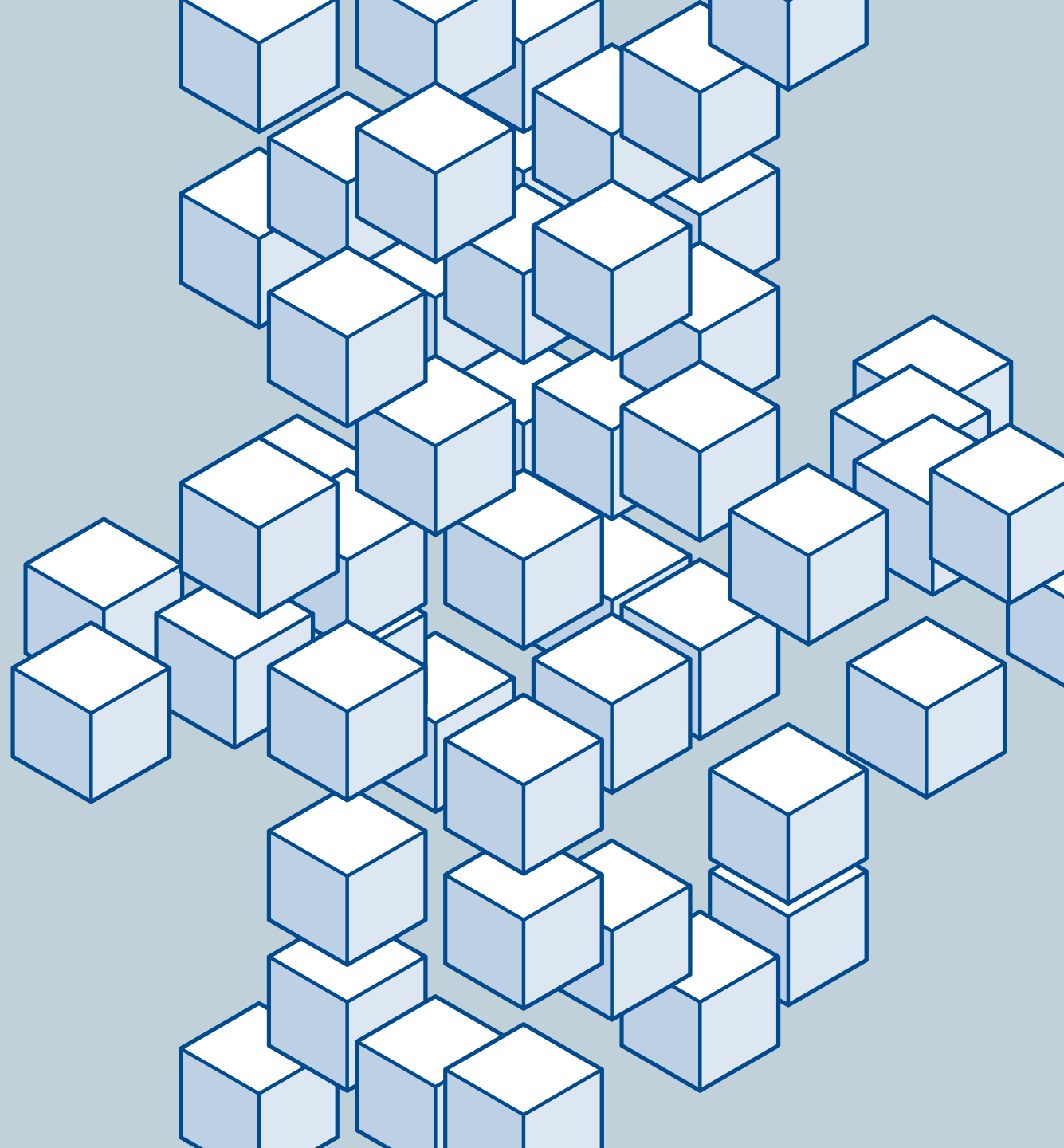


Integrating SDMX for seamless reporting and dissemination

Evolving with AI

Petra Mellaerts
Frederik Van Hecke

Rome 29/09/2025



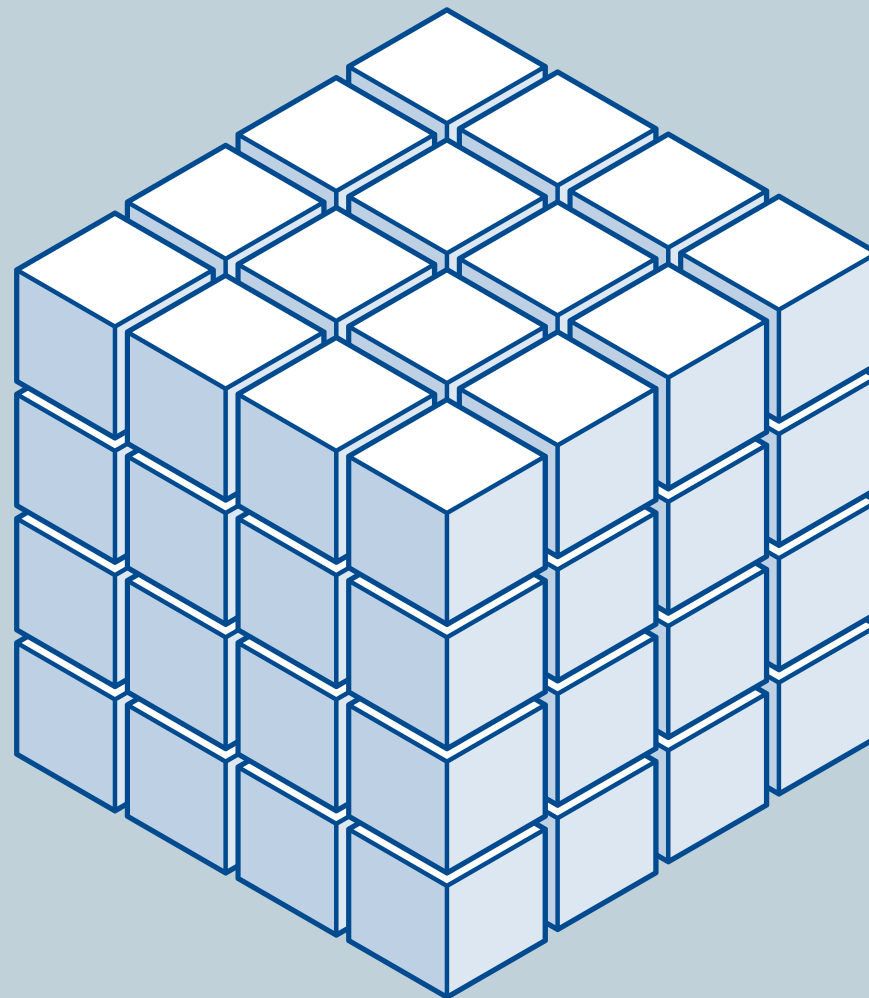
Integrating SDMX for seamless reporting and dissemination

