

Semantic Interoperability Task Force

Charter

1 Task Force background and scope

The Semantic Interoperability Task Force (2027–2028) succeeds the current Technical and Semantic Interoperability Task Force (2024–2026), building on its results. Since technical interoperability is taken forward by the Federation Working Groups, the new Task Force (TF) focuses exclusively on semantic interoperability. The TF also incorporates the work of the former OAEG 2 (Metadata, Ontologies and Interoperability) group, unifying metadata standards, ontologies, taxonomies and vocabularies under a single advisory body.

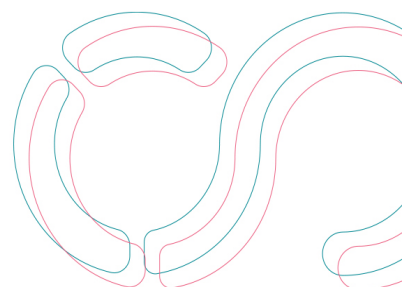
The TF's purpose is to provide recommendations on semantic interoperability, metadata standards, ontologies, taxonomies, and vocabularies. By advancing the EOSC Interoperability Framework (EOSC-IF) and reducing the friction caused by uneven standards adoption and semantic heterogeneity, the TF promotes the development of common, cross-disciplinary conventions for describing research outputs. This ensures that data and metadata are consistent and discoverable, can be semantically mapped and interpreted correctly and are actionable by both humans and machines. Ultimately, the TF aims to enable the seamless discovery, access, and reuse of resources across EOSC Nodes and other data spaces.

In line with the mandate set by the EOSC-A Board of Directors, the TF is expected to deliver, in particular: contributions to future versions of the EOSC-IF; a report identifying emerging trends in semantic interoperability; and recommendations on implementable specifications for a rich semantic interoperability model for the EOSC Federation.

The TF is a strategic, time-bound body that works in direct service of the EOSC Federation. Its single annual output is a concise paper that identifies a specific problem, sets out possible solutions, and formulates actionable recommendations addressed to the relevant Federation Working Groups or to the EOSC Nodes more broadly, anchored wherever possible in one or more EOSC use cases, so that recommendations are grounded in real Federation needs.

2 Potential areas of work for the annual deliverable

The current TF's deliverable, "[*Landscape overview for the EOSC Federation Semantic Interoperability in 2025*](#)" reviewed the existing recommendations, surveyed practice across EOSC projects and Nodes, and examined the emerging Data Spaces dimension. Its three parts each suggest potential, single-paper-sized problems for a follow-up annual deliverable. The TF is invited to select and sharpen at least one of them (or a comparably scoped problem):



a) Evolving the EOSC-IF and its recommendations

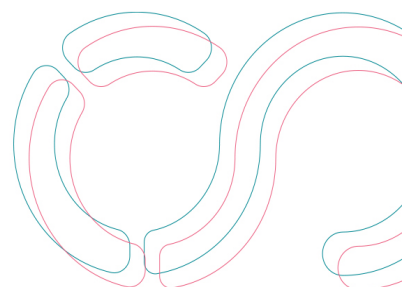
- **Putting the EOSC-IF into practice.** The landscape overview found that adoption of the four earlier recommendation areas remains uneven and largely bottom-up. A paper could specify how the next EOSC-IF version should consolidate implementation resources — for example a single authoritative registry of EOSC-IF implementations — and define the semantic building blocks that Nodes are expected to adopt.
- **Mappings and crosswalks as first-class artefacts.** Building on the recommendation to recognise mappings and crosswalks as Semantic Business Objects, a deliverable could propose lifecycle management, FAIR publication (e.g., building on SSSOM) and governance for mappings, so that they can be discovered and reused rather than re-created project by project.

b) Metadata standards, vocabularies and catalogues in practice

- **Recommended vocabularies and standards per domain.** The survey showed convergence on a common core (DCAT/DCAT-AP, Dublin Core, DataCite, DDI, Schema.org, PROV-O, SKOS, OWL) but also fragmentation and a repeated call for normative guidance. A paper could propose a coordinated, expert-led approach to recommending vocabularies and thesauri per discipline, avoiding a top-down single ontology while curbing uncontrolled bottom-up divergence.
- **Semantic Artefact Catalogues as core infrastructure.** Respondents most often referenced OntoPortal-family catalogues, LOV, NVS and the Terminology Services 4 NFDI (TS4NFDI). A deliverable could define how such catalogues could be integrated into the EOSC Federation — common MOD- and DCAT-based metadata, federation via a shared API, and reusable connectors between catalogues and repositories — so that they function as shared infrastructure rather than isolated portals.

c) Semantic interoperability across Data Spaces

- **From free text to actual semantics.** A recurring request was for systematic use of URIs and machine-actionable metadata (JSON-LD, RDF/Turtle) instead of free-text keywords, together with validation shapes (SHACL) and converters between standards. A paper could specify a minimal semantic profile and tooling that Nodes, and the EOSC EU Node in particular, could implement to expose interoperable metadata.
- **Metadata-level interoperability between data spaces.** As the Common European Data Space for Research, EOSC must interoperate with other Data Spaces at the metadata layer. A deliverable could specify how DCAT and its Application Profiles, controlled vocabularies and semantic artefact catalogues are used to describe



research assets so they remain discoverable across data spaces, drawing on the DSSC Blueprint and experience such as FAIR-IMPACT.

- **Data-level interoperability and cross-domain reuse.** At the data layer, the number of classes and properties is far larger than at the metadata layer, and community standards are unevenly adopted. A paper could articulate how alignment with recognised domain standards and controlled vocabularies makes datasets machine-actionable by design — a prerequisite, for instance, for their reuse as High-Value Datasets across European Data Spaces.

These areas are illustrative, not prescriptive. The elected Co-Chairs, in consultation with the relevant Federation stakeholders, will define the precise problem, scope and use-case anchor in the first month of the mandate.

3 Expected membership

We are looking for members who are willing to contribute actively to an output of the kind described above, in line with the proposed structure (problem – solutions – actionable recommendations). Concretely, prospective members should be ready to:

- Research, analyse and write specific sections of the annual deliverable, within agreed deadlines.
- Critically review and provide constructive feedback on the contributions of fellow members.
- Incorporate feedback received from reviewers and other Federation bodies into the draft.
- Engage with the relevant EOSC Federation Working Groups and, where applicable, wider communities and Data Spaces initiatives, to keep the deliverable connected to real needs.
- Commit to consistent and continuous participation throughout the mandate.

Expertise should be relevant to the chosen disciplinary scope — for example: metadata standards and application profiles; ontologies, taxonomies and controlled vocabularies; semantic artefact catalogues and terminology services; mappings, crosswalks and validation; FAIR and machine-actionable metadata; or the governance dimensions of semantic interoperability across Nodes and Data Spaces.

Applicants are asked to submit a short statement of relevant expertise, a CV, and an endorsement letter from their organisation; gender balance and broad representation across the community are taken into account in the selection.

