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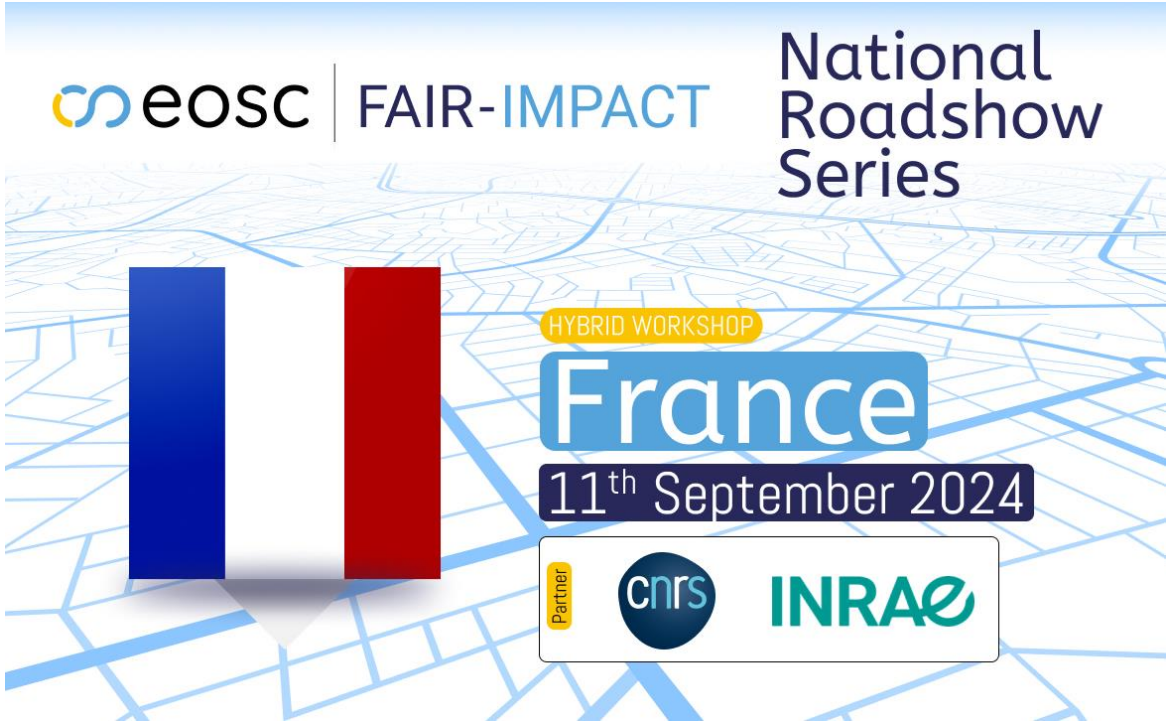
Expanding FAIR solutions across EOSC



French data repositories and their use of semantics

Présentation des travaux et outils développés dans le cadre du projet

Funded by the European Union

Agenda / Programme

15h - 15h05 : Welcome - *Volker Beckmann (MESR)*

15h05 - 15h25 : EOSC context & FAIR-IMPACT overview - *Ingrid Dillo (DANS)*

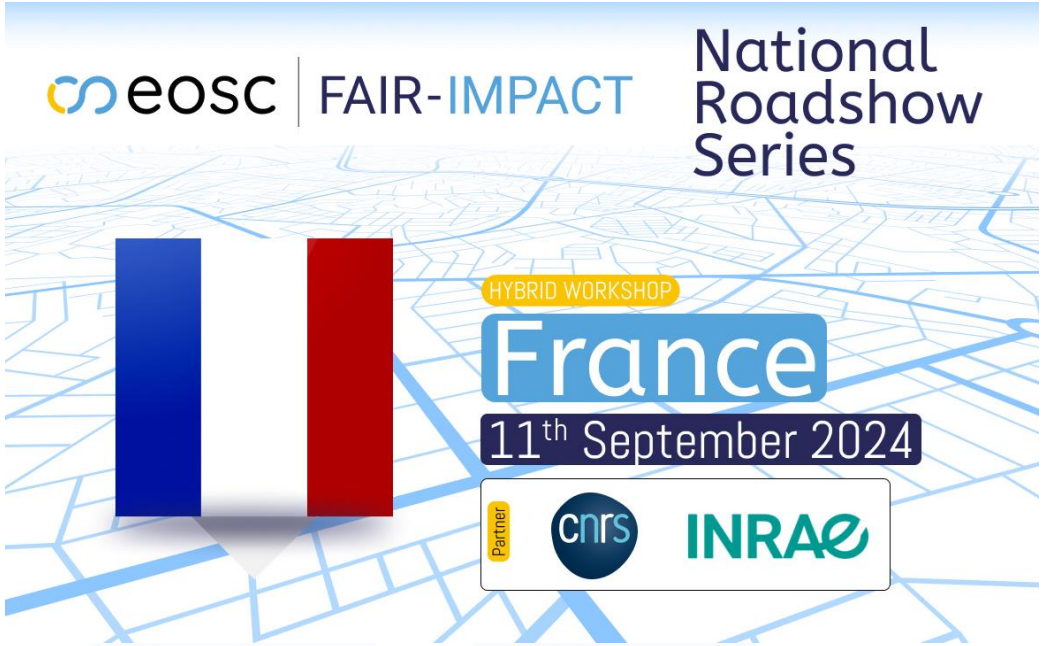
15h25 - 15h45 : Ontology repositories and semantic artefact catalogs in EOSC : the prism of FAIR-IMPACT - *Clément Jonquet (INRAE)*

15h45 - 16h05 : Data Interoperability into SLAs and MoUs - *Salomé Landel (CNRS)*

16h05 - 16h50 : Semantics in practice within French data repositories - Demonstration session

- Use of semantic artefacts, via AgroPortal, within Research Data Gouv - *Dimitri Szabo (INRAE)*
- Use of semantic artefacts, via AgroPortal, within PHIS - *Llorenc Cabrera-Bosquet (INRAE)*
- Use of semantic artefacts, via EarthPortal, within EasyData - *Christelle Pierkot (CNRS)*
- Use of semantic artefacts, via DataCite and HAL, about PerSCIDO - *Fabrice Jouanot (Univ Grenoble-Alpes)*

16h50 : Wrap up and closure - *Clément Jonquet (INRAE)*



EOSC and the FAIR-IMPACT Project

French National Roadshow FAIR-IMPACT

Ingrid Dillo, Project Coordinator - DANS

contact : ingrid.dillo@dans.knaw.nl

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Building the EOSC Federation

The vision for EOSC is to put in place a system in Europe to find and access data and services for research and innovation. This is to help researchers store, share, process, analyse and reuse FAIR research outputs within and across disciplines and borders.

The deployment of a network between data repositories and services will be instrumental for Open Science to progress in Europe. For this, the EOSC Federation of nodes is being created.

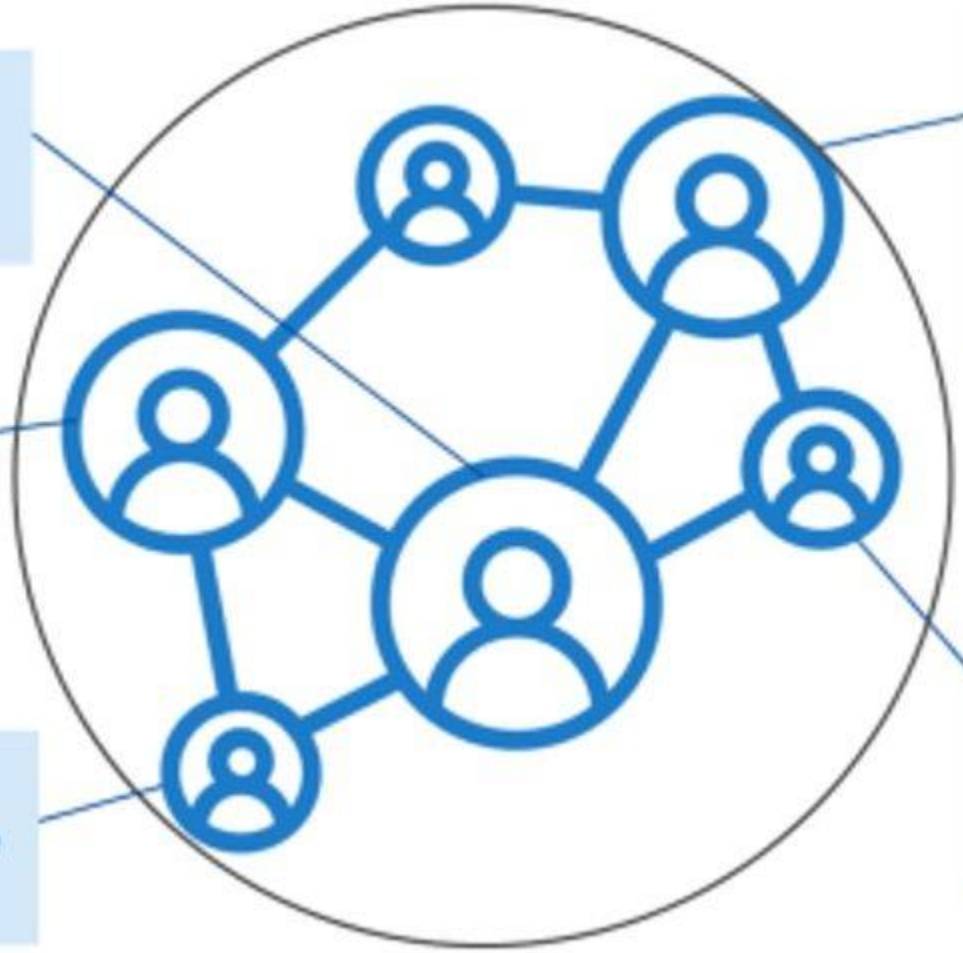
https://eosc.eu/building-the-eosc-federation/

EOSC as a Federation of Nodes

Reference *EOSC EU Node*
enabling the federation

National nodes
e.g. national repository platform of national research information system

Thematic community nodes (*including thematic research infrastructures of European interest*)

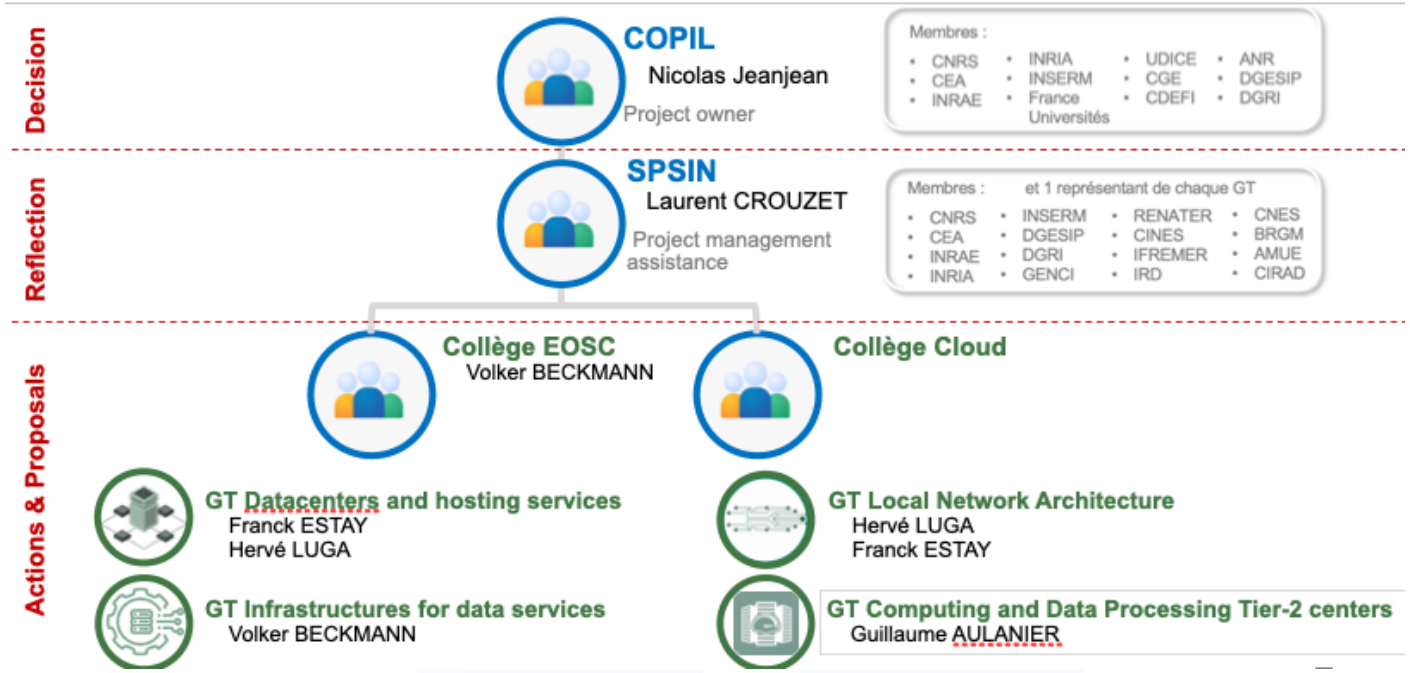


Other data infrastructure nodes (…)

European e-Infrastructures
providing generic data services

EOSC in France

- EOSC: a pillar of France's digital transition
- EOSC is part of the *Services et Infrastructures Numérique* (CoSIN) committee, led by MESR
- EOSC is coordinated by the *Collège EOSC-France* (since 02/2022): representatives of French member/observer organizations* of the EOSC Association + ministry (chair)
- The Collège EOSC-France provides advice and proposes actions to the *Comité Pilotage Services et Infrastructures Numérique* (CoPil-SIN)
- Strong link between communities and decision-makers



Digital Infrastructure and Services Committee (CoSIN)

*Members of the Collège EOSC-France: CEA, CINES, CNRS, ESRF, France Universités, GENCI, IFREMER, ILL, INRAE, INRIA, INSERM, Observatoire Paris, RENATER, Soleil, Université de Bordeaux, Université de Montpellier, Université Paris Cité, Université Paris-Saclay, Université Strasbourg, CGE, Couperin, ANR, IRD, Sorbonne Université, Udice, Université Clermont Auvergne, Université de Univ. Lorraine, Nantes Université, Université Grenoble Alpes, Université Paris 1 Panthéon-Sorbonne, MESR/DGRI

Collège EOSC-France : Ambitions

- Coordinate and strengthen the French position within the EOSC association,
- Communicate EOSC to all French stakeholders,
- Examine the possible forms of a permanent EOSC-France structure in the light of changes in the EOSC Association and operational objectives,
- Liaise and coordinate with other European initiatives involved in building the EOSC (RDA, OpenAIRE, EUDAT, EGI, GÉANT, etc.) or which are linked to EOSC (Gaia-X, EuroHPC, etc.).

*Members of the Collège EOSC-France: CEA, CINES, CNRS, ESRF, France Universités, GENCI, IFREMER, ILL, INRAE, INRIA, INSERM, Observatoire Paris, RENATER, Soleil, Université de Bordeaux, Université de Montpellier, Université Paris Cité, Université Paris-Saclay, Université Strasbourg, CGE, Couperin, ANR, IRD, Sorbonne Université, Udice, Université Clermont Auvergne, Université de Univ. Lorraine, Nantes Université, Université Grenoble Alpes, Université Paris 1 Panthéon-Sorbonne, MESR/DGRI

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Collège EOSC-France 2024

Main discussion points this year:

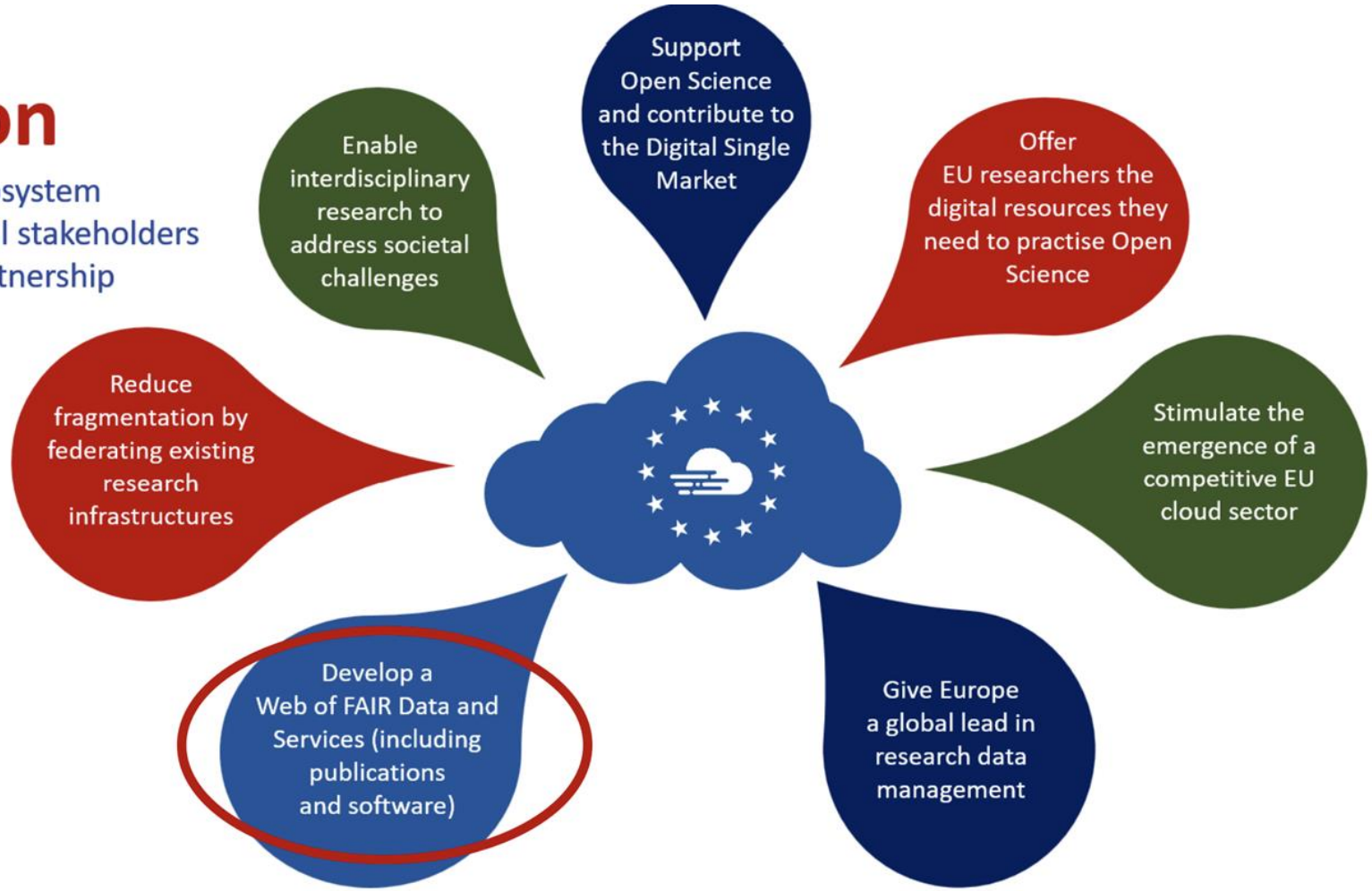
- Which French research services are ready for EOSC?
- What (additional) actions are needed to make data and services FAIR and open?
- What is an EOSC node?
- EOSC nodes: What could be the thematic nodes in France? What can be identified as a national (infrastructure) node?
- EOSC after Horizon Europe — MS/AC* approval mandatory
- Cloud for research in France : storage and data processing cloud for higher education and research based on a federation of existing facilities with seed funding from MESR

*MS/AC : Member States and Associated countries of Horizon Europe

https://eosc-france.fr/

The Vision

Building the EOSC ecosystem collaboratively with all stakeholders through the EOSC Partnership



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Survey European Research Data Landscape

- 15,000 European researchers
- 31 European repositories

https://op.europa.eu/en/publication-detail/-/publication/03b5562d-6a35-11ed-b14f-01aa75ed71a1
https://zenodo.org/communities/erdl21?page=1&size=20

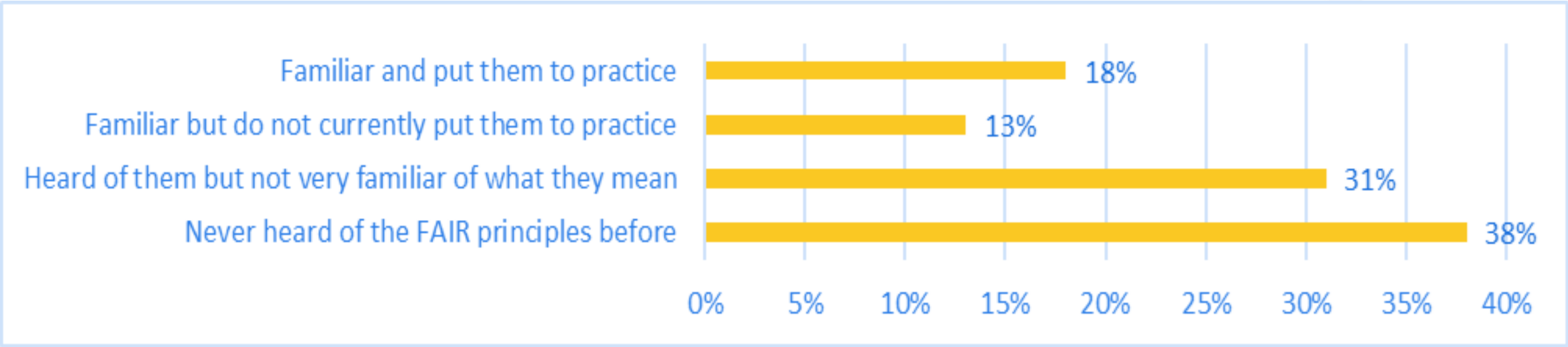
VISIONARY ANALYTICS

Data Archiving and Networked Services DANS

DCC

EFISCENTRE

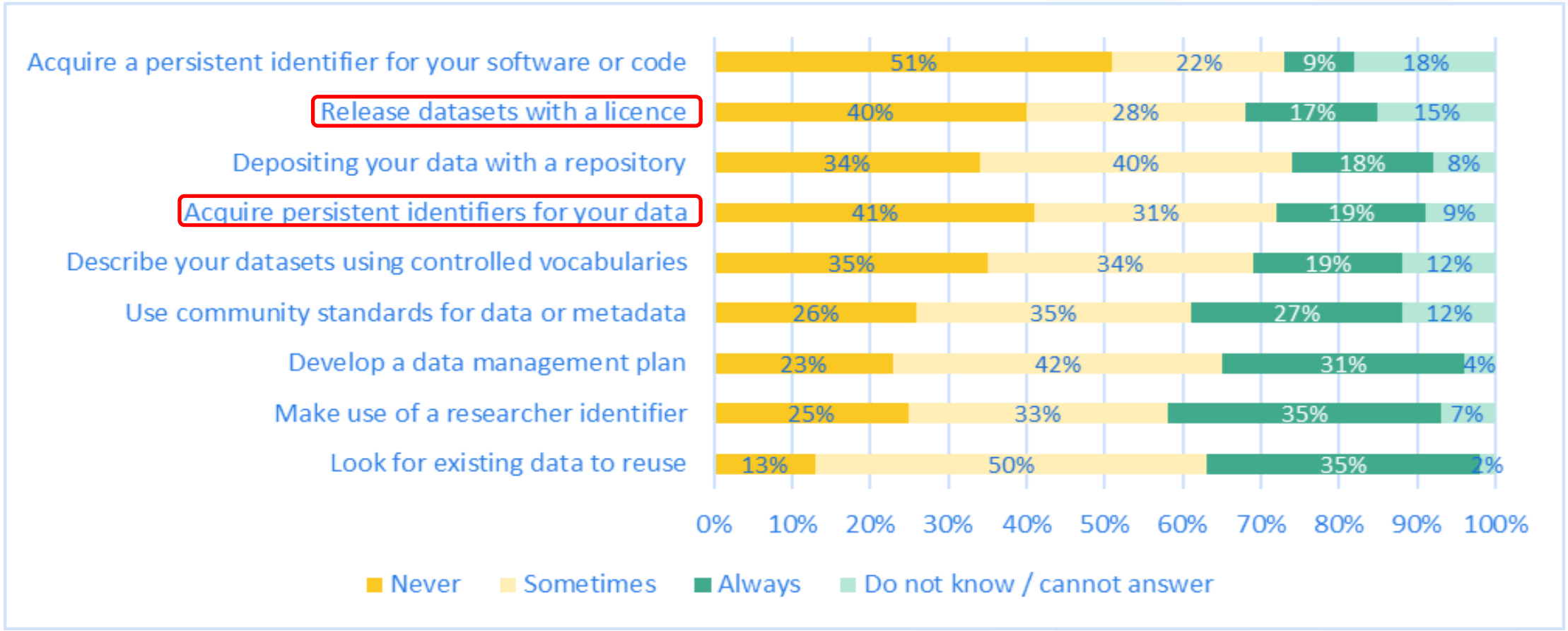
FAIR awareness



- About two thirds have some level of familiarity with the FAIR principles
- More than a third have never heard of them
- Less than 1 out of 5 puts them into practice

https://op.europa.eu/en/publication-detail/-/publication/03b5562d-6a35-11ed-b14f-01aa75ed71a1

