

EOSC Semantic Interoperability TF

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

Session 4: FAIR Resources for Industry: what is happening in EOSC?

Towards Materials and Manufacturing Commons

Berlin, Germany and Online

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



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What is happening in EOSC?

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

Advisory Groups with Task Forces that focus specific topics and provide input to EOSC Association and its members

Current focus on semantic interoperability

Further develop and implement the semantic interoperability recommendations of the [EOSC Interoperability Framework](#)

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

Towards a web of FAIR data and services

Addressing interoperability challenges

EOSC Interoperability Framework report and beyond

Vocabularies and crosswalks

Encoding and exchanging research information as data understood by tools, workflows and infrastructures


Catalogues for vocabularies

Promoting FAIR—findable, accessible, interoperable and reusable—vocabularies within and across domains

Interoperability in practice

Working at the intersection of theoretical frameworks and practical applications in research





Recommendations

- R1: definitions of concepts, metadata and data schemes
- R2: creating semantic artefacts with open licenses
- R3: associated documentation for semantic artifacts
- R4: repositories of semantic artefacts
- R5: minimum metadata model and cross walks discovery
- R6: extensible options for disciplinary metadata
- R7: apply a broad definition of data (datasets, workflows, lab protocols, software, methods, hardware design, etc.)
- R8: clear protocols and building blocks for catalogues

Synergies across actors and initiatives

Thematic explorations (Objective 1)

Depart from the task force charter, EOSC projects and interoperability initiatives around the Task Force members

Strategic knowledge exchange (Objective 2)

Organise workshops and collaborative problem-solving activities, accumulating literature, examples of solutions and feedback.

Converging on recommendations (Objective 3)

Produce a set of recommendations on Semantic Interoperability to support the wider EOSC community

01.1: Recommend common metadata standards for a broad range of data

01.2: Catalogues for metadata standards

01.3: Evolve syntactic interoperability for metadata schemas and services

01.4: Implementation and actualization of crosswalks; alignment of semantic artefacts at multiple levels

01.5: Characterization of technical components for semantic interoperability

01.6: Long-term preservation of semantic artefacts

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

A decorative graphic on the right side of the slide. It features several circles of varying sizes and colors (yellow, green, blue) arranged in a roughly circular pattern. Some circles are connected by thin, light-colored lines, suggesting a network or community structure. The overall aesthetic is modern and clean.

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

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)

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Semantic artefact

noun /sɪ'mæŋ.tɪk 'ɑː.tə.fækt/

“A machine-actionable and -readable formalisation of a conceptualisation, enabling sharing and reuse by humans and machines. These artefacts may have a broad range of formalisation, from loose sets of terms, taxonomies, thesauri to higher-order logics.”

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

Literature study in progress

Reviewing a sections of documents and catalogues

Coordination (Theme 2)

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Availability of metadata

Openness

Quality of semantic artefacts

Availability

Statistics on artefacts and usage

PIDs for semantic artefacts

Governance mechanisms

Community/stakeholders involved

Sustainability of the catalogue

Technology/Tools used

...

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

Coordination (Theme 3)

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A shared vision of the journey

Use cases demonstrate value

Prevalent in contexts ranging from product sales, to EOSC projects, and healthcare governance

Adopters recognise themselves

Used in requirements gathering and communication

Builders can see the full picture

Used in development and validation of services

Policy can ensure representation

Mapping the landscape of stakeholders and how they are served by different use cases



Capturing journeys at different levels

Case studies are real-world scenarios

Actual people and organisations adopting a solution in a specific context and outcomes of their efforts

Use cases can be business focused

How a stakeholder group can approach adopting a solution to achieve broader goals and outcomes

Use cases can be task focused

How a user interacts with different services and resources to complete a task

Conceptual models tie them together

Actors, components and resources involved and how they relate to more general categories