Evolving with AI

Petra Mellaerts

Frederik Van Hecke

Rome 29/09/2025

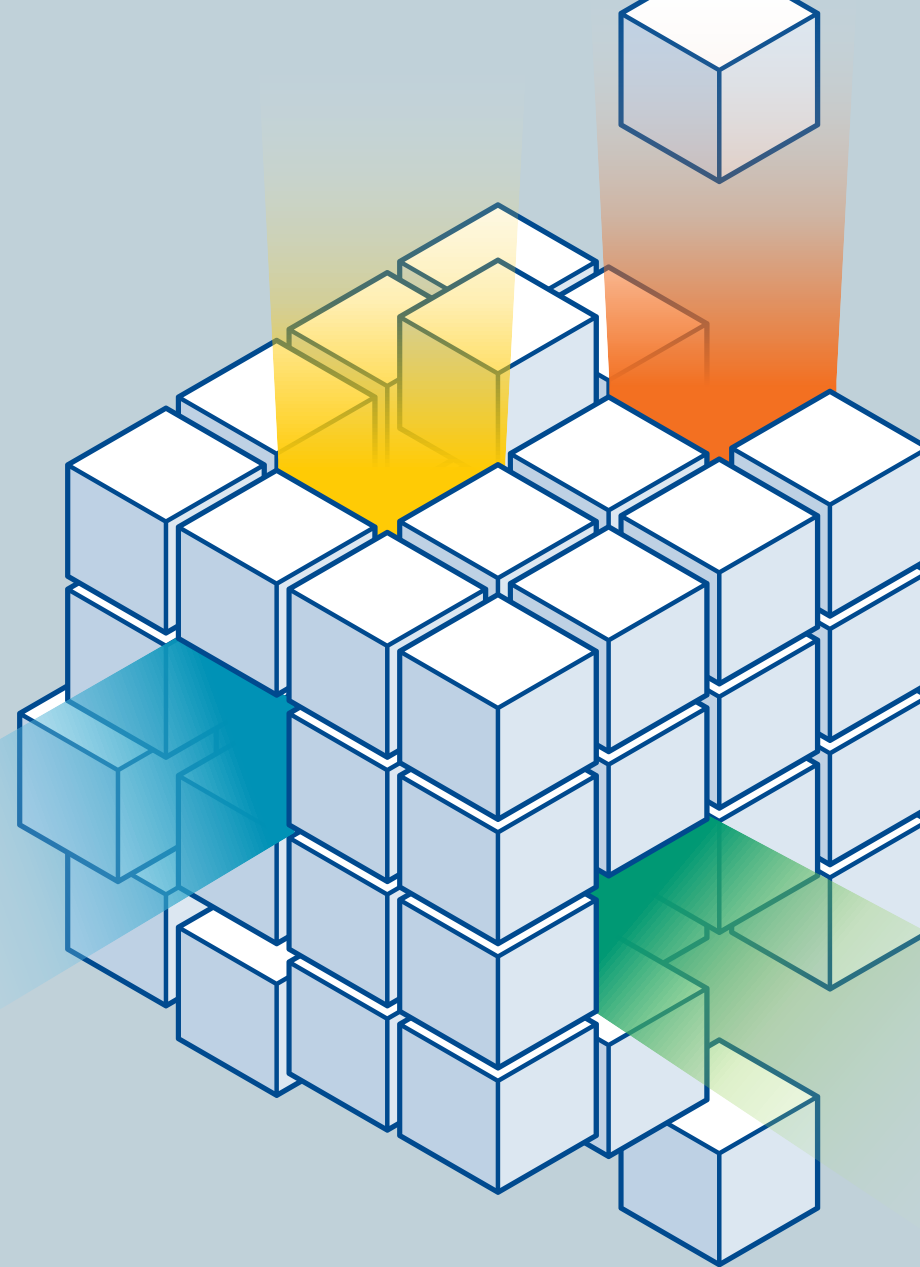


Integrating SDMX for seamless reporting and dissemination

Evolving with AI

Petra Mellaerts
Frederik Van Hecke

Rome 29/09/2025

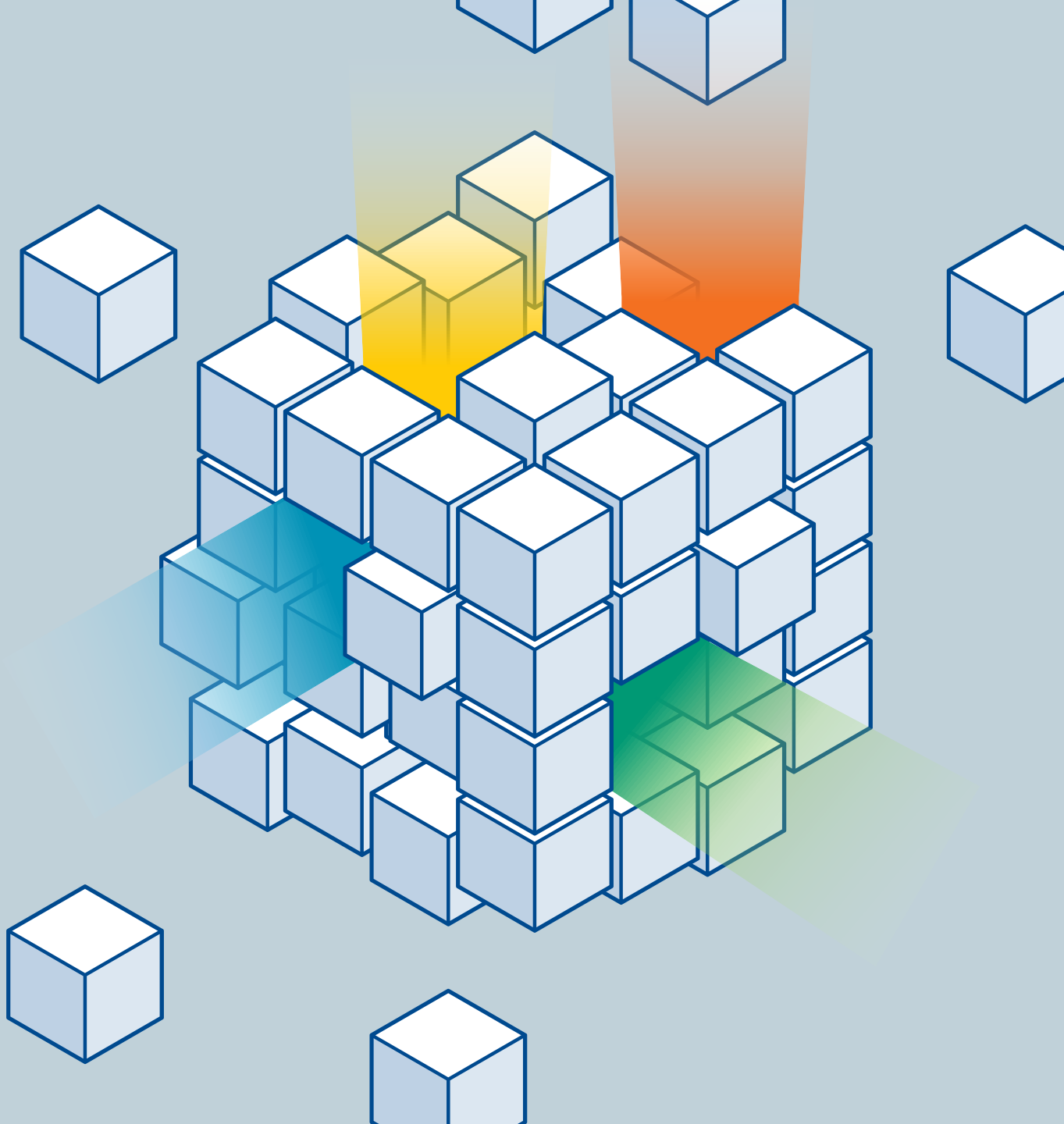


Integrating SDMX for seamless reporting and dissemination

Evolving with AI

Petra Mellaerts
Frederik Van Hecke

Rome 29/09/2025



PAST

PRESENT

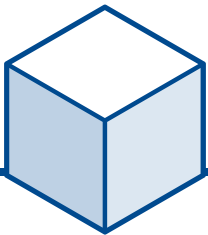
FUTURE

PAST

PRESENT

FUTURE

- **SDMX for reporting & data portal**
- **Non-harmonised** (meta)data
- **Database** ≠ SDMX compliant
- **Parallel flows** (Excel)
- PDF publications
- Basic visualisation



