

EOSC Semantic Interoperability TF

A task force in the advisory group for *Metadata and data quality* of the EOSC Association

PIDs, Metadata, Interoperability: Open Science and Research Data Management Policies in Slovenia

FAIR-IMPACT FAIR National Roadshow

Online

28 September 2023

Presented by Wolmar Nyberg Åkerström
on behalf of the EOSC Semantic Interoperability TF



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The EOSC Association and its Task Forces

A Web of FAIR Data and Services

The pilot action to deepen the new European Research Area (ERA) and the science, research and innovation data space

The research community's voice

Represented by the EOSC Association, defining a Strategic Research and Innovation Agenda and a Multi-Annual Roadmap

Advice on key areas of the implementation

13 Task Forces liaise with EOSC projects to offer feedback on developments, as well as identify gaps and input to the SRIA

Current focus on semantic interoperability

Further develop and implement the semantic interoperability recommendations of the EOSC Interoperability Framework



<https://eosc.eu/eosc-task-forces>

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- Metadata and data quality
 - FAIR metrics and data quality
 - **Semantic interoperability**
 - PID policy and implementation
- Research careers and curricula
 - Data stewardship curricula and career paths
 - Research careers, recognition and credit
 - Upskilling countries to engage in EOSC
 - Researcher engagement and adoption
- Technical challenges on EOSC
 - AAI Architecture
 - Infrastructures for quality research software
 - Technical interoperability of data and services
 - Long-term data preservation
- Sustaining EOSC
 - Financial Sustainability
 - Rules of Participation (RoP) compliance monitoring

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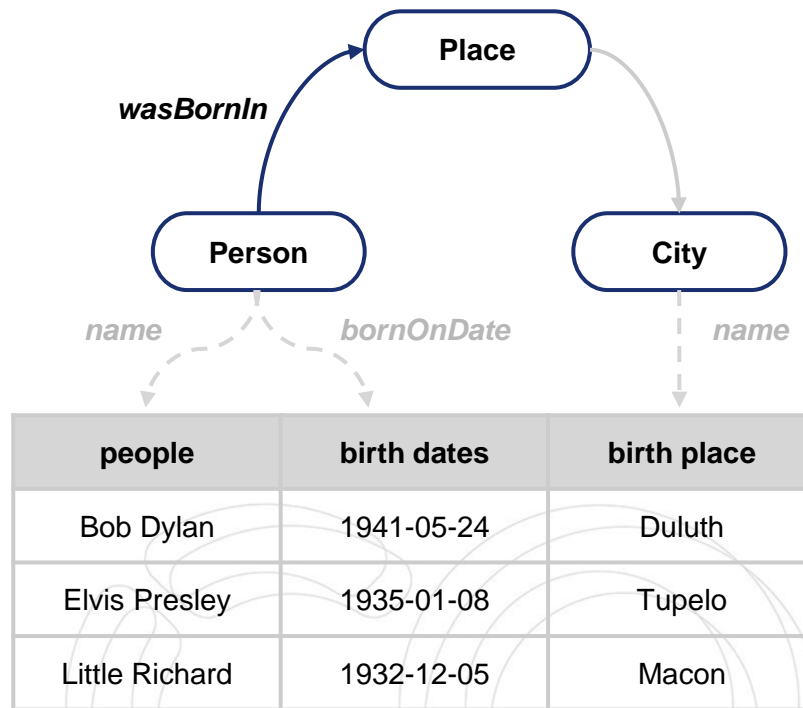
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“What is sent is what is understood”