FAIR aligned practices



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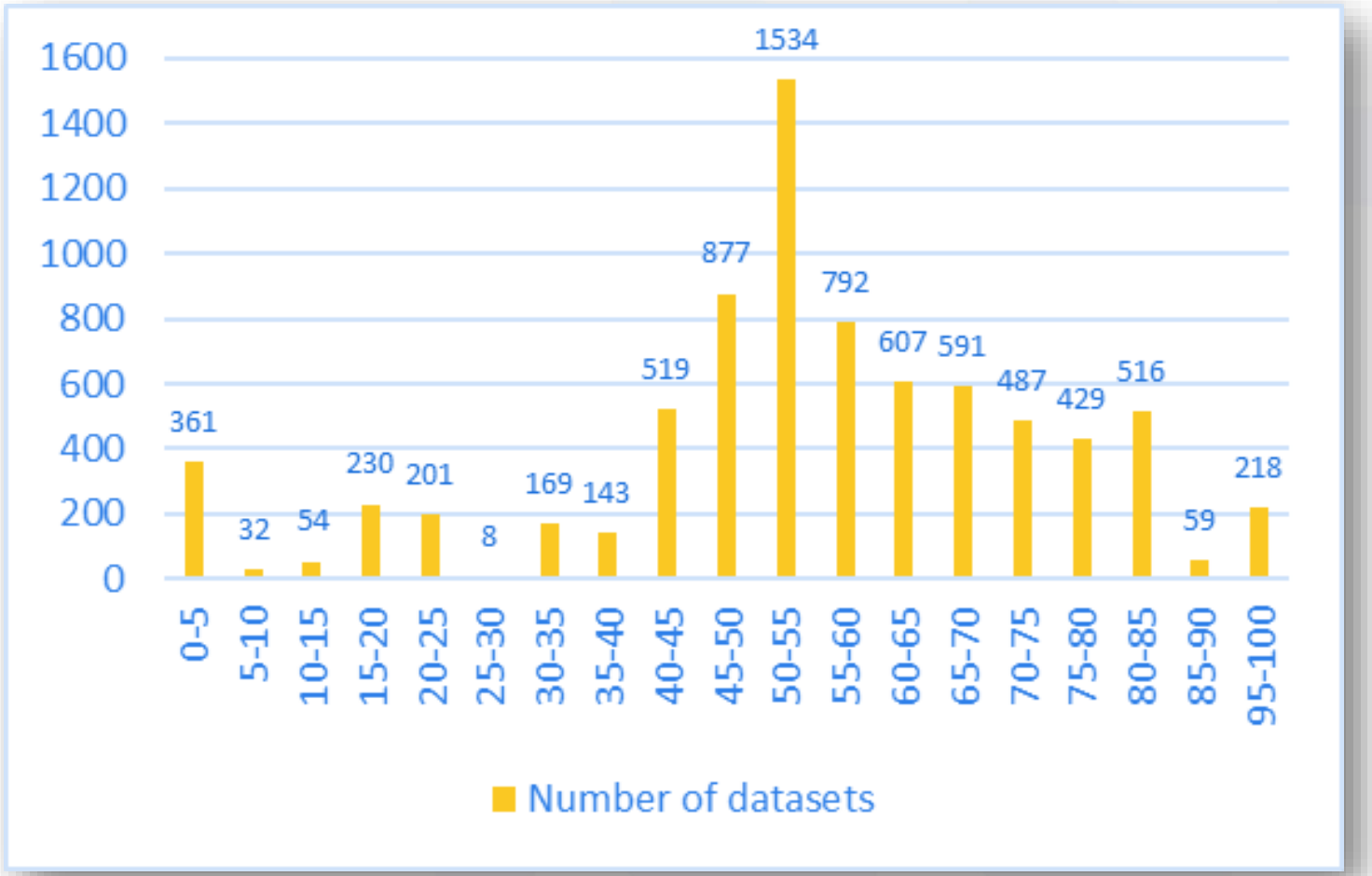
Data FAIRness in Europe

F-UJI Automated FAIR Data Assessment Tool

Average FAIR score 54.6%



https://op.europa.eu/en/publication-detail/-/publication/03b5562d-6a35-11ed-b14f-01aa75ed71a1

https://www.fairsfair.eu/f-uji-automated-fair-data-assessment-tool

FAIR-IMPACT in a nutshell
Expanding FAIR Solutions across Europe

Call HORIZON-INFRA-2021-EOSC-01-05

Enabling discovery and interoperability of federated research objects across scientific communities

Expanding FAIR solutions in Europe

Partly following up on FAIRsFAIR

EU funded project

Coordination and Support Action

10 million euro

36 months, start 1 June 2022

28 partners and affiliate entities

From 10 EU member states: NL, FI, FR, DK, IT, DE, ES, NO, BE, RO

and the UK

FAIR-IMPACT consortium

FAIR-IMPACT overall objective

WHAT:

FAIR-IMPACT supports the implementation of FAIR-enabling practices, tools and services,

- across scientific communities
- across research outputs
- at a European, national, and institutional level

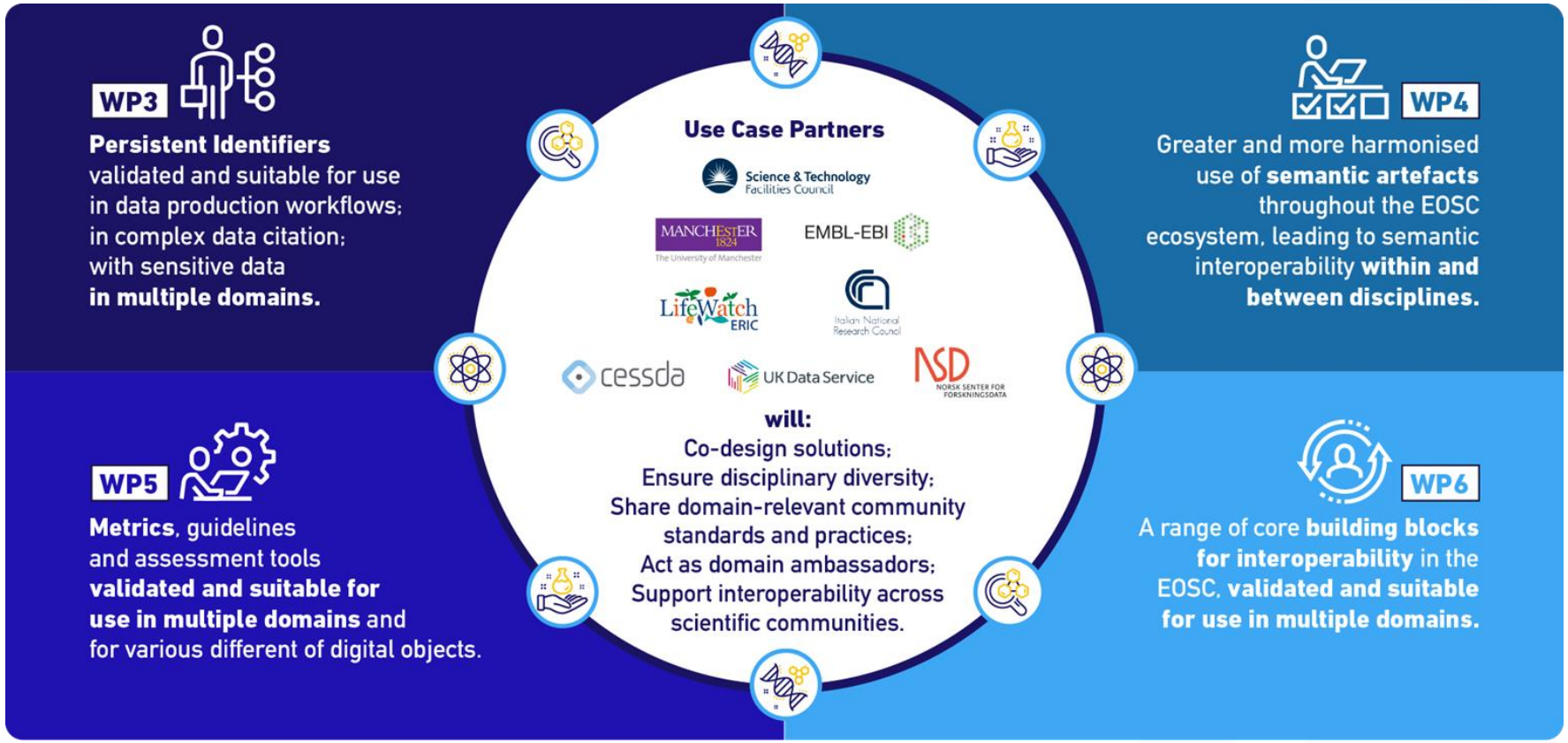
https://fair-impact.eu/

FAIR-IMPACT overall objective: how

- Identify together with domain specific partners current and emerging FAIR-enabling components;
- Translate these to be adoptable in other domains or for other types of outputs and support the application in these other fields;
- Define the support, governance and coordination mechanisms that are needed to make sure that all of these what we call FAIR-enabling practices will also continue to function in the EOSC in the future.

FAIR-IMPACT project design

Practical implementation of the FAIR principles starting with integrated use cases on four scientific domains



Social Sciences and Humanities
The F-UJI tool will be adapted to fit SSH relevant community standards for FAIR

Photon & Neutron science
A range of components for cross-domain research data description will be tested

Life science
Data provenance will be better documented by extending RO-Crate to practices on PID usage

Agri-food
Metadata providers will implement a common API for federating access to semantic artefacts

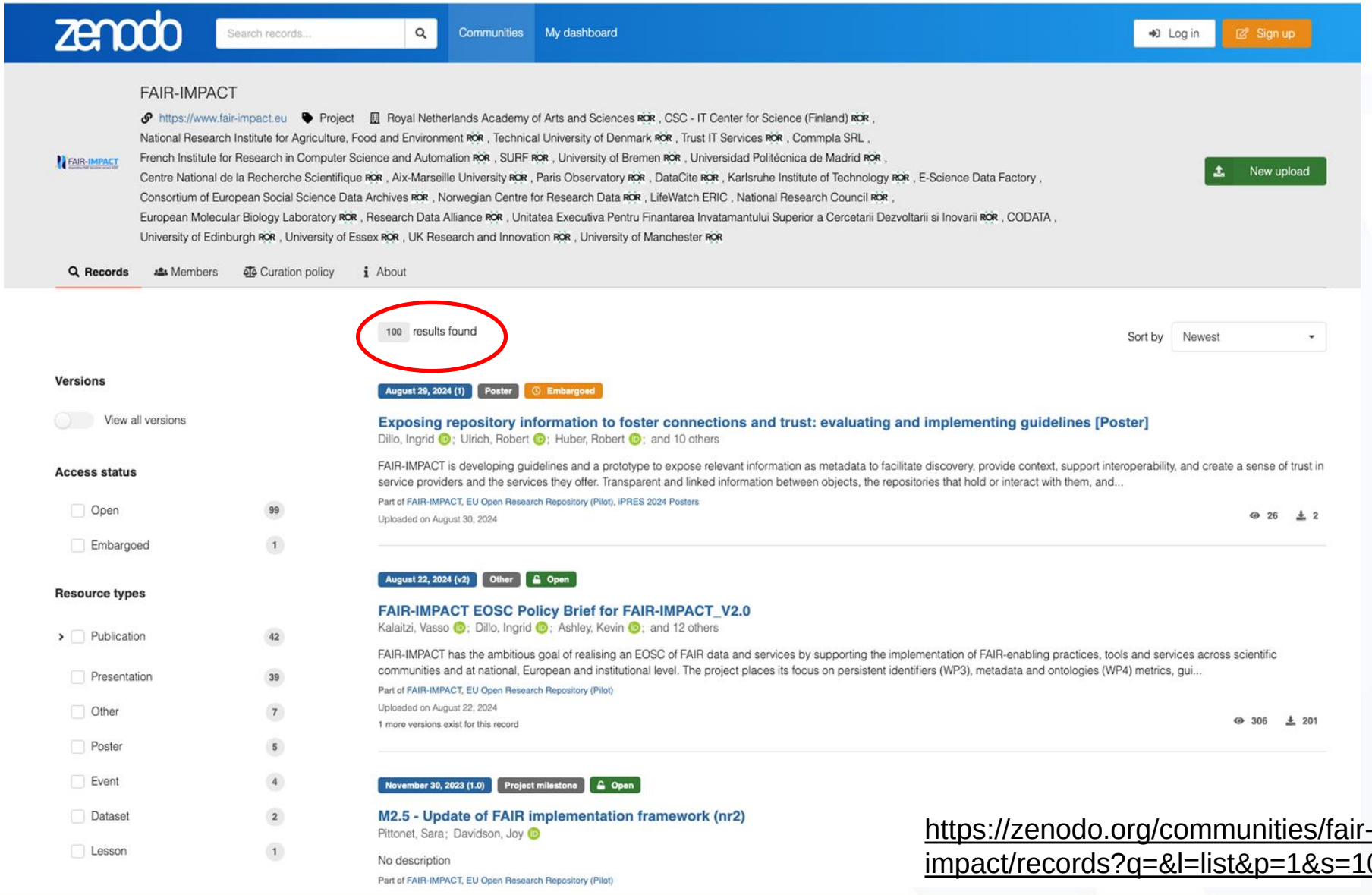
Engagement and support provided so far

- 32 teams joined the 1st round of financial support actions (Sept-Nov 2023)
- 30 teams currently in three in-kind support programmes (Jan-Oct 2024). Second running of programmes starts this month.
- 59 teams joined the 2nd round of financial support actions (May-Oct 2024)
- 944 registered participants for our FAIR Implementation Workshops series which are free and open to anyone

121 teams of 285 participants supported through financial and in-kind support

https://fair-impact.eu/fair-impact-open-calls-support

https://fair-impact.eu/events/fair-implementation-workshops



https://zenodo.org/communities/fair-impact/records?q=&l=list&p=1&s=10&sort=newest

Today's focus

WP4

M4.4 (associated data) - FAIR-IMPACT Review of Semantic Artefact Catalogues and technologies

Published on: 31 July 2024

Jonquet, Clement; Grau, Nina

This dataset (version 1) takes the form of a spreadsheet corresponding to the associated data described by M4.4 - Review of Semantic Artefact Catalogues and guidelines for serving FAIR semantic artefacts in EOSC... Read more

47 views 5 downloads

WP4

D4.1 - Semantic artefact governance models and disciplinary approaches for inclusion within EOSC

Published on: 31 July 2024

Ramezani, Parham; Grau, Nina; Jonquet, Clement; Fiore, Nicola

Semantic artefacts (SAs - terminologies, taxonomies, thesauri, vocabularies, metadata schemas and standards) are essential for standardising data representation and annotation, encapsulating the highest level of meaningful knowledge within interoperability frameworks.... Read more

59 views 43 downloads

WP4

M4.4 - Review of Semantic Artefact Catalogues and guidelines for serving FAIR semantic artefacts in EOSC

Published on: 31 July 2024

Jonquet, Clement; Grau, Nina

In the rapidly evolving landscape of scientific research, the proliferation of ontologies and semantic artefacts necessitates the development of robust systems to manage and utilise these resources effectively.... Read more

54 views 43 downloads

WP4

D4.3 - Specification of shared metadata description of semantic artefacts and their catalogues including common reference API

Published on: 30 July 2024

Wilson, Antony; Jonquet, Clement

Semantic artefacts (SA) –a broad term to include ontologies, terminologies, taxonomies, thesauri, vocabularies, metadata schemas and semantic standards– are key for the description of data and for making data FAIR. Plus, describing SAs is fundamental to make them FAIR themselves.... Read more

92 views 72 downloads

WP6

D6.2 - Core metadata schema for legal interoperability

Published on: 02 May 2024

Rouchon, Olivier; Kraaikamp, Emilie; Gonzalez, Esteban; Fink Kjeldgaard, Anne Sofie; Pedersen Tenderup, Nicolaj; Davidson, Joy; Hodson, Simon; Rettberg, Najla; Scharnhorst, Andrea

FAIR-IMPACT aims to support the implementation phase of the European Open Science Cloud. To this end, FAIR-IMPACT has a focus on the EOSC Interoperability Framework.... Read more

224 views 193 downloads

Merci de votre attention!

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Expanding FAIR solutions across EOSC

@fairimpact_eu /company/fair-impact-eu-project

Funded by
the European Union

Ontology repositories and Semantic Artefact Catalogues in EOSC: the prism of FAIR-IMPACT

French National Roadshow FAIR-IMPACT

Clément Jonquet - INRAE

Contact : clement.jonquet@inrae.fr

Overview

- Background elements on ontologies and ontology repositories
- Semantic artefacts and their catalogues in the EOSC context
- OntoPortal: a generic technology for ontology repositories
- WP4's work on semantic artefact catalogues

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Expanding FAIR solutions across EOSC

Background elements on ontologies & ontology repositories

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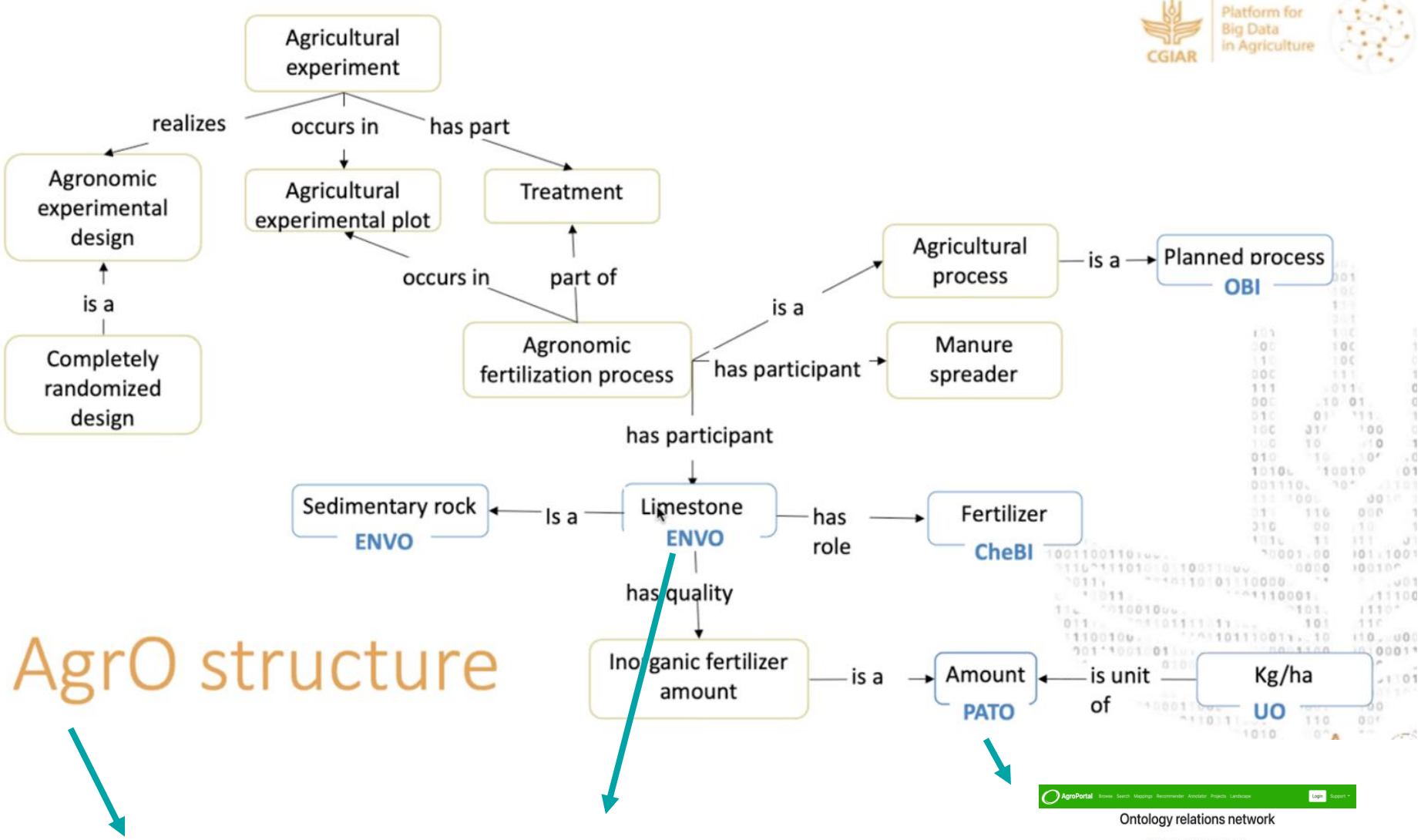
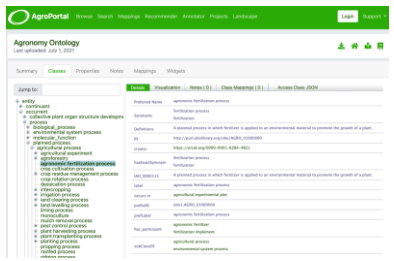
Ontologies

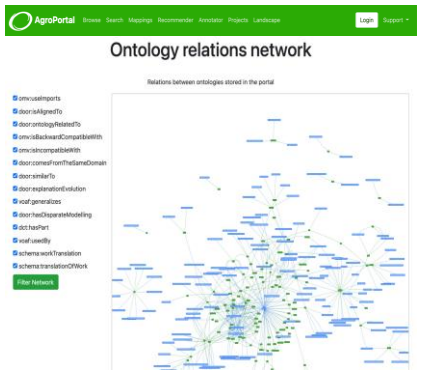
(e.g., Agronomy Ontology)

Interdisciplinary research … informaticians/ ontologists at the heart of the problems of the fields to be formalized.... in collaboration with experts in these fields

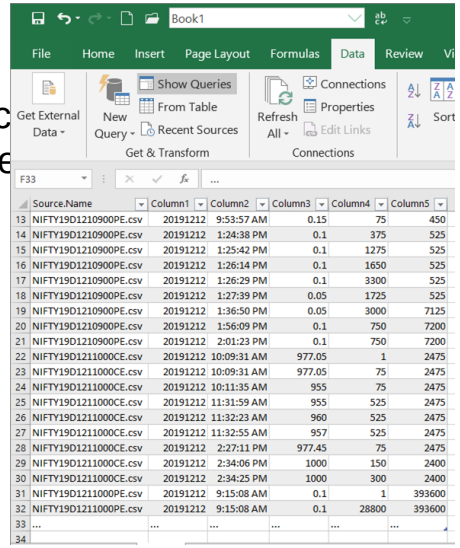


AgrO structure





Sprouting
Initial Vigor
Color of unexpanded apic
Color of first fully expande
Leaf vein color
Apical Pubescence
Length of stipules
Number of leaf lobes
Leaf lobe position
Angle of petiole insertion
Petiole length
Petiole color
Anthocyanin pigmentation
Growth habit of young stem
Pubescence of young stem
Stem color
Leaf scar prominence
Apical branching
Branching levels
Branching Angle
Height of first apical branch
Height of plant
Total fresh weight foliage
Total fresh weight foliage
Number harvested
Root number
Fresh weight of storage r
Fresh root yield
Dry yield
Harvest index
Proportion of lodged plants



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NIFTY19D1210900PE.csv	20191212	1:24:38 PM	0.1	375	525
NIFTY19D1210900PE.csv	20191212	1:25:42 PM	0.1	1275	525
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NIFTY19D1210900PE.csv	20191212	1:26:29 PM	0.1	3300	525
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NIFTY19D1210900PE.csv	20191212	1:36:50 PM	0.05	3000	7125
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NIFTY19D1210900PE.csv	20191212	2:01:23 PM	0.1	750	7200
NIFTY19D1211000CE.csv	20191212	10:09:31 AM	977.05	1	2475
NIFTY19D1211000CE.csv	20191212	10:09:31 AM	977.05	75	2475
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NIFTY19D1211000CE.csv	20191212	11:32:23 AM	960	525	2475
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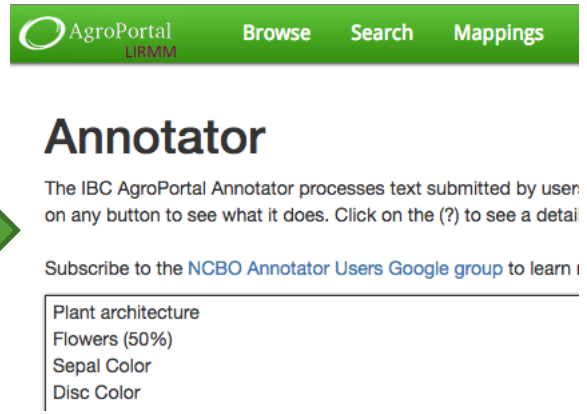
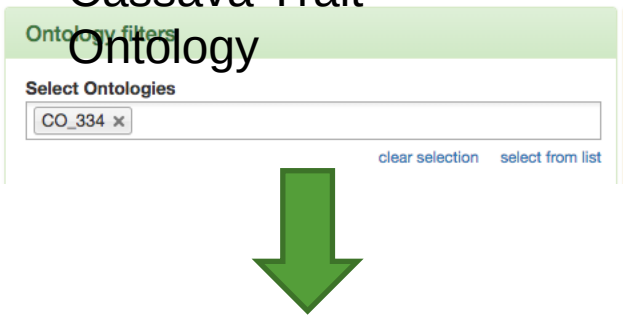
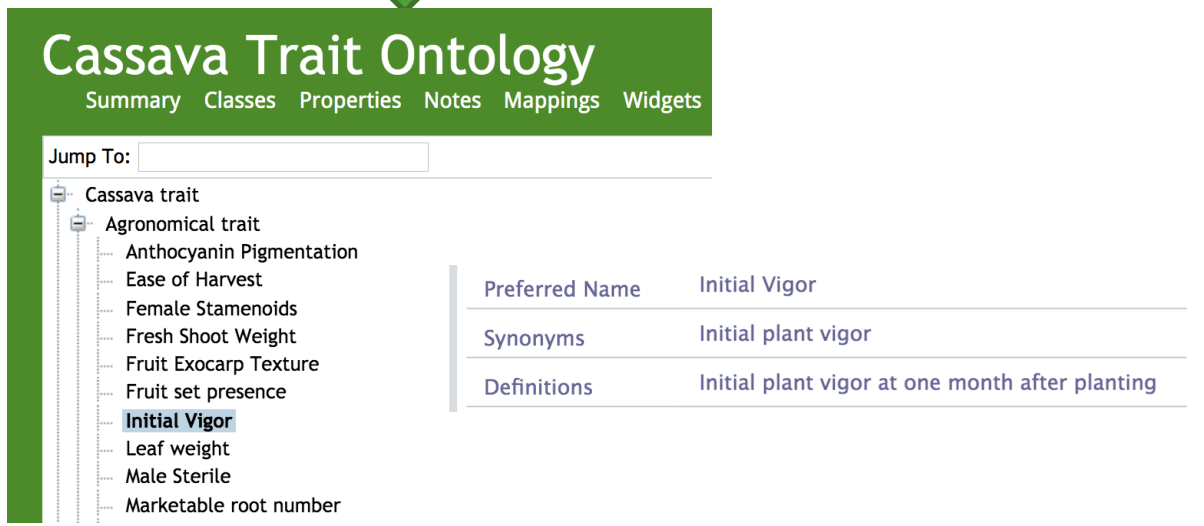


Cassava Trait Ontology




```
- {
  - annotatedClass: {
      @id: "http://www.cropontology.org/rdf/CO_334:0000386",
      @type: "http://www.w3.org/2002/07/owl#Class"
    },
    hierarchy: [ ],
  - annotations: [
    - {
        from: 11,
        to: 23,
        matchType: "PREF",
        text: "INITIAL VIGOR"
      }
    ],
```

Why ontologies are important in science?