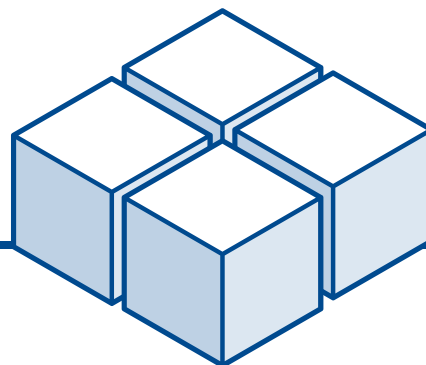
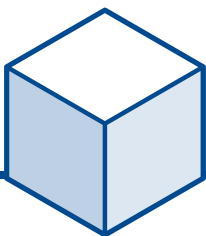
PAST

PRESENT

FUTURE

- SDMX for reporting & data portal
- **Non-harmonised** (meta)data
- **Database** ≠ SDMX compliant
- **Parallel flows** (Excel)
- PDF publications
- Basic visualisation

- **Fully SDMX-based**
- **Database**, reporting, dissemination
- Collaborative model with data users
- Remodelling → **SDMX compliant**
- **Harmonised** (meta)data
- **Single point of information** for aggregated data
- Improved **data accessibility** and visualisation



PAST

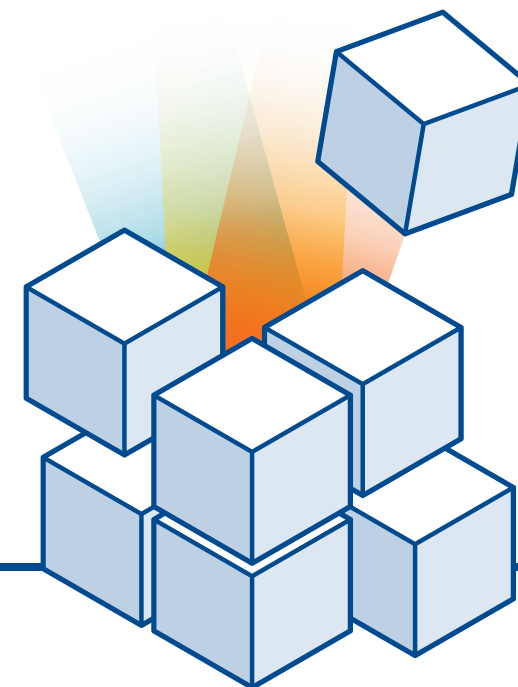
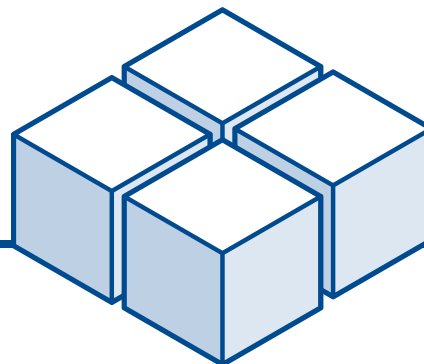
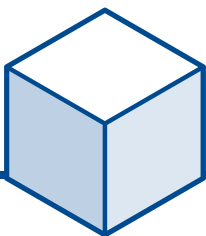
- SDMX for reporting & data portal
- **Non-harmonised** (meta)data
- **Database** ≠ SDMX compliant
- **Parallel flows** (Excel)
- PDF publications
- Basic visualisation

PRESENT

- Fully SDMX-based
- **Database**, reporting, dissemination
- Collaborative model with data users
- Remodelling → **SDMX compliant**
- **Harmonised** (meta)data
- **Single point of information** for aggregated data
- Improved **data accessibility** and visualisation

FUTURE

- **Integration of AI**
- **Natural language** to search SDMX database
- Dynamic **visualisation**
- Improved **user experience**



PAST

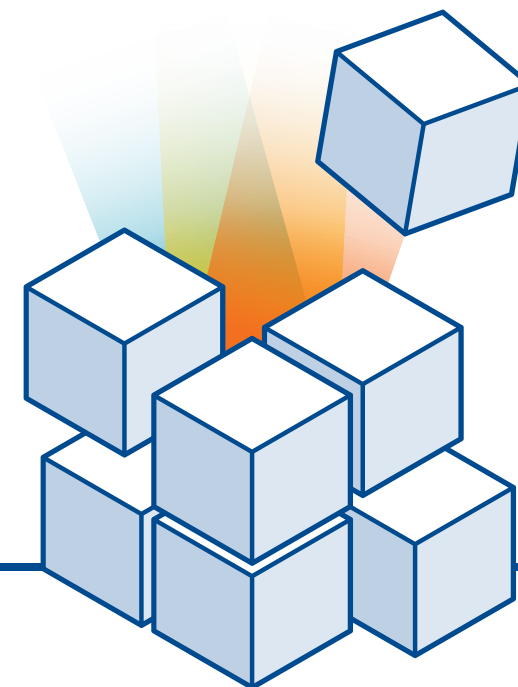
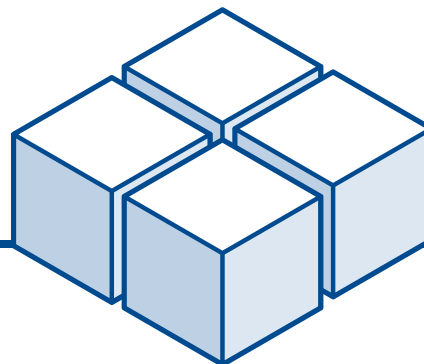
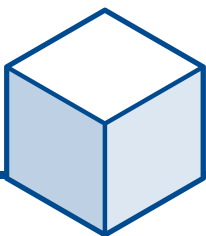
- **SDMX for reporting & data portal**
- **Non-harmonised** (meta)data
- **Database** ≠ SDMX compliant
- **Parallel flows** (Excel)
- PDF publications
- Basic visualisation

PRESENT

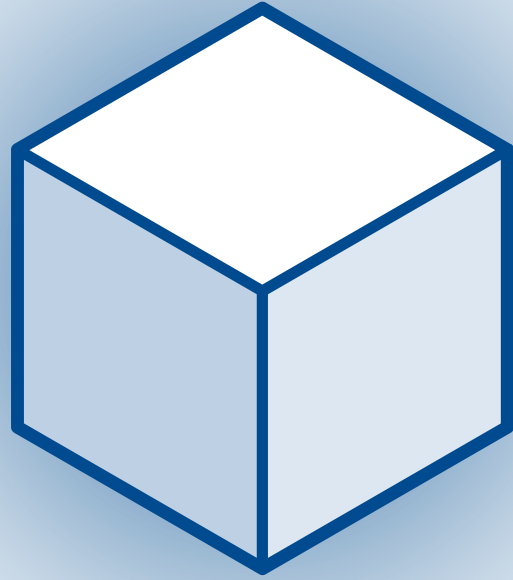
- **Fully SDMX-based**
- **Database**, reporting, dissemination
- Collaborative model with data users
- Remodelling → **SDMX compliant**
- **Harmonised** (meta)data
- **Single point of information** for aggregated data
- Improved **data accessibility** and visualisation