Semantic models connect data with relevant research concepts

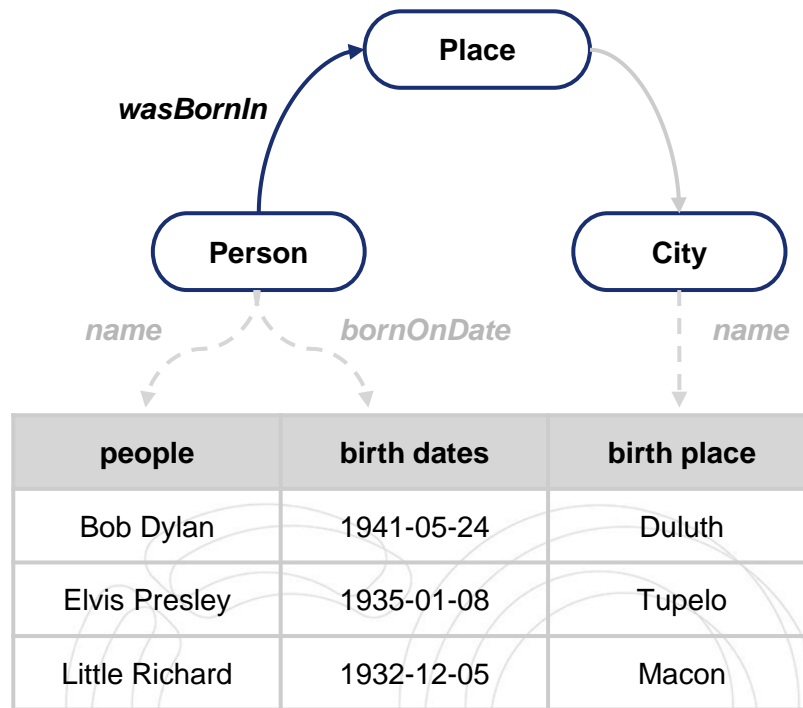
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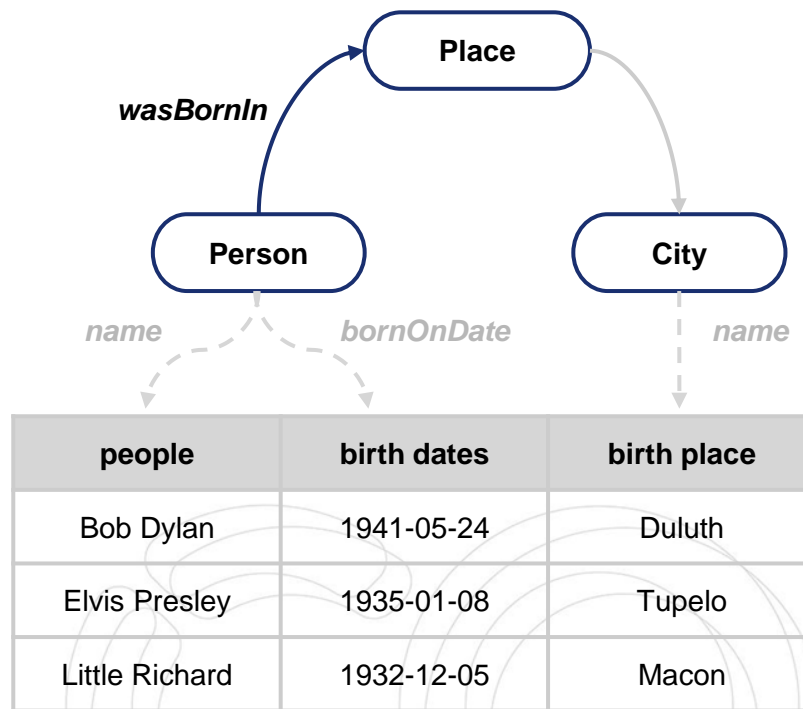
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We are EOSC – A call to action for all of us

“From Gutenberg to Berners–Lee”

Roadmap & priorities in the
*Strategic Research & Innovation
Agenda (SRIA) for EOSC*

- Practices & skills
- Standards, tools & services
- Federated infrastructure

“[...] invest in the creation, adoption and governance of community-based metadata and data standards [...]”

“[...] semantic artefact catalogues in national infrastructures and guidelines”

“[...] support for publishing semantic artefacts through institutional or vocabulary specific thematic repositories”

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Making sense of your group's data

“data should be readable for machines without the need for specialised or ad hoc algorithms, translators, or mappings”



How about another group's data?

Making sense of another group's data

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“data should be assessable so that judgments can be made about their reliability and the competence of those who created them”.

