Publications Office
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TED OPEN DATA SERVICE

EVOLUTION

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Publications Office of the European Union

TED-together 2025

Today’s topics

- Let's explore a real use case
- From XML notices to Linked Open Data
- Data available in Cellar
- Linked Open Data in a nutshell
- Our tools
- Our vision and roadmap
- Developer community
- Q&A

Let's explore a real use case

The need

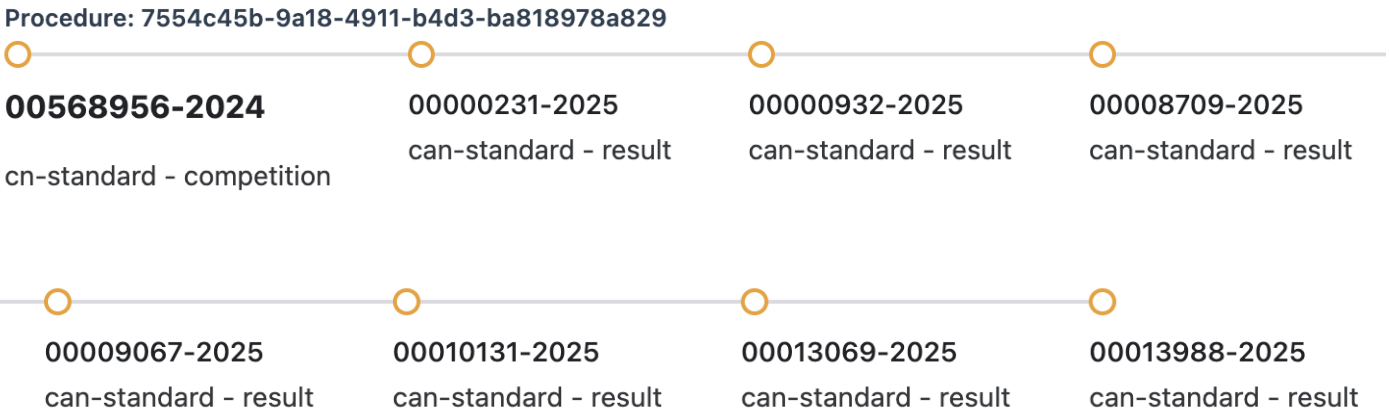
A reuser would like to know which economic operator wins which lot in a given procedure.

Notice: 568956-2024

Form type: Competition
Notice type: Contract or concession notice – standard regime
Notice subtype: 16

Number of lots: 130

The reuser starts with a Notice



Let's explore a real use case

The expected result: A spreadsheet

Procedure (id): 75....a829

Result notices: 7

Lots: 130

The reuser needs an Excel spreadsheet containing the following information for each lot:

- Lot
- Notice publication number
- Winner
  - Legal identifier
  - Legal name

Lot	Publication Number	Legal Identifier	Winner
LOT-0001	00000231-2025	11206233	Medtronic Poland Sp. z o.o.
LOT-0002	00000231-2025	790003564	Bialmed Sp. z o. o
LOT-0003	00000231-2025	12401907	Boston Scientific Polska Sp. z o.o.
LOT-0004	00000231-2025	141354556	Xanthus Viomedical Sp. z o.o.
LOT-0007	00000231-2025	142972865	Artivion Polska sp. z o.o.
LOT-0008	00000231-2025	340769059	Promedica Toruń Sp. z o.o.
LOT-0009	00000231-2025	17397116	BERYL MED POLAND Sp. z o. o.
LOT-0010	00000231-2025	17397116	BERYL MED POLAND Sp. z o. o.
LOT-0011	00000231-2025	730920652	Baxter Polska Sp. z o.o.
LOT-0012	00000231-2025	17397116	BERYL MED POLAND Sp. z o. o.
LOT-0013	00000231-2025	790003564	Bialmed Sp. z o. o
LOT-0014	00000231-2025	142789010	LivaNova Poland Sp. z o.o.
LOT-0017	00000231-2025	12328754	Getinge Polska Sp. z o.o.
LOT-0018	00000231-2025	382541145	CYTOSORBENTS POLAND sp. z o. o.
LOT-0019	00000231-2025	12731970	Abbott Medical Sp. z o. o.
LOT-0020	00000231-2025	273295877	ZARYS International Group spółka z ograniczoną odpowiedzialnością spółka komandytowa
LOT-0022	00000932-2025	930505208	Agencja Naukowo-Techniczna SYMICO Sp z o.o.
LOT-0023	00000932-2025	930505208	Agencja Naukowo-Techniczna SYMICO Sp z o.o.
LOT-0024	00000932-2025	930505208	Agencja Naukowo-Techniczna SYMICO Sp z o.o.
LOT-0025	00000932-2025	930505208	Agencja Naukowo-Techniczna SYMICO Sp z o.o.
LOT-0027	00000932-2025	11206233	Medtronic Poland Sp. z o.o.

Let's explore a real use case
Querying the TED Search API

```
curl -X 'POST' \
  'https://api.ted.europa.eu/v3/notices/search' \
  -H 'accept: */*' \
  -H 'Content-Type: application/json' \
  -d '
{
  "query": "publication-number IN (231-2025)",
  "fields": [ "organisation-identifier-tenderer", "organisation-name-tenderer" ],
  "page": 1,
  "limit": 100,
  "scope": "ALL",
  "paginationMode": "PAGE_NUMBER"
}'
```

Let's explore a real use case

Querying the TED Search API


```
{
 "notices": [
 {
 "organisation-identifier-tenderer": [
 "011206233",
 "790003564",
 "012401907",
 "141354556",
 "142972865",
 "340769059",
 "017397116",
 "730920652",
 "012328754",
 "382541145",
 "012731970",
 "273295877",
 "142789010"
 ],
 "publication-number": "231-2025",
```

```
"organisation-name-tenderer": {
  "pol": [
    "Medtronic Poland Sp. z o.o.",
    "Bialmed Sp. z o. o",
    "Boston Scientific Polska Sp. z o.o.",
    "Xanthus Viomedical Sp. z o.o.",
    "Artivion Polska sp. z o.o.",
    "Promedica Toruń Sp. z o.o.",
    "BERYL MED POLAND Sp. z o. o.",
    "Baxter Polska Sp. z o.o.",
    "Getinge Polska Sp. z o.o.",
    "CYTOSORBENTS POLAND sp. z o. o.",
    "Abbott Medical Sp. z o. o.",
    "ZARYS International Group spółka...",
    "LivaNova Poland Sp. z o.o."
  ]
}, ...
```

Let's explore a real use case
Querying the TED Search API

```
curl -X 'POST' \
  'https://api.ted.europa.eu/v3/notices/search' \
  -H 'accept: */*' \
  -H 'Content-Type: application/json' \
  -d '
{
  "query": "publication-number IN (231-2025) AND organisation-identifier-tenderer=011206233",
  "fields": [ "organisation-identifier-tenderer", "organisation-name-tenderer" ],
  "page": 1,
  "limit": 100,
  "scope": "ALL",
  "paginationMode": "PAGE_NUMBER"
}'
```

The reuser refines the search

Let's explore a real use case
Querying the TED Search API

The reuser refined the search but obtained the same results !!!


```
{
 "notices": [
 {
 "organisation-identifier-tenderer": [
 "011206233",
 "790003564",
 "012401907",
 "141354556",
 "142972865",
 "340769059",
 "017397116",
 "730920652",
 "012328754",
 "382541145",
 "012731970",
 "273295877",
 "142789010"
 ],
 "publication-number":
```

```
"organisation-name-tenderer": {
  "pol": [
    "Medtronic Poland Sp. z o.o.",
                                    Sp. z o.o.",
                                    o.o.",
                                    .",
                                    .",
                                     o.",
                                    ",
                                    ",
                                     o. o.",
                                    .",
                                     spółka...",
                                    ."
```


This reflects the limitations of the TED search functionality.