A perspective on what works well

Journeys come in many shapes

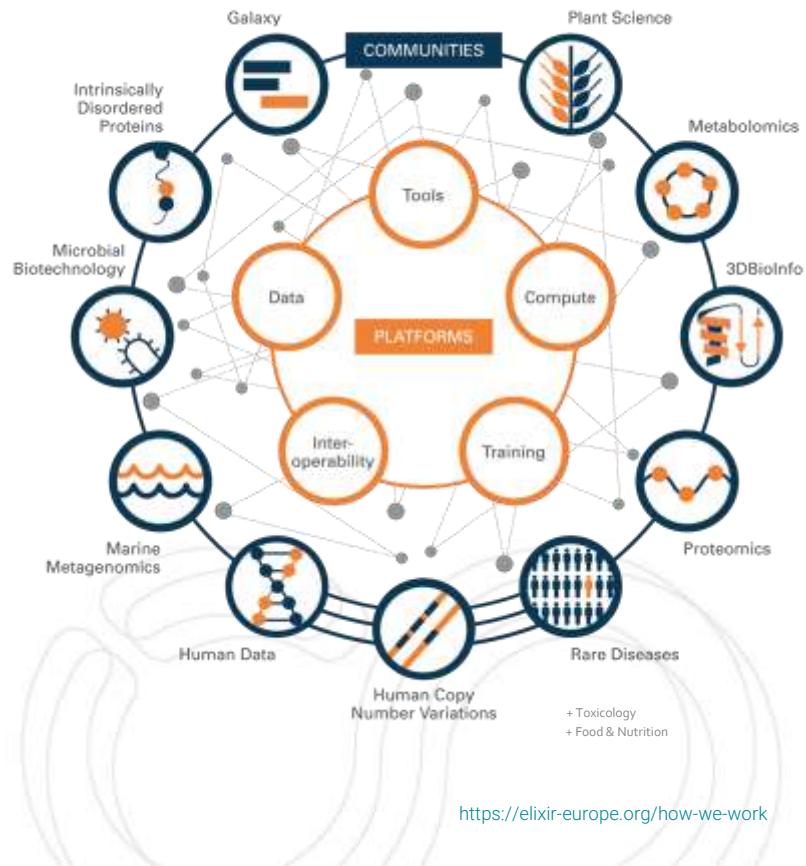
Use cases and case studies can demonstrate value and engage stakeholders in requirements gathering

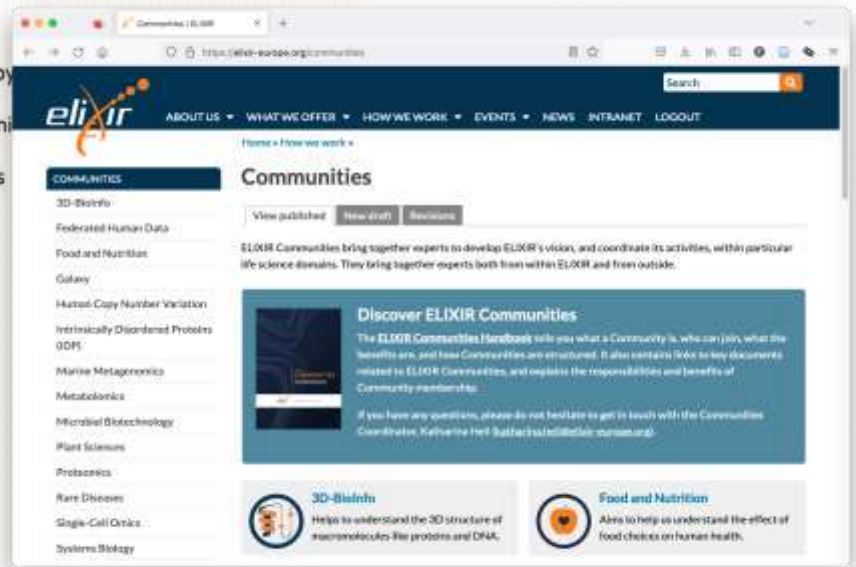
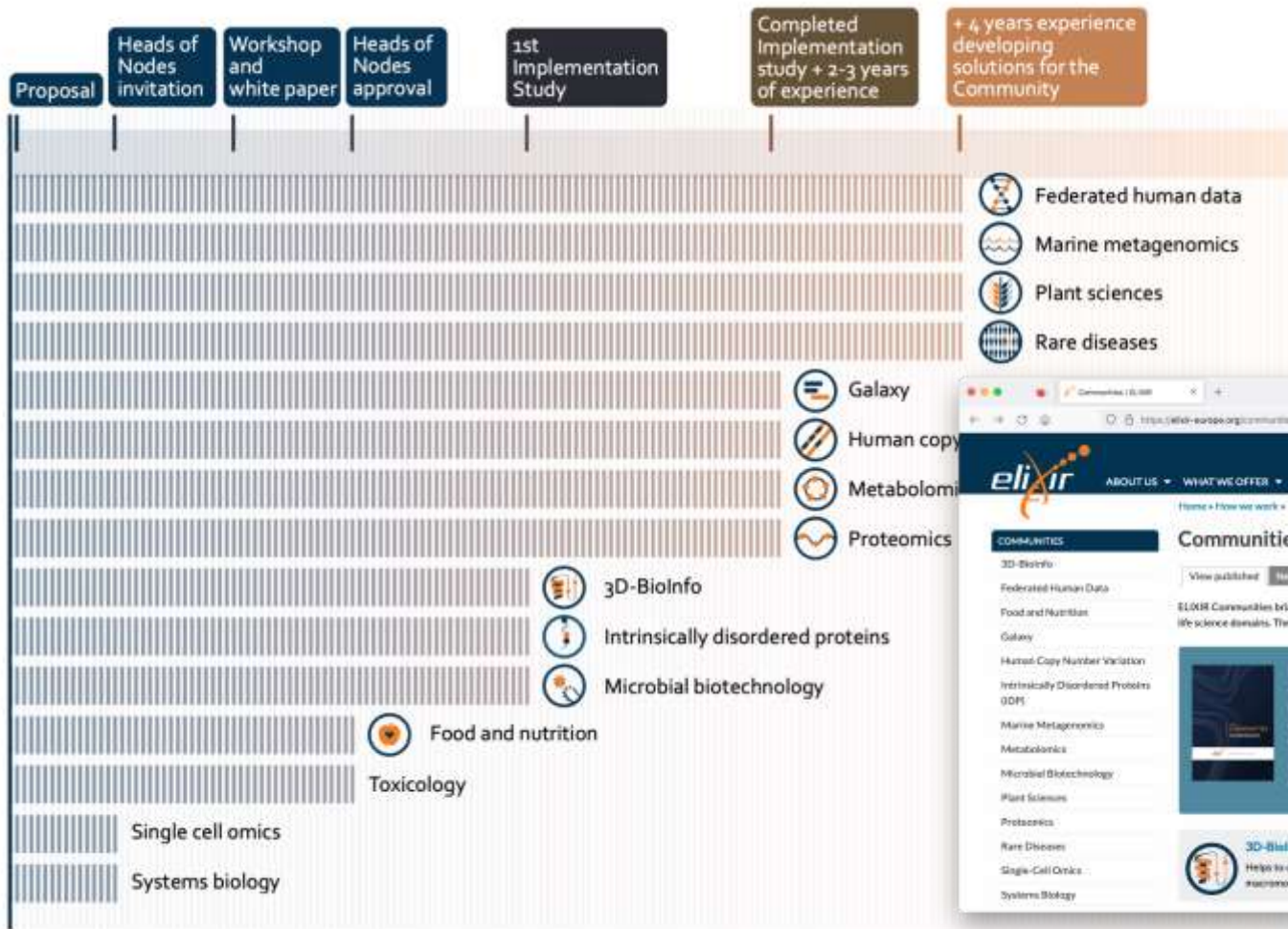
Use cases and communities