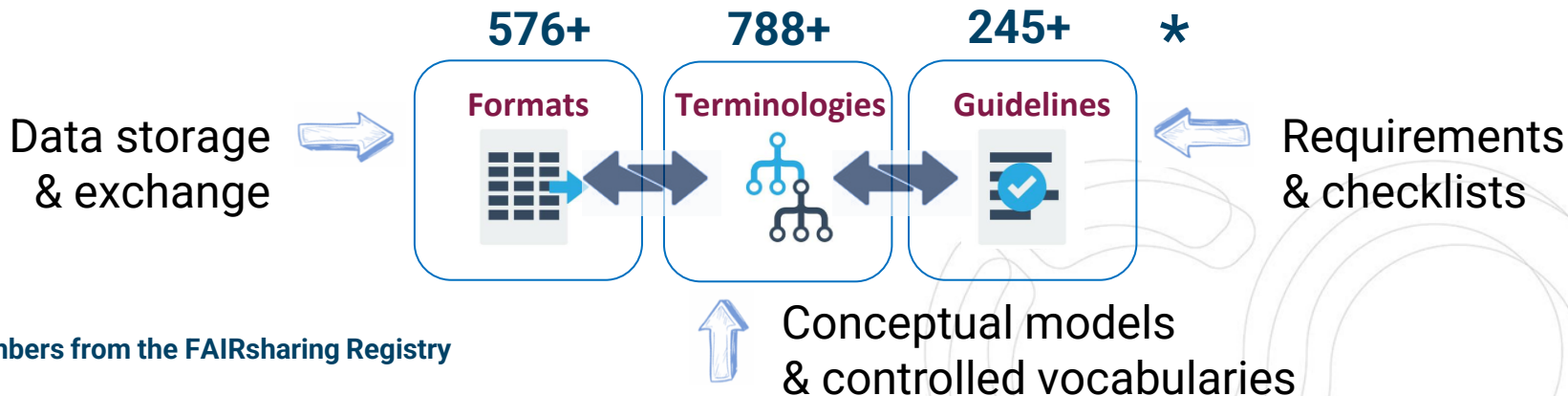


How about Europe's research data?

Making sense of Europe's research data

“data should be readable for machines without the need for specialised or ad hoc algorithms, translators, or mappings”

“data should be assessable so that judgments can be made about their reliability and the competence of those who created them”.



* Numbers from the FAIRsharing Registry

Leveraging communities and consensus

Enabling **reproducible**, transparent research.



Highlight: EOSC Association

Home / The Association / Task Forces

EOSC-A Task Forces



The 13 EOSC Association Task Forces address key areas of the implementation of EOSC.

They liaise with EOSC projects to offer feedback on developments, as well as identify strategic gaps and areas for investment to input to the **SRIA**, the EOSC Partnership's Strategic Research and Innovation Agenda. An open call was held to define the membership of the Task Forces. This resulted in several hundred members of the community offering their expertise as volunteers to shape the future direction of EOSC.

The work of the Task Forces is focused on the development and deployment of the European Open Science Cloud. The key high-level areas addressed include:

Representing the wider EOSC community

Task force members as liaisons

40+ members working to identify and address gaps

(Meta)data conventions (Theme 1)

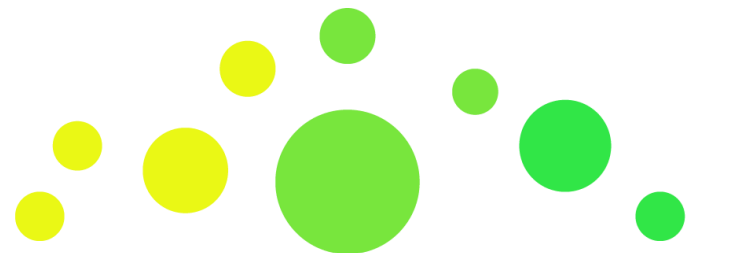
A landscape of semantic interoperability and the application of metadata schemas

Semantic artefact catalogues (Theme 2)

A survey of characteristics and recommendations on semantic artefact catalogues

Use cases (Theme 3)

A collection of use cases based on interoperability case studies from the EOSC community



Departs from EOSC projects and interoperability initiatives around the Task Force members



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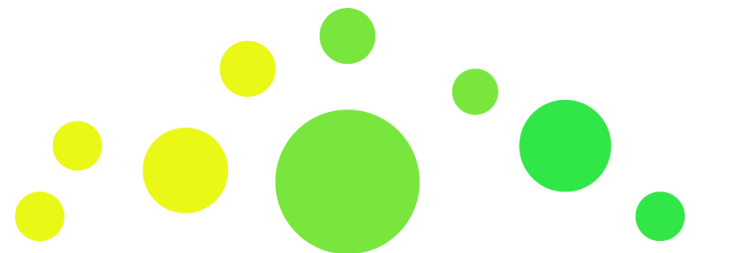
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Semantic interoperability landscape