- To provide canonical representation of scientific knowledge

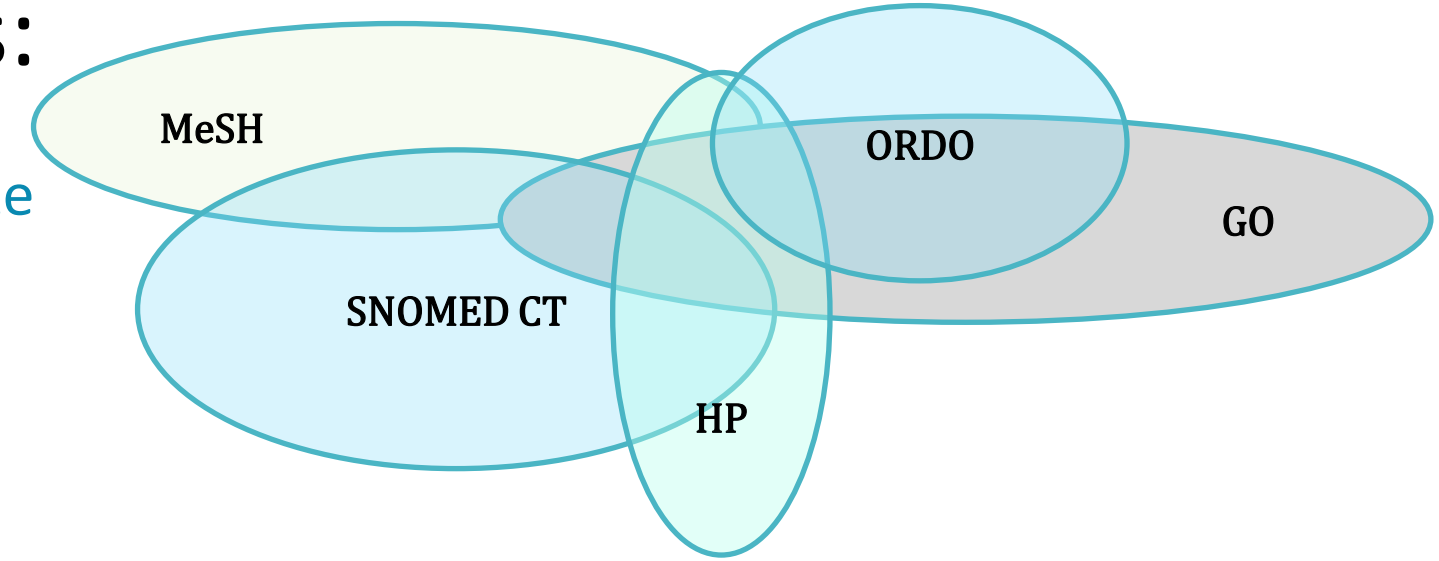
- To annotate experimental data to enable interpretation, comparison, and discovery across databases

- To facilitate knowledge-based applications for
  - Decision support
  - Natural language-processing
  - Data integration

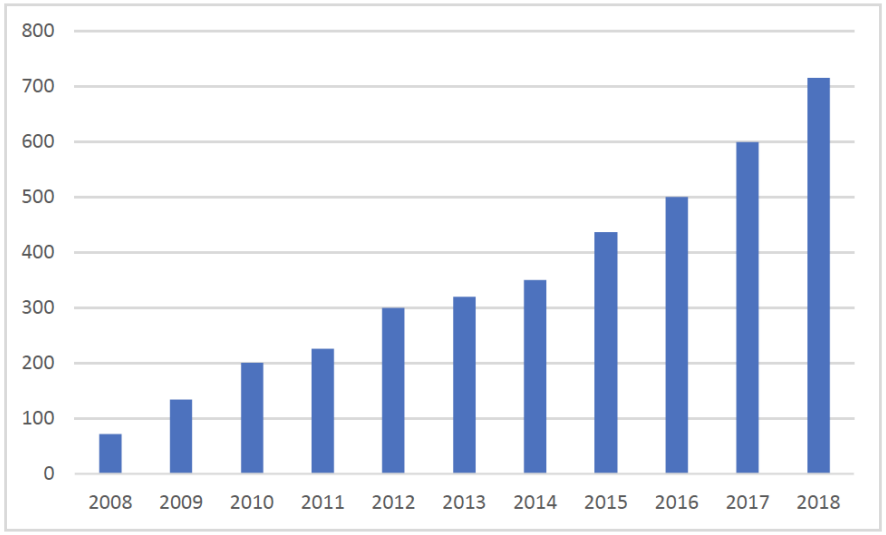
- But ontologies are: spread out, in different formats, of different size, with different structures

Issues with ontologies:

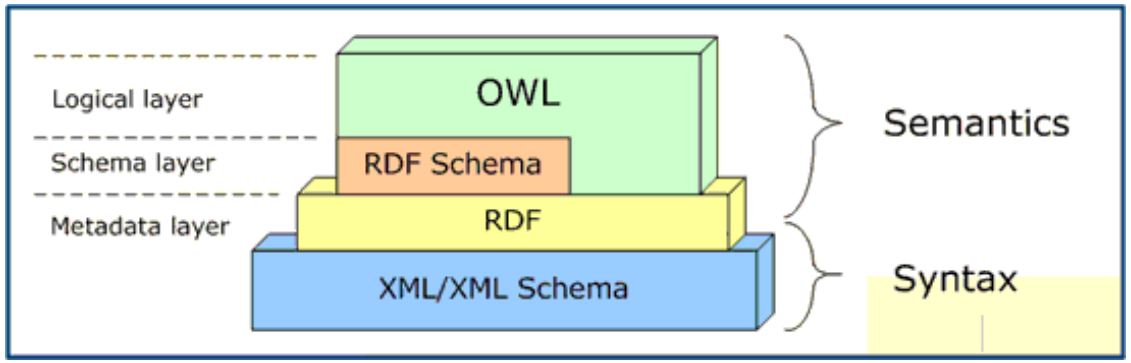
- spread out,
- in different formats, of different size
- with different structures
- increasing number
- overlapping



Overlapping ontologies



Number of ontologies in the NCBO BioPortal



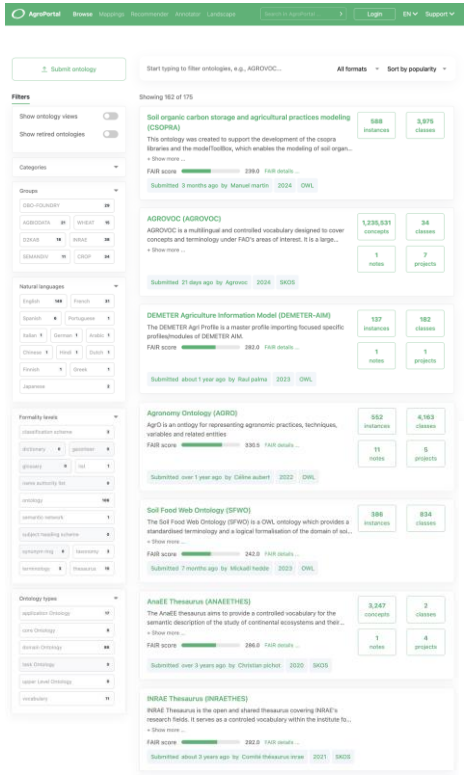
Variety of representation languages

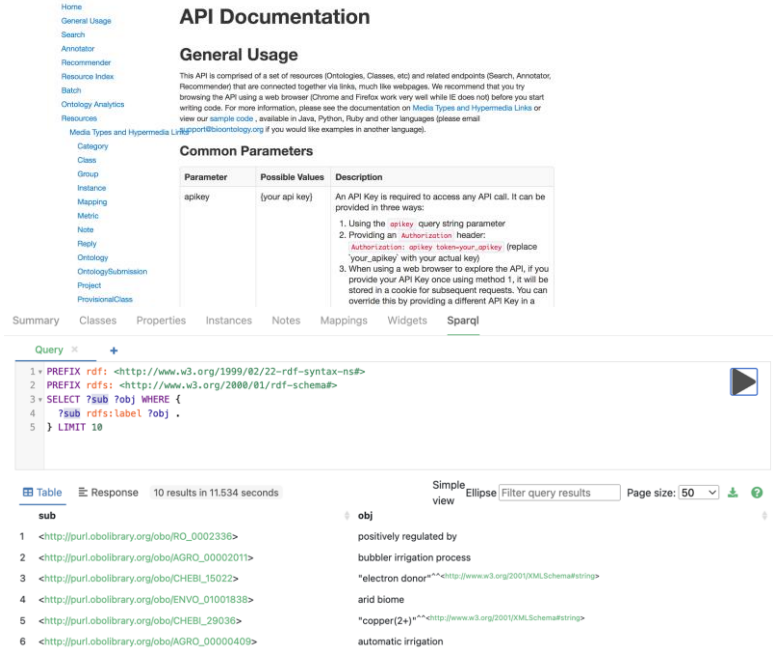
Why ontology repositories are important?

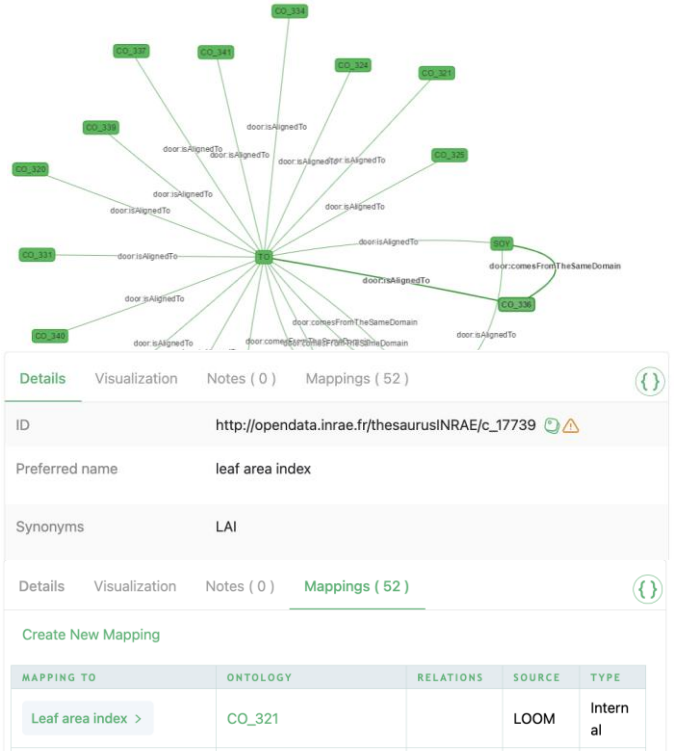
- You've built an ontology, how do you let the world know?
- You need an ontology, where do you go to get it?
- How do you know whether an ontology is any good?
- How do you find data resources that are relevant to the domain of the ontology?
- How could you leverage your ontology to enable new science?
- How could you use ontologies without managing them ?

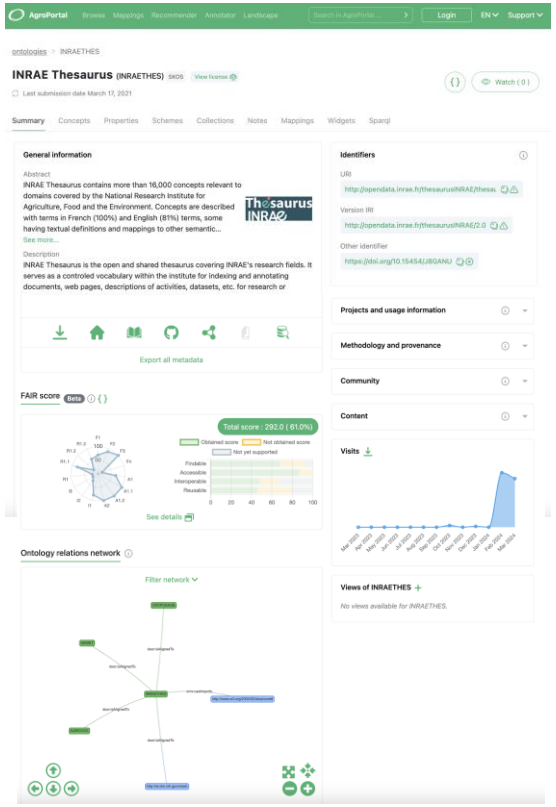
Ontology repositories help to make ontologies FAIR

Findable **A**ccessible **I**nteroperable **R**e-usable









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Semantic artefacts and their catalogues in the EOSC context

Funded by
the European Union

A couple of definitions (not absolute, but adopted in EOSC)

Semantic artefacts: a broader term to include ontologies, terminologies, taxonomies, thesauri, vocabularies, metadata schemas and standards.

Legacy of FAIRsFAIR and adopted in the EOSC Interoperabibily Framework

Semantic artefact catalogues: encompass any existing ontology repositories, registries, vocabulary/terminology services and metadata schemas catalogues.

(Semantic) Crosswalks and mappings: formal links between the content of these semantic artefacts.

FAIRsFAIR D2.5 FAIR Semantics Recommendations

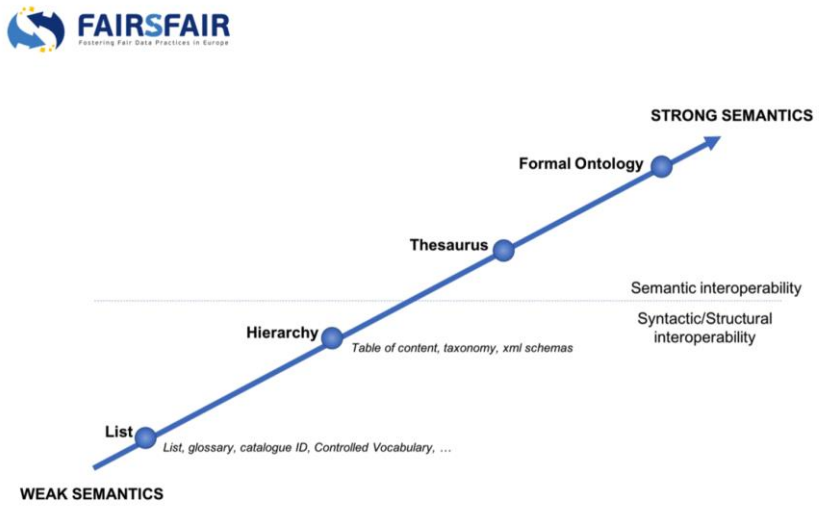


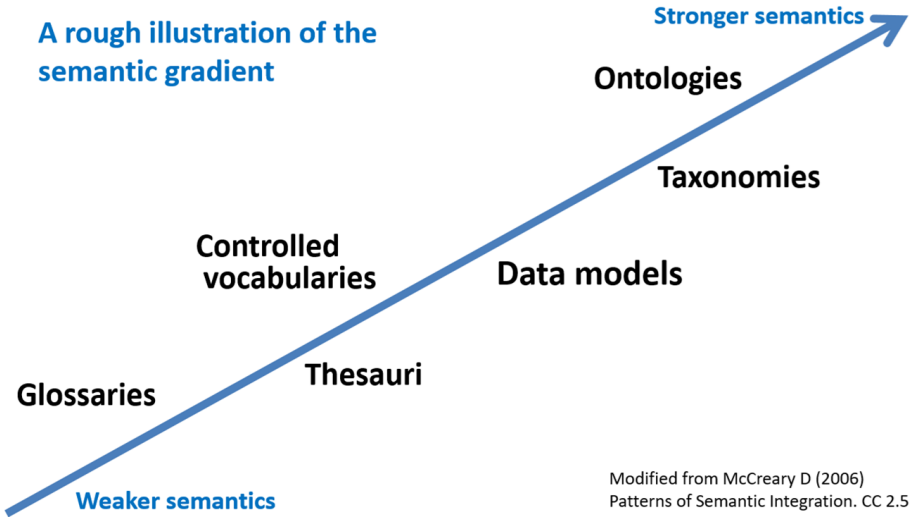
Figure 2: Semantic artefact spectrum. Derived from Leo Obrst, 2010

A semantic artefact is defined in this work as 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. Moreover, semantic artefacts are serialised using a variety of digital representation formats, e.g., RDF Turtle, and OWL, using XML (RDF) and JSON-LD.

Semantic artefacts to support semantic interoperability

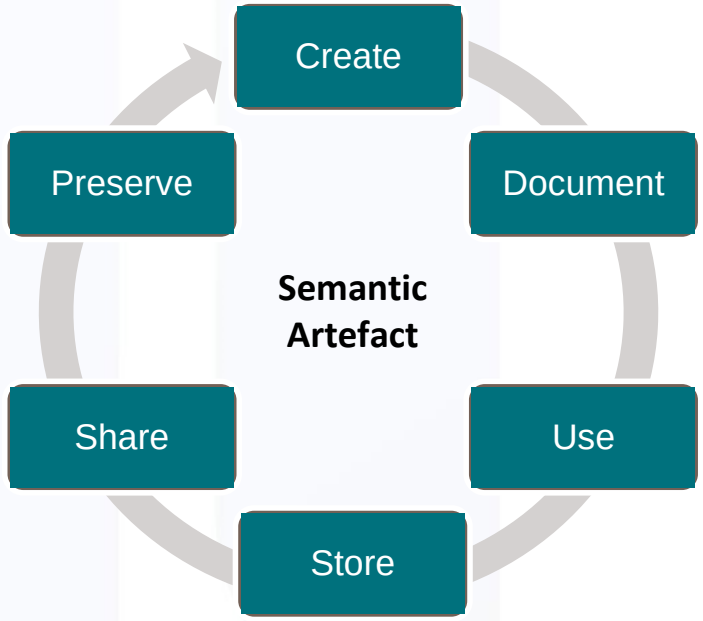
Semantic interoperability ensures that the precise format and meaning of exchanged data and information is preserved and understood throughout exchanges between parties, in other words 'what is sent is what is understood'.
Source : Revised European Interoperability Framework

Semantic artefacts, what are we talking about?

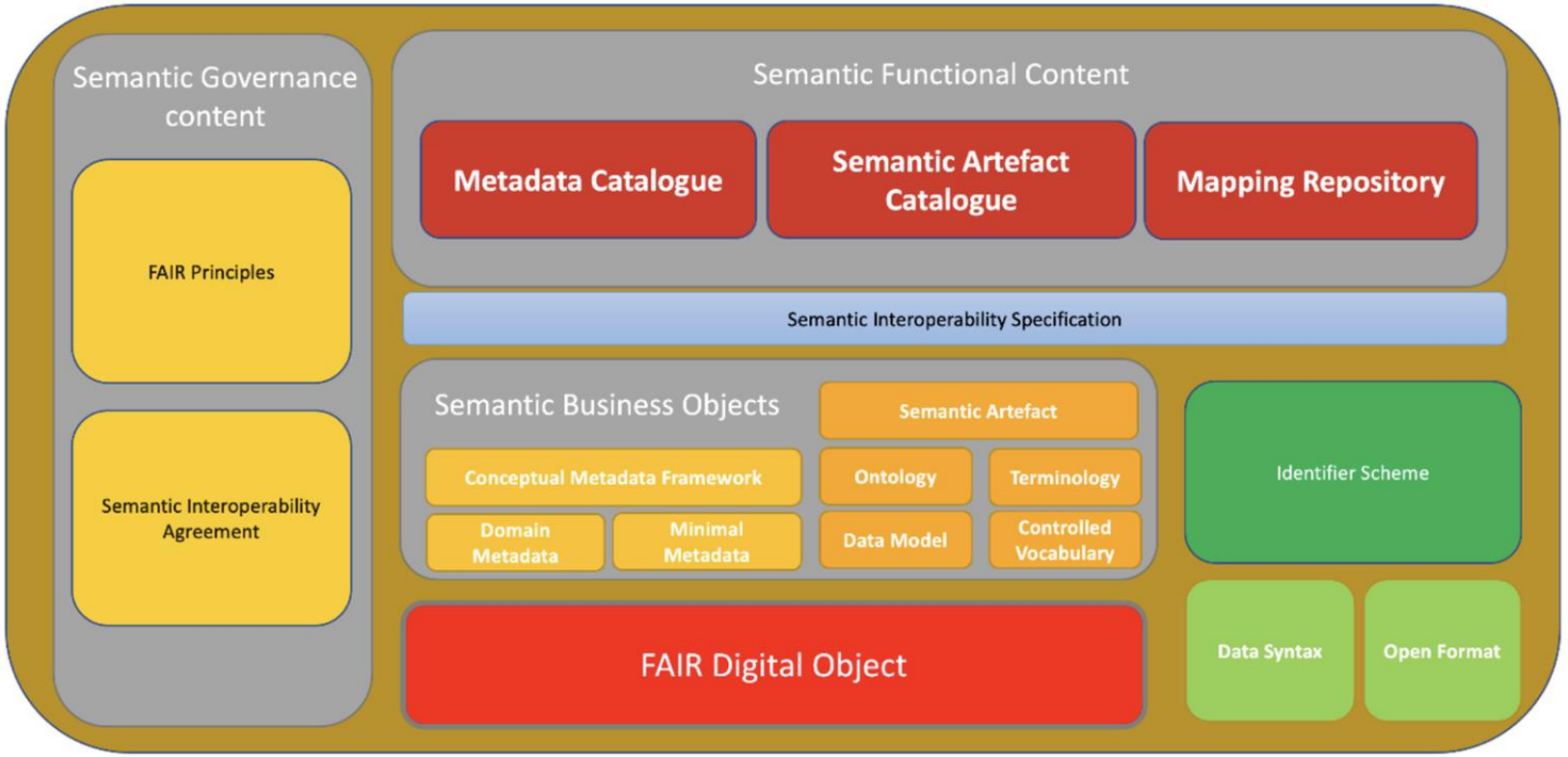


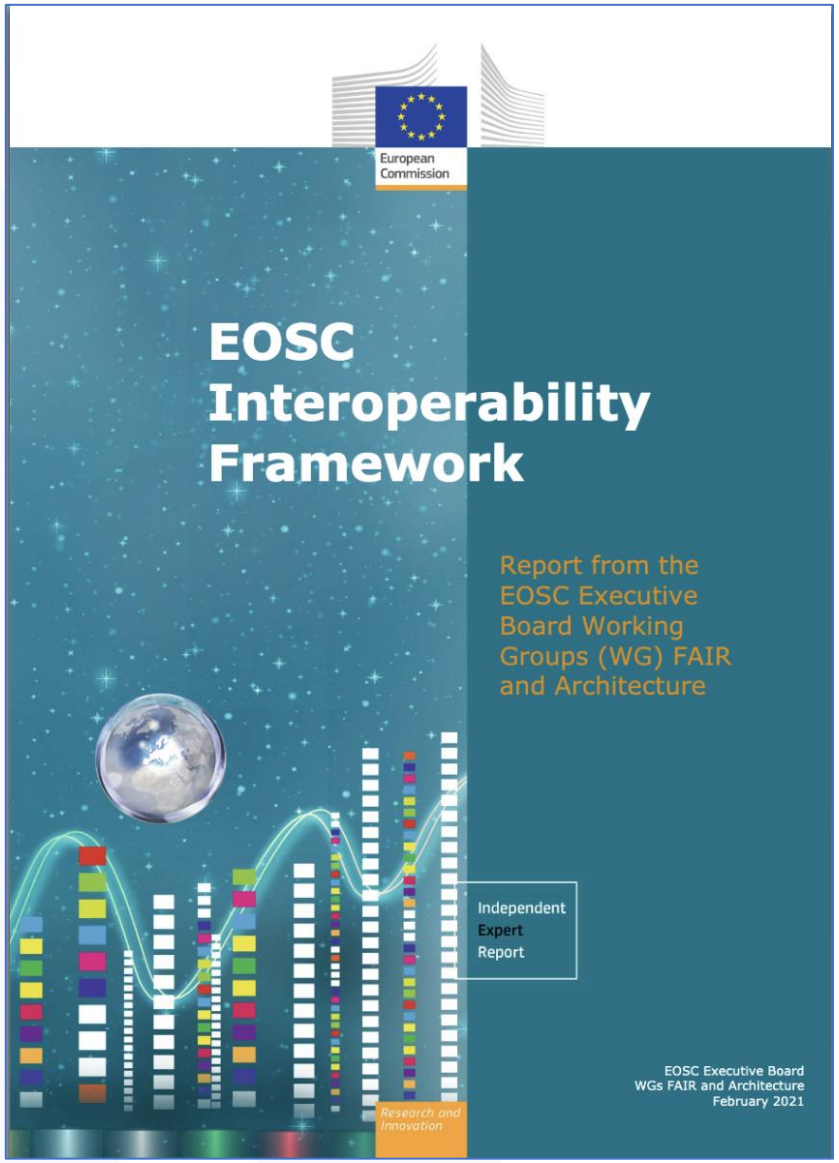
Modified from McCreary D (2006) Patterns of Semantic Integration. CC 2.5

Let's make semantic artefacts FAIR(er)!

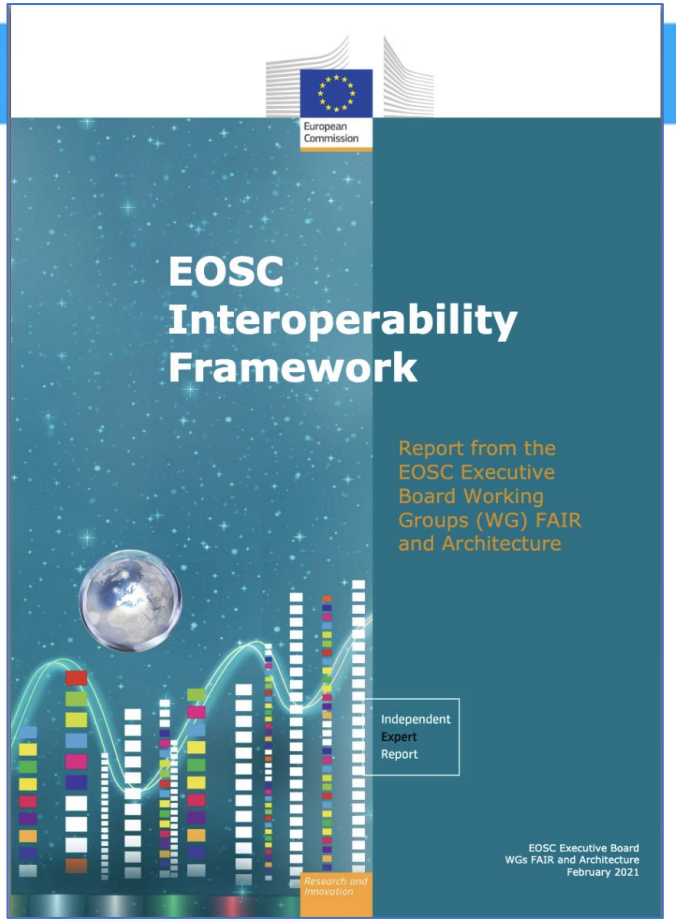


Semantic Artefact Catalogue in the EOSC Interoperability Framework





Semantic Artefact Catalogue within EOSC



There is a **lack or over-abundance of metadata models** that allow the description, functional preservation and ultimately re-use of the data stored.

The need to have (…) **shared semantic artefacts (ontologies, thesauri) inside and across the communities**, which allow homogenising the interpretation and treatment of the exchanged data and all of its associated resources.

