

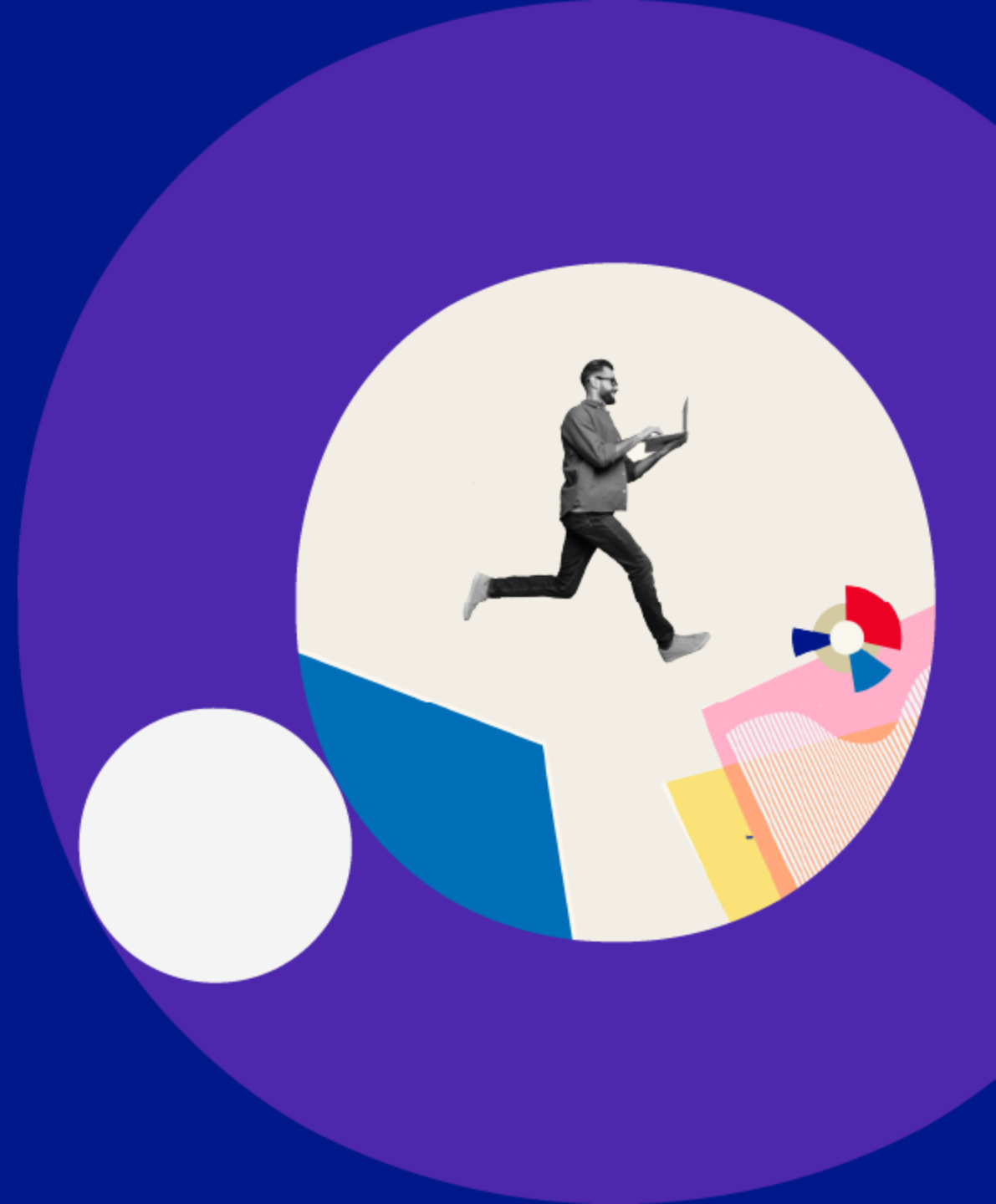
WEBINAR

Data spaces: experience from the Public Procurement Data Space

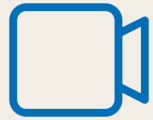


27 June 2025

10:00 – 11:00 CEST



Rules of the game



The webinar will be recorded and published on the data.europa academy



For questions, please use the ClickMeeting chat



Please reserve 3 min after the webinar to help us improve by filling in our feedback form



