



EUROPEAN CENTRAL BANK

EUROSYSTEM

XBRL challenges at the ECB

XBRL-CSV

DPM 2.0



05/06/2024

Fernando Wagener
DG-Statistics

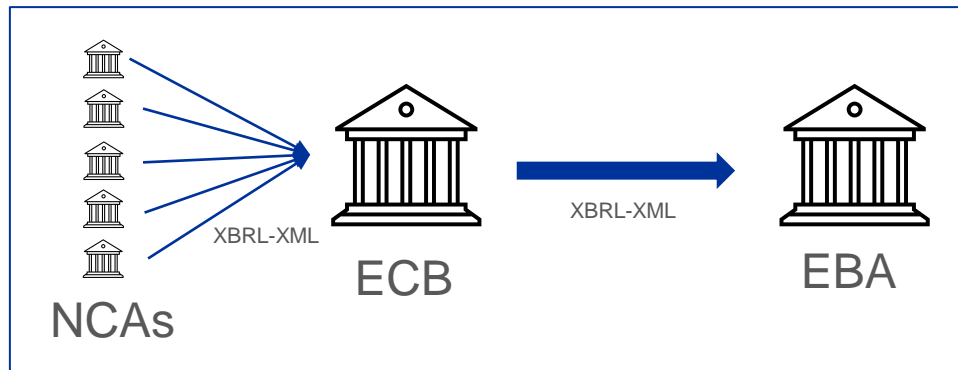
Overview

- 1 Current status
- 2 New requirements
- 3 Options for DPM 2.0
- 4 Options for XBRL-CSV
- 5 Considerations about the validation engine

1

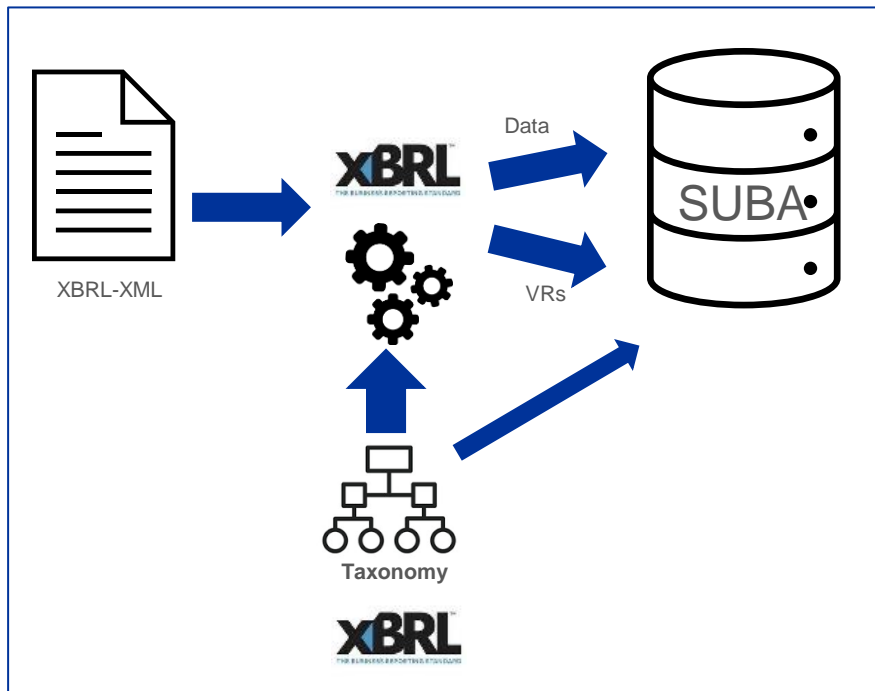
Current status

Sequential Approach



Data is received from National Central Authorities (NCAs) in XBRL-XML instance files which are forwarded to the EBA.