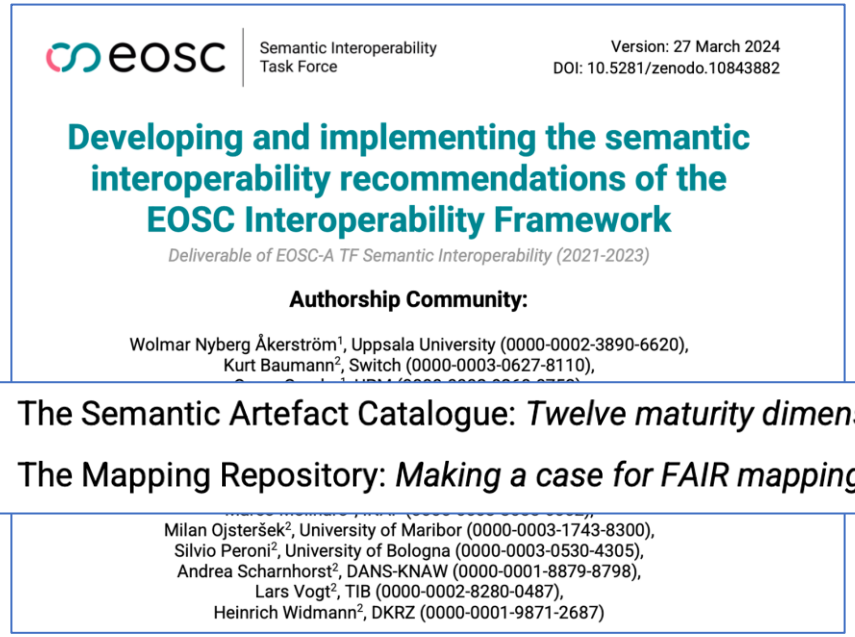
Not only term definitions are usually lacking, but also common semantic artefacts across communities (e.g., general ontologies that can be shared). And in case that they exist, **these artefacts may not be sufficiently well documented** (…) Every semantic artefact that is being maintained in EOSC must have sufficient associated documentation, with clear examples of usage and conceptual diagrams.

Need for principled approaches and tools for ontology and metadata schema creation, maintenance, governance and use (…) furthermore, any **semantic artefact should also be FAIR**.

Repositories of semantic artefacts, rules with a clear governance framework (…) Clear protocols and building blocks for the **federation/harvesting of semantic artefacts catalogues**.

…The functional content can be summarised as different types of knowledge bases/**repositories provisioning metadata, semantic artefacts and crosswalks/mappings** that enable translation between different metadata standards and semantic artefacts to enable an effective exchange. Implementation of a semantic mapping mechanism and linking to common concepts will support progress towards higher levels of interoperability.

A subject studied by the EOSC task forces



eosc | Semantic Interoperability Task Force

Version: 27 March 2024
DOI: 10.5281/zenodo.10843882

Developing and implementing the semantic interoperability recommendations of the EOSC Interoperability Framework

Deliverable of EOSC-A TF Semantic Interoperability (2021-2023)

Authorship Community:

Wolmar Nyberg Åkerström[1], Uppsala University (0000-0002-3890-6620),
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The Semantic Artefact Catalogue: *Twelve maturity dimensions* 13

The Mapping Repository: *Making a case for FAIR mappings and crosswalks* 15

Milan Ojsteršek[2], University of Maribor (0000-0003-1743-8300),
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Lars Vogt[2], TIB (0000-0002-8280-0487),
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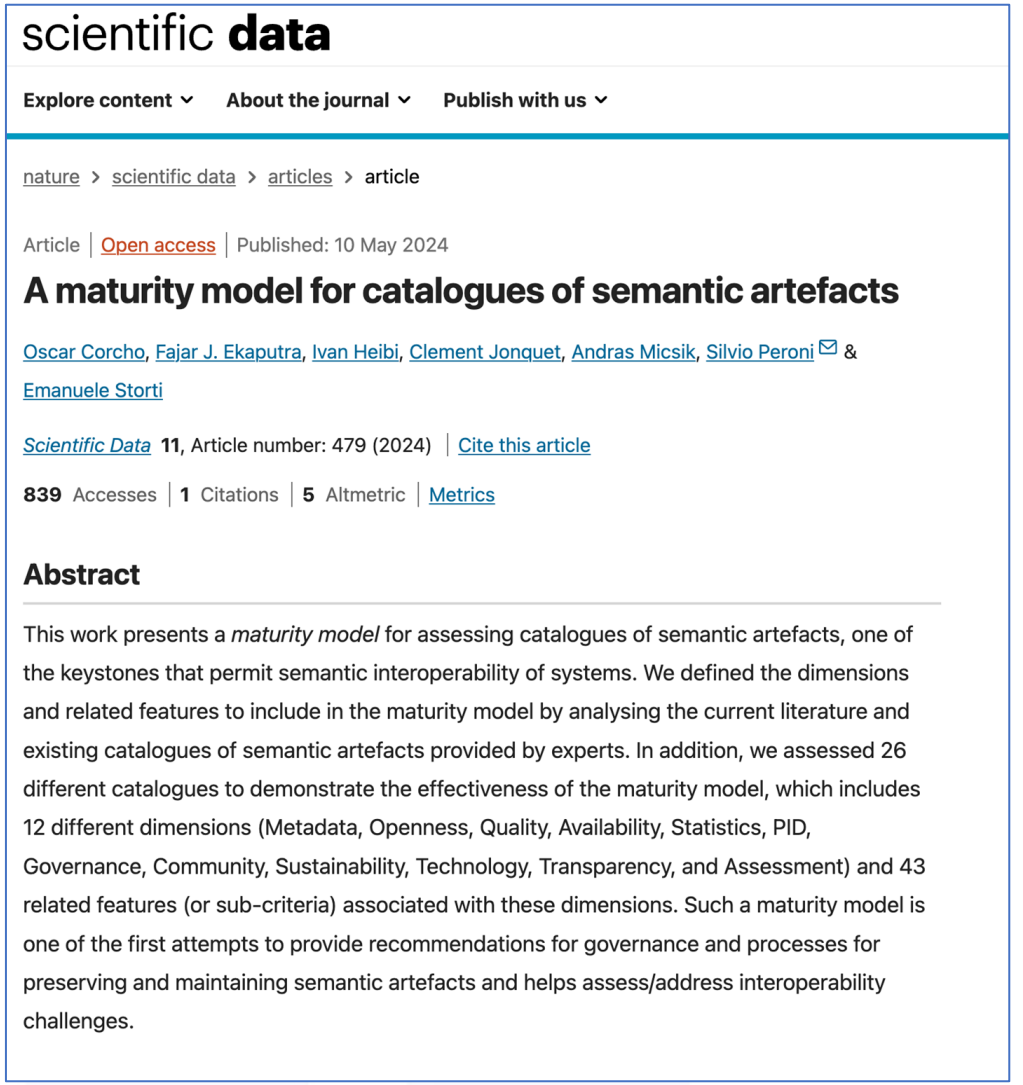

scientific **data**

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Article | Open access | Published: 10 May 2024

A maturity model for catalogues of semantic artefacts

Oscar Corcho, Fajar J. Ekaputra, Ivan Heibi, Clement Jonquet, Andras Micsik, Silvio Peroni ✉ & Emanuele Storti

Scientific Data **11**, Article number: 479 (2024) | Cite this article

839 Accesses | **1** Citations | **5** Altmetric | Metrics

Abstract

This work presents a *maturity model* for assessing catalogues of semantic artefacts, one of the keystones that permit semantic interoperability of systems. We defined the dimensions and related features to include in the maturity model by analysing the current literature and existing catalogues of semantic artefacts provided by experts. In addition, we assessed 26 different catalogues to demonstrate the effectiveness of the maturity model, which includes 12 different dimensions (Metadata, Openness, Quality, Availability, Statistics, PID, Governance, Community, Sustainability, Technology, Transparency, and Assessment) and 43 related features (or sub-criteria) associated with these dimensions. Such a maturity model is one of the first attempts to provide recommendations for governance and processes for preserving and maintaining semantic artefacts and helps assess/address interoperability challenges.

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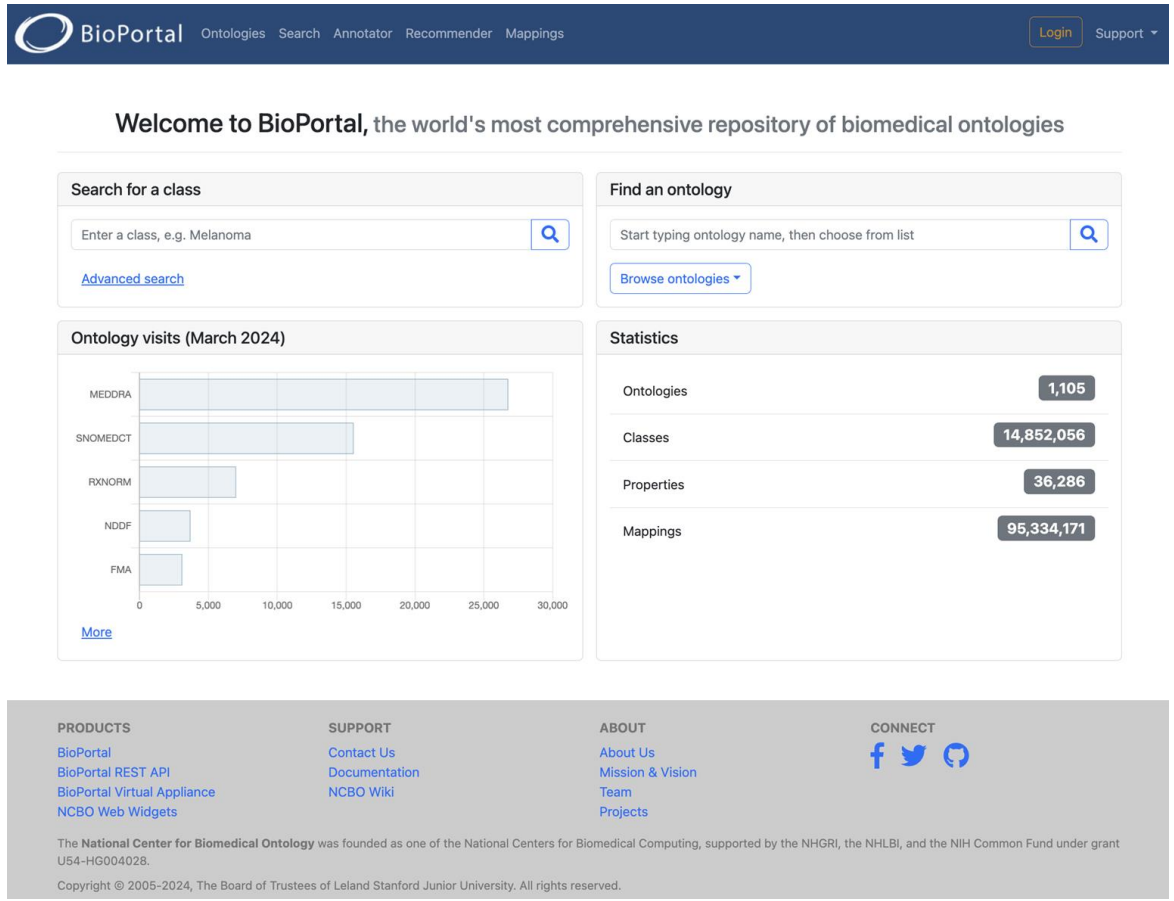
Expanding FAIR solutions across EOSC

OntoPortal: a generic technology for ontology repositories

Funded by
the European Union

Since 2006: BioPortal : a “one stop shop” for biomedical ontologies

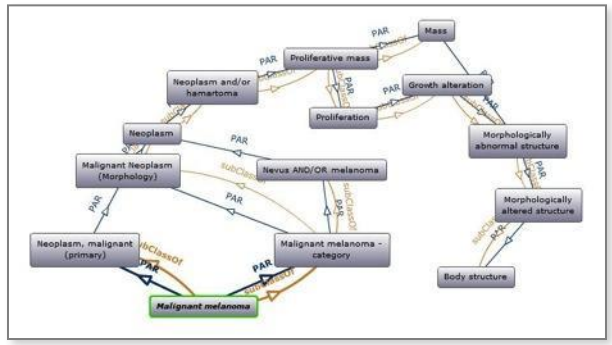
- Web repository for biomedical ontologies
  - Make ontologies accessible and usable – abstraction on format, locations, structure, etc.
  - Users can publish, download, browse, search, comment, align ontologies and use them for annotations both online and via a web services API.



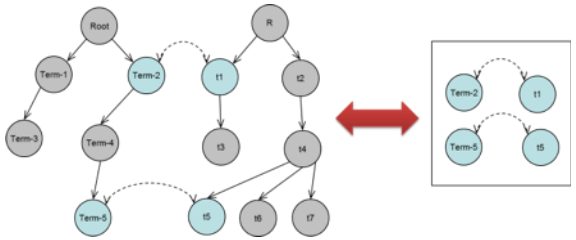
THE NATIONAL CENTER FOR BIOMEDICAL ONTOLOGY

http://bioportal.bioontology.org

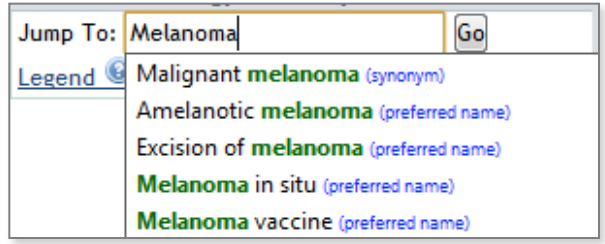
Ontology Services → Search, Traverse, Comment, Download



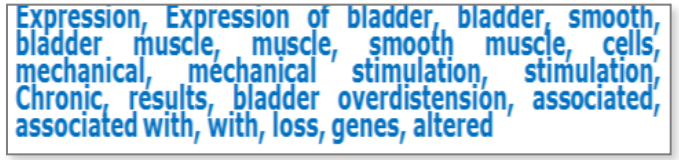
Mapping Services → Create, Upload, Download



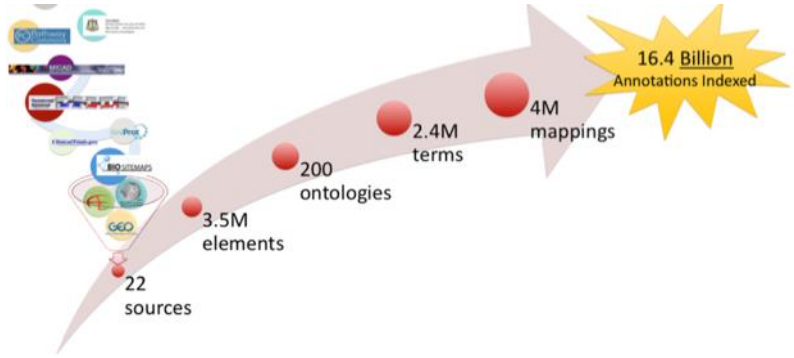
Widgets → Tree-view, Auto-complete, Graph-view



Annotation → Term recognition

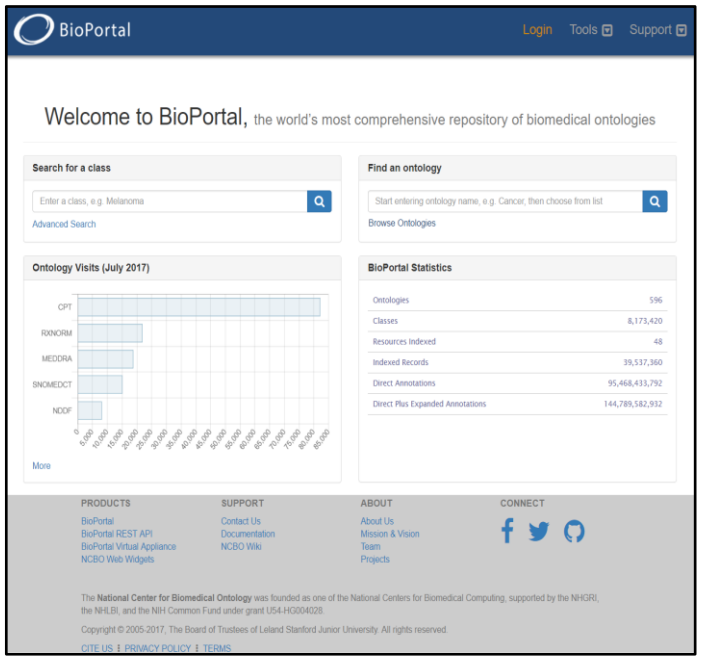


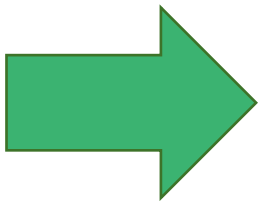
Data Access → Search "data" annotated with a given term

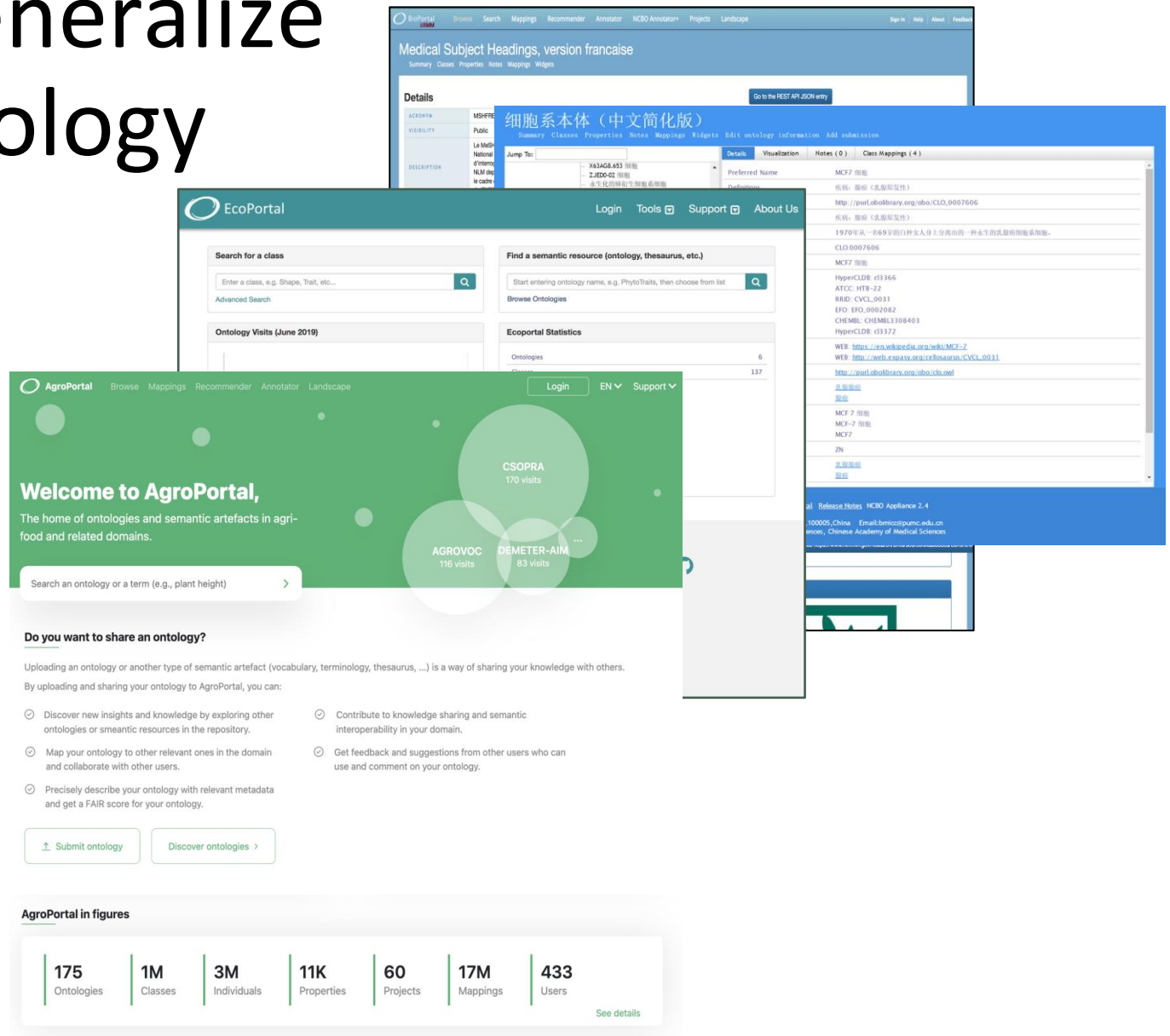


http://data.bioontology.org

OntoPortal Alliance: Generalize and reuse a shared ontology repository technology







OntoPortal history

- NCBO BioPortal open source (2005)
- NCBO technology used by the Open Ontology Repository (OOR) inititative (2008-2012)
- BioPortal Virtual Appliance (2012)
- OntoPortal Alliance created (2018)
  - OntoPortal Appliance v2.5
  - 2 posters during RDA plenaries
- OntoPortal Alliance kicked-off, online (May 2020)
  - 10 participants
  - OntoPortal Appliance v3.0
- 1st OntoPortal Workshop, Montpellier (Sept. 2022)
  - 20 participants
- OntoPortal resource paper at ISWC 2023
- 2nd OntoPortal Workshop, Lecce (Sept. 2023)
  - 30 participants
- 3rd OntoPortal Workshop, Stanford (Sept. 2024)

NCBO BioPortal

A few installs (NCI, MMI, ESIP, …)

OOR

SIFR BioPortal, AgroPortal

EcoPortal
MedPortal
MatPortal

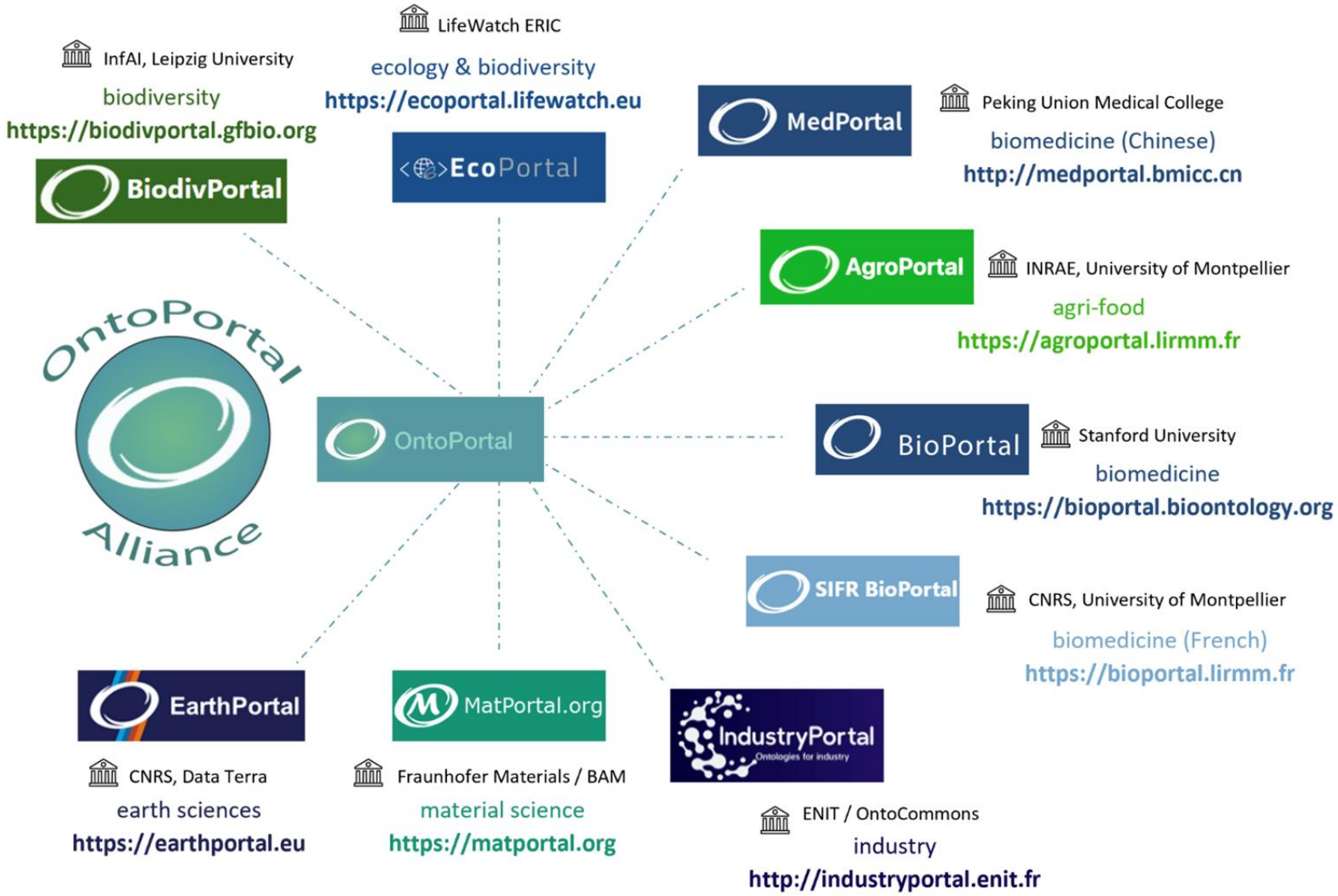
IndustryPortal

EarthPortal
BiodivPortal

EscapePortal
TechnoPortal

…

OntoPortal Alliance: Synchronizing and mutualizing research and development efforts