Its primary goal is to find notices, and the search results are based on the notice itself rather than the individual fields within it.

The returned values are extracted using specific XPath expressions for each field, which produce a flat list of values.

Let's explore a real use case

Linked Open Data to the rescue

The reuser identifies the procedure associated to the Competition Notice

```
PREFIX adms: <http://www.w3.org/ns/adms#>
PREFIX dcterms: <http://purl.org/dc/terms/>
PREFIX epo: <http://data.europa.eu/a4g/ontology#>
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

SELECT ?procedureIdentifier ?procedureTitle

WHERE {
    FILTER (?publicationNumber = "00569856-2024")

    ?notice a epo:Notice ;
              epo:hasNoticePublicationNumber ?publicationNumber ;
              epo:refersToProcedure [
                dcterms:title ?procedureTitle ;
                adms:identifier / skos:notation ?procedureIdentifier
              ]
}
```

procedureIdentifier	procedureTitle
"7554c45b-9a18-4911-b4d3-ba818978a829"	"ZP 32/24 dostawa sprzętu dla Oddziału Kardiochirurgii"@pl

Let's explore a real use case

Linked Open Data to the rescue

The reuser then obtains the required data that spans across multiple notices

```
PREFIX adms: <http://www.w3.org/ns/adms#>
PREFIX epo: <http://data.europa.eu/a4g/ontology#>
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

SELECT ?lot ?publicationNumber ?identifier ?winner

WHERE {
  FILTER (?procedureIdentifier = "7554c45b-9a18-4911-b4d3-ba818978a829")

  ?procedure adms:identifier / skos:notation ?procedureIdentifier .
  ?notice a epo:ResultNotice ;
          epo:hasNoticePublicationNumber ?publicationNumber ;
          epo:refersToProcedure ?procedure ;
          epo:announcesAwardDecision / epo:comprisesAwardOutcome /
              epo:comprisesTenderAwardOutcome / epo:concernsTender ?tender .
  OPTIONAL {
    ?tender epo:isSubmittedForLot / adms:identifier / skos:notation ?lot .
  }
  OPTIONAL {
    ?tender epo:isSubmitedBy / epo:playedBy / epo:hasLegalName ?winner .
  }
  OPTIONAL {
    ?tender epo:isSubmitedBy / epo:playedBy / epo:hasLegalIdentifier / skos:notation ?identifier .
  }
} ORDER BY ?lot
```

Let's explore a real use case
Linked Open Data to the rescue

The reuser downloads it as an CSV file that can be imported into Excel

```
"lot","publicationNumber","identifier","winner"
"LOT-0001","00000231-2025","011206233","Medtronic Poland Sp. z o.o."
"LOT-0002","00000231-2025","790003564","Bialmed Sp. z o. o"
"LOT-0003","00000231-2025","012401907","Boston Scientific Polska Sp. z o.o."
"LOT-0004","00000231-2025","141354556","Xanthus Viomedical Sp. z o.o."
"LOT-0007","00000231-2025","142972865","Artivion Polska sp. z o.o."
"LOT-0008","00000231-2025","340769059","Promedica Toruń Sp. z o.o."
"LOT-0009","00000231-2025","017397116","BERYL MED POLAND Sp. z o. o."
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"LOT-0013","00000231-2025","790003564","Bialmed Sp. z o. o"
"LOT-0014","00000231-2025","142789010","LivaNova Poland Sp. z o.o."
"LOT-0017","00000231-2025","012328754","Getinge Polska Sp. z o.o."
"LOT-0018","00000231-2025","382541145","CYTOSORBENTS POLAND sp. z o. o."
"LOT-0019","00000231-2025","012731970","Abbott Medical Sp. z o. o."
"LOT-0020","00000231-2025","273295877","ZARYS International Group spółka z ograniczoną odpowiedzi
"LOT-0022","00000932-2025","930505208","Agencja Naukowo-Techniczna SYMICO Sp z o.o."
"LOT-0023","00000932-2025","930505208","Agencja Naukowo-Techniczna SYMICO Sp z o.o."
```
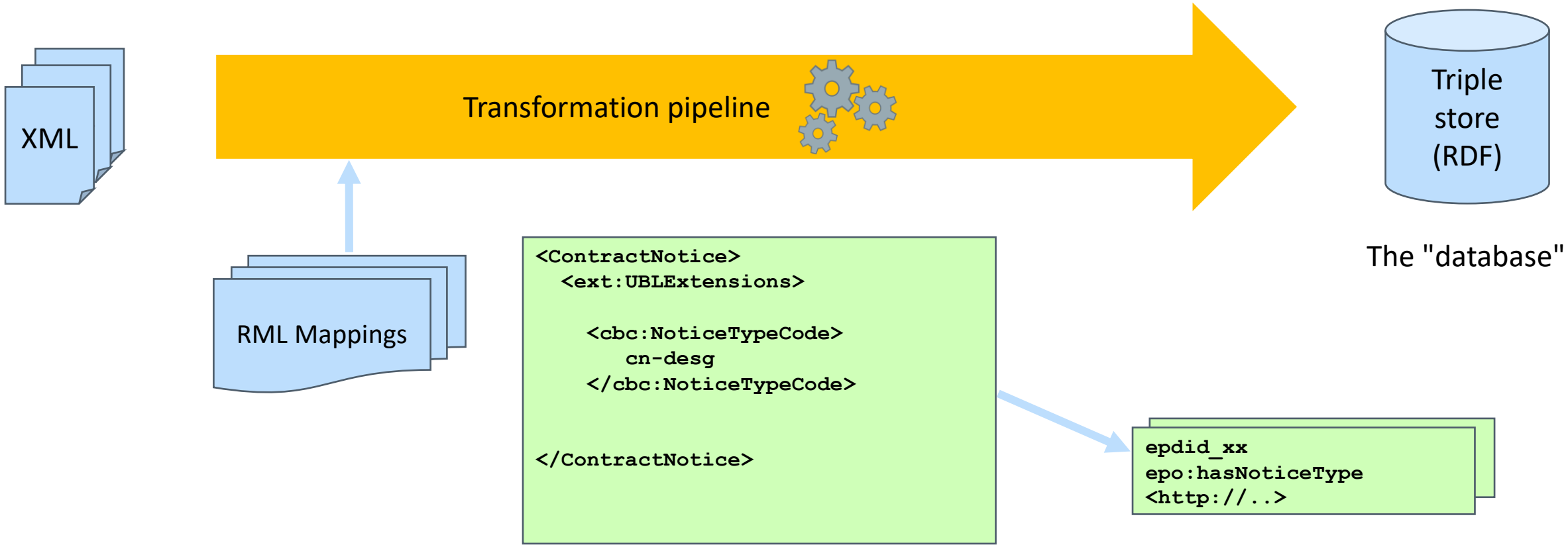

From XML notices to Linked Open Data



Data available in Cellar

eForms

Conform to the eProcurement Ontology v4
(to be upgraded to ePO v5 in 2026)

Current availability:

- ✓ Daily eForms notices
- ✓ All eForms notices from 2023 and 2025
- ✓ Currently finalising the complete set of notices for 2024 (to be completed by the end of 2025)

Standard Forms

Conform to the eProcurement Ontology v3.1
(to be upgraded to ePO v5 after eForms)

Current availability:

- ✓ A limited number of XML notices are available in Cellar. These were produced during the initial TED Open Data Service Pipeline proof of concept
- ✓ Form types F3, F6, F21, F22, F23, F25

Linked Open Data in a nutshell

The F.A.I.R. Data Principles

The goal

Findable

Data is assigned a unique URI and metadata, making it discoverable through services like the TED Open Data Service.