FUTURE

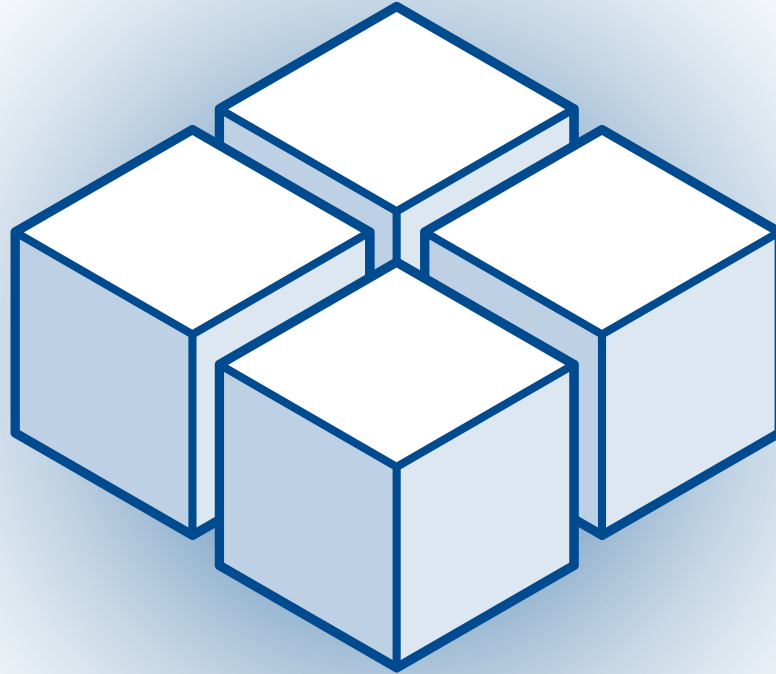
- **Integration of AI**
- **Natural language** to search SDMX database
- Dynamic **visualisation**
- Improved **user experience**



Business case

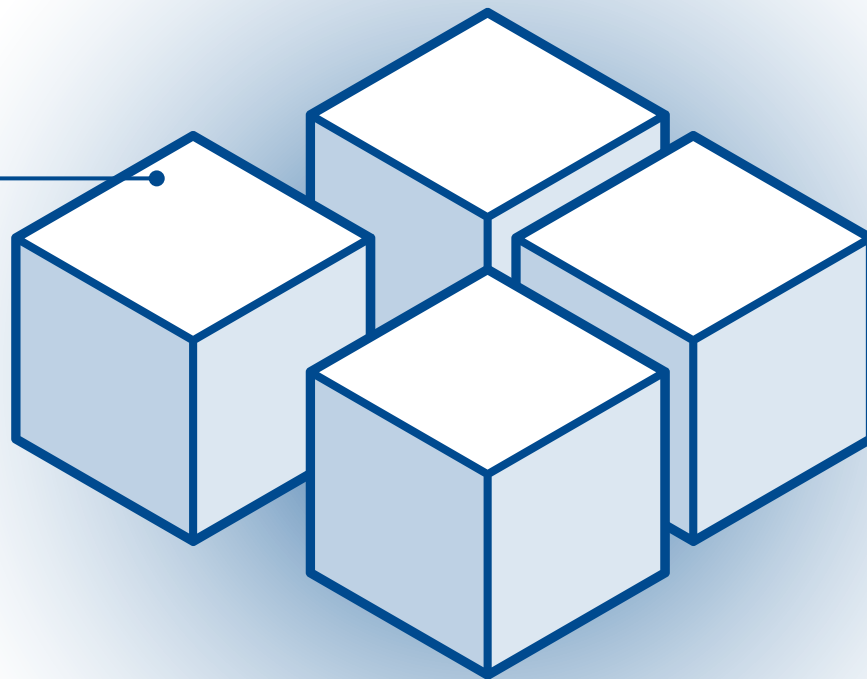


Business case



Business case

Modernise tools & database, Support improved user experience

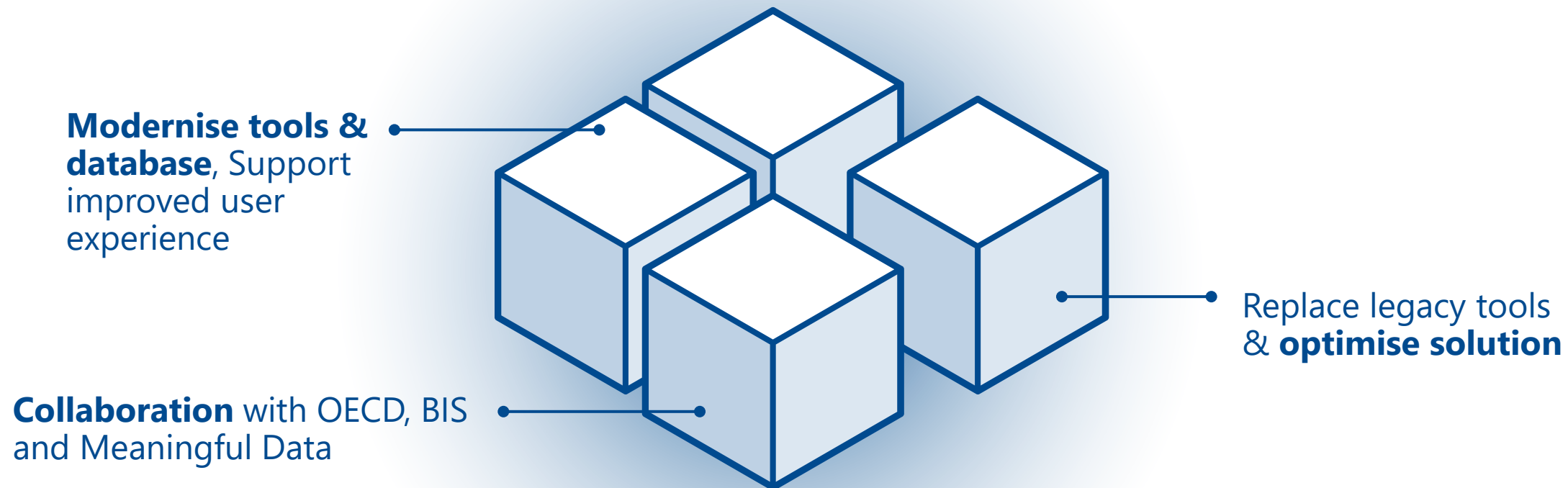


Business case

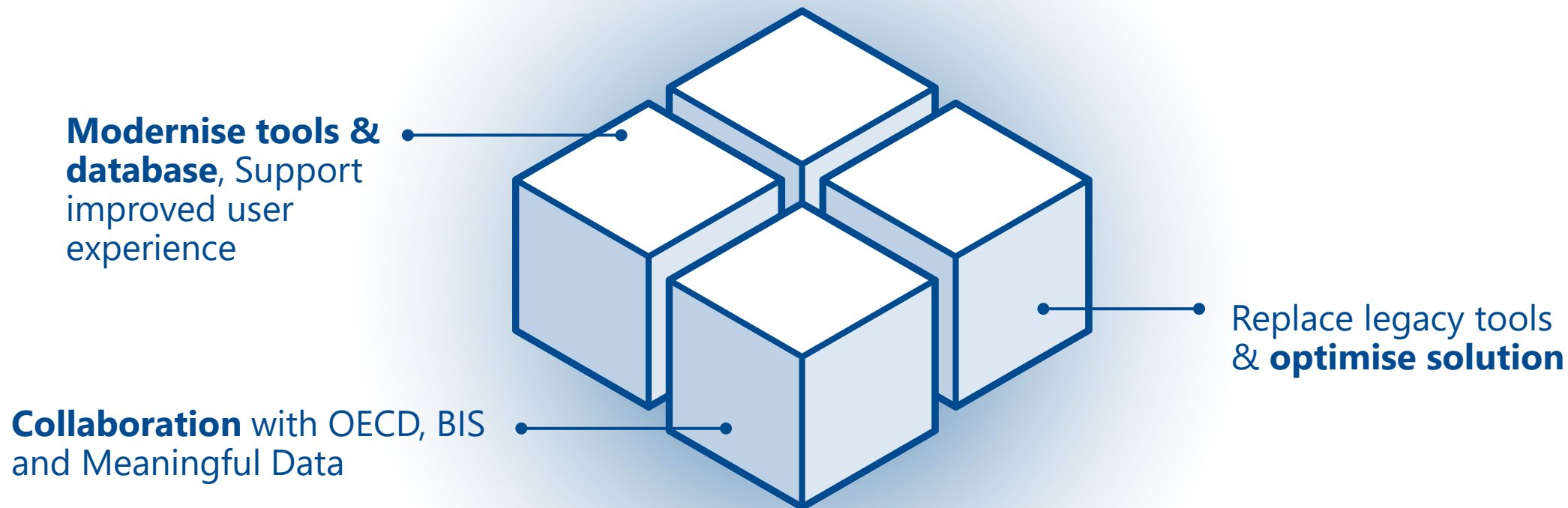
Modernise tools & database, Support improved user experience