Today's speakers



Flora Kopelou
data.europa.eu,
Publications Office of the EU



Marc Christopher Schmidt
Policy Officer and Team
Leader, DG GROW



David Lucas
IT Project Manager,
DG GROW



Natalie Muric
Knowledge Management
Assistant, Publications
Office of the EU



Ivo Velitchkov
Knowledge Graph
Consultant

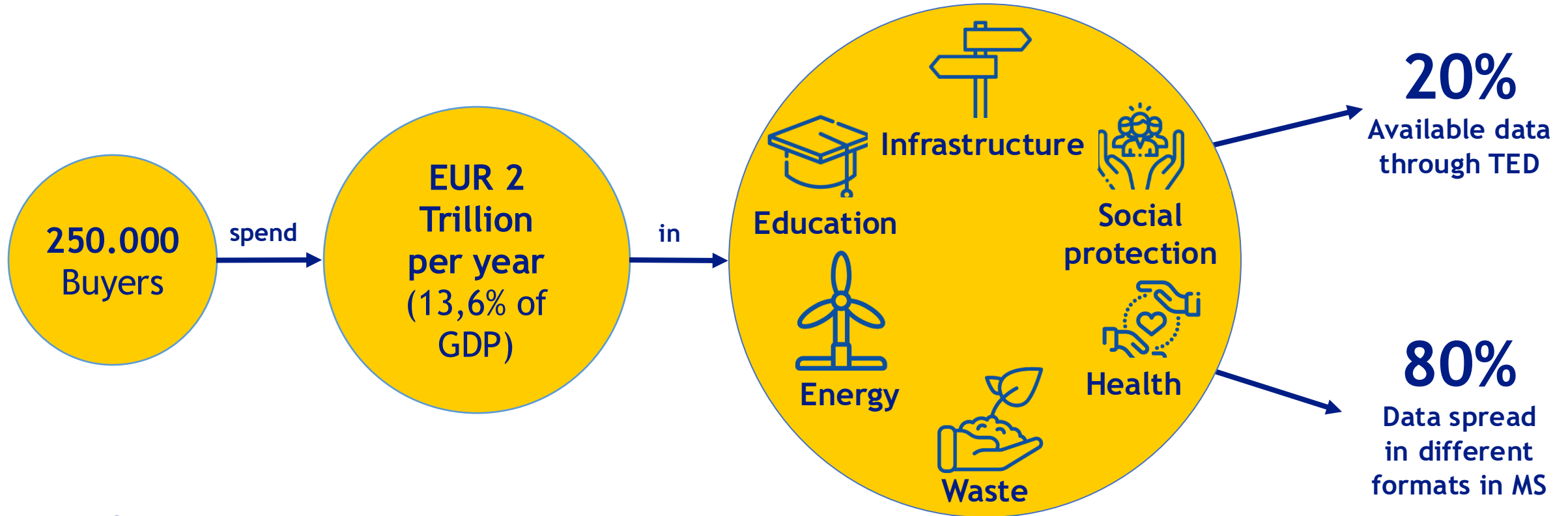


Agenda

10.00 – 10.05	Opening and introduction – <i>Flora Kopelou</i>
10.05 – 10.15	The policy side of the Public Procurement Data Space – <i>Marc Christopher Schmidt</i>
10.15 – 10.25	The architecture side of the Public Procurement Data Space – <i>David Lucas</i>
10.25 – 10.35	The semantic side of the Public Procurement Data Space – <i>Natalie Muric</i>
10.35 – 10.45	The ruling side of the Public Procurement Data Space – <i>Ivo Velitchkov</i>
10.45 – 11.00	Q&A session and closing remarks

The policy side of the PPDS

Why we need the PPDS?

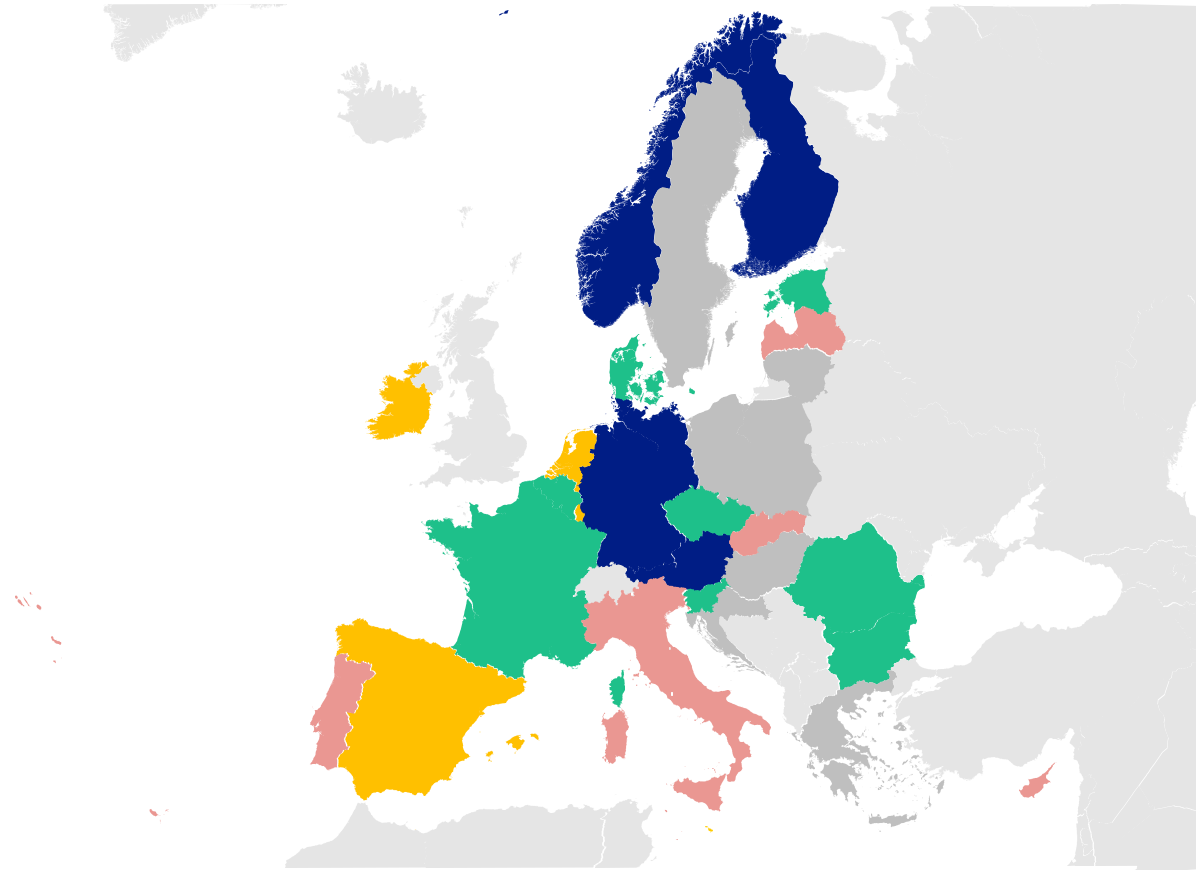


The PPDS

- Enables easy access to public procurement data to all user groups
- Improves monitoring of public procurement in the EU
- Reinforces transparency
- Supports improving data quality
- Raises awareness of the level of competition in public procurement
- Supports cooperation between Member States and Commission
- Relies on eForms