Accessible

Data is retrievable by its identifier using standard protocols (HTTP) via a SPARQL endpoint.

Interoperable

Using the ePO ontology allows our data to be combined with other data sources.

Reusable

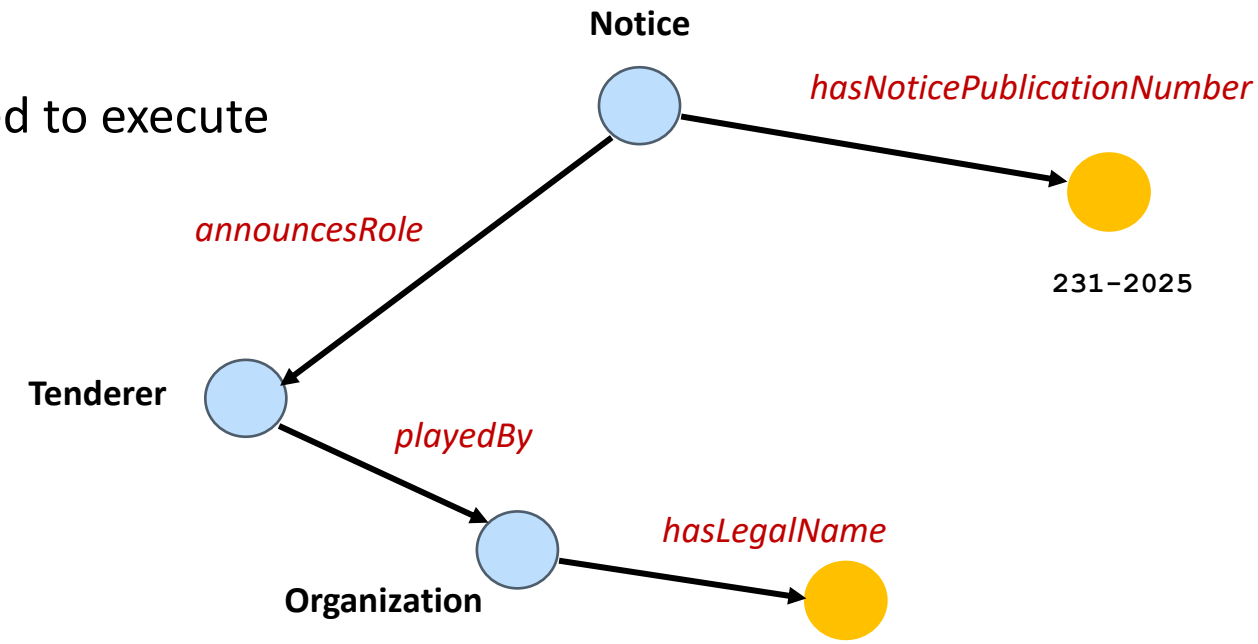
Clear licensing and rich metadata (like CPV codes) allow you to confidently build new tools.

Linked Open Data in a nutshell
Querying the graph with SPARQL

The tool

SPARQL is the 'SQL for RDF':

- It lets us query the data graph as opposed to documents
- TED Open Data Service can be used to execute SPARQL queries




```
SELECT ?publicationNumber ?legalName
WHERE {
  ?notice a epo:Notice ;
          epo:hasNoticePublicationNumber "231-2025" ;
          epo:announcesRole / epo:playedBy / epo:hasLegalName ?legalName .
}
```

Linked Open Data in a nutshell

From data silos to a linked graph

The method

Key Concepts

- ✓ Prefixes are key: `epo:` (eProcurement Ontology), `cpv:` (Common Procurement Vocabulary), `nuts:` (Nomenclature of Territorial Units)
- ✓ CPV: The *what* (CPV)
- ✓ NUTS: The *where*. Along with the CPV, the primary tools for filtering SPARQL allows powerful queries on their hierarchical structures
- ✓ URIs are identifiers: Every notice, buyer, and supplier must have a unique URI. This is how you link data

SPARQL Querying Tips

- ✓ Start with `LIMIT` 10: Always limit your results when exploring. This prevents accidentally requesting millions of triples
- ✓ Use `OPTIONAL` blocks: Not all entities have all data fields
- ✓ `DESCRIBE`: Use `DESCRIBE ?uri` to get all known information about one specific entity, which is excellent for exploration
- ✓ Use `SELECT` to get a table with data

Linked Open Data in a nutshell

Why this matters in public procurement

Enhanced Transparency

Trace procurement procedures flow. Identify red flags. Uncover conflicts of interest and fight corruption.

Interoperability

Connect procurement data with company registries, sanctions lists, and beneficial ownership data across borders.

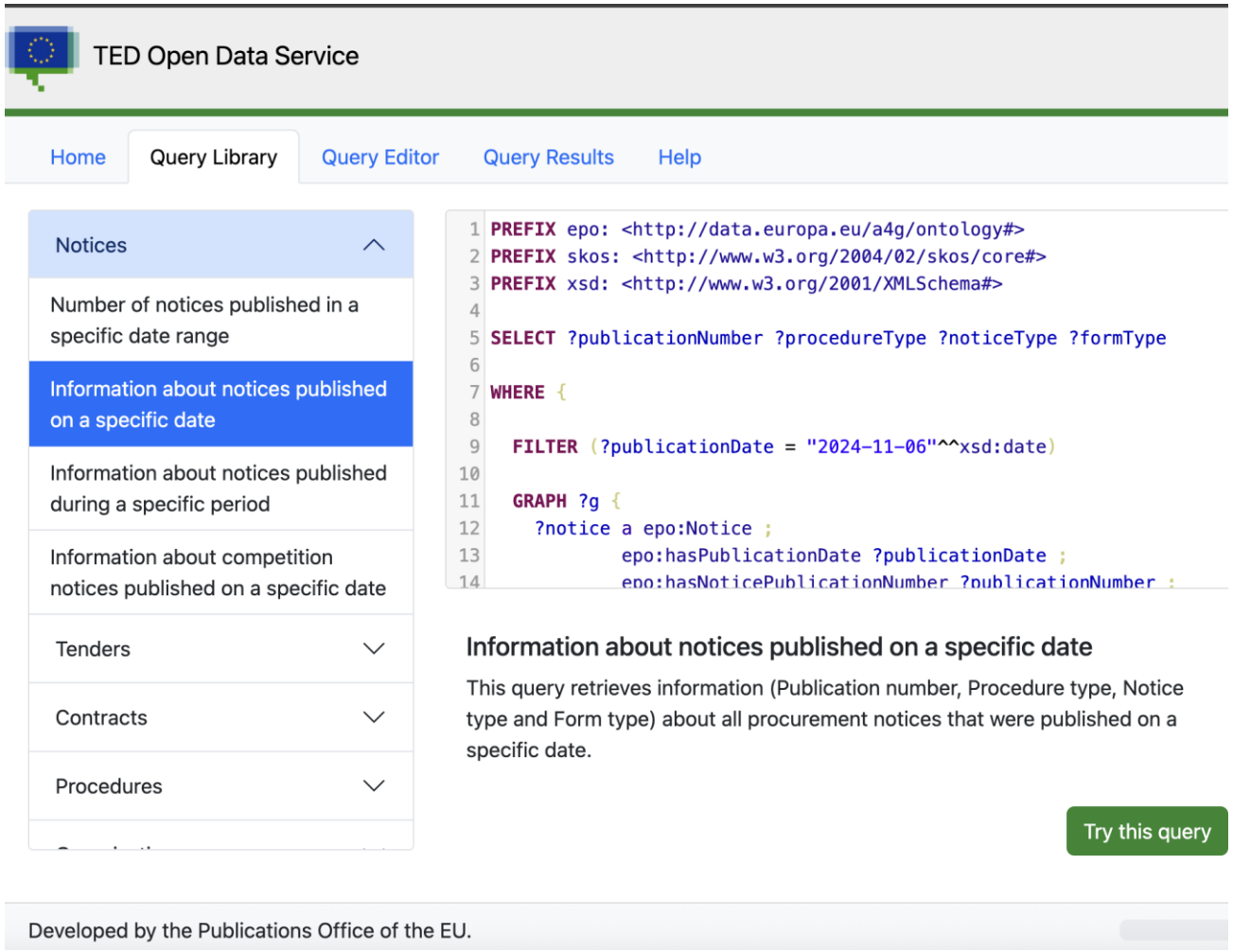
Complex Analytics

Ask "what's the average contract value by region for CPV code X?". Analyze market trends.