ELIXIR draws on communities to share success stories and define use cases for its services

Semantic interoperability use cases

Provide 1) input to the initiatives that are shaping EOOSC and 2) examples and lessons learned to stakeholders





Community Use Cases | EOOSC

https://eosc-portal.eu/eosc-in-practice/use-cases

Home » Use Cases » Community Use Cases

Community Use Cases

This page provides examples of "EOOSC in practice" use cases or success stories that highlight how EOOSC services and resources can support the daily work of researchers and innovators. Please scroll down to make the use cases appear.

If you wish to share your EOOSC use case, please [fill out the webform](#).

Run4science.org - Measuring environmental and biodiversity data... while running!

We want citizens to measure their environment by using smartphones. Most of the citizen science initiatives are focused on one topic: it can be air quality, biodiversity.

Kempel Artificial Intelligence for rare disease diagnosis

In the context of the EOOSC-hub project, Kempel Data Solutions is benefitting from storing the healthy and ill patients' registries to a database on EOOSC infrastructure.


Guardomic- bot mitigation engine



Web services owners struggle daily to protect their websites from bot traffic and their users from fraudulent digital ads or cryptocurrency web mining.

ELIXIR and the life sciences community

https://eosc-portal.eu/elixir-and-life-sciences

ELIXIR and the life sciences community

Go to Website 

Engineering & Technology  Natural Sciences 

Societal challenges

ELIXIR is an organisation aiming to coordinate, integrate and sustain bioinformatics resources – such as databases, computational services, applications – across its member states and enables users in academia and industry to access what is vital for their research.

The challenge is to unite Europe's leading life science organisations in managing the increasing volume of data generated by publicly-funded research.




Technical challenges

ELIXIR wants to establish a Federation of cloud sites, each providing storage and compute capacity for researchers. An established Competence Centre in EOOSC-hub is supporting this activity. The CC team has been supporting ELIXIR to set up a compute platform that allows ELIXIR cloud and data providers to share cloud compute and storage capacity to replicate and share reference datasets with each other and with their users.

How EOOSC can help and add value

The ELIXIR Compute Platform aims to enable researchers to combine technical components of the platform services into a seamless ecosystem, creating a science-ready interface to the key resources and technological capabilities that are available for life sciences.

The ELIXIR Compute Platform has been leveraging the EOOSC Service Catalogue, especially in the area of aligning ELIXIR with the EOOSC AAL.

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