Processing and validation



Files are processed (ETL) and validated using an XBRL processor (via APIs)

Pros:

- Maintenance of XBRL processor and validation of EBA Filing Rules is delegated
- Good performance of processing and validation

Cons:

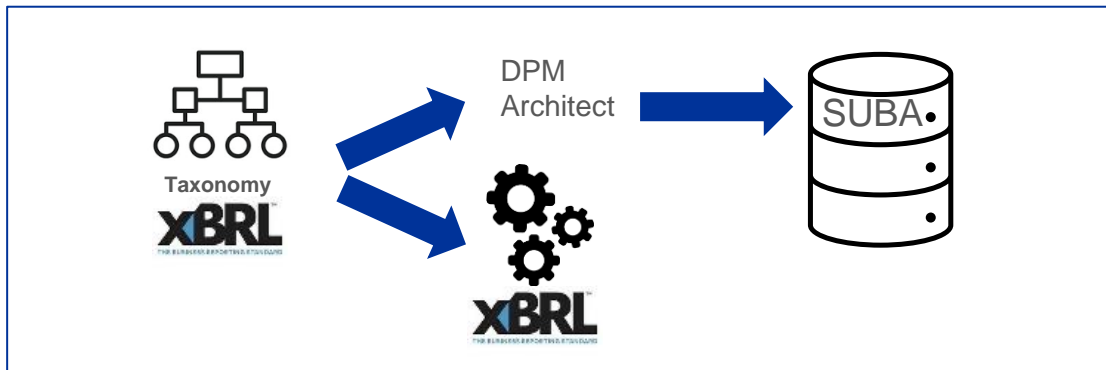
- Issues with very large modules (RES)
- Low flexibility to take advantage of cloud infrastructure

2

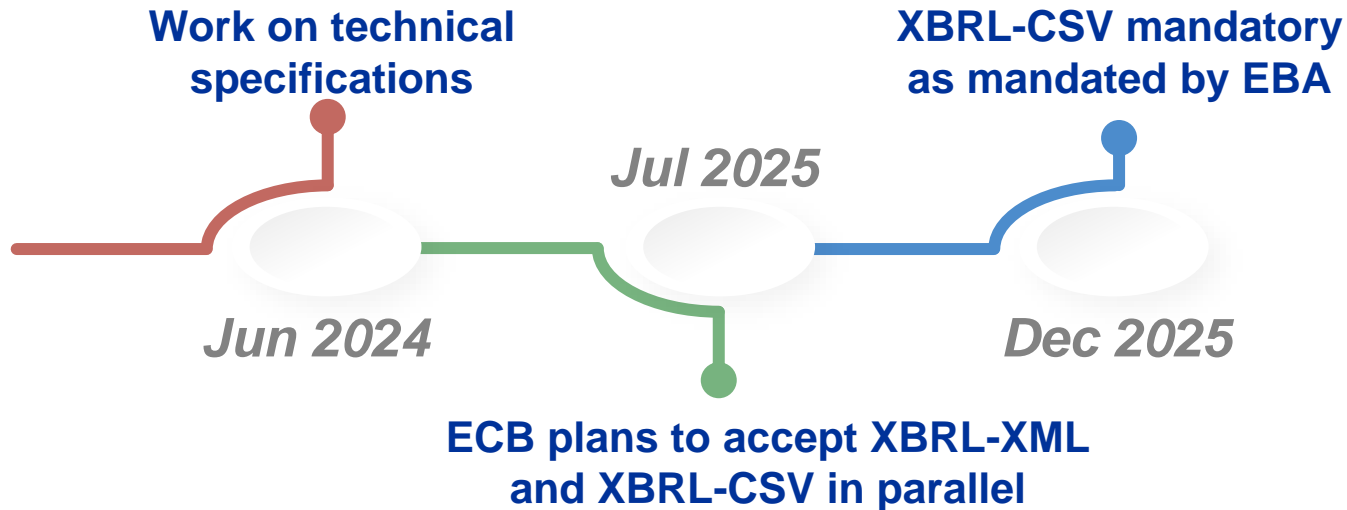
New requirements

New Requirement: DPM 2.0

- Currently SUBA loads all the metadata from the **XBRL taxonomies**. It doesn't use the DPM database published by the EBA.
- To avoid the **complexity of XBRL**, we use **DPM Architect** to load taxonomies into the SUBA database
- A **new taxonomy architecture** is going to be used by the EBA **to incorporate DPM 2.0 features**. DPM Architect won't support the new architecture