Our tools
TED Open Data Service

Upcoming updates:

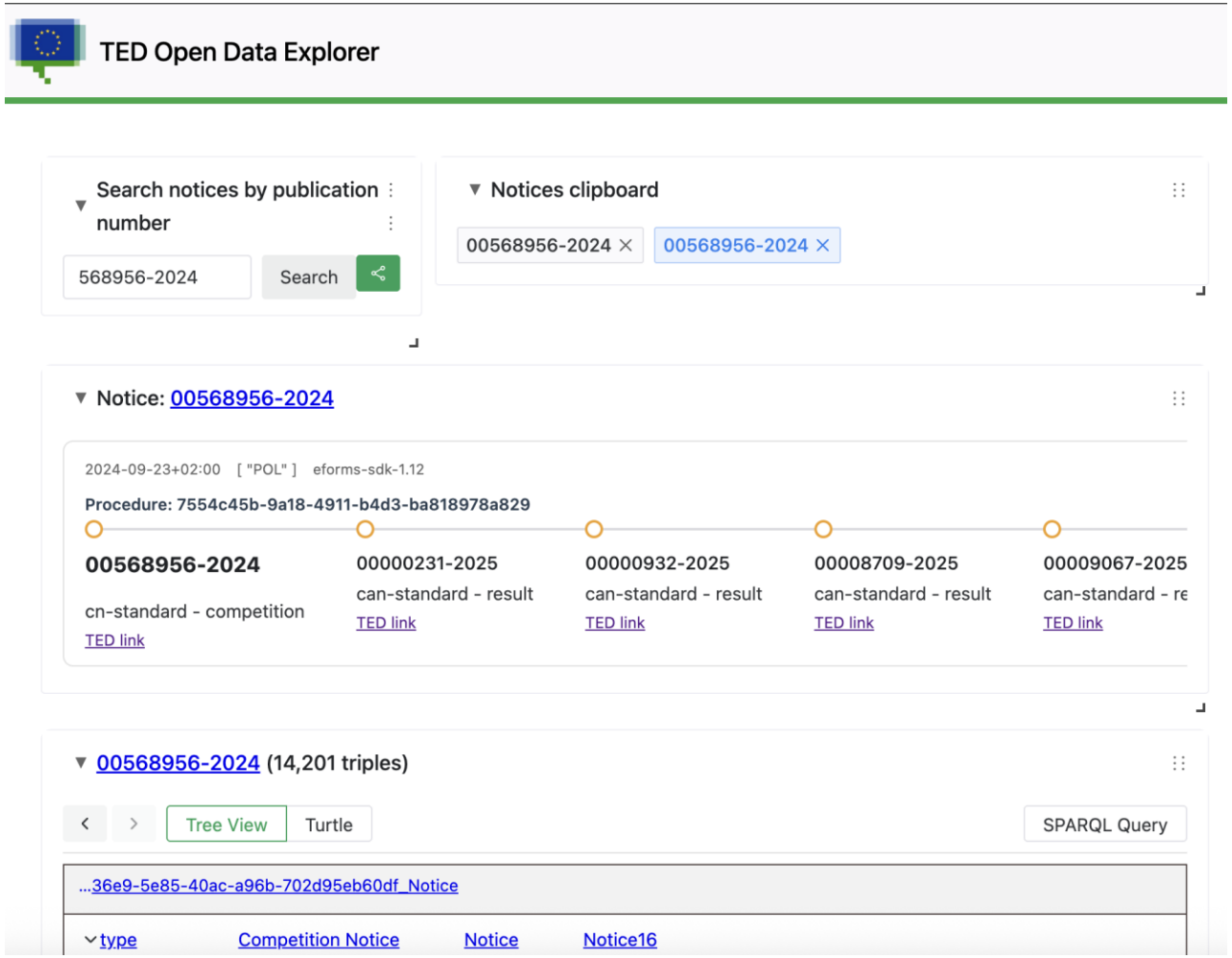
- Enhanced Query library
- Output format selection enhancements
- Access to Ontology documentation



Our tools

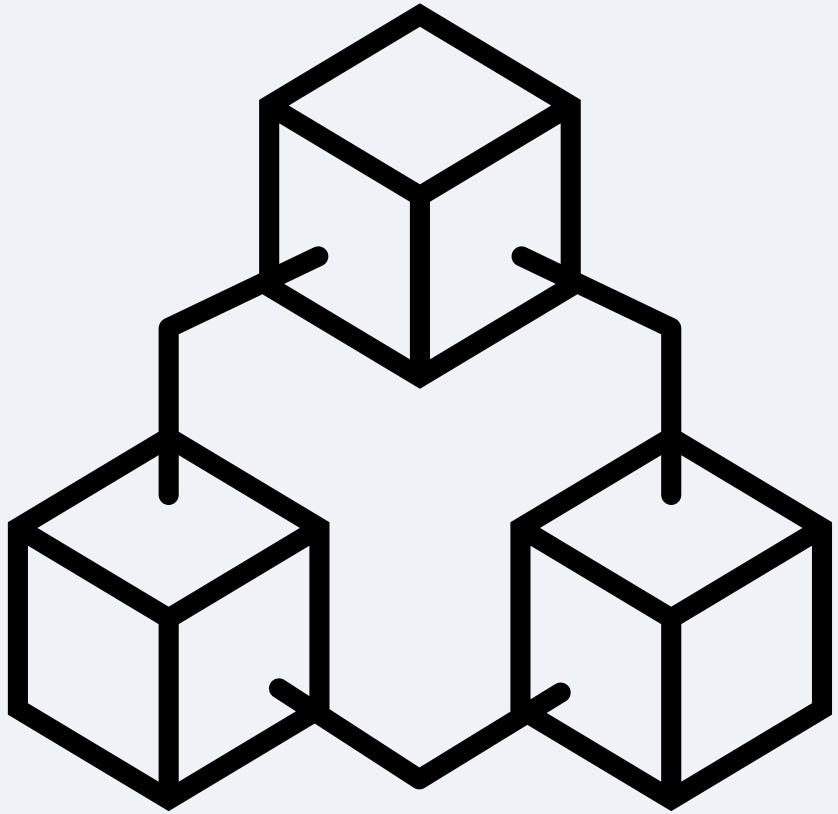
TED Open Data Explorer

- A tool that offers an alternative view to procurement data available in TED
- It is centered around procurement notices and integrates information available on TED website and in Cellar
- Provides a human readable version of the structured data in Cellar