Collaboration with OECD, BIS and Meaningful Data

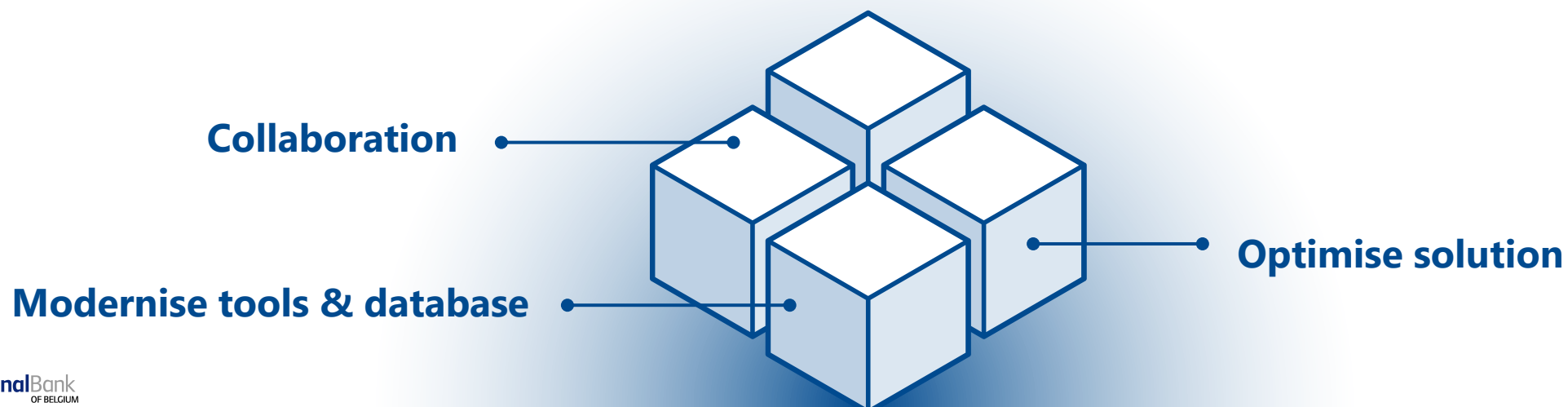
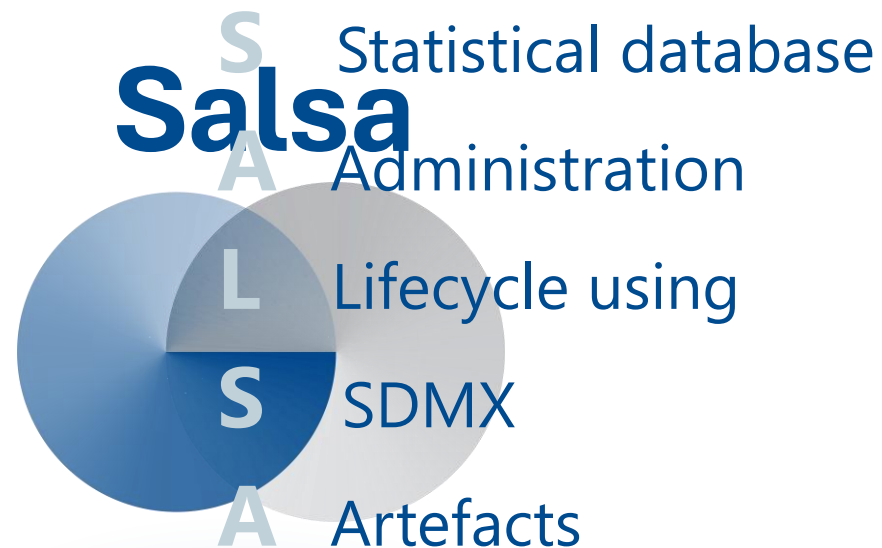
Business case