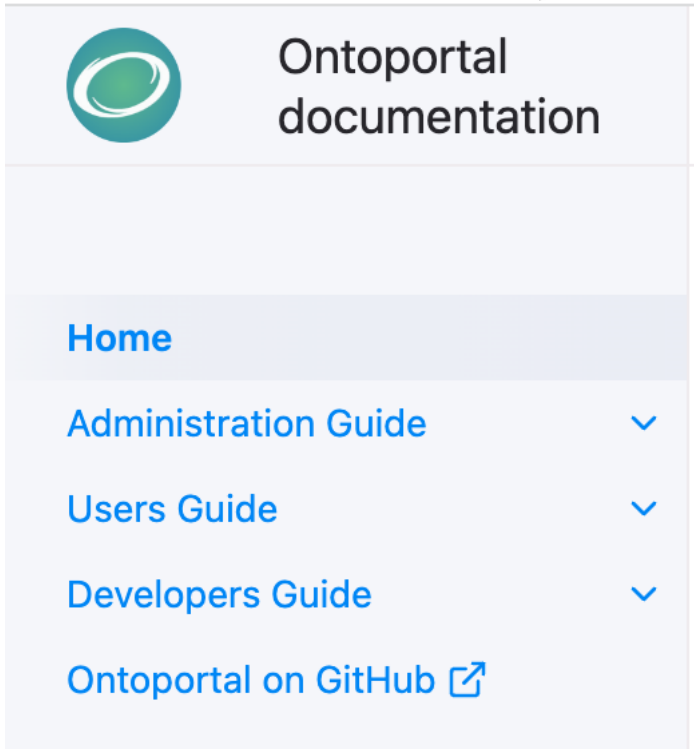


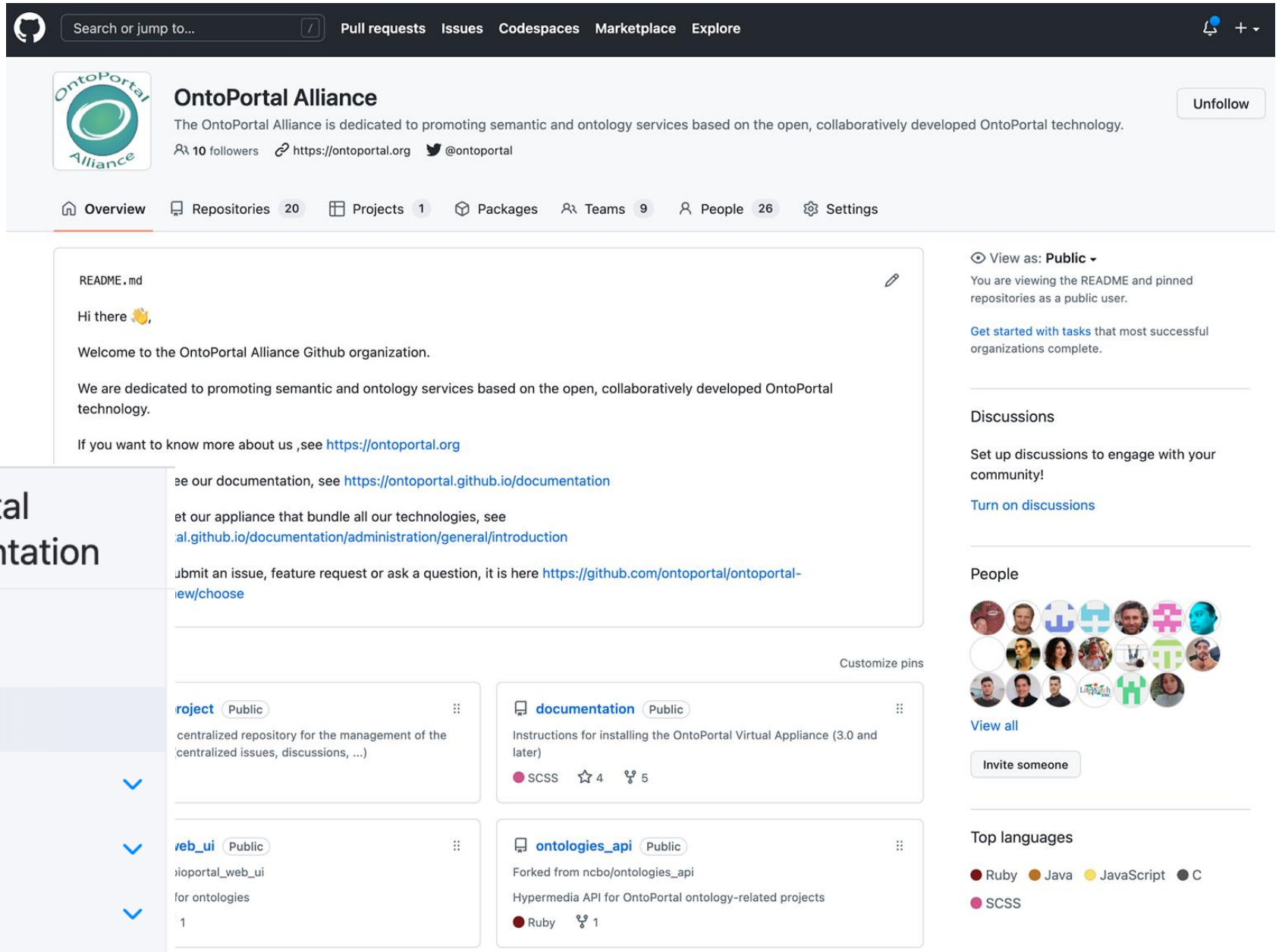
Representing OntoPortal adopters and end users

- to maximize OntoPortal value (state-of-the-art service portfolio)
- to improve OntoPortal software while managing several parallel and different installations
- to increase semantic uptake in science communities and facilitate adoption of the FAIR principles
- to increase the ecosystem's long term operational and financial health

Making OntoPortal a real open source project

https://github.com/ontoportal

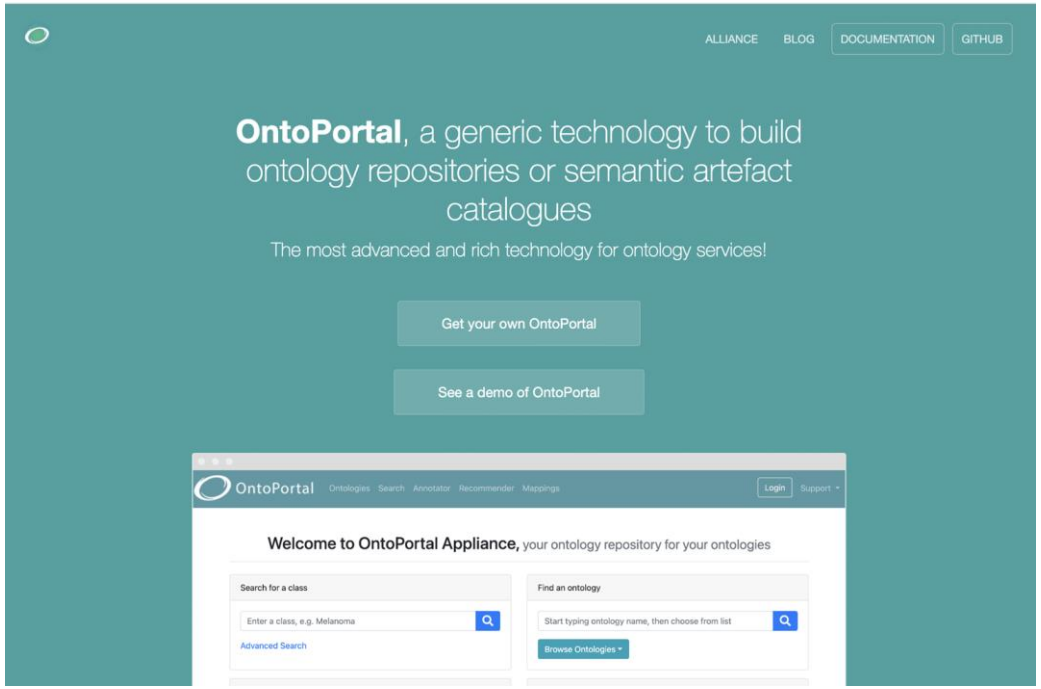




More information

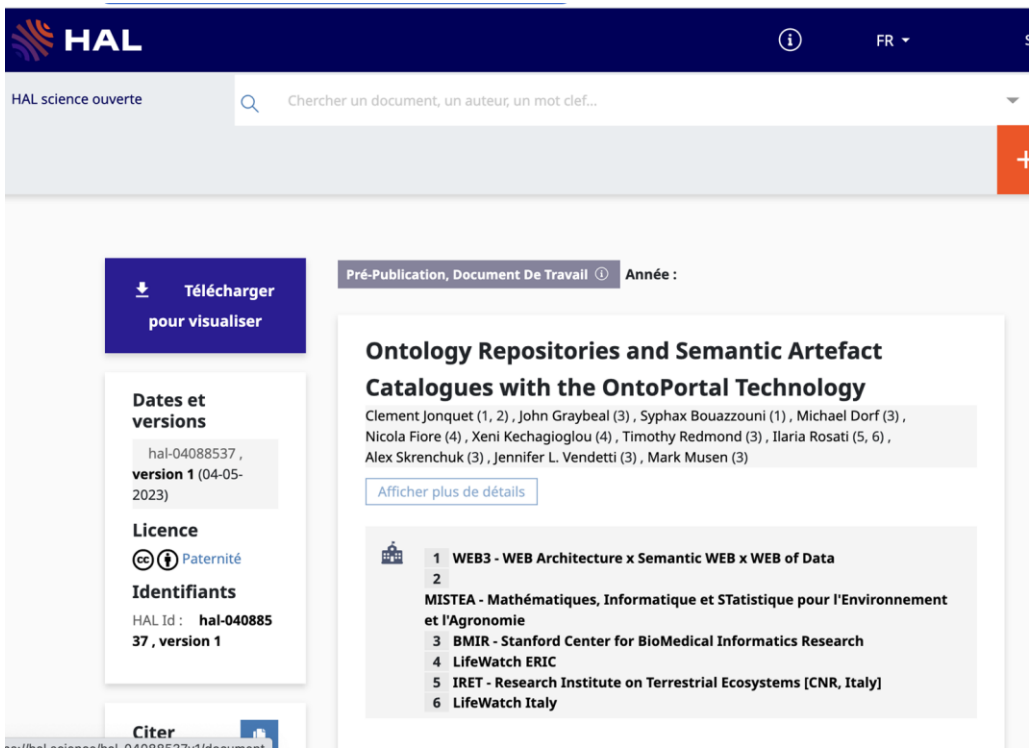
Web site and documentation:

https://ontoportal.org



ISWC 2023 Resource paper:

https://hal.science/hal-04088537



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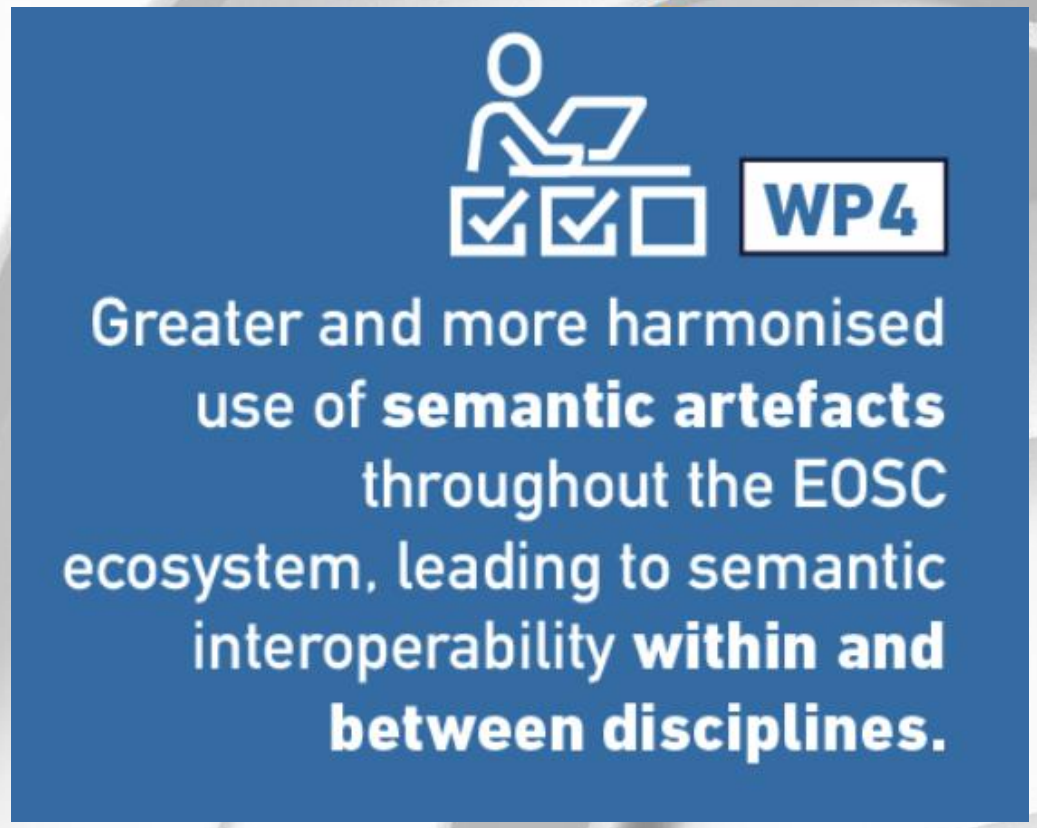


WP4 work on semantic artefact catalogues

*WP4 will develop and foster the uptake of a semantic **framework** for the governance, creation, mapping, sharing, reuse, FAIRness assessment and interoperability of **semantic artefacts** for EOSC.*

Funded by the European Union

Main focus of WP4

*…implementation of FAIR-enabling practices **across communities and research outputs***

WP4's use cases include

- Agri-food (INRAE with AgroPortal, EMPHASIS, ANAEE)
- Ecology/biodiversity (LifeWatch with EcoPortal)
- Earth sciences (CNRS with DataTerra EarthPortal)
- Photons and neutrons (UKRI-STFC)
- Social sciences and humanities (DANS)
- Astronomy (Obs. Paris)

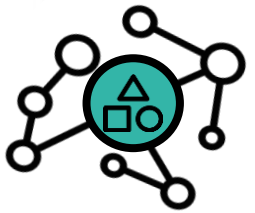
*…projecting the FAIR principles to other **types of research objects***

WP4's research objects

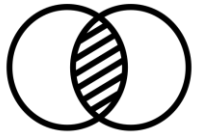
Our work on Semantic Artefacts and their Catalogues

Semantic Artefact Catalogues

- Existing catalogues being consolidated in communities
- New catalogues being deployed in other communities/projects
- *Semantic Artefact « FAIR-by-design » methodology*
- FAIRenabling tools and methods being transferred
- Exhaustive review of current and retired catalogues and FAIR-enabling criteria
- *Catalogues being exploited in data repositories (9 use cases)*
- A metadata standard for semantic artefacts (MOD)
- A standard API for semantic artefact catalogues (MOD-API)
- Early work on federation of 4 catalogues
- *3 possible models for semantic artefact governance*
- *Toward specifications for FAIR mappings*



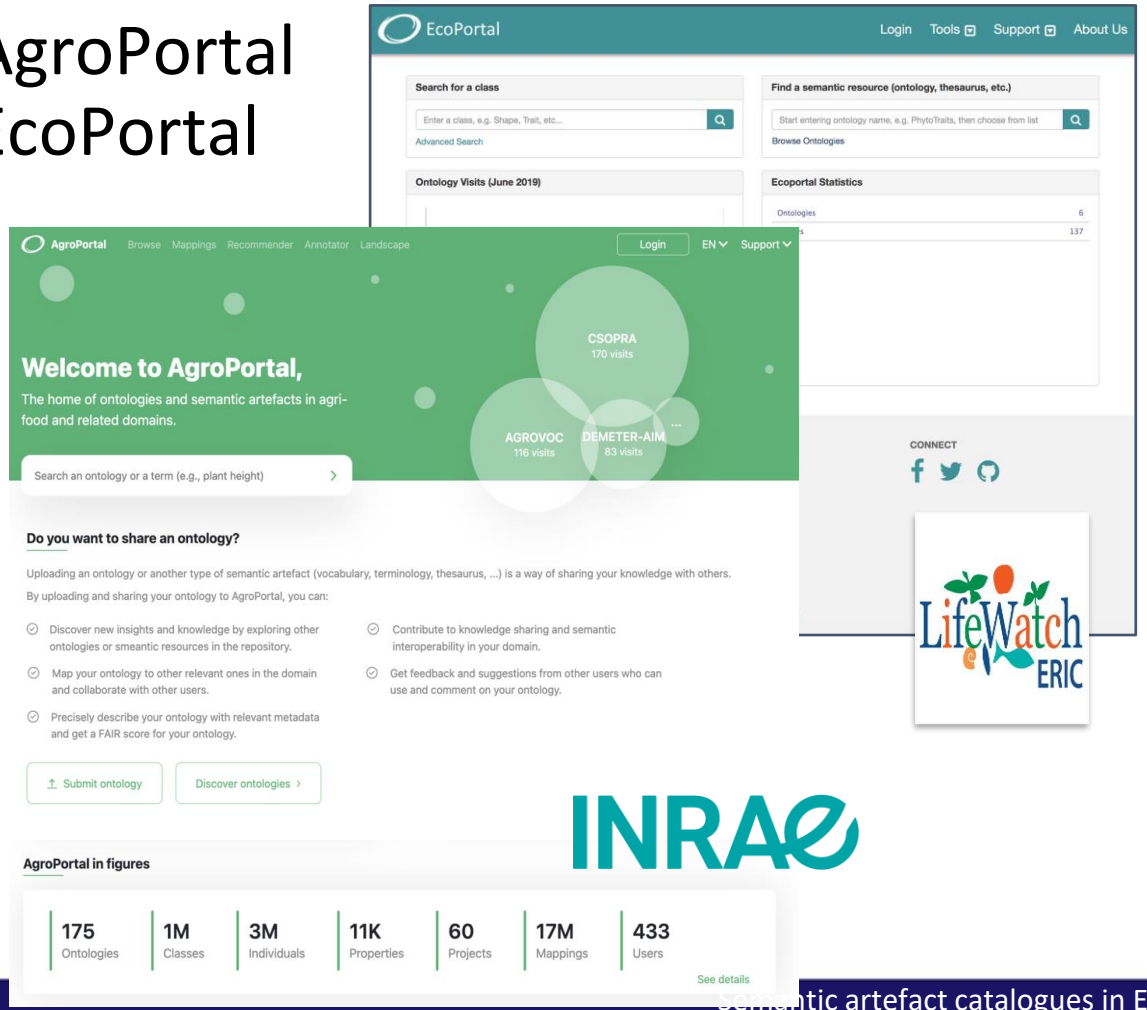
Semantic Artefact



Mappings

Existing catalogues being consolidated in communities

AgroPortal
EcoPortal



INRAE

LifeWatch ERIC

New catalogues being deployed in other communities/projects

Inside of FAIR-IMPACT

- EarthPortal (earth sciences)
- EscapePortal (astronomy)

DATA TERRA

l'Observatoire de Paris

…and outside (technological sciences, SSH, biodiversity)

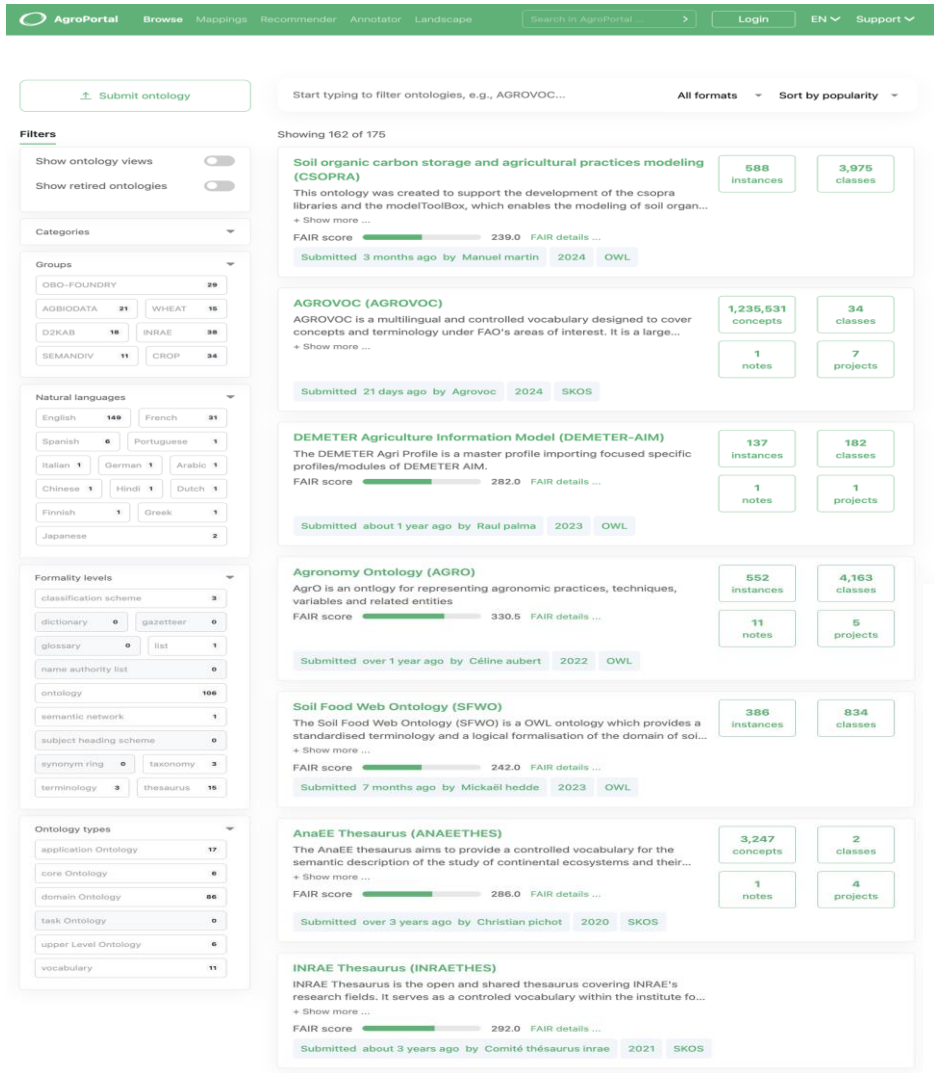
NFDI 4 BIODIVERSITY

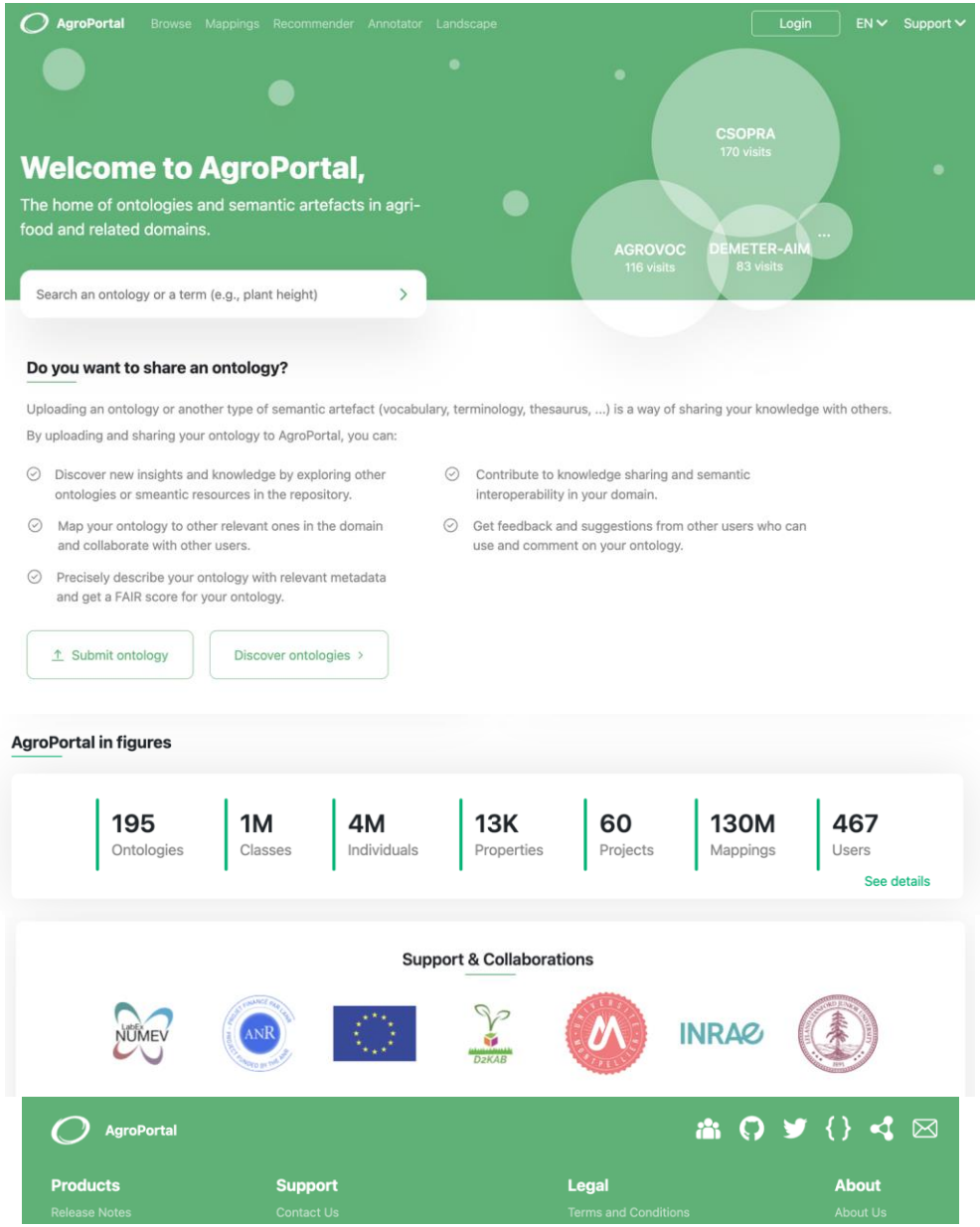
Working with other approaches too: Linked Open Vocabularies, CESSDA Vocabularies, etc.

AgroPortal an ontology repository for agri-food

http://agroportal.lirmm.fr

- Publish, search, download
- Browse, visualize
- Peer review
- Versioning
- Annotation
- Recommendation
- Mapping
- Notes
- Projects



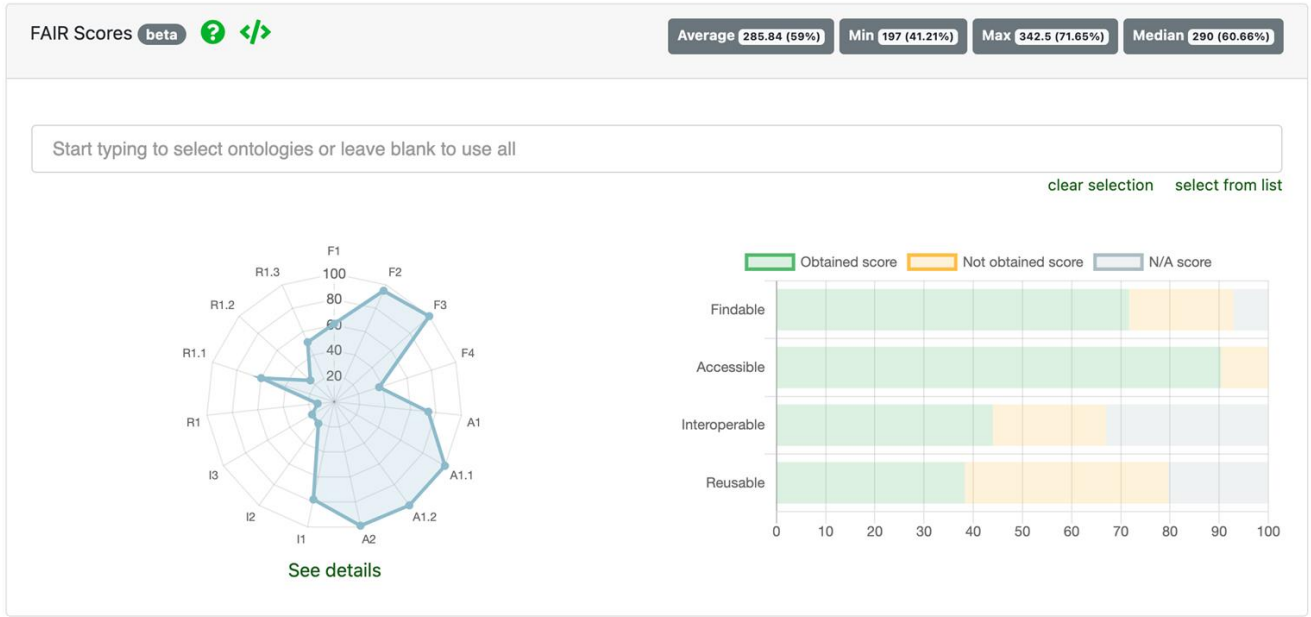


- 195 semantic artefacts, 200 candidates
- 467 registered users

C. Jonquet, A. Toulet, (…) P. Larmande. **AgroPortal: an ontology repository for agronomy**, *Computers and Electronics in Agriculture*. Jan 2018. 144, pp.126-143. Elsevier.