DEMO TIME

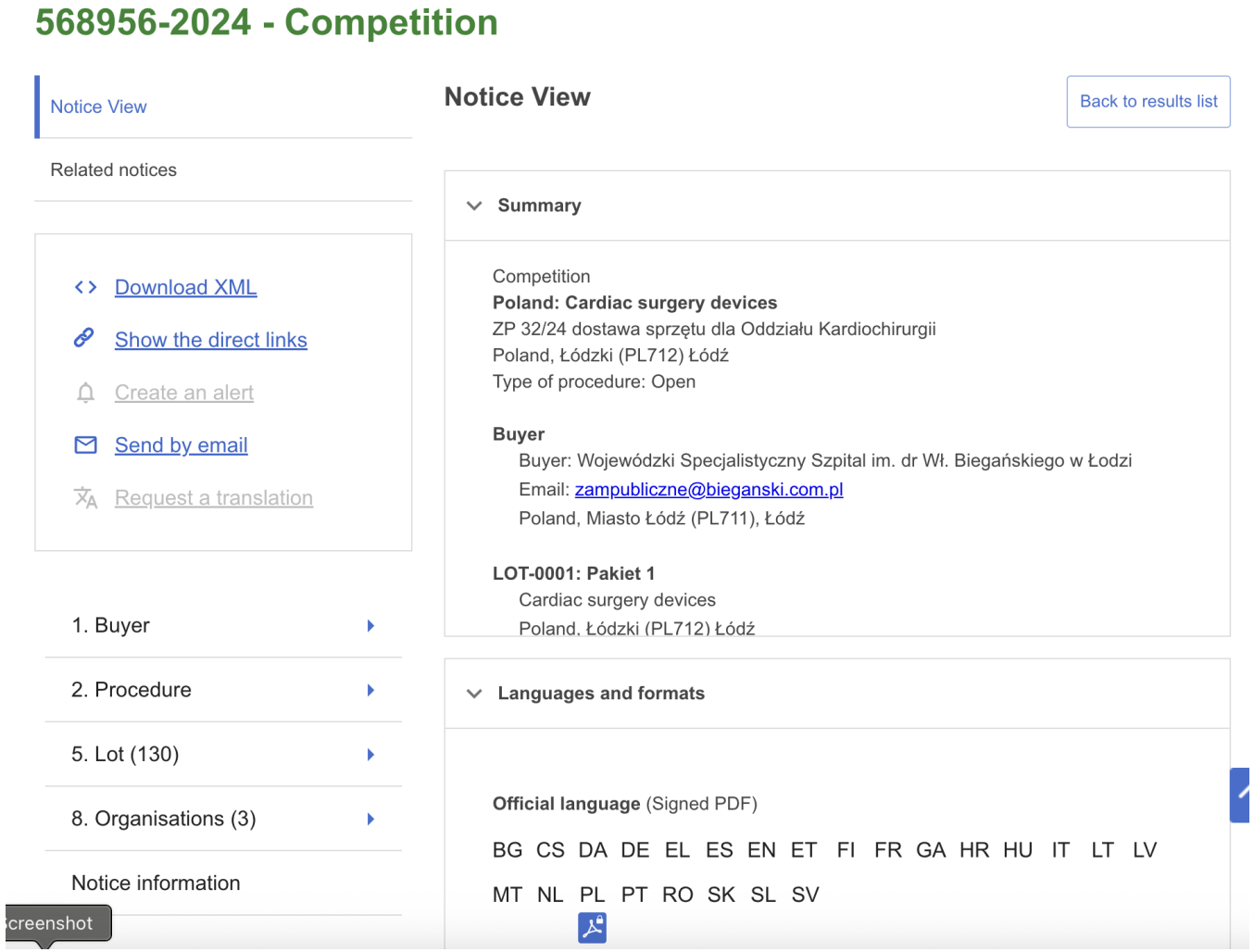
TED Open Data Explorer



TED Open Data Explorer
Demo Scenario

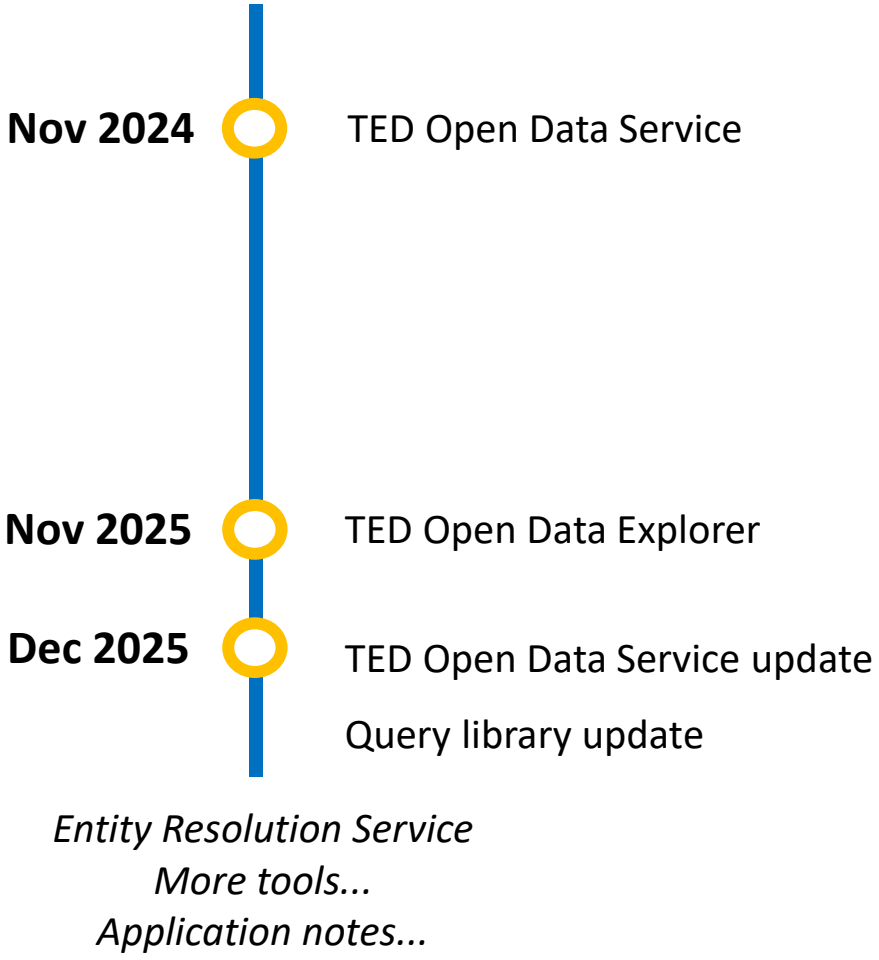
We want to get all available information about the eProcurement Notice 00000251-2025

- What other Notices related to the same procurement procedure are available in TED?
- What information is available in Cellar?



Our vision and roadmap

To empower a broader community to build a truly open, efficient, and innovative public procurement knowledge hub.