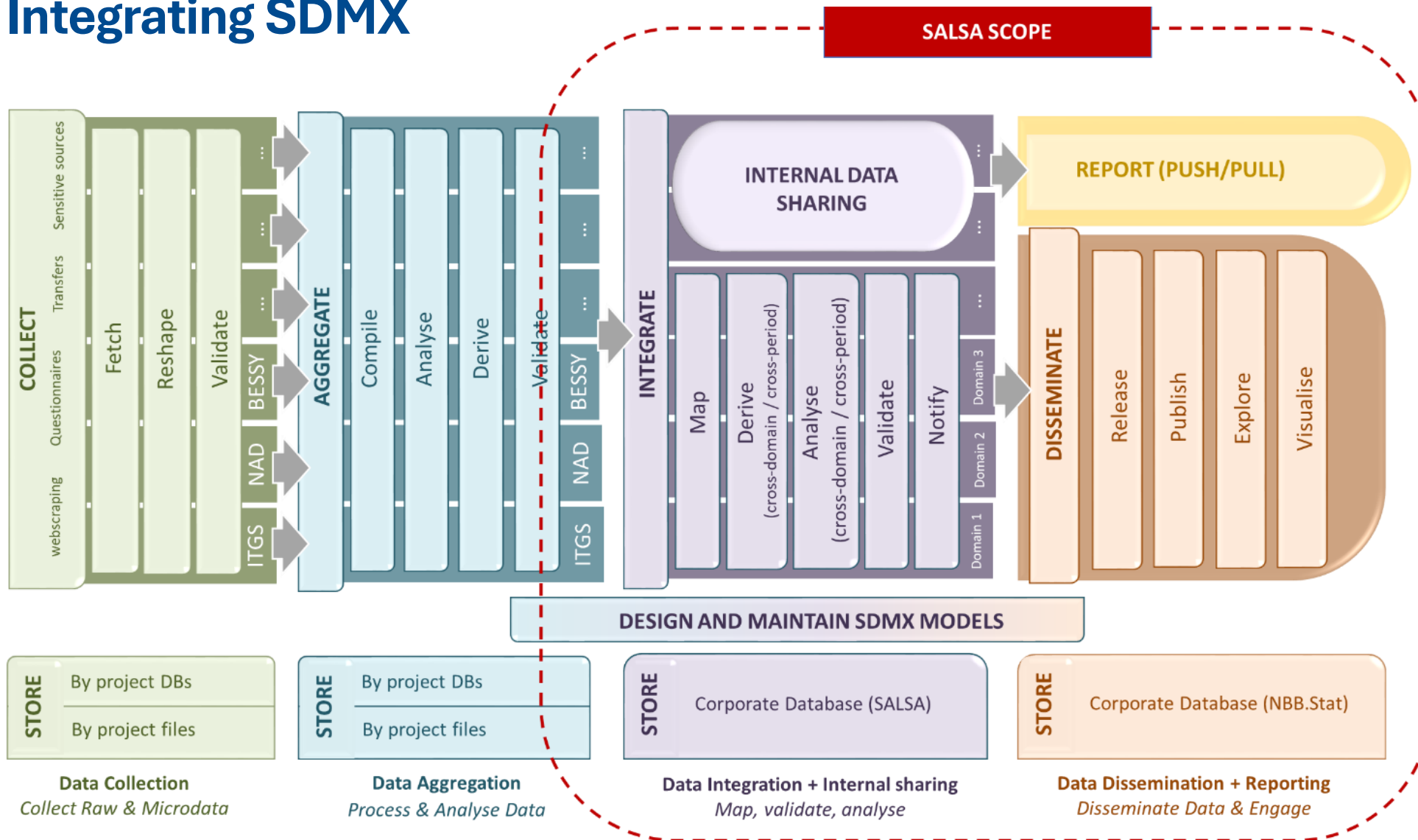
Business case



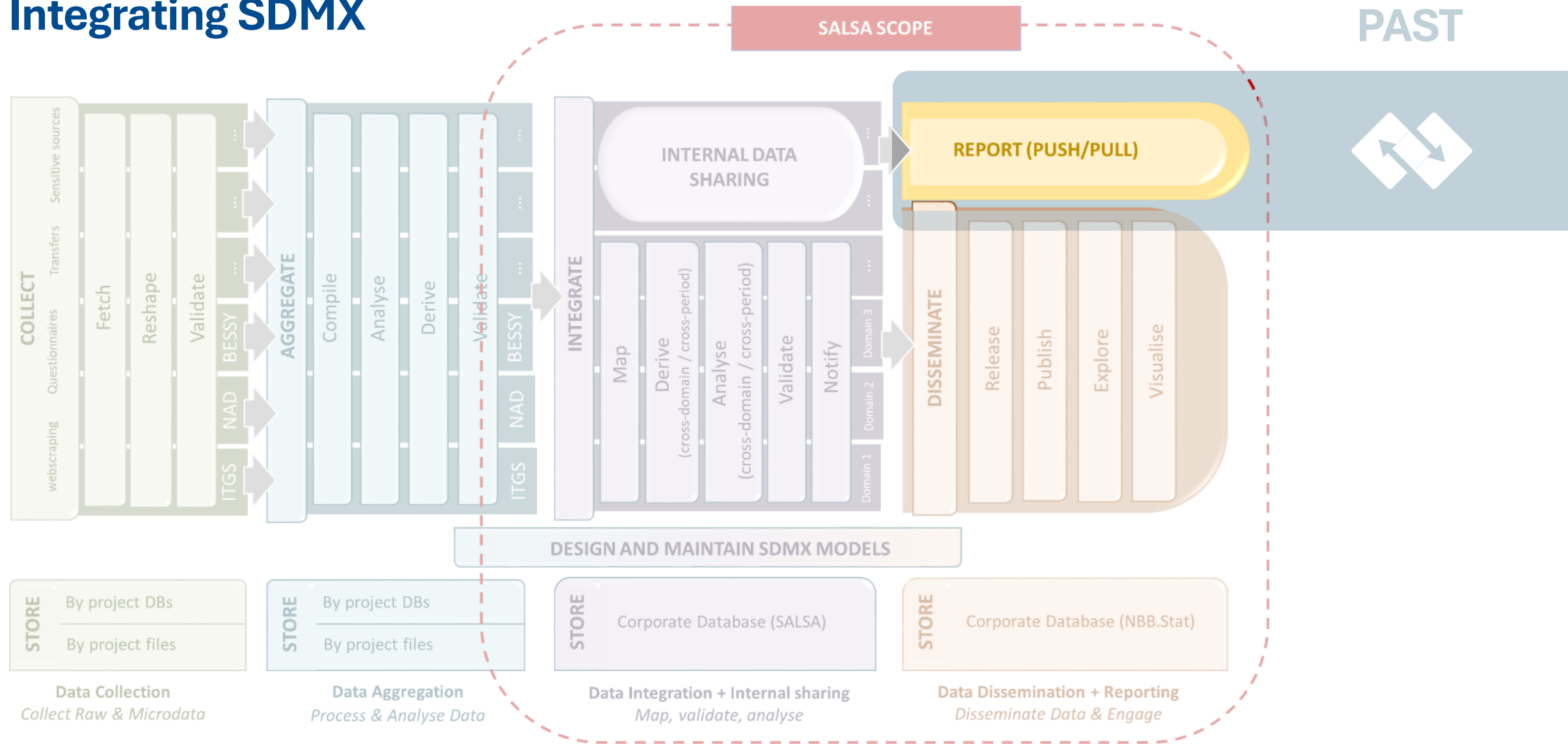
Business case



Integrating SDMX

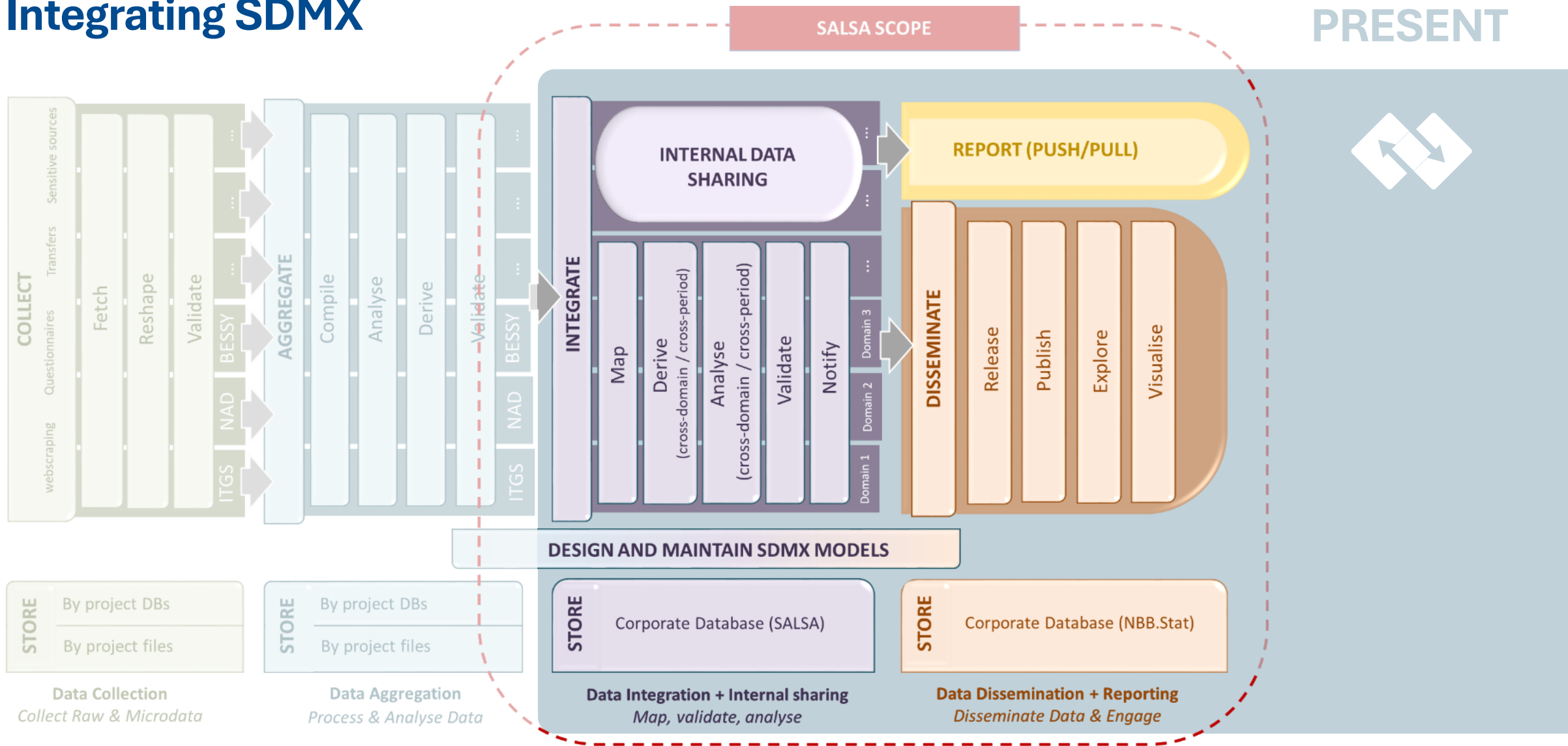


Integrating SDMX

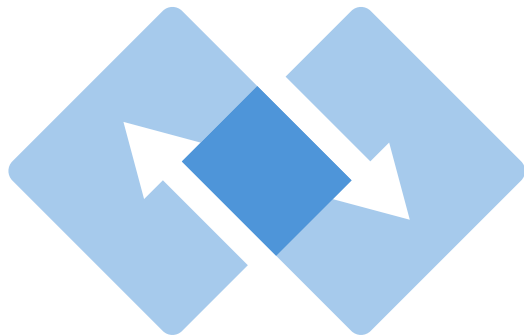


Integrating SDMX

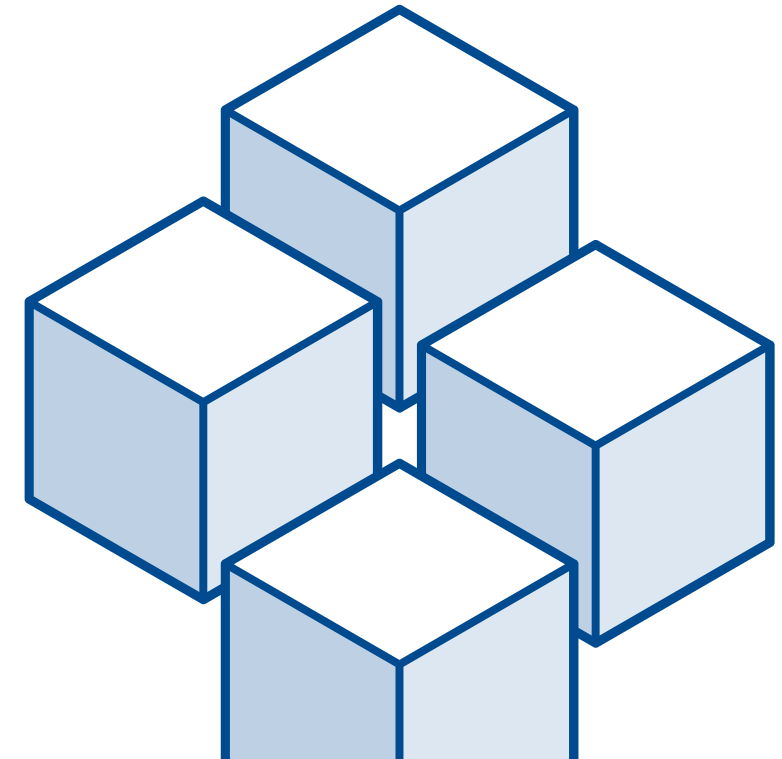
PRESENT

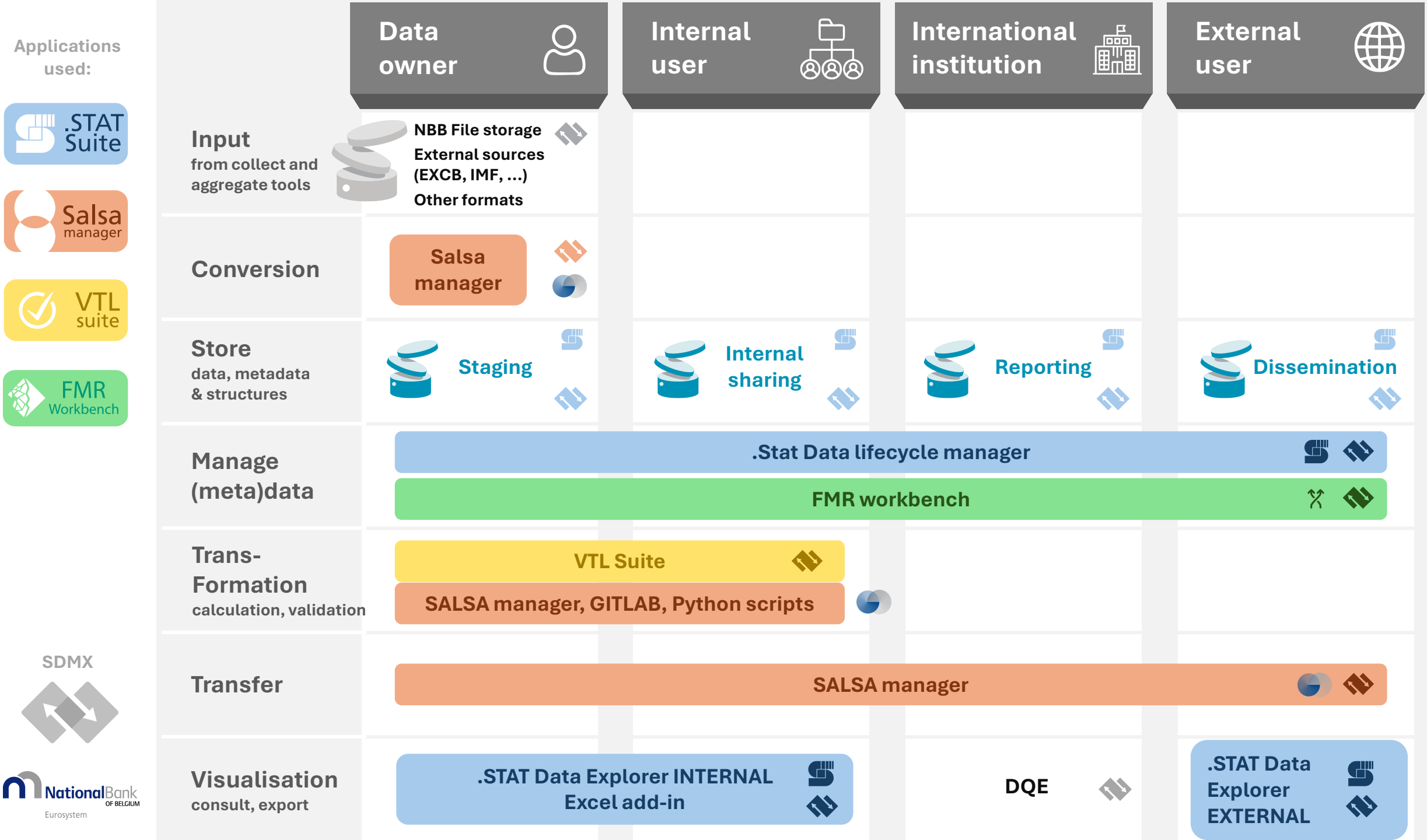


Applications used



SDMX

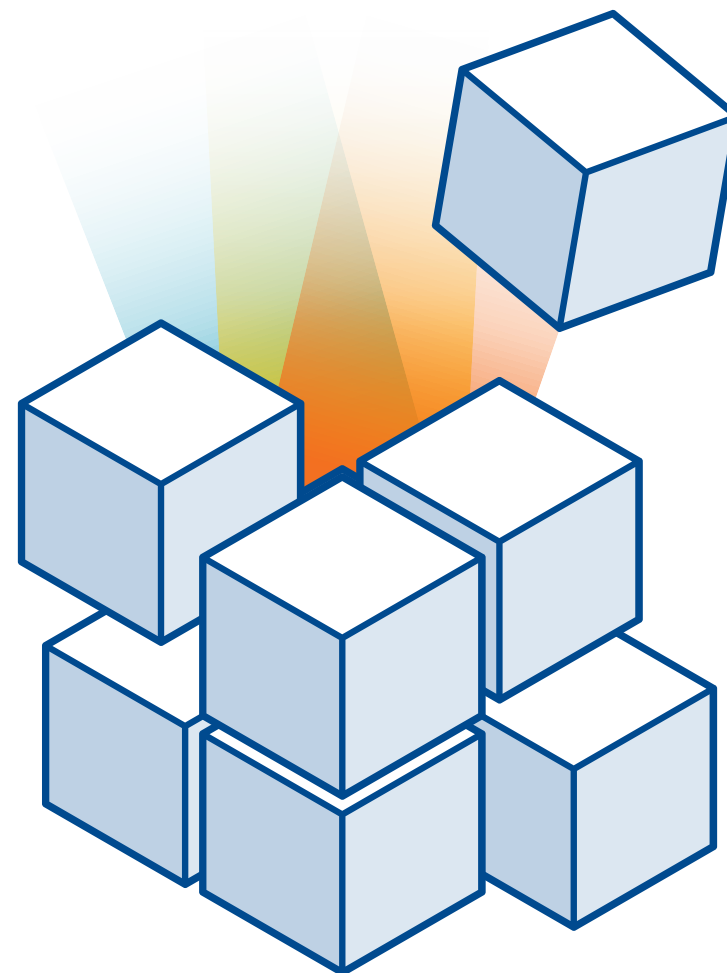






Data & Natural Access Interface

SDMX Ai Chatbot



Technical architecture



User

Communication channels



Chatbot UI
(Angular)



Azure AD
services



.Stat suite