FAIRenabling tools and methods being transferred

- 4 new deployments of O'FAIRe (the Ontology FAIRness Evaluator)
- A methodology developed and implemented first in AgroPortal



E. Amdouni, S. Bouazzouni, C. Jonquet. **O'FAIRe: Ontology FAIRness Evaluator in the AgroPortal semantic resource repository**. *ESWC 2022 - 19th Extended Semantic Web Conference, Poster and demonstration*, May 2022, Hersonissos, Greece. ⟨10.1007/978-3-031-11609-4_17⟩

O'FAIRe deployments:

AgroPortal

SIFR BioPortal

IndustryPortal
Ontologies for industry

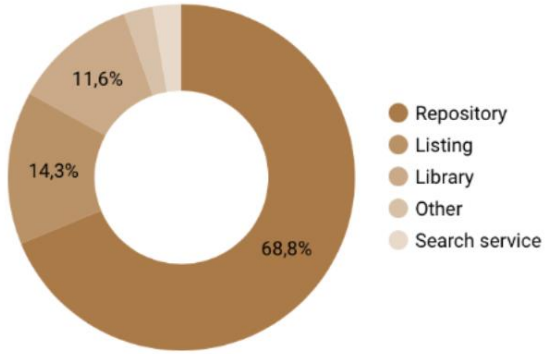
EcoPortal

EarthPortal

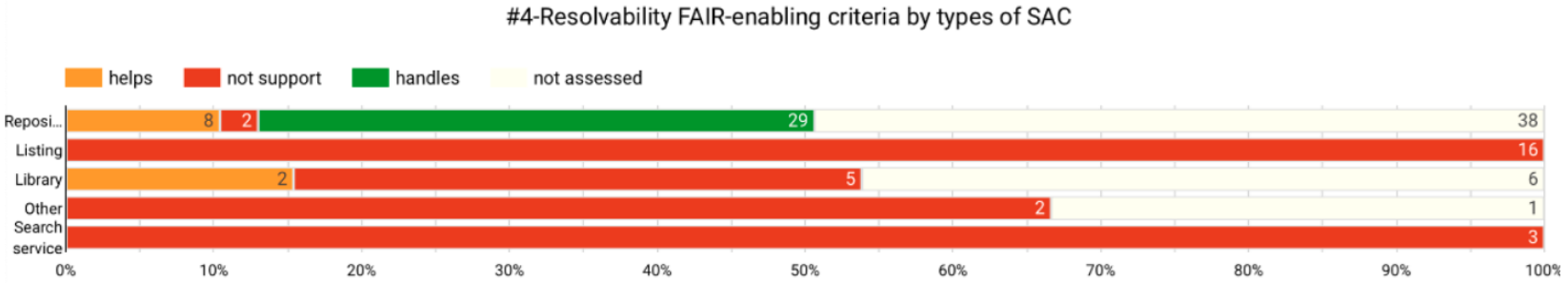
BiodivPortal

Exhaustive review of catalogues

- We review 173 current and retired catalogues



- Review 15 “generic” technologies: OntoPortal, OLS, SKOSMOS, Tematres, OpenTheso, …
- 10 FAIR-enabling dimensions
  (i.e., how using a catalogue helps the artefact in achieving FAIR)



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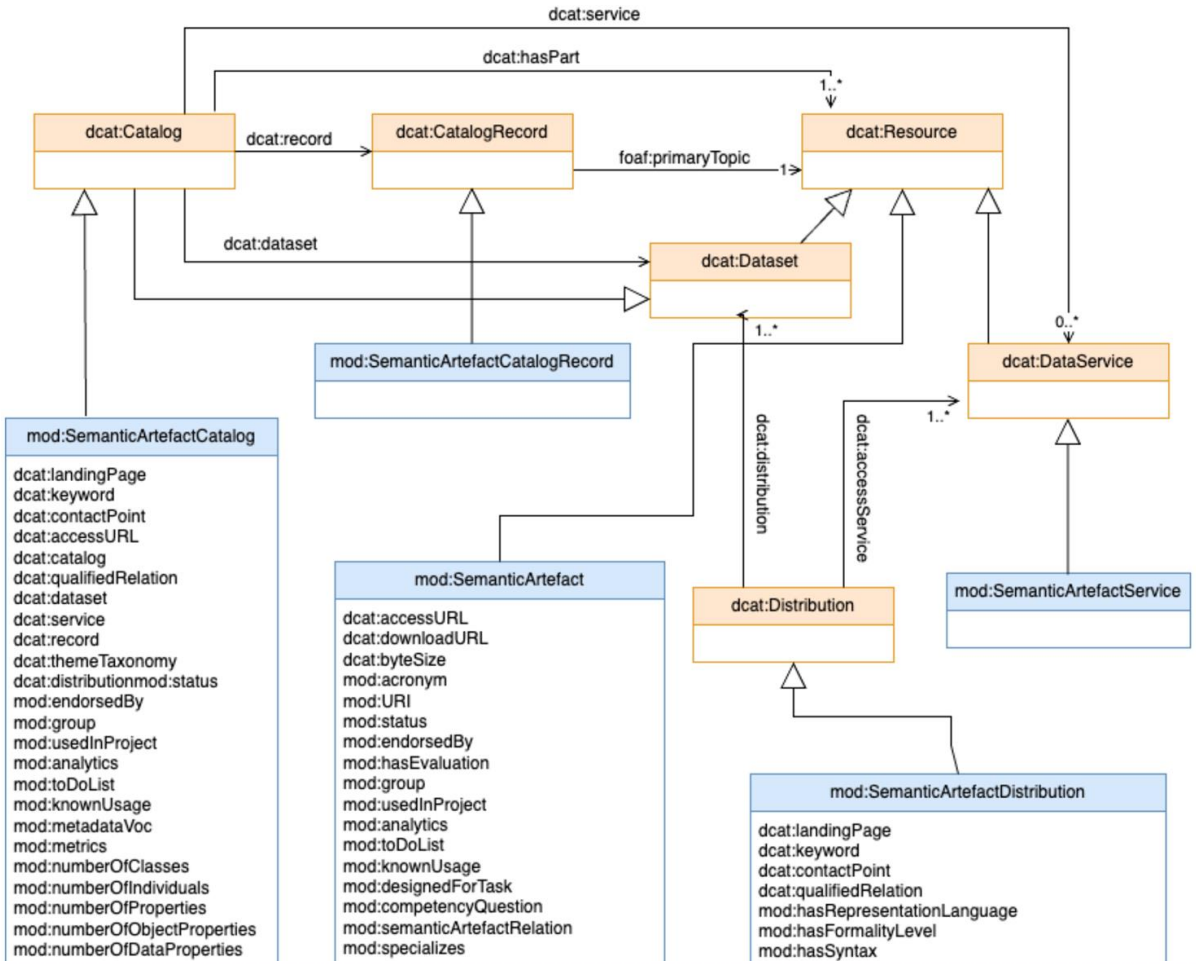
Expanding FAIR solutions across EOSC

Project Title	**Expanding FAIR solutions across EOSC**
Project Acronym	**FAIR-IMPACT**
Grant Agreement No.	101057344
Start Date of Project	2022-06-01
Duration of Project	36 months
Project Website	https://fair-impact.eu

M4.4 - Review and analysis of Semantic Artefact Catalogues for serving FAIR semantic artefacts in EOSC

Work Package	WP4, Metadata and Ontologies
Lead Author (Org)	Clement Jonquet (INRAE), Nina Grau (INRAE)
Contributing Author(s) (Org)	Maria Poveda (UPM), Daniel Garijo (UPM), Vyacheslav Tykhonov (DANS-KNAW), Baptiste Cecconi (OBS-PARIS), Guillaume Alviset (CNRS/Data Terra), Ilaria Rosati (CNR), Martina Pulieri (CNR)
Due Date	2024-07-31
Date	2024-07-31
Version	V1.0
DOI	10.5281/zenodo.12799796
DOI of associated data	10.5281/zenodo.12799862

A metadata standard for semantic artefacts (MOD)



Based on DCAT

eosc | FAIR-IMPACT
Expanding FAIR solutions across EOSC

Project Title	Expanding FAIR solutions across EOSC
Project Acronym	FAIR-IMPACT
Grant Agreement No.	101057344
Start Date of Project	2022-06-01
Duration of Project	36 months
Project Website	https://fair-impact.eu/

1 M4.3 - Specification of semantic artefact description

Work Package	**WP 4, Metadata and Ontologies**
Lead Author (Org)	**Alejandra Gonzalez-Beltran[1] (UKRI-STFC), Antony Wilson[2] (UKRI-STFC)**
Contributing Author(s) (Org)	**Biswanath Dutta[3] (ISI), Daniel Garijo[4] (UPM), Clement Jonquet[5] (INRAE), Yann Le Franc[6] (eSDF), María Poveda-Villalón[7] (UPM)**
Due Date	**2024-02-29**
Date	**2024-02-29**
Version	**V1.0**
DOI	**10.5281/zenodo.10725304**

https://github.com/FAIR-IMPACT/MOD

A standard API for semantic artefact catalogues (MOD-API)

For every one to implement to enable unified access (upcoming open call)

- GET `/artefacts` Get information about all semantic artefacts.
- GET `/artefacts/{artefactID}` Get information about a semantic artefact.
- GET `/artefacts/{artefactID}/distributions` Get information about a semantic artefact's distributions.
- GET `/artefacts/{artefactID}/distributions/{distributionID}` Get information about a semantic artefact's distribution.
- GET `/artefacts/{artefactID}/distributions/latest/resources` Get information about a semantic artefact's resources for the latest distribution.
- GET `/artefacts/{artefactID}/record` Get information about a semantic artefact catalog record.
- GET `/artefacts/{artefactID}/resources` Get a list of all the resources within an artefact.
- GET `/artefacts/{artefactID}/resources/{resourceID}` Get a specific resources from within an artefact.
- GET `/artefacts/{artefactID}/resources/classes` Get a list of all owl:Classes within an artefact.
- GET `/artefacts/{artefactID}/resources/concepts` Get a list of all skos:Concept within an artefact.
- GET `/artefacts/{artefactID}/resources/properties` Get a list of all the rdf:Property within an artefact.
- GET `/artefacts/{artefactID}/resources/individuals` Get a list of all the instances (owl individuals) within an artefact.
- GET `/artefacts/{artefactID}/resources/schemes` Get a list of all the skos:Scheme within an artefact.
- GET `/artefacts/{artefactID}/resources/collection` Get a list of all the skos:Collection within an artefact.
- GET `/artefacts/{artefactID}/resources/labels` Get a list of all the skos-xl:Label within an artefact.

eosc | FAIR-IMPACT
Expanding FAIR solutions across EOSC

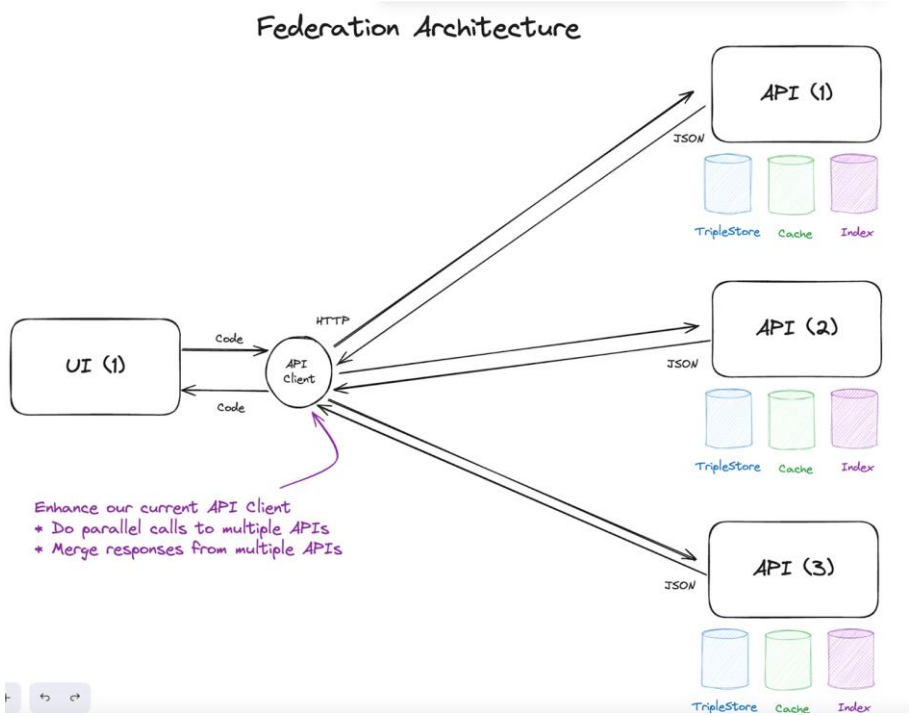
Project Title	Expanding FAIR solutions across EOSC
Project Acronym	FAIR-IMPACT
Grant Agreement No.	101057344
Start Date of Project	2022-06-01
Duration of Project	36 months
Project Website	www.fair-impact.eu

D4.3 - Specification of shared metadata description of semantic artefacts and their catalogues including common reference API

Work Package	**WP 4, Metadata and Ontologies**
Lead Author (Org)	**Antony Wilson[1] (UKRI-STFC), Clement Jonquet[2] (INRAE)**
Contributing Author(s) (Org)	**Alejandra Gonzalez-Beltran[3] (UKRI-STFC), Daniel Garijo[4] (UPM)**
Due Date	**2027-07-31**
Date	**2024-07-01**
Version	**V1.0 - DRAFT NOT YET APPROVED BY THE EUROPEAN COMMISSION**
DOI	**https://doi.org/10.5281/zenodo.12579778**

https://github.com/FAIR-IMPACT/MOD-API

Early work on federation of 4 catalogues (OntoPortal)



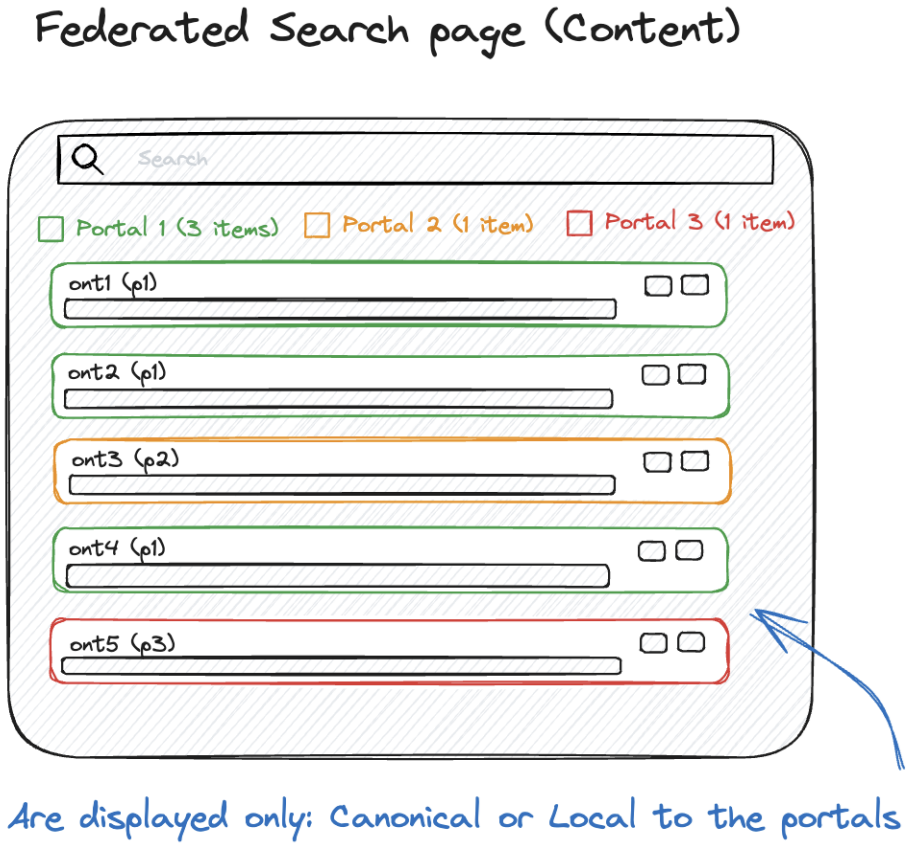
Coming end of 2024

AgroPortal

EcoPortal

EarthPortal

BiodivPortal



Deliverables

- Done
  - M4.1 - Semantic artefact governance models: example of community practices
  - D4.1 - Semantic artefact governance models and disciplinary approaches for inclusion within EOSC
  - M5.3 - Semantic artefact FAIRness assessment methodology ready
  - M4.2 - Processes & tools to engineer FAIR semantic artefacts
  - D4.3 - Specification of shared metadata description of semantic artefacts and their catalogues including common reference API
  - M4.4 - Review of semantic artefact catalogues and guidelines for serving FAIR semantic artefacts in EOSC
  - D4.4 - Guidelines for recommended metadata standard for research software within EOSC

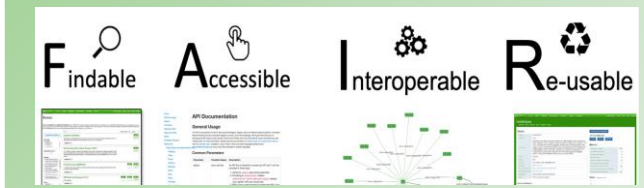
- *Upcoming*
  - *D4.2 - Report on FAIR semantic artefact lifecycle from engineering, to sharing and FAIR assessment*
  - *D4.5 - Guidelines and methodology to create, document and share mappings and crosswalks*
  - *D4.6 - Use case driven validation of semantic artefact exploitation within data repositories*
  - *M4.5 - Internal and external use case evaluation & demonstrators*

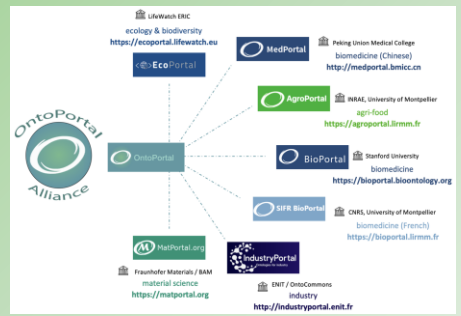
Conclusion

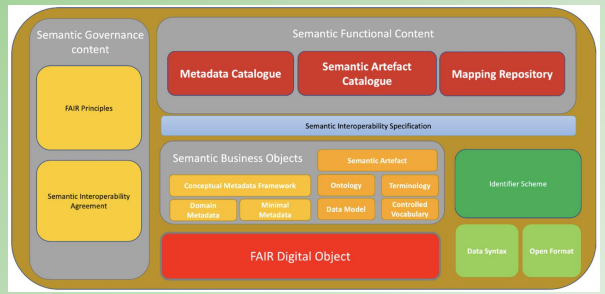
- Semantic Artefact Catalogues are a key component of the EOSC Interoperability Framework
- Proposition to make OntoPortal deployable at the click of the mouse for a project or community in EOSC
- Every new community, every new use cases brings new ideas. Participate. Join. FAIR-IMPACT is a catalyser.
- There are even more dimensions to semantic artefacts (governance, mappings, etc.). Check out our deliverables.

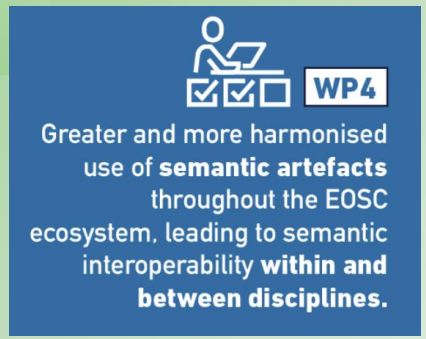
Summary

Questions ?









Thanks for your attention!

Do you have any questions ?

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Integrating Data Interoperability into SLAs & MoUs

French National Roadshow FAIR-IMPACT

Salomé Landel - CNRS - DDOR

Contact : salome.landel@cnrs.fr

Today, we'll explore
how data interoperability
can be integrated into SLAs and MoUs
in the European Open Science Cloud
(EOSC) context

Our Team

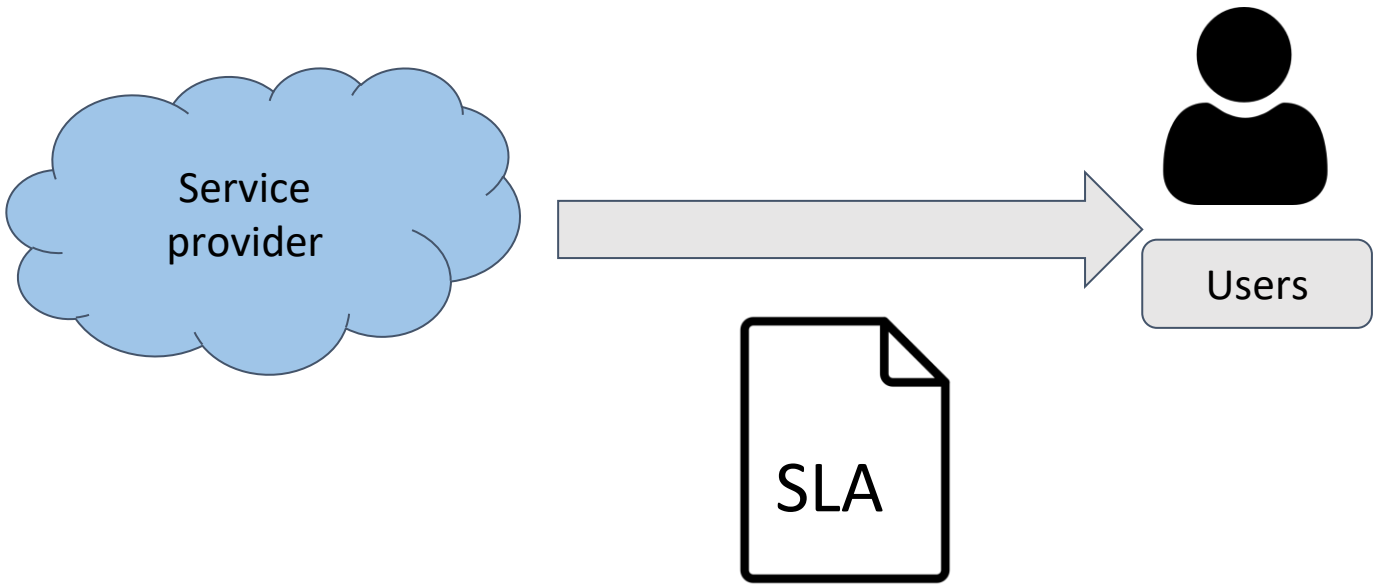
Agenda

1. What are SLAs and MoUs?
2. How can SLAs and MoUs support data interoperability?
3. Developing templates for SLAs and MoUs in the EOSC ecosystem
4. Preliminary conclusions
5. Questions / Discussion

1. Definitions

Service Level Agreements (SLAs)
and
Memorandum of Understanding (MoUs)

SLA as a tool to clarify service provision

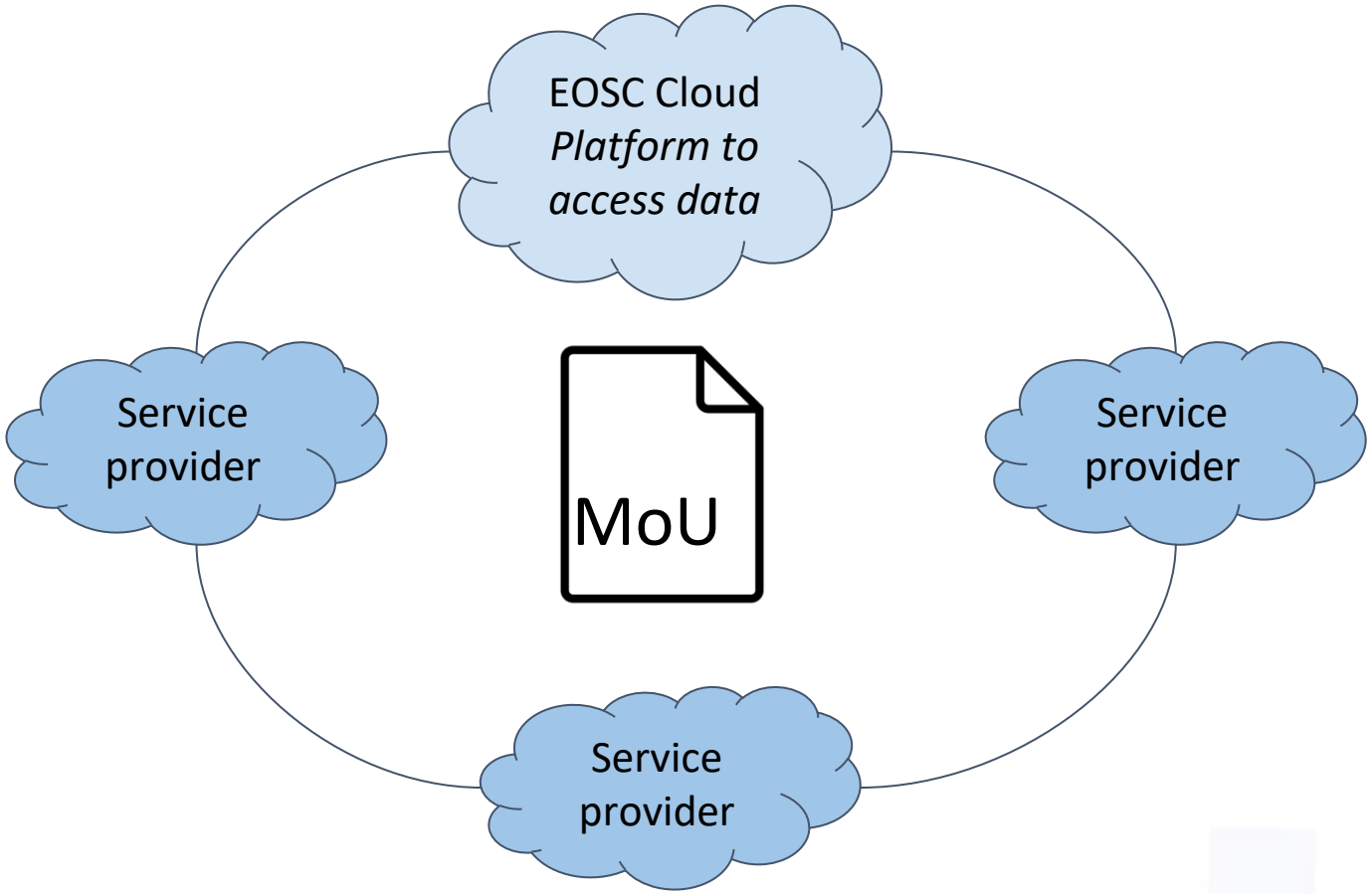


SLAs** are documented agreements between a customer and a service provider that specify the service to be provided and the service objectives that define how it will be provided, **so are very specific to services.