Developer community

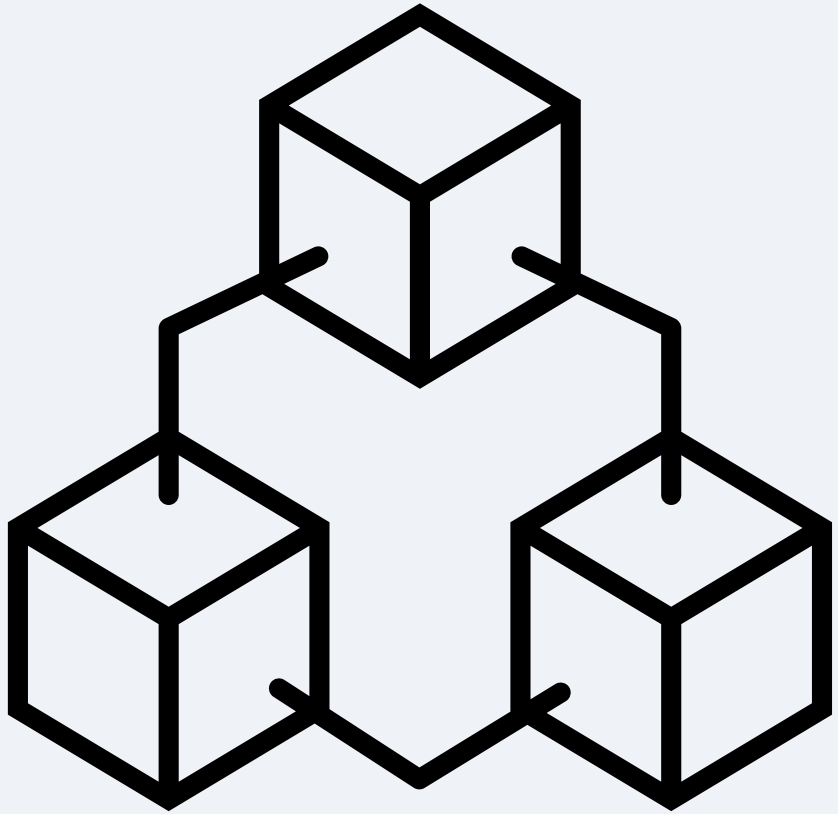
Register & keep your profile updated: Get your API keys and the latest documentation by keeping your Developer Portal profile current (https://developer.ted.europa.eu)

Participate in Forums: Ask questions, share your SPARQL queries, and help others with their procurement analysis (https://github.com/OP-TED/ted-open-data/discussions)

Report Bugs: Found a data issue or an endpoint error? Let us know on our boards so we can work on a fix (https://github.com/OP-TED/ted-open-data/issues)

Attend Our Events: Join our webinars, workshops, and hackathons to learn advanced techniques and share your eProcurement use cases

Q&A



THANK YOU

TED Open Data Service: https://data.ted.europa.eu

TED Open Data Explorer: https://docs.ted.europa.eu/ted-open-data-explorer

TED Open Data Documentation: https://docs.ted.europa.eu/ODS/latest/index.html

TED Developer Portal: https://developer.ted.europa.eu

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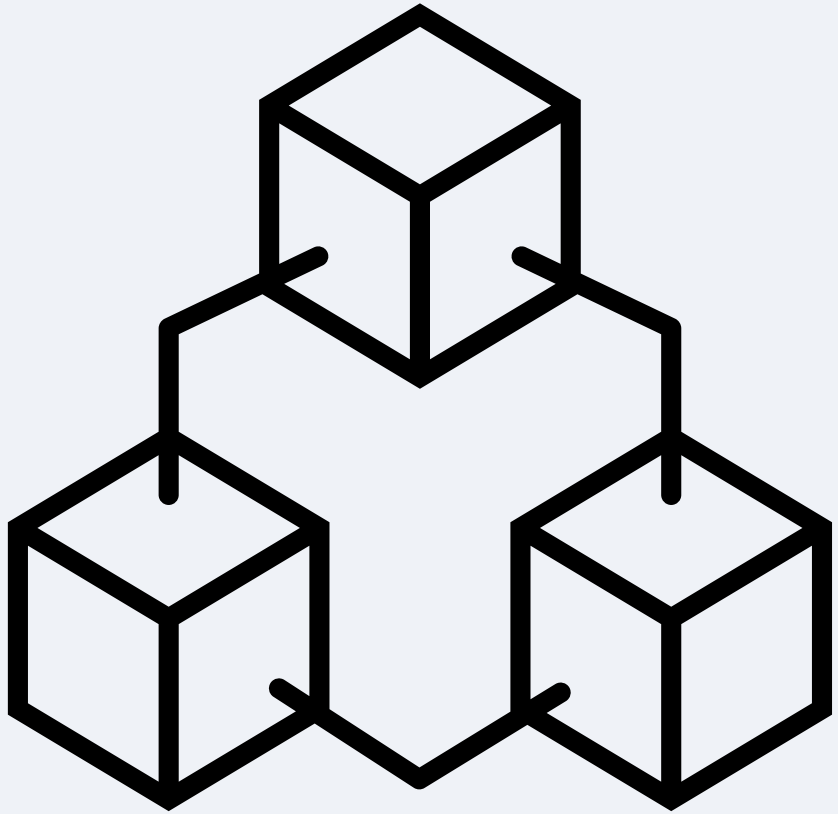
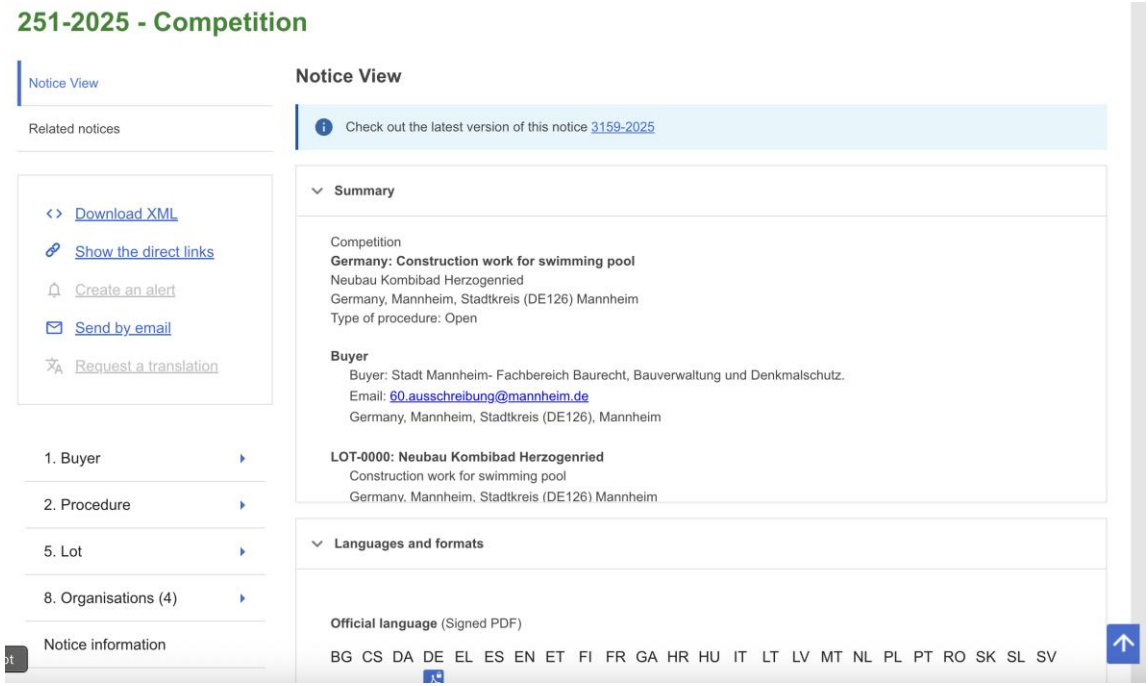
SUPPORT SLIDES