Interoperability recommendations

Minimum (meta)data set and interoperability indicators

Inventory of tools for interoperability

Crosswalks, services, methods and formal languages

Long-term sustainability

Recommendations for governance and processes for preservation and maintenance of semantic artefacts

Coordination (Theme 1)

Kurt Baumann <kurt.baumann@switch.ch>

Milan Ojsteršek <milan.ojstersek@um.si>

July 7, 2023

Conference paper Open Access

Converging on a Semantic Interoperability Framework for the European Data Space for Science, Research and Innovation (EOSC)

David, Romain; Baumann, Kurt; Le Franc, Yann; Magagna, Barbara; Vogt, Lars; Widmann, Heinrich; Jouneau, Thomas; Koivula, Hanna; Madon, Bénédicte; Åkerström, Wolmar Nyberg; Ojsteršek, Milan; Scharnhorst, Andrea; Schubert, Chris; Shi, Zhengdong; Tanca, Letizia; Vancouwenbergh, Sadia

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<https://doi.org/10.5281/zenodo.8042997>

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Survey of semantic artefact catalogues

What is a semantic artefact catalogue?

An inclusive definition can also cover web pages with information in human-readable form

Which dimensions indicate maturity?

A draft selection of dimensions have been identified

Maturity model currently in review

Based on a review of literature and catalogues

Coordination (Theme 2)

Yann Le Franc <ylefranc@esciencefactory.com>

Oscar Corcho <oscar.corcho@upm.es>

Silvio Peroni <silvio.peroni@unibo.it>

A maturity model for catalogues of semantic artefacts

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Posted May 11, 2023 Server arXiv
DOI 10.48550/arxiv.2305.06746

Abstract

The work presented in this paper is twofold. On the one hand, we aim to define the concept of semantic artefact catalogue (SAC) by over-viewing various definitions used to clarify the meaning of our target of observation, including the meaning of the focal item: semantic artefacts. On the other hand, we aim to identify metrics and dimensions that can be used to assess the maturity of such catalogues. In particular, we define a maturity model to measure, compare and evaluate available semantic artefact catalogues. By setting these dimensions and their metrics, catalogues can be classified by each dimension. So the maturity of both the catalogues and the dimensions as a whole can be expressed. Such a maturity model and its application to 26 semantic artefacts catalogues - from various disciplines and relying on various technologies - are available to be later enriched.

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Semantic interoperability journeys

Capturing case studies and use cases

Encourage the wider EOSC stakeholder community to contribute interesting and representative examples

Indexing for adopters and builders

Compare and consolidate across stakeholders, tasks, goals and component of the EOSC IF

Representing the EOSC community

Identify and fill gaps in the types of organisations, domains and goals captured by the task force

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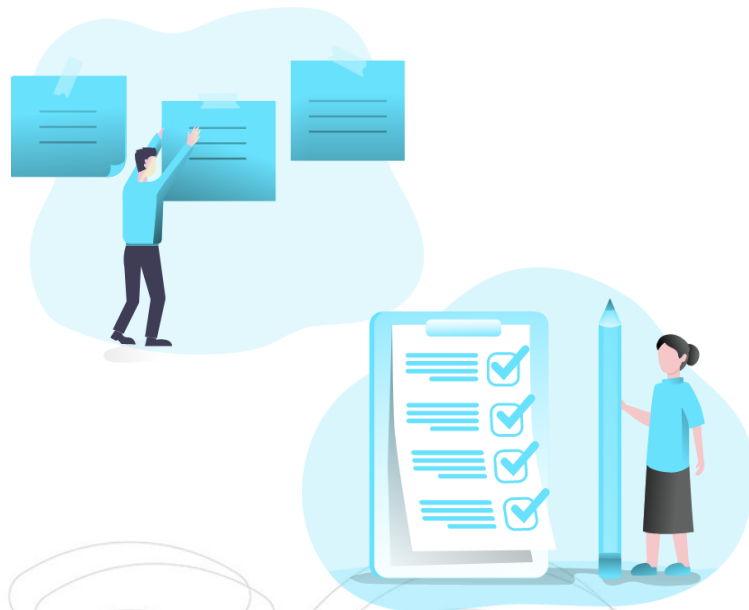
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Engaging with the Task Force

