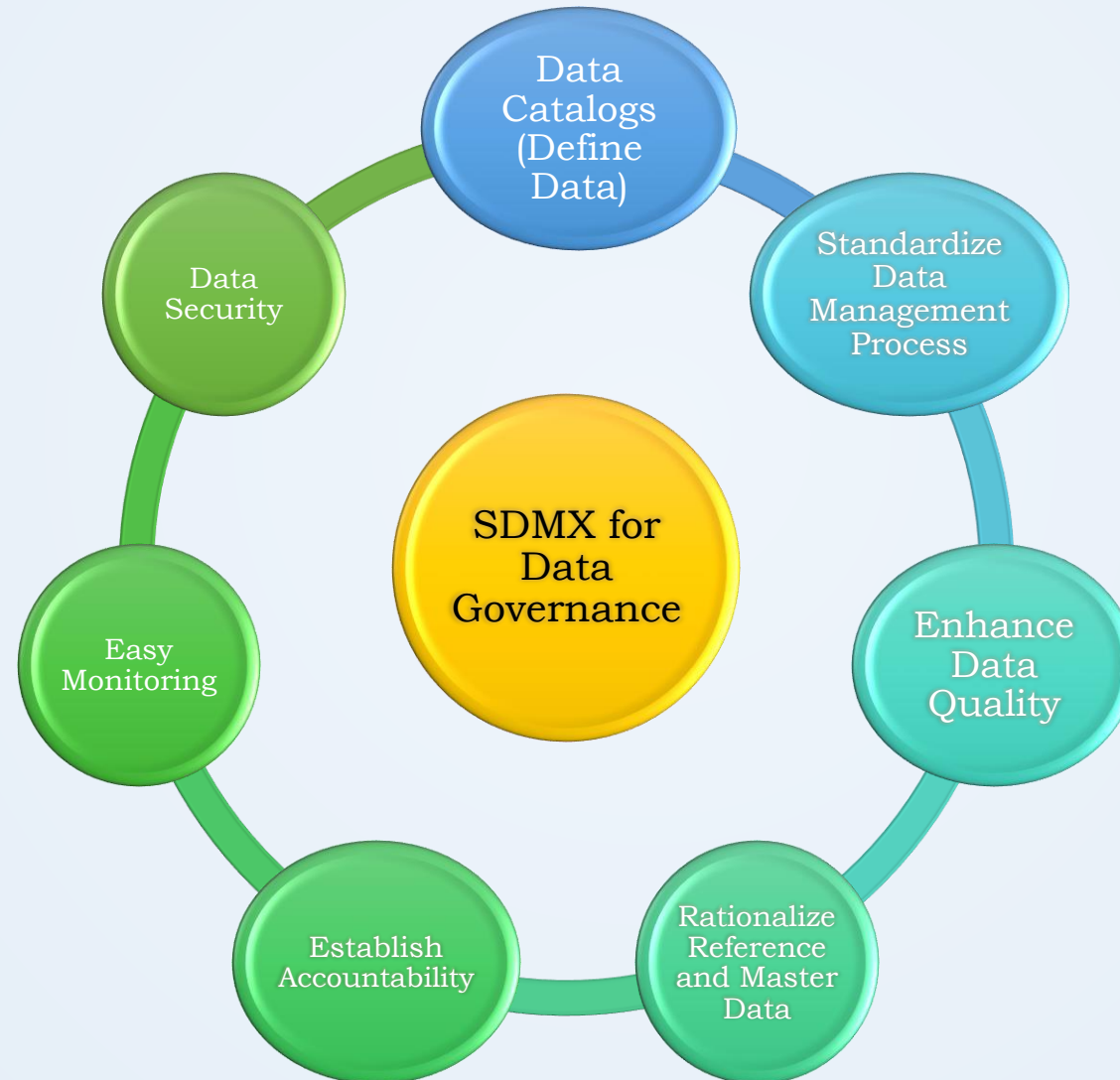
SAARC Finance Database

Public Debt Annual-(PUB\_DEBT\_A\_SC)