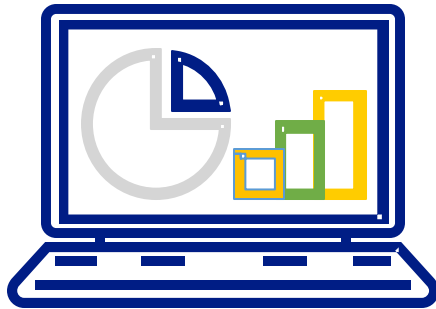
PPDS State-of-Play



- Already connected
- TSI Project 2025
- Interested
- Not for the moment
- Unknown
- Not interested

Use cases of the PPDS in the beginning

Monitoring of Public
Procurement market



Data Quality measurement



Strategic Procurement
measurement



The architecture side of the PPDS

Project introduction

PPDS architecture principles:

- Interoperability
- Open-source
- Cloud agnostic
- Portability

Policies linked with principles:

- Data Governance Act
- Interoperable Europe Act
- Data Act

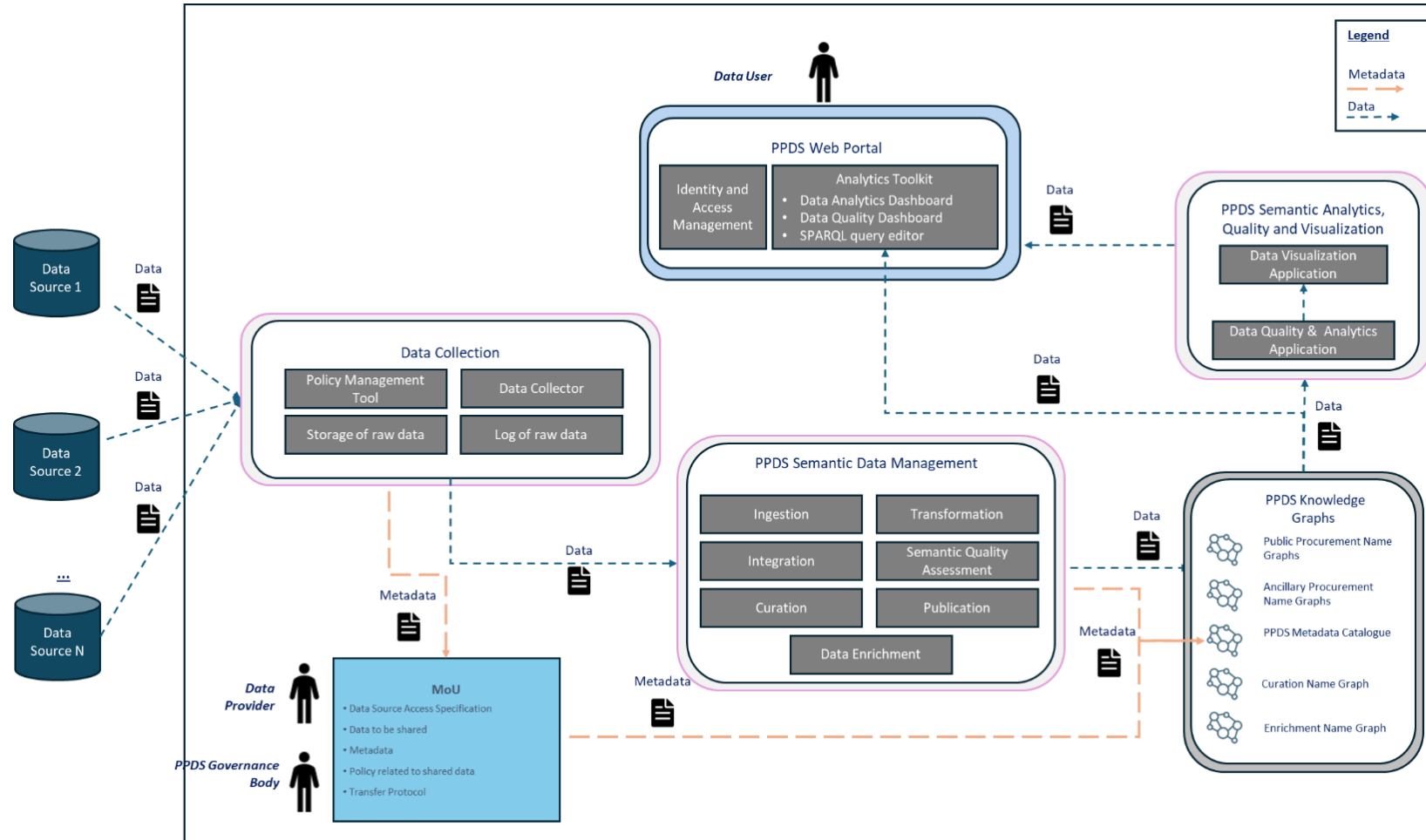
Principle: Open-source

Transparency	Builds trust and accountability through open code
Cost Savings	No license fees, avoids vendor lock-in
Interoperability	Based on open standards, easy system integration
Flexibility	Easily adaptable to local needs
Security	Open code enables faster vulnerability detection
Digital Sovereignty	Supports national strategies for digital independence and control over critical infrastructure