Scenario

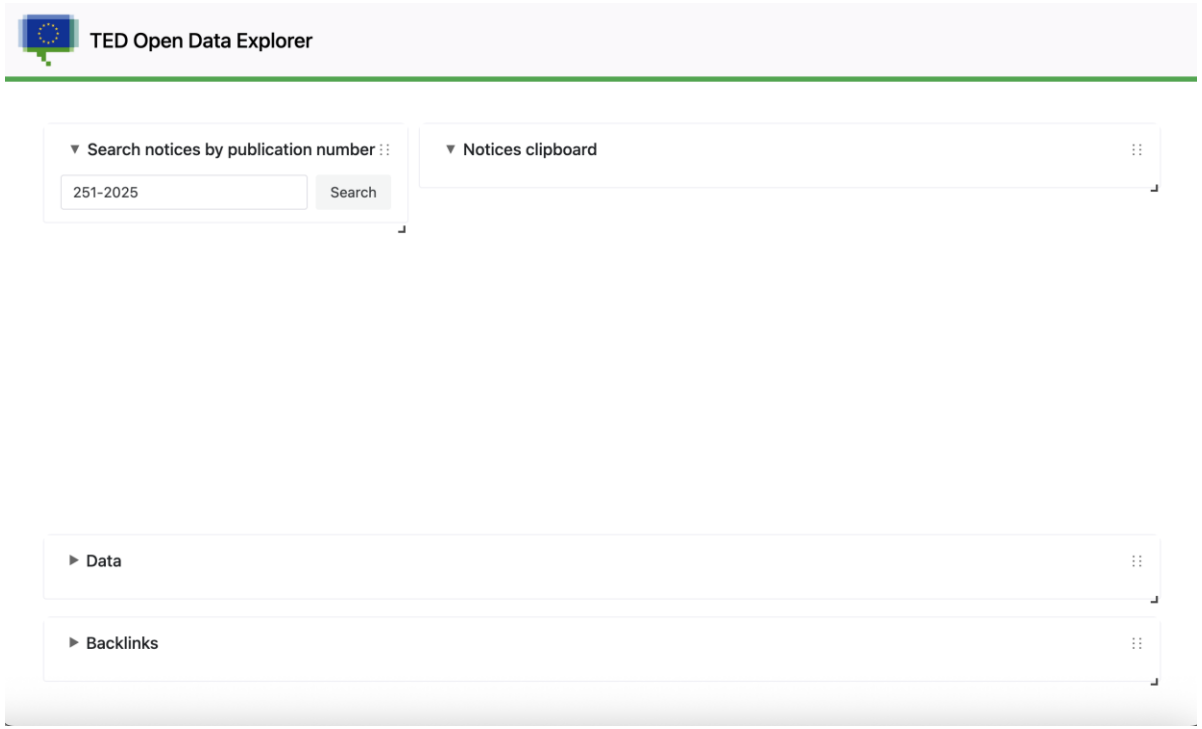
We want to get all available information about the eProcurement Notice 00000251-2025

- What other Notices related to the same procurement procedure are available in TED?
- What information is available in Cellar?



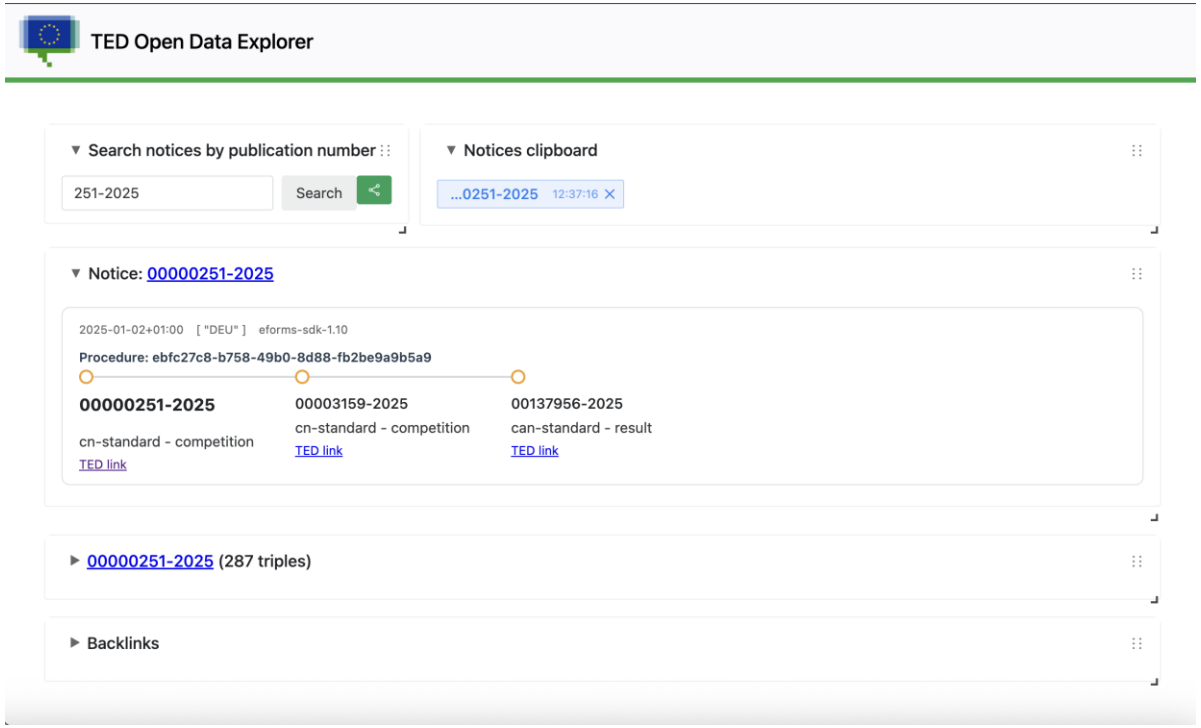
Step by step

- The user indicates 251-2025 as the search criteria



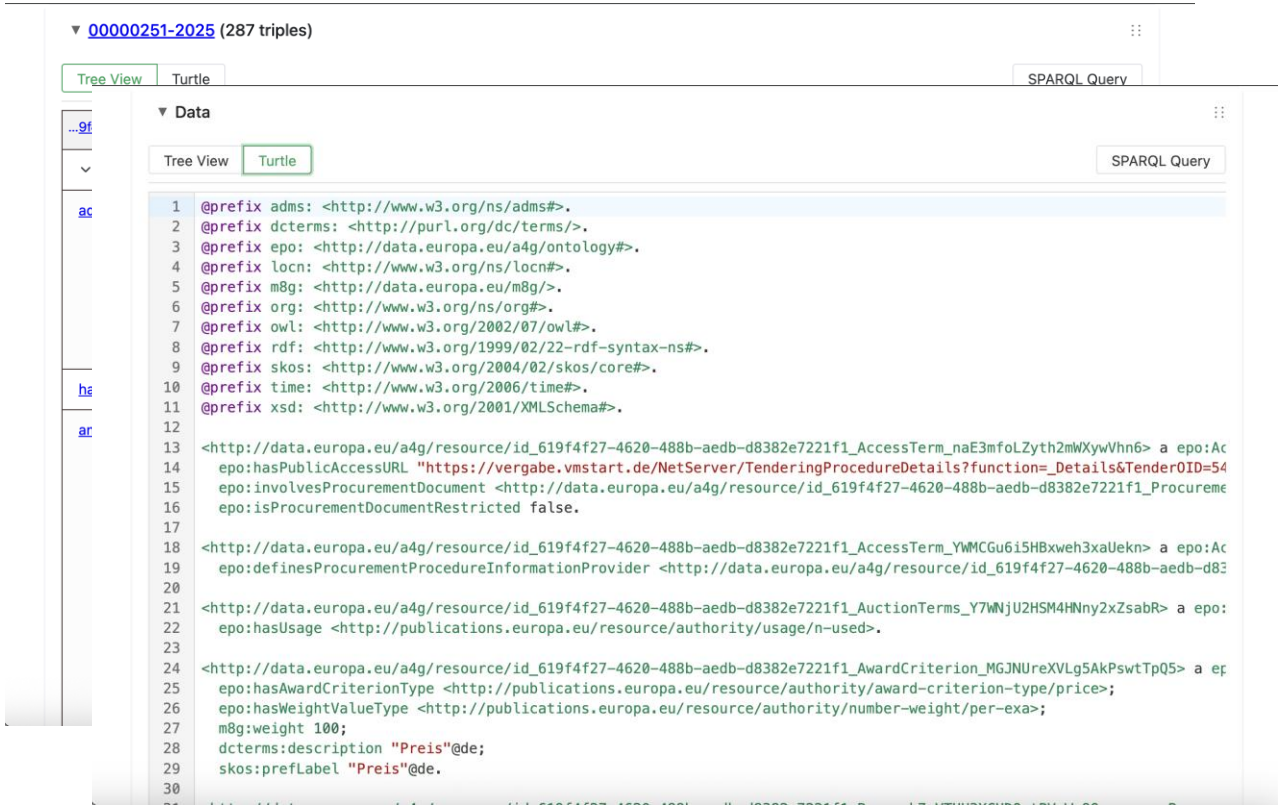
Step by step (cont.)