New Requirement: XBRL-CSV reporting format



- The new format will improve the **loading times for very large modules** (e.g. RES)
- We don't expect that it will improve validation times for now. Maybe in the future when the new **OIM-Formula specification** is fully operational
- **Different options** have been considered to implement the collection of XBRL-CSV in SUBA

3

Options for DPM 2.0

Option 1: Continue using DPM Architect as a bridge, even if it doesn't fully support the new architecture



- Very few changes in SUBA to generate taxonomy information (missing in the new architecture) and adopt a few new features (e.g. module versioning)
- More time to transition to a final implementation



- Not a final solution due to the potential evolution of DPM and DPM Architect
- SUBA would not benefit from all new features included in the DPM 2.0

Option 2: Buy a package to load XBRL taxonomies





- Maintenance is fully delegated to the package
- No technical expertise needed in the ECB



- Expensive. Fees of XBRL processors are expensive
- Implementation costs to adapt the tool to SUBA are also expensive
- SUBA would not benefit from all new features included in the DPM 2.0
- Previous experience demonstrated the technical difficulty of loading XBRL taxonomy data into the SUBA database

Option 3: Implement an in-house solution to load the metadata directly from DPM 2.0

-  • Cheaper solution considering fees of XBRL packages
- We keep full control on the implementation
- Easy to load metadata from DPM to SUBA DB
- SUBA would benefit from additional features included in the DPM 2.0 (e.g. EBA Datapoint ID)

-  • Potential maintenance costs
- Need of in-house technical expertise

4

Options for XBRL-CSV

Option 1: Continue with current provider, buying a new component to process XBRL-CSV



- Maintenance is fully delegated to the package
- Very little implementation cost in SUBA
- Possibility to easily receive either XBRL-XML or XBRL-CSV indistinctly
- No need to implement XBRL-CSV EBA Filing Rules



- Very expensive
- It doesn't include validations using the new OIM Formula specification

Option 2: Buy a package from another vendor to process XBRL-CSV



- Maintenance is fully delegated to the package
- Possibility to easily receive either XBRL-XML or XBRL-CSV indistinctly
- No need to implement XBRL-CSV EBA Filing Rules



- Moving to another XBRL processor implies high implementation costs
- It doesn't ensure validations using the new OIM Formula specification

Option 3: Implement an in-house solution to process XBRL-CSV





- Cheaper solution considering fees of XBRL packages
- We keep full control on the implementation, including performance



- Cannot validate the files using XBRL native validator
- Need to implement and maintain EBA Filing Rules
- Potential maintenance costs
- Need of in-house technical expertise

Option 4: Implement an in-house converter XBRL-CSV -> XBRL-XML

-  • Cheaper solution considering fees of XBRL packages
- Can be used until a final solution is implemented
- Possibility to easily receive either XBRL-XML or XBRL-CSV

-  • Need to implement and maintain EBA Filing Rules for CSV files
- Potential maintenance costs
- Need of in-house technical expertise
- Error messages of failed validation rules would not refer to CSV coordinates but to XML dimensions

Final ECB decision

XBRL-CSV

MAIN: Option 1- Continue with current provider, buying a new component to process XBRL-CSV. The next step is to establish a negotiation with the vendor with the objective of reducing the price.

BACK-UP: In case a price reduction is not possible, consider option 4 as a temporary solution.

Final decision is pending.



DPM 2.0

MAIN: Option 3 - Implement an in-house solution to load the metadata directly from DPM 2.0.

BACK-UP: Option 1 can be used as a temporary solution if needed.

5

Considerations about the validation engine

Considerations about the validation engine



- SUBA is currently using Fujitsu Xwand (APIs) to validate XBRL modules and a custom implementation to add user defined validations on top (e.g. cross-module or cross-time validation)
- Our custom validation engine is 10 years old and was growing as we need, but it's not based on a robust grammar and data model
- A deep rebranding or a replacement will be needed at some point
- Possibilities to replace it are: VTL or DPM-XL
- An analysis will be conducted in the next years to reach a conclusion, when both standards are more mature
- As IReF also plans to use XBRL, a common solution could be considered

Thank you for your attention

fernando.wagener@ecb.europa.eu