Principle: Cloud-agnostic

Avoid Vendor Lock-In	Freedom to switch providers without major rework
Flexibility and Portability	Deploy workloads across multiple cloud platforms
Business Continuity	Increases resilience and disaster recovery options
Cost Optimisation	Leverage competitive pricing across providers
Scalability	Balance workloads dynamically based on performance or cost
Compliance & Sovereignty	Easier to meet data localisation requirements
Innovation Ready	Quickly adopt new services from any provider

Architecture overview



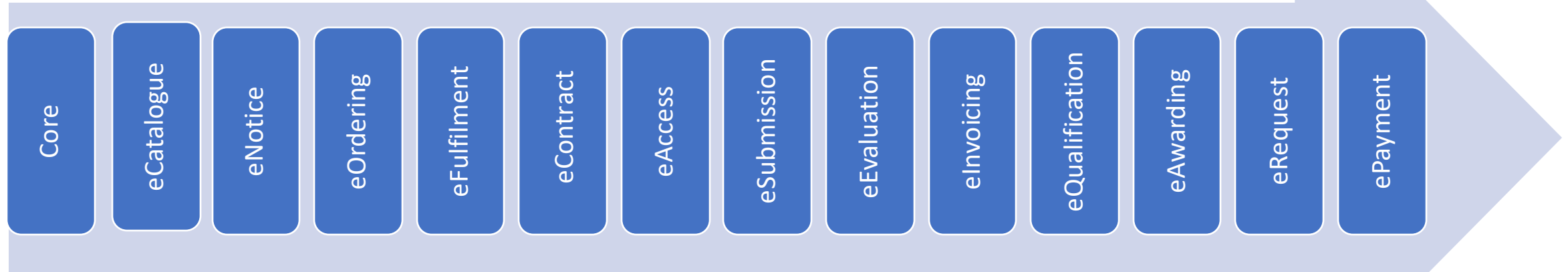
Why PPDS is not fully federated?

Scope	Standardization is not limited to metadata but also to data.
Data sources	The data sources do not deliver the data following the ontology, so PPDS had to transform them to ePO.
Use cases	The calculation of SMS indicators requires so many operations (aggregations, calculations) that doing them 'on the fly' was not technically feasible
Technical challenges	The data had to be materialized in order to execute all the transformations and populate the dashboards. Otherwise, memory consumption and performance problems would cause the system to fail.

The semantic side of the PPDS

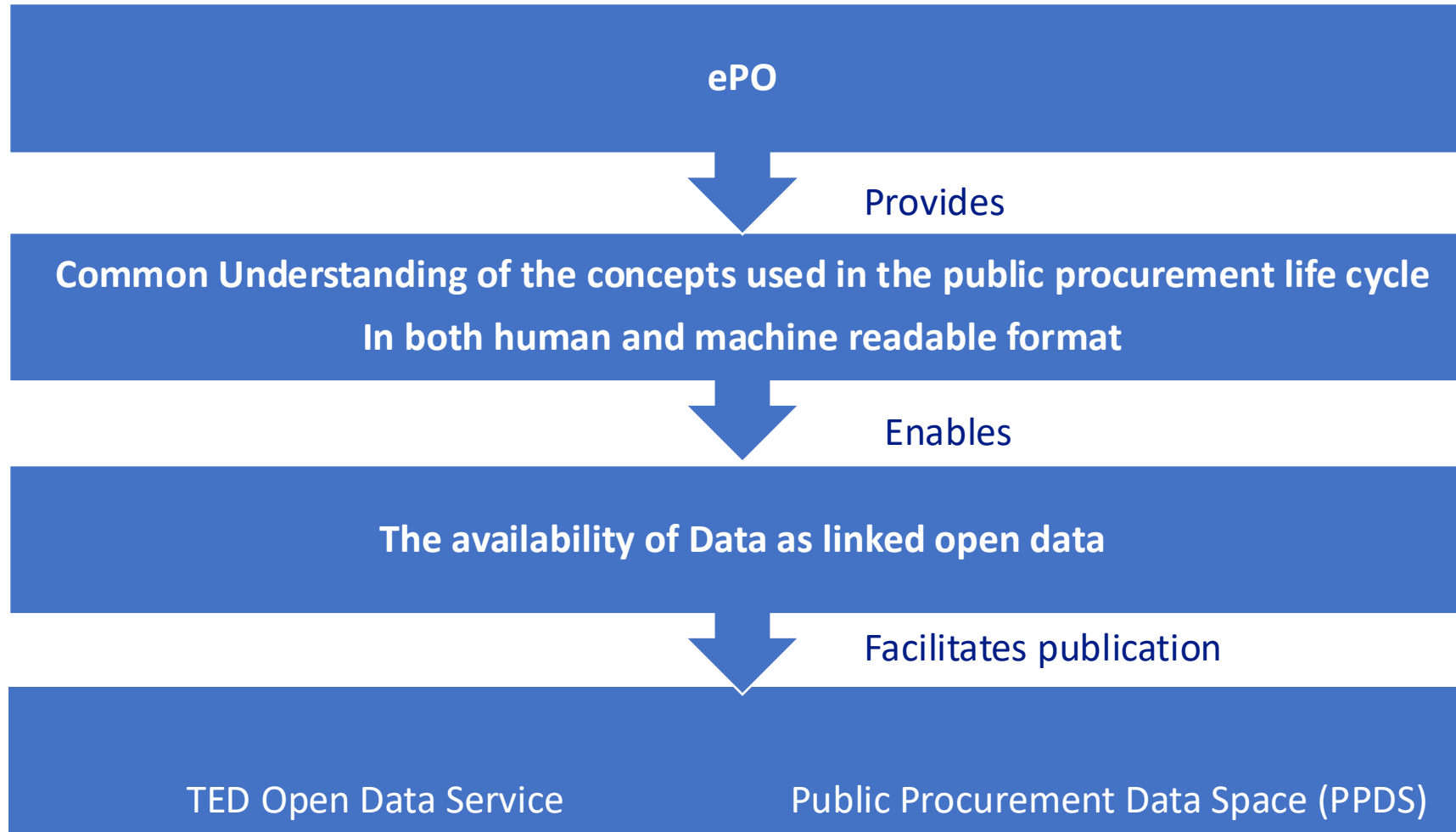
eProcurement Ontology (ePO)