- The application shows all the notices associated to the same procurement procedure in a timeline



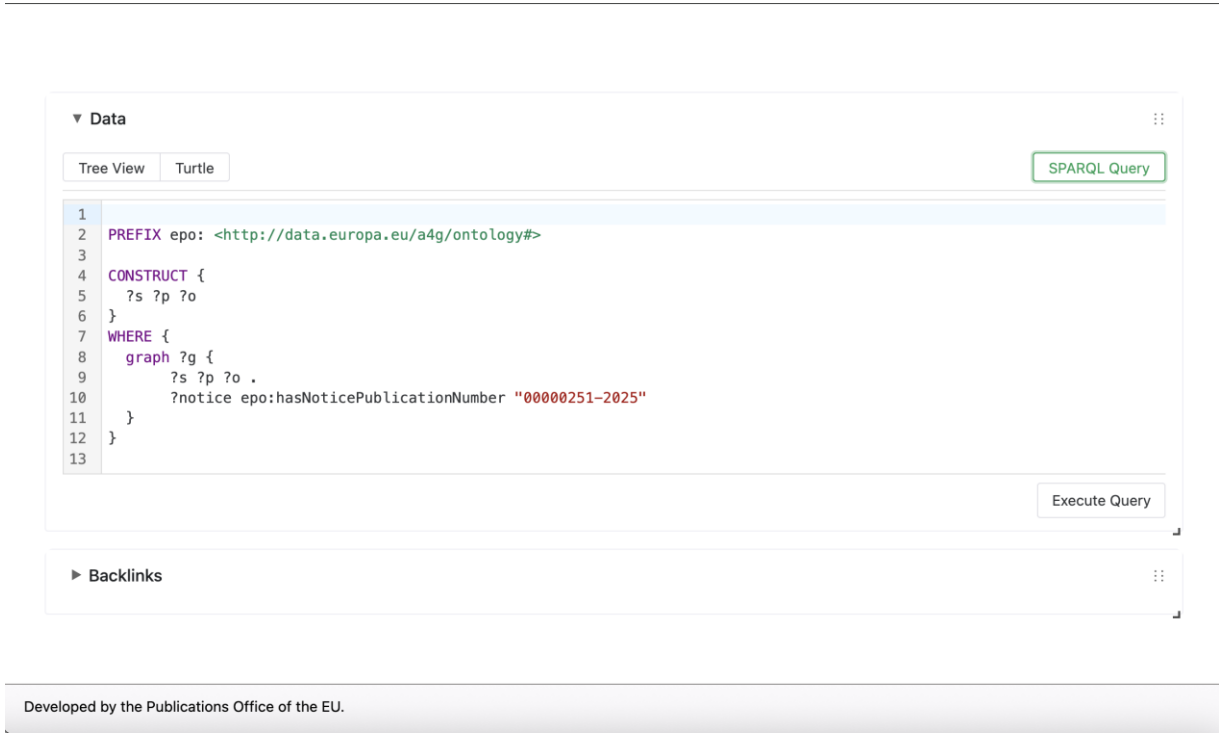
Step by step (cont.)

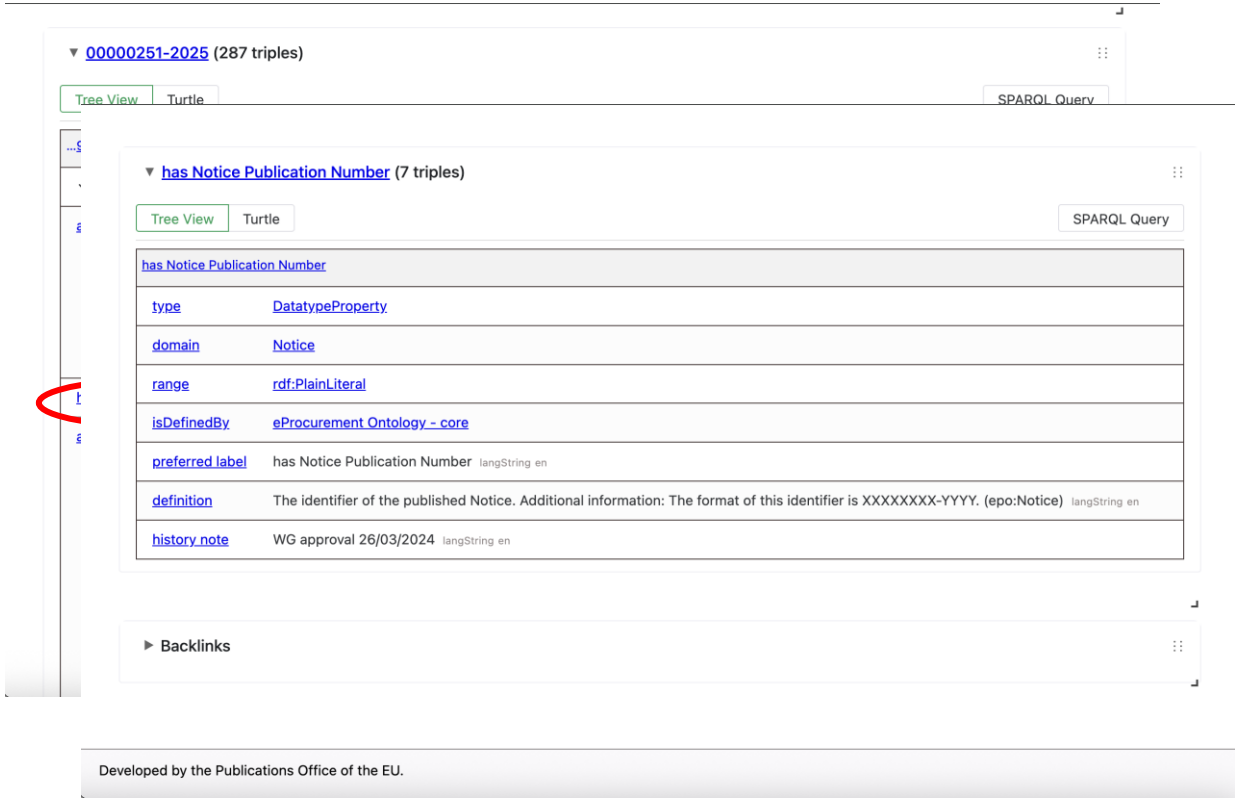
- The user chooses between a "Tree" or a Turtle representation of the triples available in Cellar associated to the selected notice



Step by step (cont.)

- It is also possible to execute custom SPARQL queries



Step by step (cont.)

- And get insight about the eProcurement Ontology