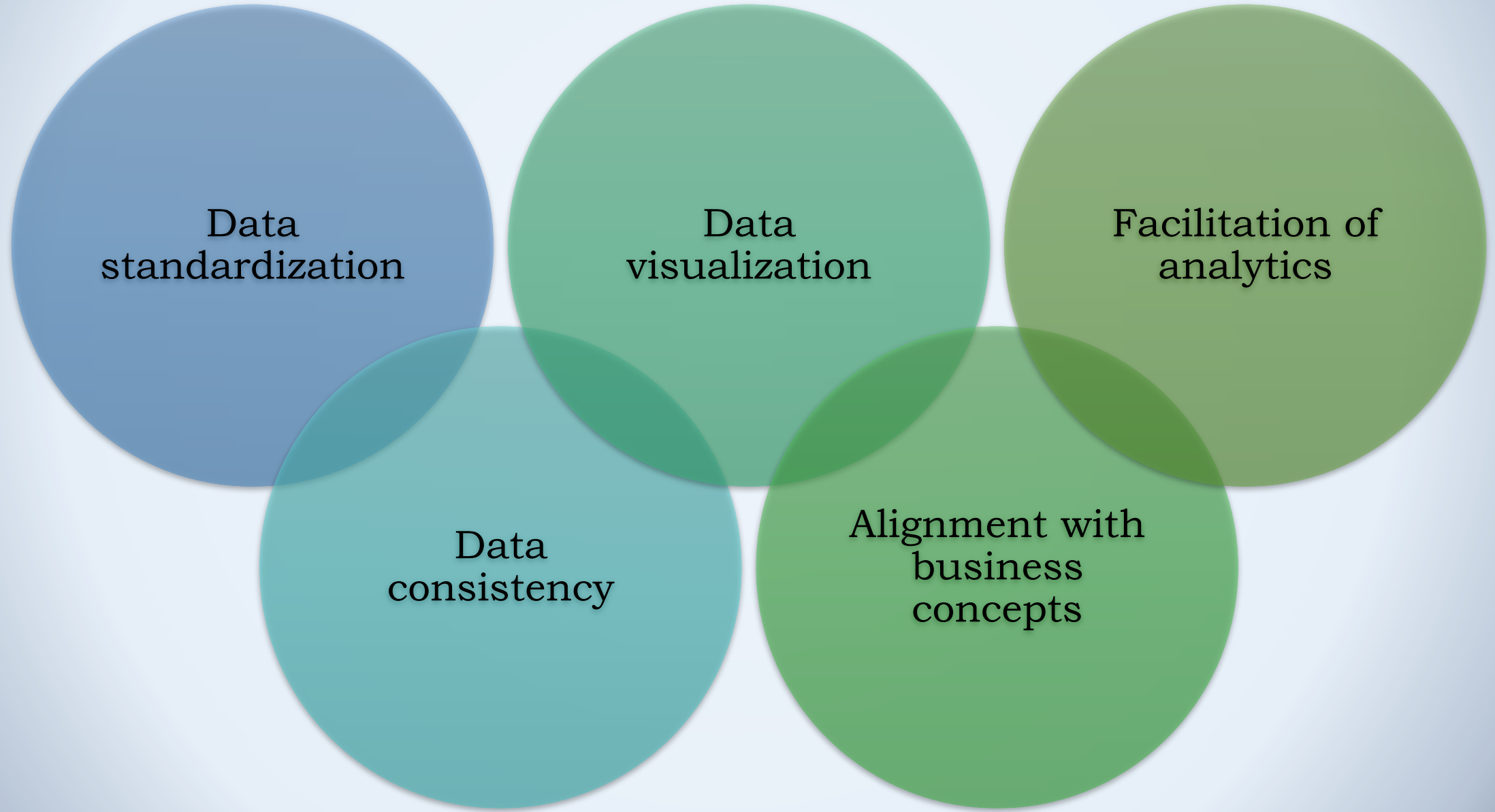
- Data Set 1 - India | Domestic Currency | Public Debt (External) | Public Debt Annual-(PUB\_DEBT\_A\_SC) | **Primary Axis** |
- Data Set 2 - Maldives | Domestic Currency | Public Debt (External) | Public Debt Annual-(PUB\_DEBT\_A\_SC) | **Primary Axis** |
- Data Set 3 - Bangladesh | Domestic Currency | Public Debt (External) | Public Debt Annual-(PUB\_DEBT\_A\_SC) | **Primary Axis** |
- Data Set 4 - Bhutan | Domestic Currency | Public Debt (External) | Public Debt Annual-(PUB\_DEBT\_A\_SC) | **Primary Axis** |
- Data Set 5 - Sri Lanka | Domestic Currency | Public Debt (External) | Public Debt Annual-(PUB\_DEBT\_A\_SC) | **Primary Axis** |