2017




2025

What does the ePO do?




ePO - machine readable formats

<https://github.com/OP-TED/ePO>

 **ePO** Public

Edit Pins Unwatch 38

master 7 Branches 29 Tags Add file Code

 4 people

release/5.1.0 (#797)


7dde063 · 5 hours ago

1,427 Commits

implementation	release/5.1.0 (#797)	5 hours ago
.gitignore	sandbox procedure	3 years ago
.project	20180226Mo - First commit version 2.0.0	7 years ago
LICENSE	Create LICENSE	4 years ago
README.md	4.2.0 (#719)	5 months ago

README EUPL-1.2 license

eProcurement Ontology (ePO)

 transform eNotice XML no status transform eCatalogue XML no status

release v5.1.0 last commit today contributors 19 issues 47 open issues 599 closed Stars 62 Forks 18 license EUPL-1.2

Documentation on the eProcurement Ontology can be found [here](#).

Ontology reference URI: `http://data.europa.eu/a4g/ontology`

Ontology namespace: `http://data.europa.eu/a4g/ontology#`

Preferred prefix: `epo`

Note: If you have any questions, or you would like to make a suggestion or share an idea, please use [Discussions](#). If you discover any bugs please put them on [GitHub issues](#) and we will address them. Also, we have reorganised the GitHub repository and if you experience problems or need assistance feel free to [contact us by email](#).

```
<rdf:Description rdf:about="http://data.europa.eu/a4g/ontology#LotAwardOutcome">
  <skos:definition xml:lang="en">Result concerning the Lot that was attributed by the Awarder.</skos:definition>
  <skos:historyNote xml:lang="en">WG Approval 19/03/2024</skos:historyNote>
  <rdfs:isDefinedBy rdf:resource="http://data.europa.eu/a4g/ontology#core"/>
  <rdfs:subClassOf rdf:resource="http://data.europa.eu/a4g/ontology#AwardOutcome"/>
  <rdfs:subClassOf rdf:resource="http://data.europa.eu/a4g/ontology#MaskableObject"/>
  <rdf:type rdf:resource="http://www.w3.org/2002/07/owl#Class"/>
  <skos:prefLabel xml:lang="en">Lot Award Outcome</skos:prefLabel>
```

ePO documentation

<https://docs.ted.europa.eu/epo-home/index.html>

eProcurement Ontology

Home

General Documentation

Conceptual Models

Glossaries

Release Notes

Reference Documentation

Ontology Requirements
Specifications Documents

Business Overview

User Guides

The ePO in Other Projects

Reference Documents

History and Planned
Developments

Methodology

ePO Versioning Rules

Working Group Documents

Wider Working Group Meetings

Cumulative Reports (by year)

Individual Meeting Reports

eProcurement Ontology / Home

The eProcurement Ontology

What is the eProcurement Ontology?

The [eProcurement Ontology \(ePO\)](#) is a vocabulary that models the concepts used in EU public procurement. It does not represent the eProcurement process itself, it defines the concepts used in the different parts of the public procurement lifecycle.

The ePO conceptualises, formally encodes, and provides structured data about public procurement in both human and machine-readable formats. It is modelled in alignment with EU Directives and Regulations and is a formal standard.

Why do we need an eProcurement Ontology?

The eProcurement Ontology ensures that every participant in the procurement process is speaking the same language i.e., that the concepts and definitions are the same and have the same meaning for all parties.

More detail and background can be found in the [Motivation for the development of an ePO](#).

Contents

- What is the eProcurement Ontology?
- Why do we need an eProcurement Ontology?
- The Scope of the eProcurement Ontology
- How the eProcurement Ontology is created and developed
- New to the eProcurement Ontology?
- The eProcurement Ontology
 - General Documentation
 - Reference Documentation
 - Working Group Documents



Further uses of the ontology?