They provide a transparent framework by specifying criteria for service quality and measurement, such as service availability, frequency of outages, time to restore service and response times.

*However, **SLAs are not always legally binding**; they may be statements of intent or plans rather than absolute guarantees. **They can also be based on a best effort approach.***

MoU: a precursor to a formal contract



A MoU is typically a non-binding agreement ***between two or more parties*** *that outlines the terms and details of "mutual understanding" or "cooperation" and can be applied to a wide range of topics,* ***covering pretty much anything.***

1st finding

Aspect	SLA (Service Level Agreement)	MoU (Memorandum of Understanding)
Purpose	Defines specific services, expected levels, and metrics	Outlines terms and details of a mutual understanding or partnership
Legal Binding	Legally binding	Generally not legally binding
Usage	Common in IT services, telecommunications, outsourcing	Used in international agreements, partnerships, collaborations
Example Scenarios	IT company providing cloud storage	Universities collaborating on a research project

2. "How to use SLAs and MoUs for data interoperability?"

Data interoperability:

*"the ability of systems and services that create, exchange and consume data to have **clear, shared expectations for the contents**, context, and meaning of that data"* *

Data interoperability **allows data held in different formats and locations to be used together.**

*Intertrust Technologies Inc.

Data circulates and is reused when interoperable

Researchers who produce data

Service provider

Users

Data reuse

Service provider

Users

Researchers who produce data

Data reuse

Data and metadata format for data interoperability

From row Research data …

… To Interoperable data

Integrating Data Interoperability into SLAs

Legal, Technical, Organisational and Semantic interoperability descriptions

=

Focused on technical aspects like data formats, APIs, security standards

+

Highly detailed with clear technical specifications and performance expectations

SLA Standard structure

1. General information about the parties
2. Scope & description of the Service
3. **Service hours & exceptions**
4. **Service components & dependencies**
5. **Support**

    5.1 Incident handling

    5.2Fulfilment of service requests

1. **Service level targets**
2. **Limitations & constraints**
3. Communication, reporting and escalations

    8.1 General communication

    8.2 **Regular reporting**

    8.3 SLA volations

    8.4 Escalation & complaints

1. **Information security & data protection**
2. Additional responsibilities of the service provider
3. User responsibilities
4. **Review**
5. Glossary of terms
6. Document control

MoU integrating Data Interoperability

Legal, Technical, Organisational and Semantic interoperability descriptions

=

Covers broader objectives such as data sharing goals, roles, and responsibilities

+

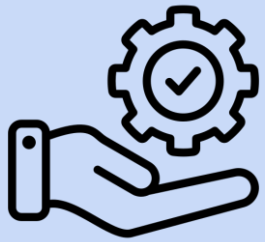
Used in partnerships, consortiums, or collaborations **where data interoperability is desired but not yet fully defined**

MoU standard structure

1. Title
2. Introduction
3. Statement if Intent
4. Scope of agreement
5. **Roles & Responsibilities**
6. **Term of Agreement**
7. Confidentiality
8. Intellectual Property Rights

2nd finding

The SLA defines **more specific and technical aspects** (data formats, APIs, metadata schemas) to clarify how data interoperability is provided.



MoUs are used in partnerships and **outline general and strategic intentions** and frameworks for data sharing and interoperability.

3. “How to develop templates for MoUs and SLAs for data interoperability at EOSC level?”

In the EOSC context, data circulate as well

Researchers who produce data

Service provider

Service provider

Researchers who produce data

EOSC Cloud
Platform to access data

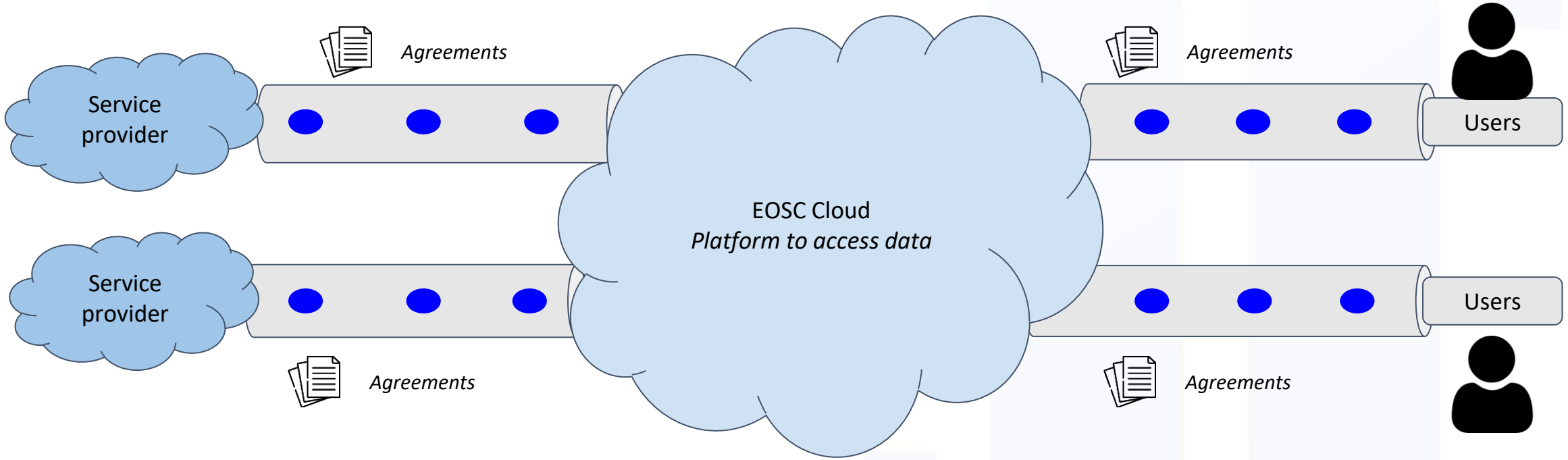
Data reuse

Users

Users

Data reuse

SLAs and MoUs can structure workflows in this context of interconnected services



Several SLAs to be signed in the EOSC context (currently in transition)

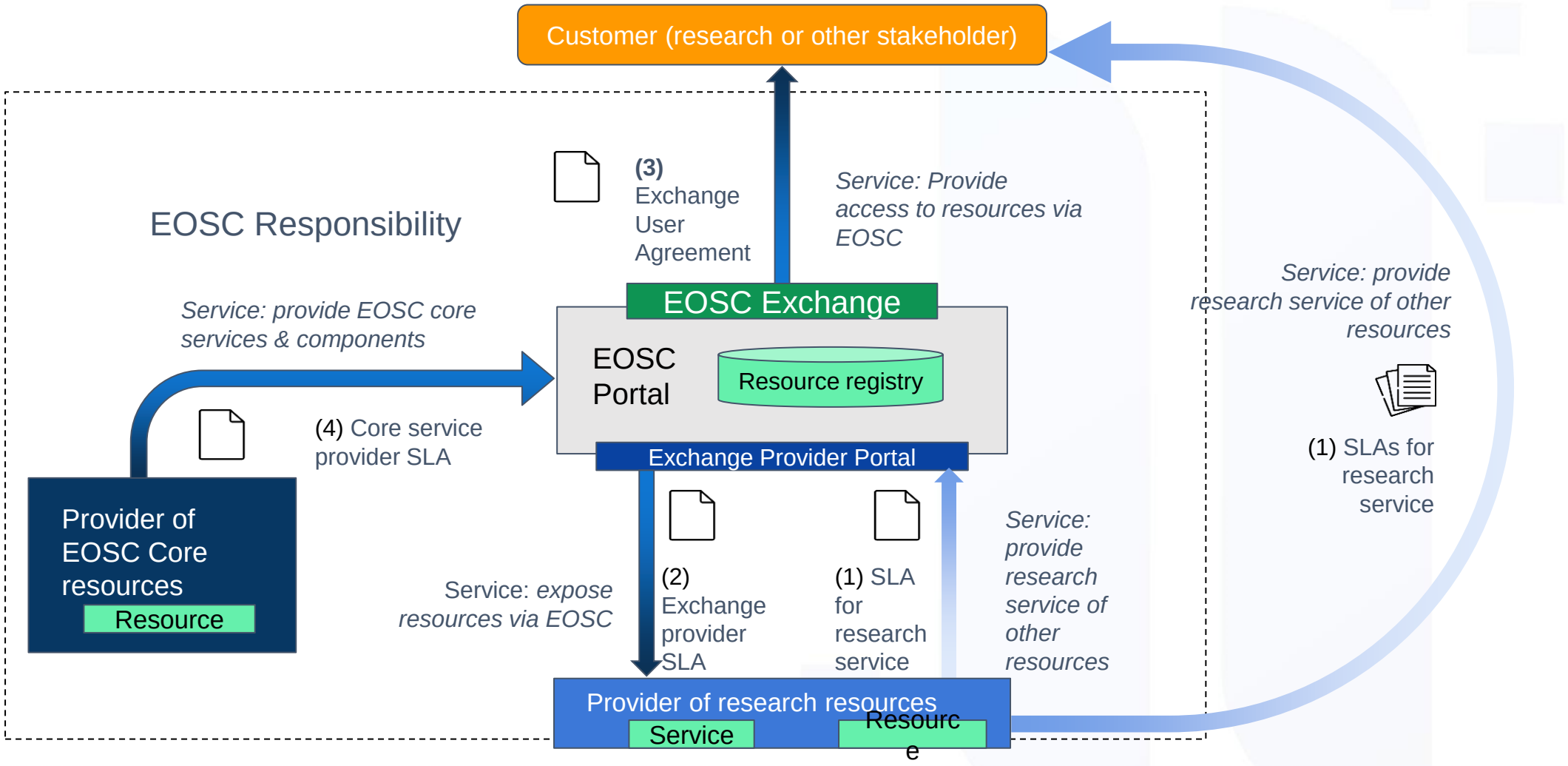


Diagram inspired from EOSC Enhance deliverable 1.4

MoUs have more general objectives and therefore more options

MoU between different service providers to align their definition of data interoperability

MoU between EOSC and other international organisations on data interoperability

Etc.

3rd finding

Need to clarify at EOSC level which stakeholder has direct impact on data interoperability

Proposal to align service providers involved in EOSC service delivery through MoUs and SLAs

Need to consider how detailed the agreement should be to allow for a flexible community.

4. (Preliminary) Conclusions

Key points

Data interoperability can be included as sections in SLAs and MoUs

Aligning standards across the EOSC ecosystem will lead to more seamless data sharing.

This will need **to be negotiated** once “EOSC 2.0” is in place: Need to keep service providers on board

Data interoperability must be formalized for clarity in SLAs & MoUs.

Questions / Discussion

Thanks for your attention!

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Use of semantic artefacts, via **AgroPortal**, within **Recherche Data Gouv**

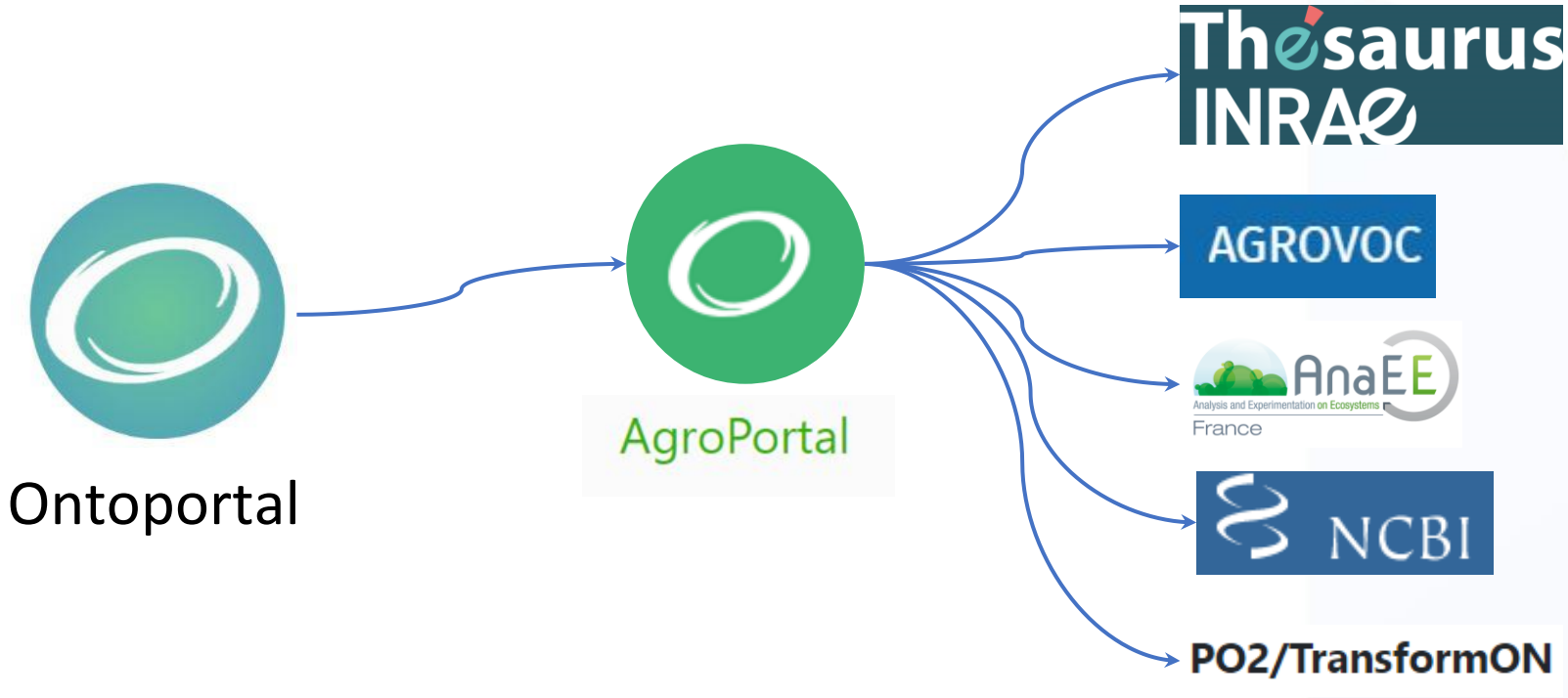
French National Roadshow FAIR-IMPACT

Dimitri Szabo - INRAE

Contact : dimitri.szabo@inrae.fr

INRAE

AgroPortal semantic artefact (SA) catalogue



Host and serve ontologies & semantic artefacts (semantically described with rich metadata)
-> Access via API

Thematic SA catalog for Agri-Food ontologies and thesaurus

Semantic Artefacts (SA)

Recherche Data Gouv & Data INRAE

Recherche Data Gouv is a sovereign solution for depositing, publishing, reporting, discovering, accessing and reusing French data. Notably:

- A national repository with a generic collection and institutional spaces

Data INRAE : the institutional space for INRAE

-> the sub-repository used for this use case

The repository is based on the **Dataverse Project** (developed at Harvard), an open source web application to share, preserve, cite, explore, and analyze research data.

Experimental, simulation and observation data, omics data, survey and text data related to the institute's domains.

State of the disunion

FAIRsFAIR recommendation : A metadata document or selected parts of the document may incorporate additional terms from semantic resources (also referred as semantic artefacts) that unambiguously describe the contents so they can be processed automatically by machines. This metadata enrichment may facilitate enhanced data search and interoperability of data from different sources.

An increasing number of keywords…

… but mostly due to the keyword/dataset ratio

… but with many misunderstandings from the depositors

- confusion between term and vocabulary
- incomplete information
- let's put everything in one field
- …

… but the interface is failing them

- manual entry of keywords
- some duplication of terms for translation
- cause of some of the misunderstandings

Error icons created by Freepik - Flaticon

INRAE

Demonstration

Assessing the results

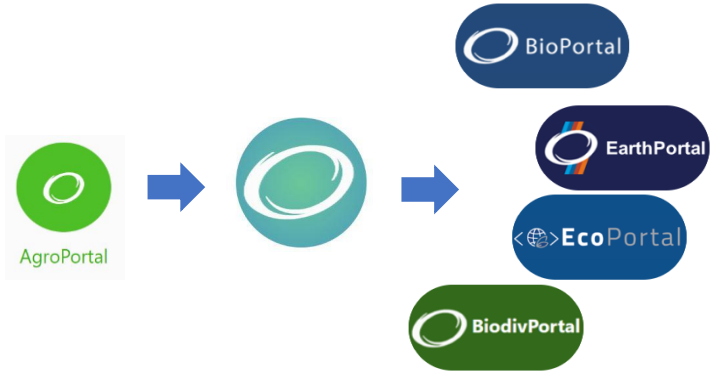
- Qualitative :
  - interviews with users during the project
  - satisfaction rating
- Quantitative :
  - keywords usage
  - users using keywords
  - keywords completion
  - datasets consultations (>> longer run)
  - feedback or requests for vocabularies (>> longer run)
- FAIRness assessment

INRAE

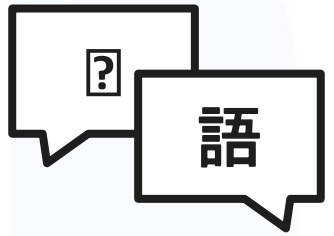
Challenges / perspectives

Users friendliness

Modularity



Multilingualism



Sustainability

[Iteration icons created by Freepik - Flaticon]

Thanks for your attention!

Do you have any questions ?

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Enabling interoperability between **AgroPortal** and **PHIS** information system for enhanced phenomics data annotation and exchange

French National Roadshow FAIR-IMPACT

Anne Tireau, Arnaud Charleroy, **Llorenç Cabrera-Bosquet** & Clément Jonquet - INRAE

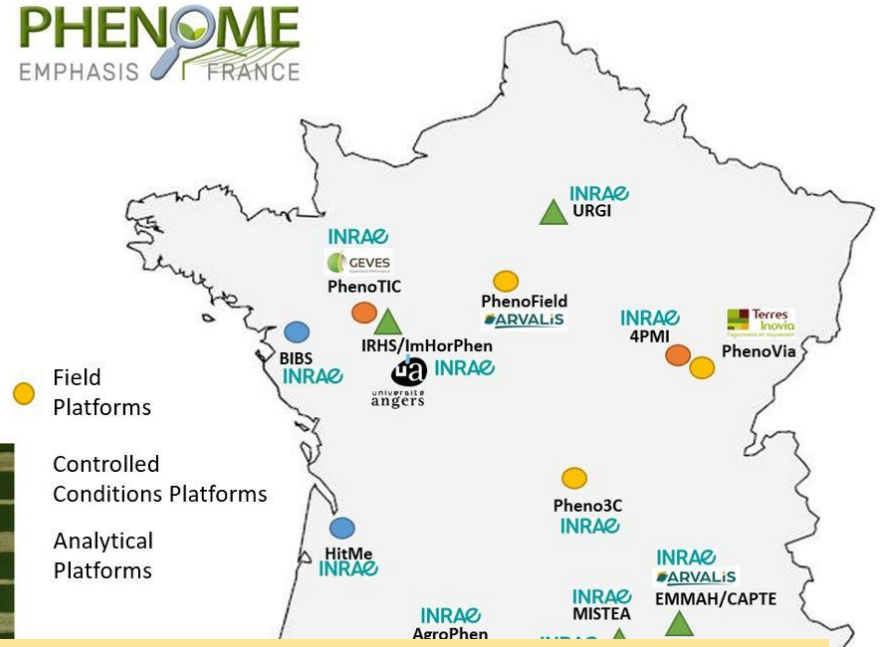
Contact : llorenc.cabrera-bosquet@inrae.fr

PHENOME-EMPHASIS, The French Plant Phenomic Infrastructure

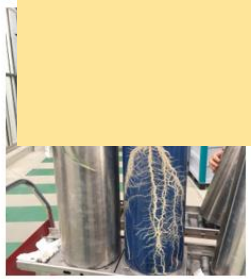
Develop infrastructure to help design genotypes adapted to climate change and agroecology

- Characterize large collections of genotypes for quantitative genetic studies (GWAS - GS): high-throughput phenotyping
- Manipulate/control/characterise contrasting environmental scenarios, including the main abiotic/biotic components of climate change and agroecology

11 distributed installations and 2 methodological projects






PHENOME-EMPHASIS generates a massive and highly heterogenous amount of data

Coordinated by Bertrand Muller & Jacques Le Gouis (François Tardieu)

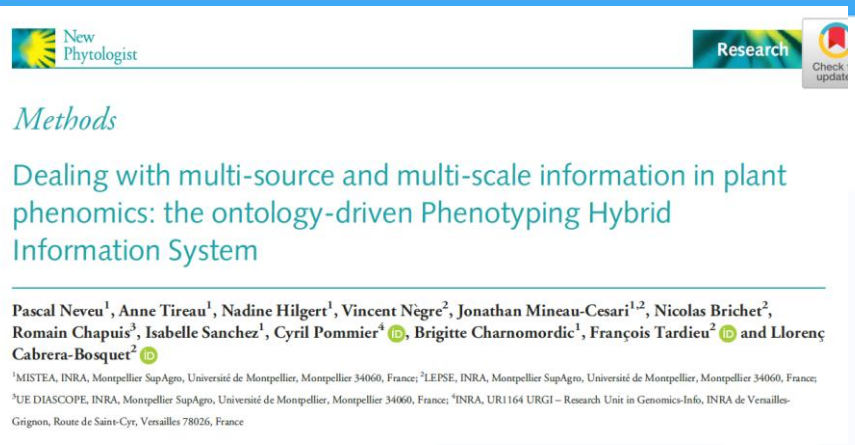
Sept 2012 – Dec 2024

PHIS: Phenotyping Hybrid Information System

Data management

Store, organise and manage

- Highly heterogeneous data (e.g. images, spectra, kynetics, environmental data)
- Multi-spatial and temporal scale data (leaf to canopy level)
- Multi-source (field, platform)


New Phytologist — Research

Methods

Dealing with multi-source and multi-scale information in plant phenomics: the ontology-driven Phenotyping Hybrid Information System

Pascal Neveu[1], Anne Tireau[1], Nadine Hilgert[1], Vincent Nègre[2], Jonathan Mineau-Cesari[1,2], Nicolas Brichet[2], Romain Chapuis[3], Isabelle Sanchez[1], Cyril Pommier[4], Brigitte Charnomordic[1], François Tardieu[2] and Llorenç Cabrera-Bosquet[2]

[1]MISTEA, INRA, Montpellier SupAgro, Université de Montpellier, Montpellier 34060, France; [2]LEPSE, INRA, Montpellier SupAgro, Université de Montpellier, Montpellier 34060, France; [3]UE DIASCOPE, INRA, Montpellier SupAgro, Université de Montpellier, Montpellier 34060, France; [4]INRA, UR1164 URGI – Research Unit in Genomics-Info, INRA de Versailles-Grignon, Route de Saint-Cyr, Versailles 78026, France

Neveu et al. *New Phytologist* 2019

Pascal Neveu

Metadata enrichment

Not only storing data but… **Enrich datasets** with the necessary knowledge and metadata (enable analysis, reuse and meta-analyses)

Data users are more than often different than data providers!!