Align with our activities

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Interact at upcoming events

- EOOSC Symposium 2023, Sept 20–22, Madrid, Spain
- Defining a core metadata framework for cross-domain data sharing and reuse, Oct 1–6, Wadern, Germany
- International Data Week: A Festival of Data, Oct 23–26, Salzburg, Austria

Task force members as liaisons

40+ members working to identify and address gaps

https://docs.google.com/document/d/1JFUgy9RQ8JwqrVW3sFISIJU4S_AK2GN/

EOOSC Association's (EOOSC-A) Semantic Interoperability Task Force (TF)

Topics for alignment with EOOSC related initiatives

1. Introduction	1
1.1 Summary of TF charter and group organisation	1
1.2 Activity report for the EOOSC website December 2022	2
2. Topics on ongoing activities in the task force	3
3. Topics highlighted as early input to the Multi-Annual Roadmap	4

1. Introduction

1.1 Summary of TF charter and group organisation

Charter and members' list

<https://www.eoosc.eu/advisory-groups/semantic-interoperability>

Contact co-chairs:

Wolmar Nyberg Åkerström <wolmar.n.akerstrom@uu.se>
Oscar Corcho <oscar.corcho@upm.es>

Main aims:

The TF works towards addressing challenges to semantic interoperability and promoting good practices for encoding research information as data and metadata to realise a web of FAIR data and services. Addressing semantic interoperability is to ensure that the precise meaning of the information is preserved and can be understood by tools, workflows and data infrastructures. This means that (1) (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation, (2) (meta)data use vocabularies that follow FAIR principles, (3) (meta)data include qualified references to other (meta)data, and (4) (meta)data are at the intersection of semantic, syntactic, technical, and pragmatic interoperability.

Core activities:

The TF creates synergies across member organisations, EOOSC projects and other actors that are addressing the different aspects of Semantic Interoperability. The work departs from activities and communities around the TF's members while actively working to identify and address gaps to represent the wider EOOSC community.

EOOSC Association AISBL

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 The TF works towards addressing challenges to semantic interoperability and promoting good practices for encoding research information as data and metadata to realise a web of FAIR data and services. Addressing semantic interoperability is to ensure that the precise meaning of the information is preserved and can be understood by tools, workflows and data infrastructures. This means that (1) (meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation, (2) (meta)data use vocabularies that follow FAIR principles, (3) (meta)data include qualified references to other (meta)data, and (4) (meta)data are at the intersection of semantic, syntactic, technical, and pragmatic interoperability.

Core activities:
 The TF creates synergies across member organisations, EOSC projects and other actors that are addressing the different aspects of Semantic Interoperability. The work departs from activities and communities around the TF's members while actively working to identify and address gaps to represent the wider EOSC community.

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Engaging with the Task Force

Align with our activities

Wolmar Nyberg Åkerström <wolmar.n.akerstrom@uu.se>

Oscar Corcho <oscar.corcho@upm.es>

Interact at upcoming events

- EOSC Symposium 2023, Sept 20–22, Madrid, Spain
- Defining a core metadata framework for cross-domain data sharing and reuse, Oct 1–6, Wadern, Germany
- International Data Week: A Festival of Data, Oct 23–26, Salzburg, Austria

Task force members as liaisons

40+ members working to identify and address gaps

https://docs.google.com/document/d/1JFUgy9RQ8JwqrVW3sFISIJU4S_AK2GN/

EOSC Association's (EOSC-A) Semantic Interoperability Task Force (TF)

Topics for alignment with EOSC related initiatives

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1. Introduction

1.1 Summary of TF charter and group organisation

Charter and members' list

<https://www.eosc.eu/advisory-groups/semantic-interoperability>

Contact co-chairs:

Wolmar Nyberg Åkerström <wolmar.n.akerstrom@uu.se>
Oscar Corcho <oscar.corcho@upm.es>

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EOSC-A Task Forces:
<https://eosc.eu/eosc-task-forces>



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