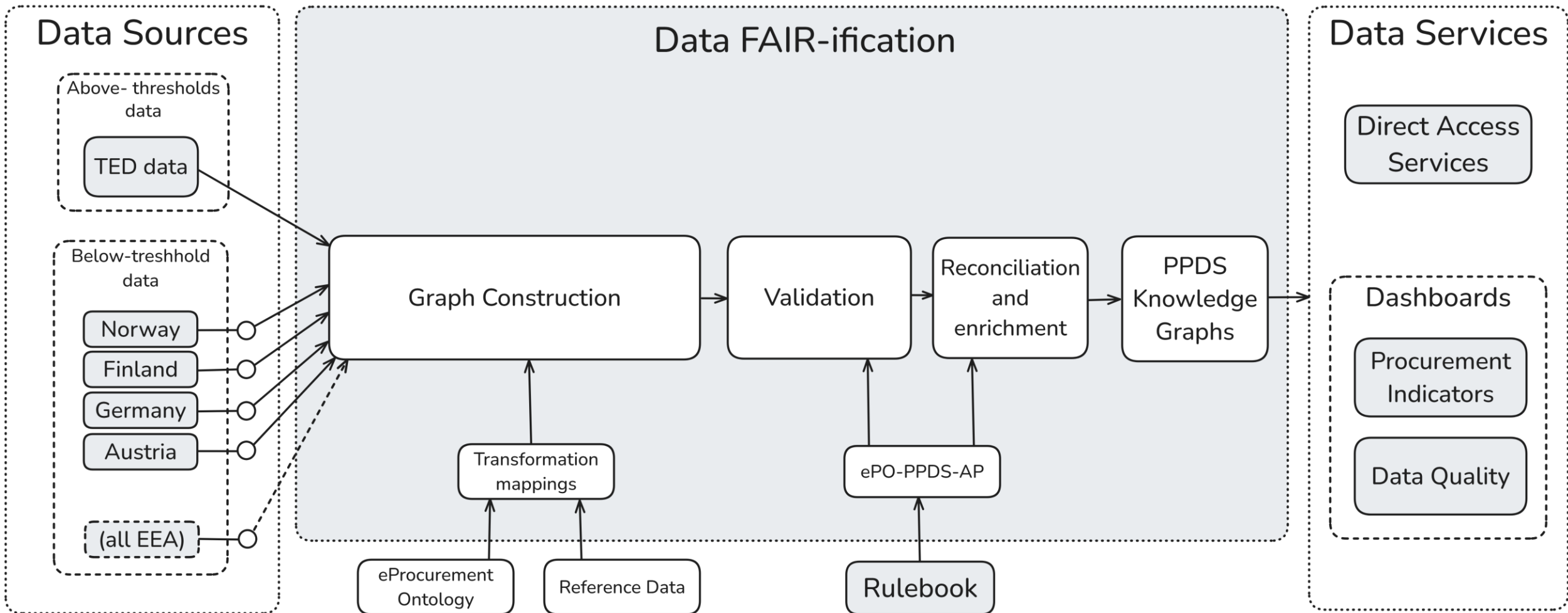
The epo will enable the PPDS to provide data not only from notification but also from other parts of the public procurement life cycle:

- eFulfilment
- eOrdering
- eInvoicing
-

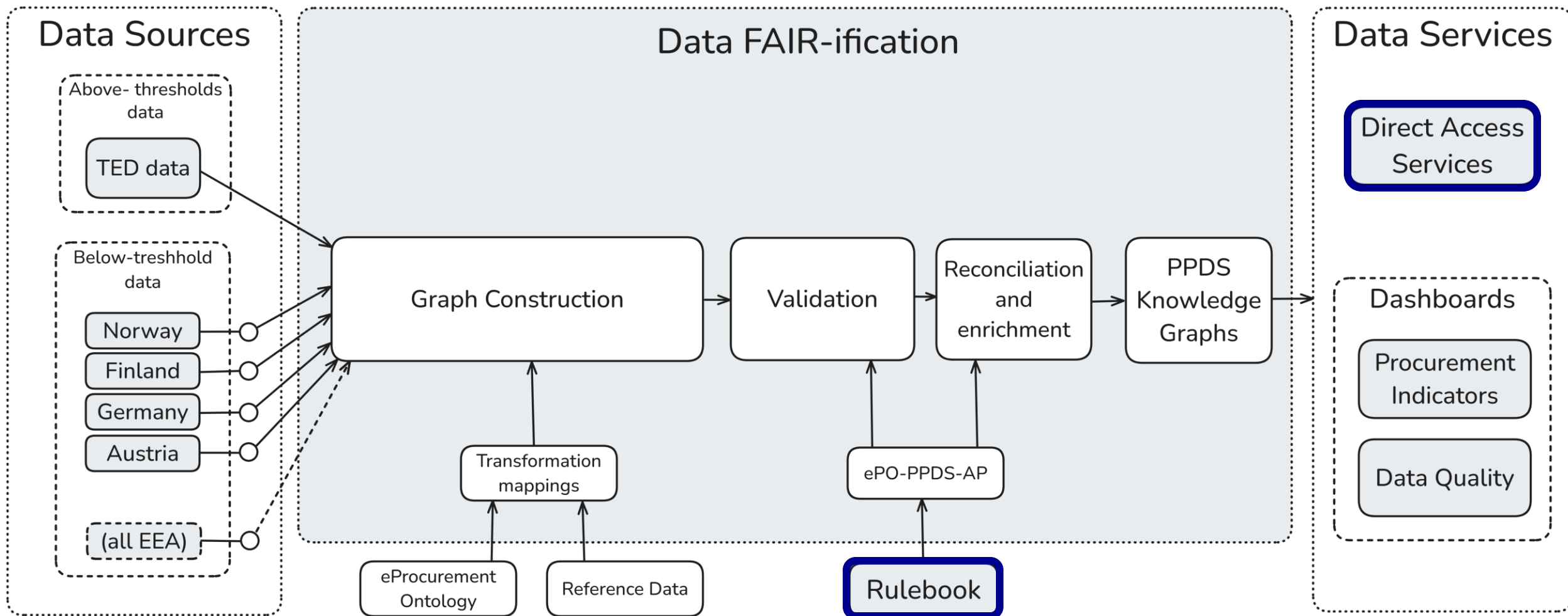
The ePO can be used in the revision of the Procurement Directives.

The ruling side of the PPDS

Dataflow



Dataflow



Data services (direct access)

Data Export Repository

Select the year

2023

Select the data

procedureDetails

Select the graph

GROW - public

Download procedureDetails-dgGrow-2023.csv

PPDS SPARQL Editor

Select a query template

Strategic Procurement / What is the procurement accessibility criteria by procedure and lot?