Django



SQL

Application services



OpenAi LLM
(Chat-GPT4o)



Azure Cognitive Search
(Vector DB)



LangChain



SDMX client

Cloud services



OpenAI
LLM Model
(Open Ai)



Vector
database

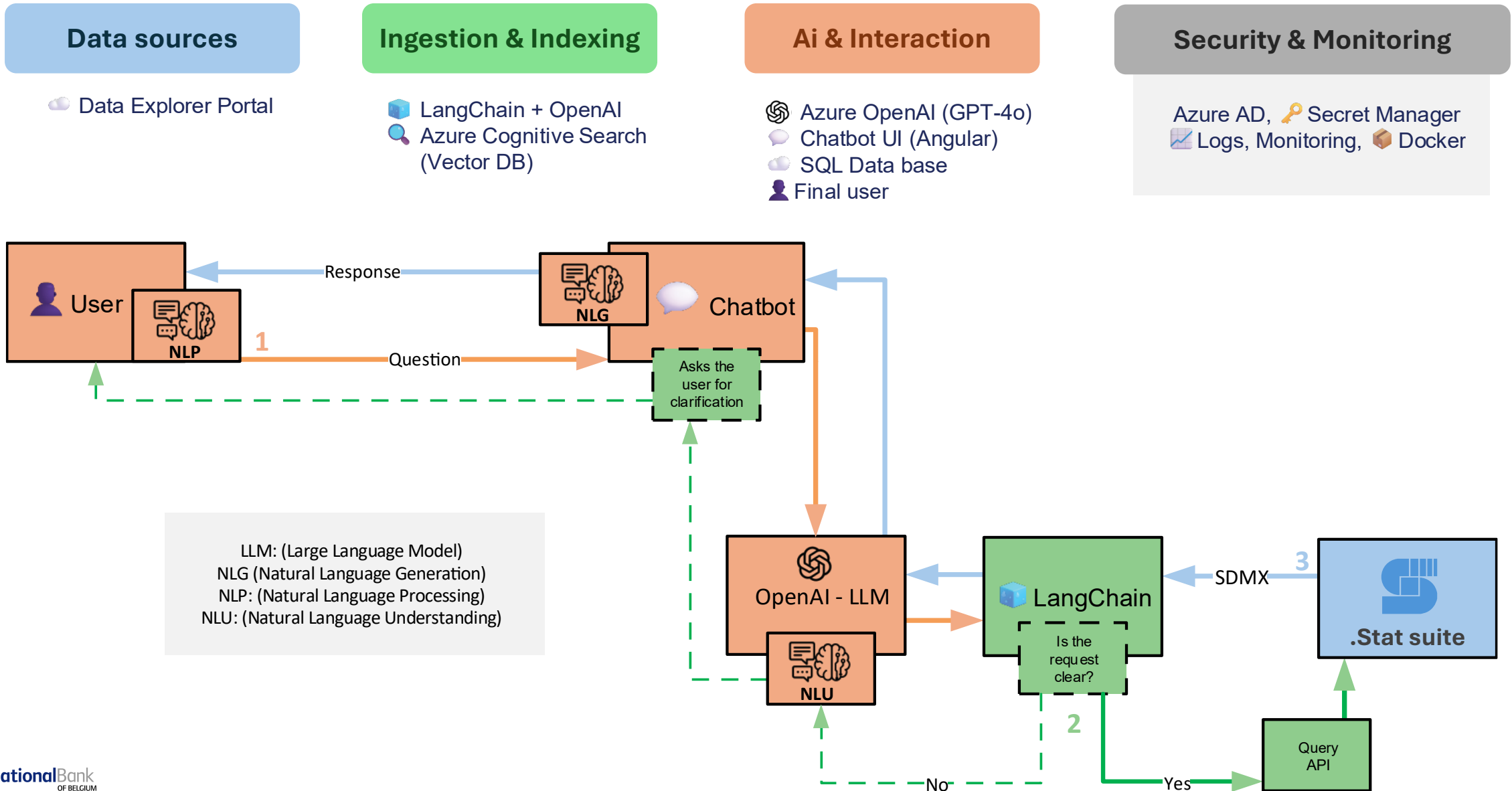


Monitoring



Azure AD
deployment

Detailed end-to-end flow



Filters

Time period

13

Item

1

Sector

1

Instrument

1

Maturity

1

Quartile

1

Factor

1

12 data points

Item: x Interest rates on new business x | Sector: x Households x |

Instrument: x ...> Loans for house purchase x |



Overview

Table

Labels

Layout

Share

Download

Developer API

Full screen

MFI interest rates (MIR)

Frequency of observation: Monthly • **Item:** Interest rates on new business •

Sector: Households • **Instrument:** Loans for house purchase •

Maturity: Over 10 years initial rate fixation • **Quartile:** Not applicable • **Factor:** Not applicable

Time period		
2024-Jun		3.2
2024-Jul		3.1
2024-Aug		3.1
2024-Sep		3.1
2024-Oct		3.0
2024-Nov		3.0
2024-Dec		2.9
2025-Jan		2.8
2025-Feb		2.9
2025-Mar		2.9
2025-Apr		3.0
2025-Jun		3.1

Thank you for your attention!

Petra Mellaerts

Petra.mellaerts@nbb.be

Frederik Van Hecke

Frederik.vanhecke@nbb.be