# How will SDMX enhance Data Governance?



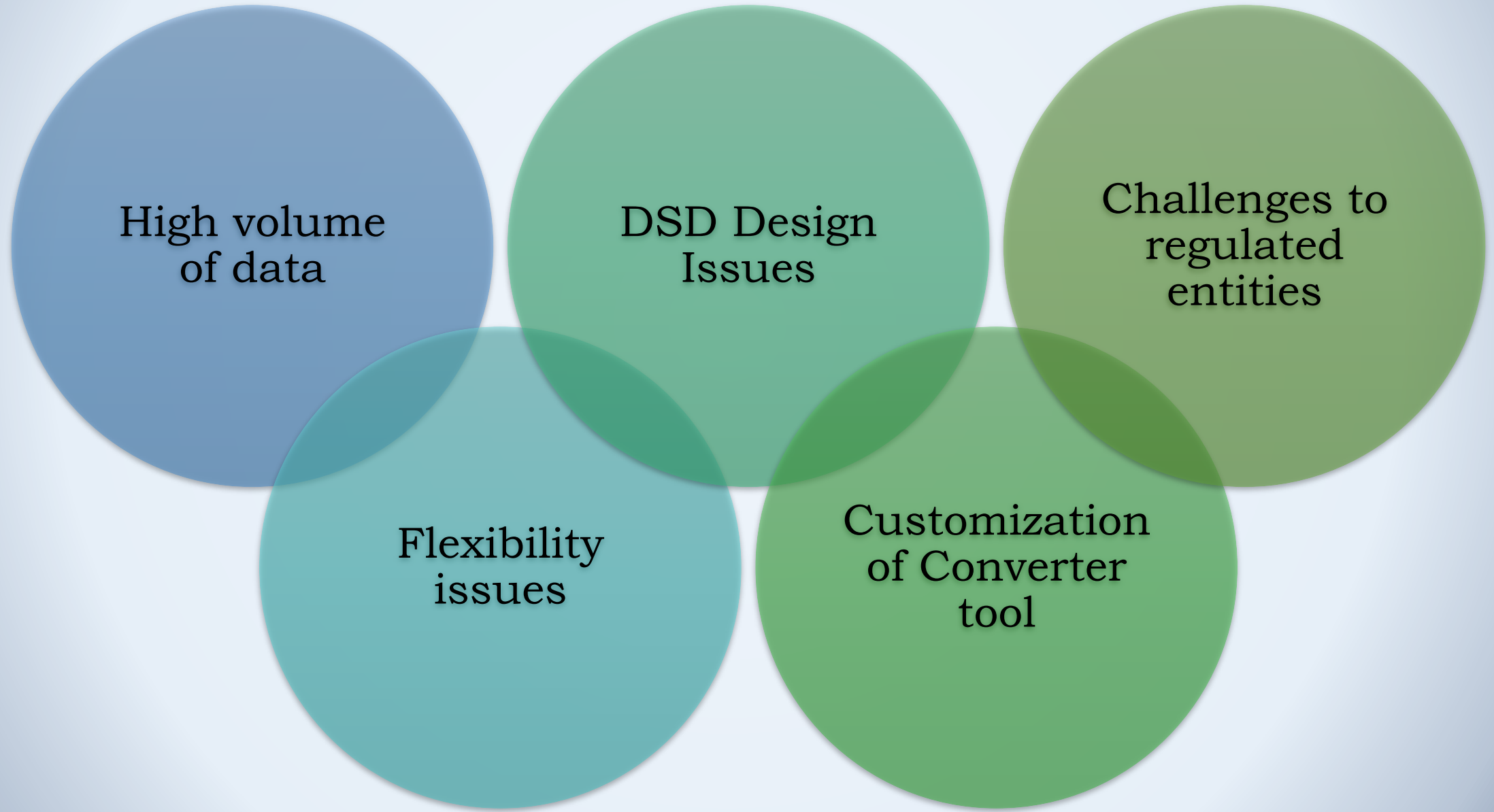
# Other Advantages

---



# Challenges faced

---



**Thank You!**