Select a named graph

Public / Germany ×

Public / Austria ×

Public / Norway ×

Public / Finland ×

Public / DgGrow ×

Public / Catalogue ×

```
1 PREFIX epo: <http://data.europa.eu/a4g/ontology#>
2 PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
3 PREFIX cccev: <http://data.europa.eu/m8g/>
4 PREFIX org: <http://www.w3.org/ns/org#>
5 PREFIX locn: <http://www.w3.org/ns/locn#>
6 PREFIX sh: <http://www.w3.org/ns/shacl#>
7 PREFIX dcterms: <http://purl.org/dc/terms/>
8 PREFIX dc: <http://purl.org/dc/elements/1.1/>
9 PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
10
11 SELECT DISTINCT ?procedure ?lot ?accessibilityCriterion
12
13
14
15 FROM <https://data.europa.eu/a4g/graph/germany>
16 FROM <https://data.europa.eu/a4g/graph/shapes>
17 FROM <https://data.europa.eu/a4g/graph/austria>
18 FROM <https://data.europa.eu/a4g/graph/norway>
19 FROM <https://data.europa.eu/a4g/graph/finland>
20 FROM <https://data.europa.eu/a4g/graph/dgGrow>
21 FROM <https://data.europa.eu/a4g/graph/catalogue>
22 FROM <https://data.europa.eu/a4g/graph/shaclValidation>
23 FROM <https://data.europa.eu/a4g/graph/skos>
24 FROM <https://data.europa.eu/a4g/graph/ontology>
25 WHERE {
26   # RESULT NOTICE
27   ?notice a epo:Notice .
28
29   # PROCEDURE
30   ?notice epo:refersToProcedure ?procedure .
31
32   # LOT
33   ?procedure epo:hasProcurementScopeDividedIntoLot ?lot .
34
35   # ACCESSIBILITY
36
37   ?lot epo:fulfillsStrategicProcurement/epo:includesAccessibilityCriterion ?accessibilityCrite
38
39   # Use only notices from EFORMS
40 GRAPH <https://data.europa.eu/a4g/graph/catalogue> {
41   ?notice dcterms:conformsTo ?formType.
```

Rulebook

- **Provide registry and governance for all kinds of rules:** data governance conventions, business rules, data quality rules, reconciliation rules, property chain rules and so on;
- **Improve query performance:** path shortening, pre-calculation;
- **Support data-centricity:** discovery and transformation of rules encoded in the application layer into declarative rules, encoded using semantic technology standards and available as part of the knowledge graph.

Rulebook

status IDEA520+

Every SME winner is an SME

context Data Qualityquality Consistency

type RULE

#10

EEA winner for sole contractor

context Enrichmentimplement SHACL rule

type RULE

#11

Date format

context Enrichmenttype RULE

#13

Lot has SME award indicator

context Indicatorsimplement SHACL rule

type RULE

#95

EEA winner for group of companies

context Enrichmenttype RULE

#96

SME winner for group of companies

context Enrichmenttype RULE

#97

Date conversion

context Enrichmentimplement SHACL rule

status DRAFT460+

Notice is from Buyer

context Enrichmentimplement SHACL rule

type RULE

#1

Notice is from Country

context Enrichmentimplement SHACL rule

type RULE

#2

Same procedure

context Enrichmenttype RULE

#3

Notice URI has corresponding TED URL

context Enrichmenttype RULE

#7

Currency conversion

context Enrichmenttype RULE

#15

Procedure type is valid

context Data Qualityimplement SHACL constraint

quality Validitytype RULE

#17

Contract nature type is valid

context Data Qualityimplement SHACL constraint

status PENDING20+

Use SPARQL rules only if needed

context Data Governancetype RULE

#116

Public procurement graphs is self-descriptive and decoupled from applications

context Data Governanceprinciple type RULE

#120

status AGREED

SME winner for sole cont

context Enrichmenttype

#14

Notice is from Country

Open Issue created 2 months ago by Daniel AROSA

Rule Definition

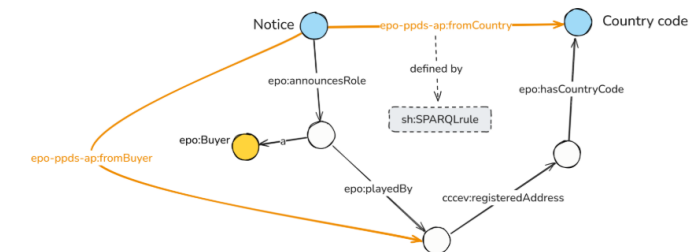
The notice is from a country of such a buyer that is linked to a notice with relationship from Buyer.

Additional Information

Rule elaboration

As a context, the path from the notice to the country is long and requires several steps. The following code snippet illustrates the retrieval of the country code for a particular notice:

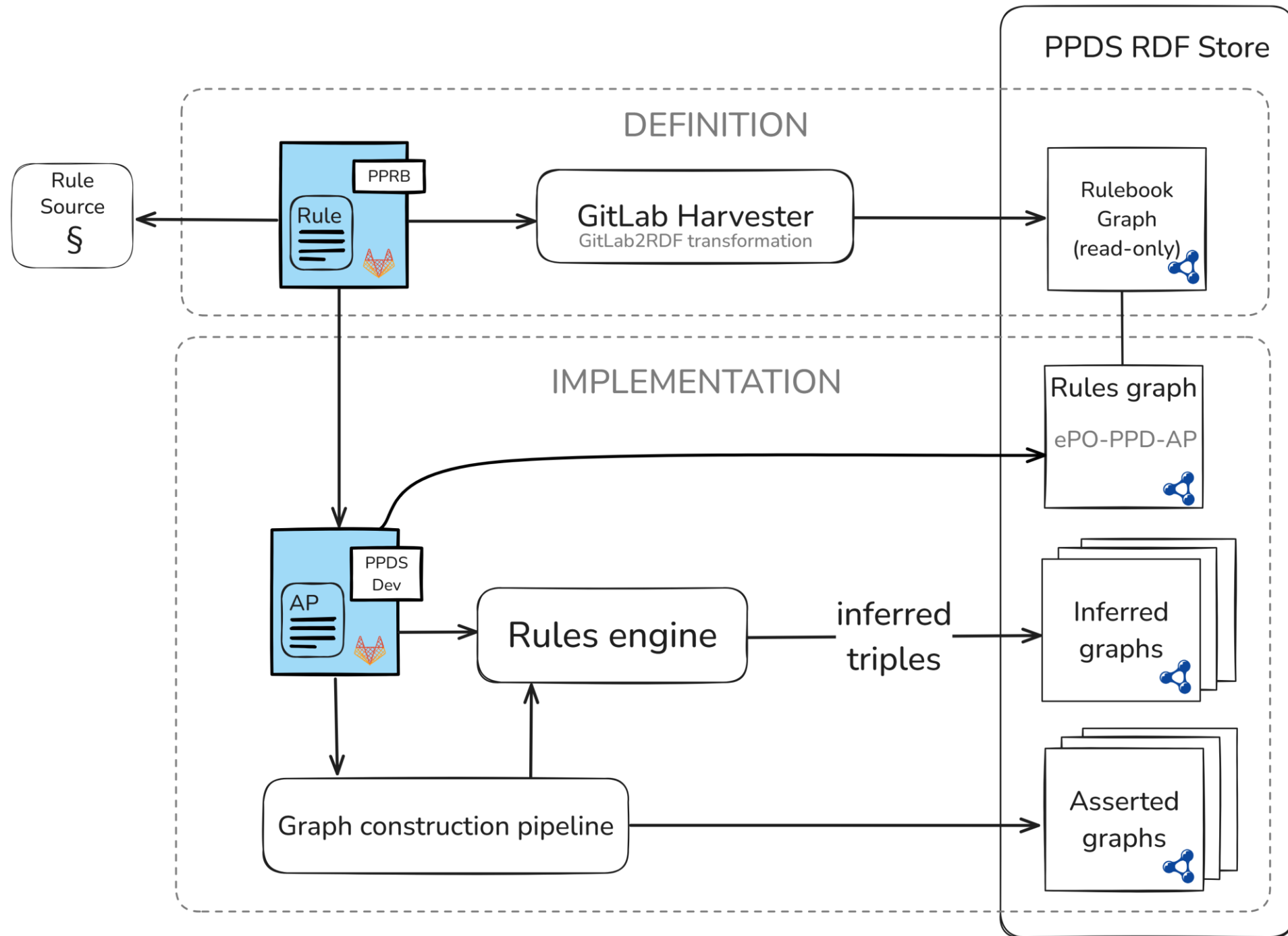
```
?notice epo:announcesRole ?buyer .
?buyer a epo:Buyer .
?buyer epo:playedBy ?buyerOrganisation .
?buyerOrganisation epo:registeredAddress ?orgAddress .
?orgAddress epo:hasCountryCode ?buyerCountry .
```



The objective of this rule is to simplify the relation between the notice and the country to which this notice belongs.

Rule source

Rules



Stay up-to-date on our
2025 activities!



data.
europa
academy

Continue the discussion on our collaboration channel!

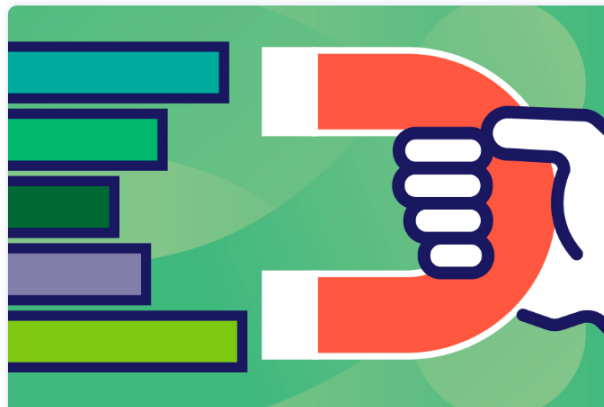
Collaboration channel

Connect with a vibrant community of data enthusiasts!

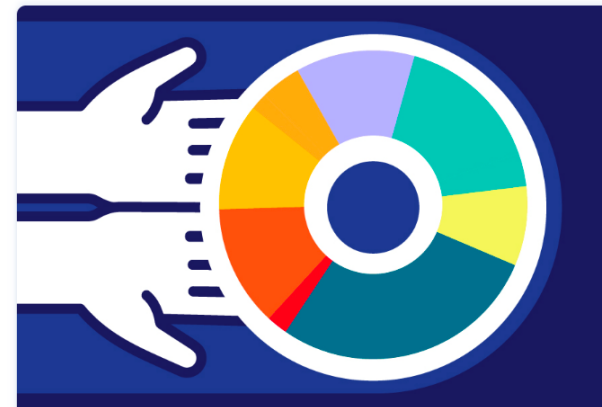
This space is designed for users to share ideas and exchange challenges and opportunities in the scope of the constantly evolving data landscape. You can join the group and topic you prefer, follow and be updated on ongoing conversations and participate in discussions on topics that matter to you.

Whether you are a data provider or a data reuser, you will find a dedicated space for collaboration where you can foster meaningful discussions.

If you are an official data provider, you can request access to this restricted forum, and we will carefully analyse your request. If you are a data reuser, you can join and will have direct access to this community to connect and engage with other members.



Data reusers



Data providers



Your opinion is important to us!



Thank you!