PHIS

www.phis.inrae.fr

=> Provide FAIR data

Interoperability

Interoperate and integrate data into/from external resources (e.g. modelling platforms or external databases)

PHENOME EMPHASIS FRANCE

Mistea

LEPSE PLANT ADAPTATION TO CLIMATE CHANGE

Object identification

In PHIS all objects are identified using URIs
(Uniform Resource Identifiers)
=> standardized and unambiguous identification

Prefix diaphen: *<http://phenome-fppn.fr/diaphen>* (b)

URI of plot
<diaphen:2017/o1700029>

URI of plant:
<diaphen:2017/17000147>

URI of leaf:
<diaphen:2017/117000590>

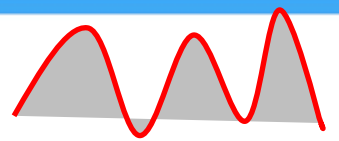
URI of camera:
<diaphen:2018/ac180002>

URI of image:
<diaphen:2017/ic14001480237>

Neveu et al. *New Phyt* 2019

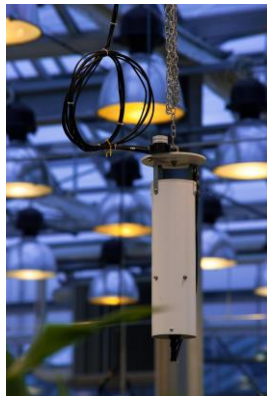
Object identification (URIs)

Variable



m3p:variable/ev000002

Sensor



<m3p:arch/2011/sa110002>

Plant

<m3p:arch/2017/c17001396>

Experiment

<m3p:ARCH2017-03-30>

Organ

<m3p:arch/2017/eic17000069>

Event

<event:262ae21a-4eaa-
4e3b-a3c9-4bbf2b402370>

User

<m3p:User1>

The same applies to sensors, people, events, infrastructure, variables…

Object identification and vocabulary (URIs and ontologies)

Object identification

In PHIS all objects are identified using URIs (Uniform Resource Identifiers)
=> standardized and unambiguous identification

Prefix diaphen: <http://phenome-fppn.fr/diaphen> (b)

URI of plot
<diaphen:2017/o1700029>

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URI of leaf:
<diaphen:2017/117000590>

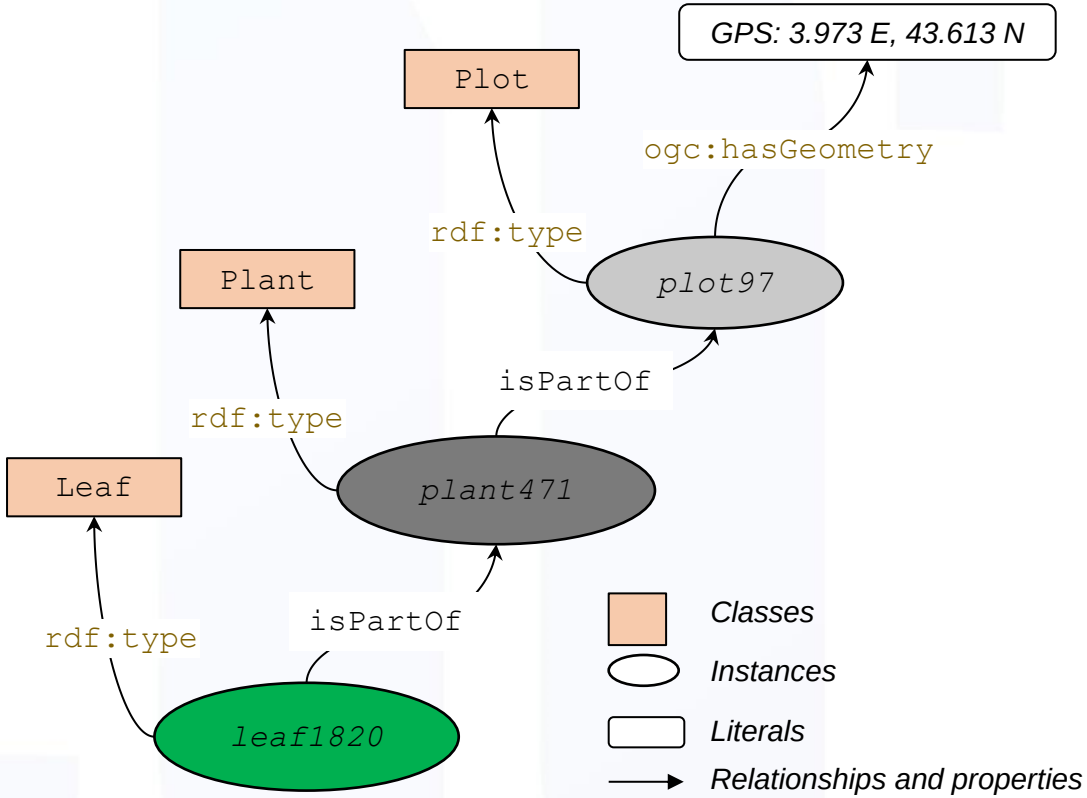
URI of camera:
<diaphen:2018/ac180002>

URI of image:
<diaphen:2017/ic14001480237>

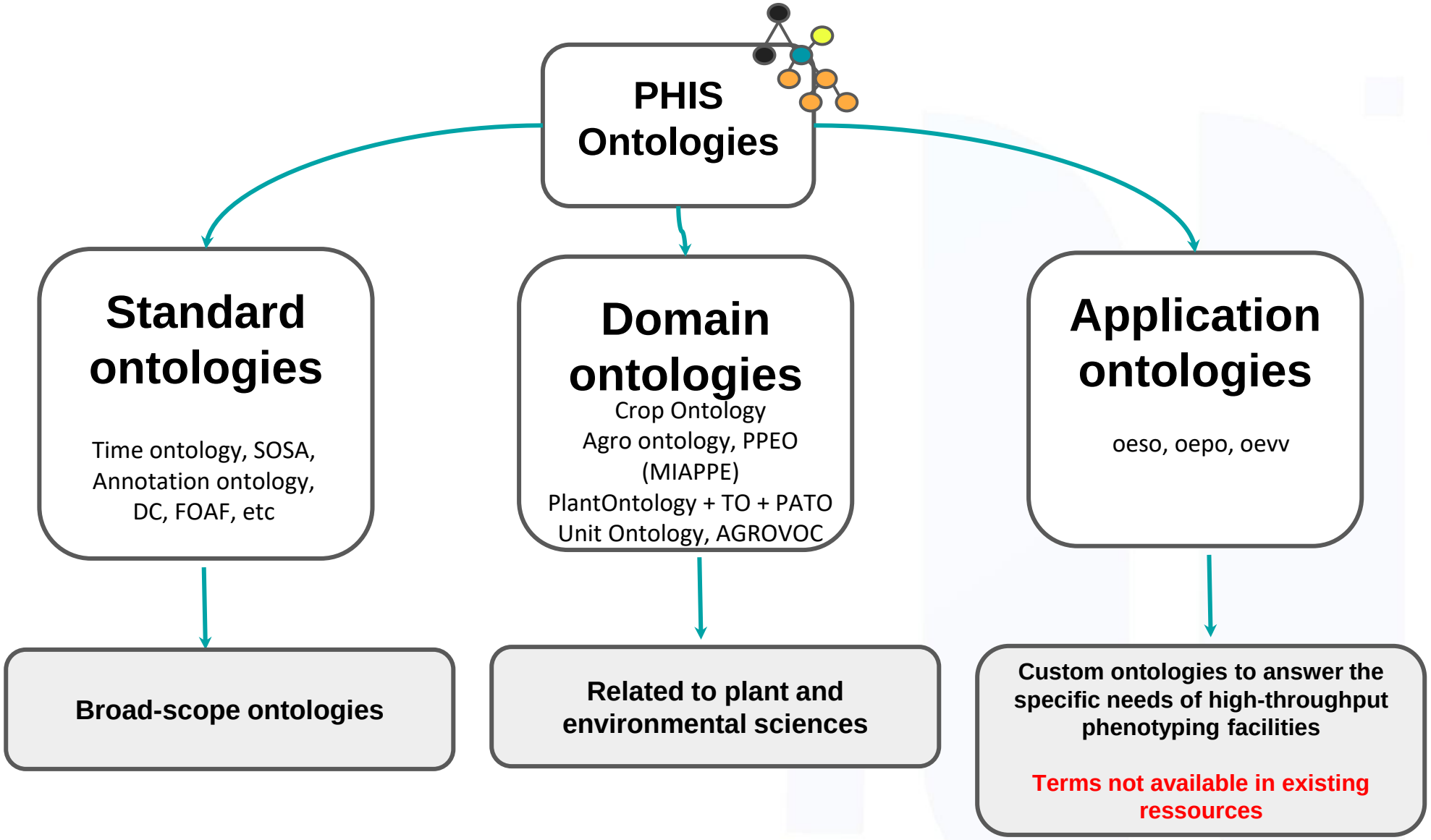
Neveu et al. *New Phyt* 2019

Semantics (controlled vocabulary)

Ontologies allow to define terms and formalise relationships between them



PHIS ontologies



How scientists name/describe variables and how can we incorporate such knowledge ?

Plant height exemple

WHAT?

HOW?

What UNITS/SCALE?

M1: Total height

M2: First tassel branch

M3: Last expanded leaf

M4: Youngest growing leaf

…There is an uncountable number of combinations…
NO standardisation **BUT** traceability needed

U3: pixel

M5: Highest pixel corresponding to plant

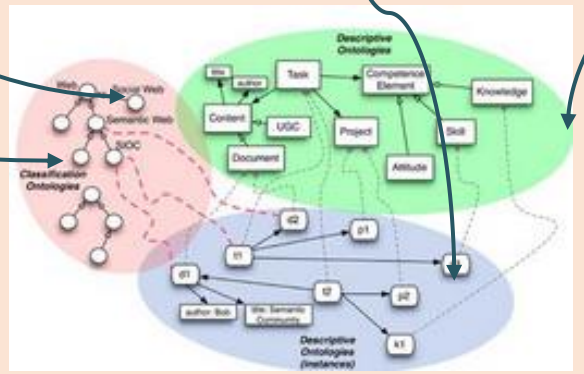
PHIS: Variables model

Crop Ontology
for agricultural data

Trait

PLANT — **Entity** + HEIGHT — **Characteristic** + RULER — **Method** + CM — **Scale (unit)**

Ideally, **BUT**



Reference ONTOLOGIES

Challenges when describing variables

- Most users with a background in biology **lack computer science skills** and are unfamiliar with the use of ontologies or semantic artefacts, leading to difficulties in retrieving information
- Most available **resources are not centralized**, which further complicates the process of gathering information from multiple sources and mapping concepts.
- Gathering reference terms from multiple sources and ad-hoc vocabulary systems is a **manual process**.
- This manual process considerably **prevents and slows down the reuse of standard ontology terms** when describing objects within PHIS.

Crop Ontology
for agricultural data

Planteome

AgroPortal

miappe

Food and Agriculture Organization of the United Nations
AGROVOC Multilingual Thesaurus

And many others…

Connector between PHIS and AgroPortal to facilitate the re-use of ontology terms when building variables and other scientific objects within PHIS.

[AgroPortal](). It is a vocabulary and **ontology repository built as a reference catalogue for hosting, sharing and serving semantic artefacts for agri-food** communities, developed and maintained by INRAE-MISTEA and University of Montpellier (Jonquet *et al*. 2017)

PHIS, an ontology-driven information system, inspired from the FAIR principles, for integrating, organizing, and managing multi-source and multi-scale phenomics data obtained from field and greenhouse conditions (Neveu *et al*. 2018)

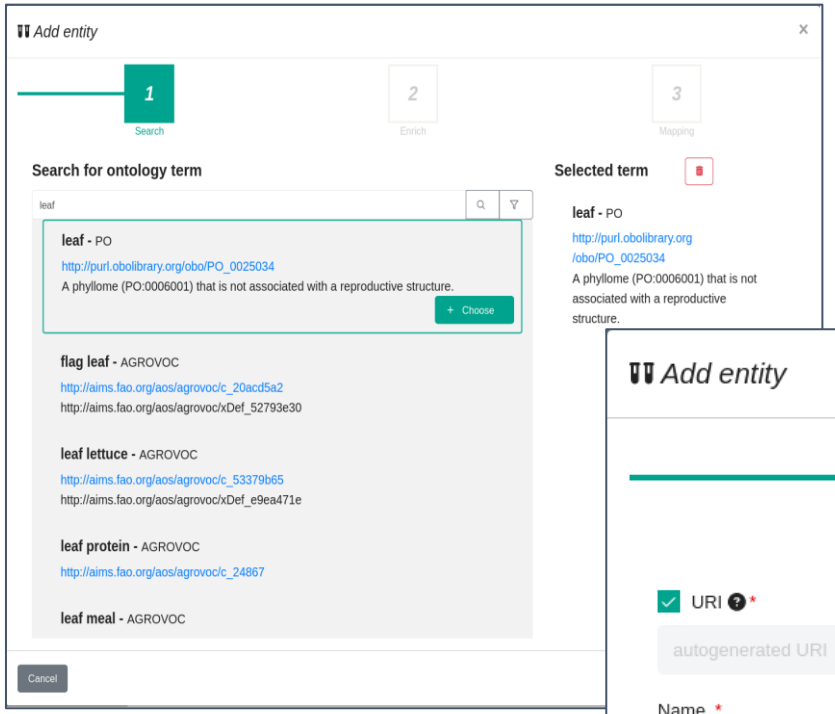
Anne Tireau
Arnaud Charleroy
Llorenç Cabrera-Bosquet
Clément Jonquet

Coord. C. Jonquet

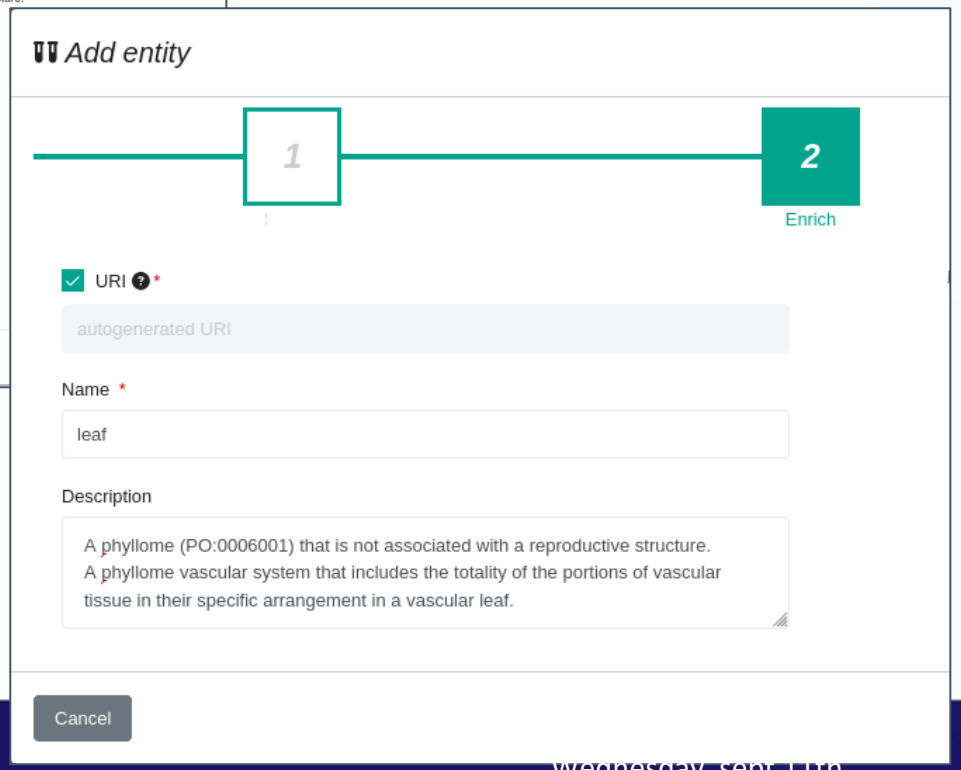
Connector between PHIS and AgroPortal to facilitate the re-use of ontology terms when building variables and other scientific objects within PHIS.

AgroPortal ⟷ PHIS

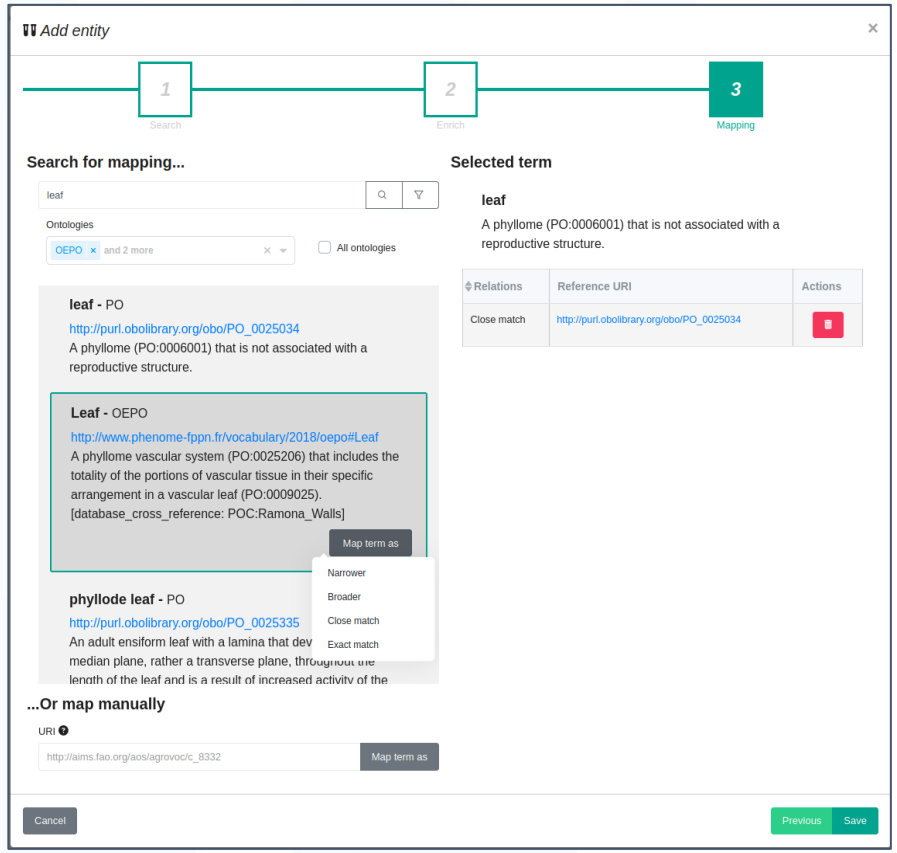
1. Browse existing terms



2. Enrich metadata



3. Mapping with other terms (SKOS)

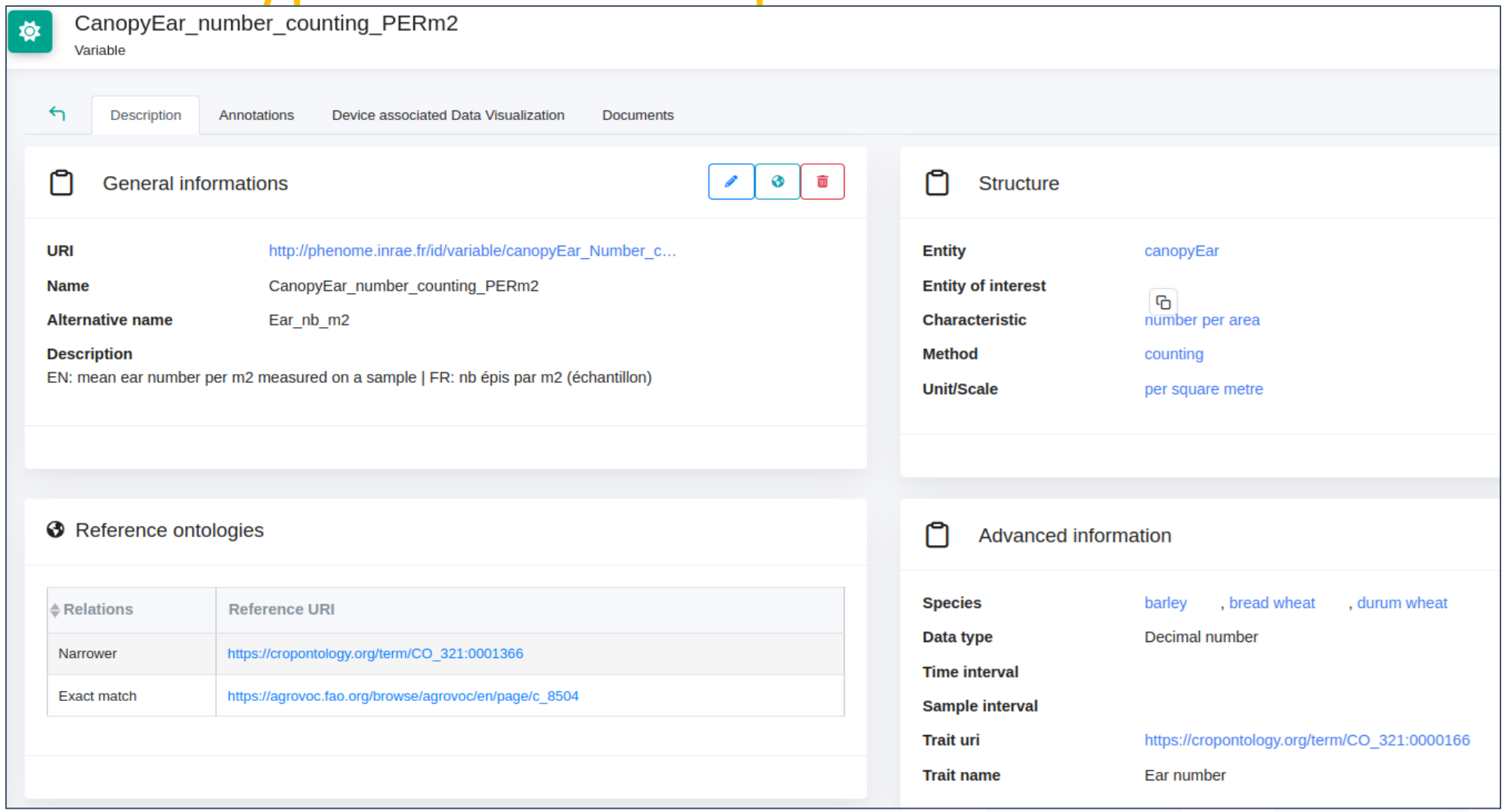


Anne Tireau
Arnaud Charleroy
Llorenç Cabrera-Bosquet
Clément Jonquet

Coord. C. Jonquet

PHIS: Variables model

Enable semantically precise and FAIR descriptions - Machine readable




Thanks ! questions ?

Use of semantic artefacts, via EarthPortal, within EasyData

French National Roadshow FAIR-IMPACT

Christelle Pierkot & Guillaume Alviset - Data Terra

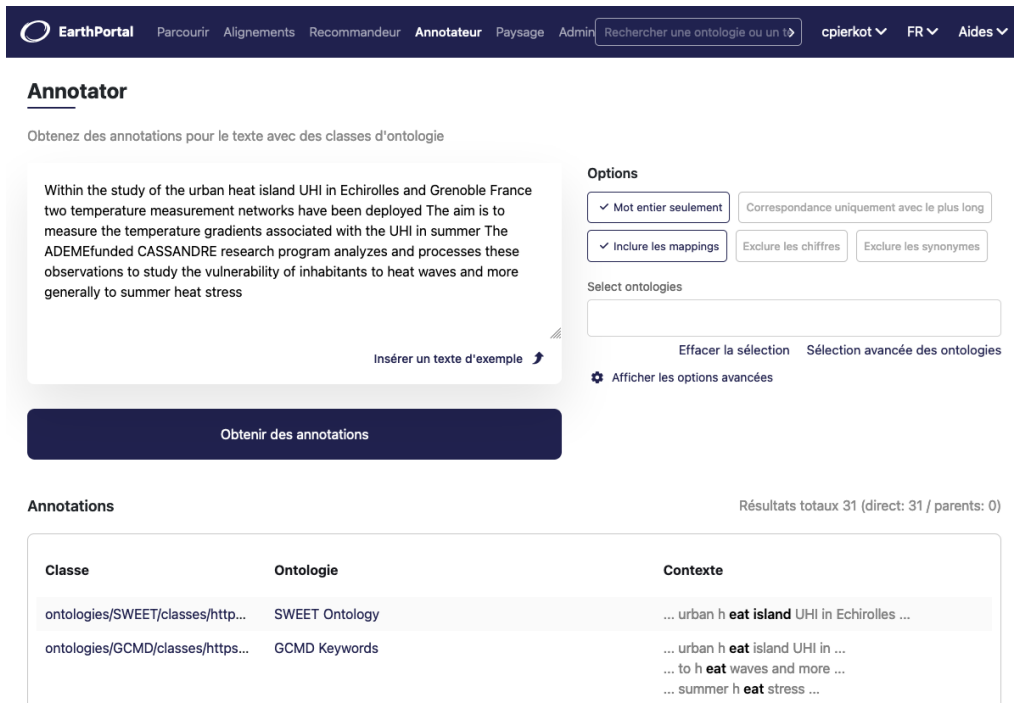
Contact : christelle.pierkot@data-terra.org & guillaume.alviset@data-terra.org

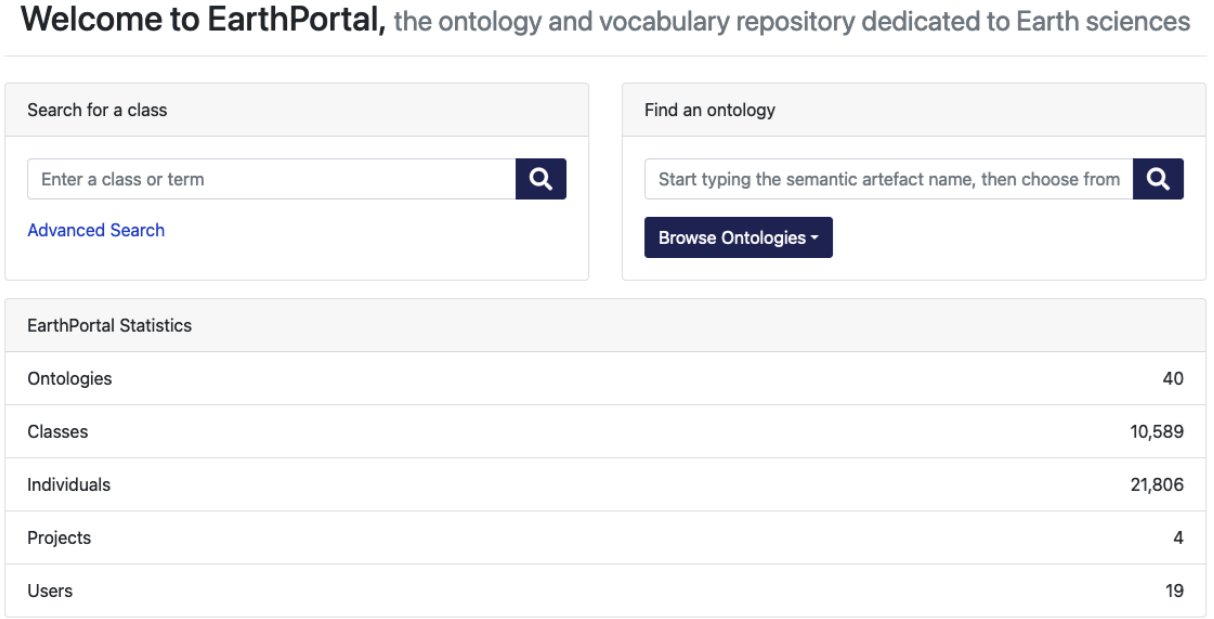
DATA TERRA

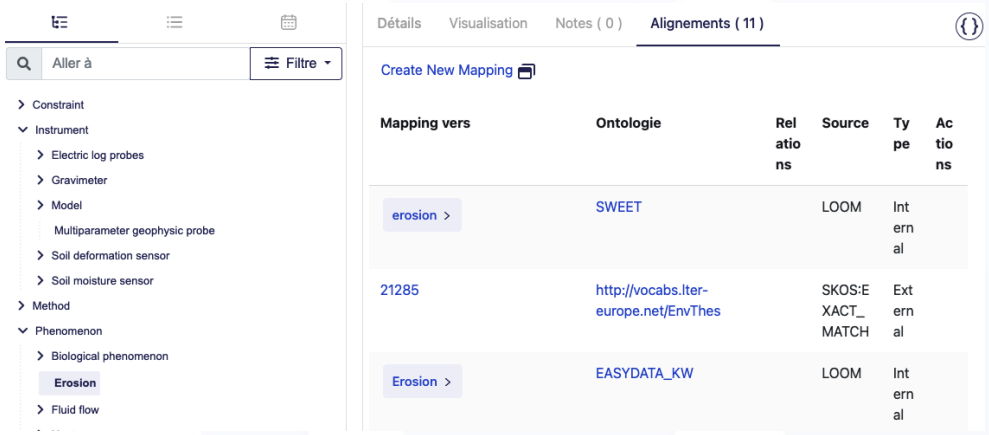
EarthPortal : Thematic semantic artefact catalog relating to Earth Sciences.

- FAIR-IMPACT : task 4.2
- Based on Ontoportal technologie

Provides tools : Annotator, Mapping, …
Can be used by external applications through REST API

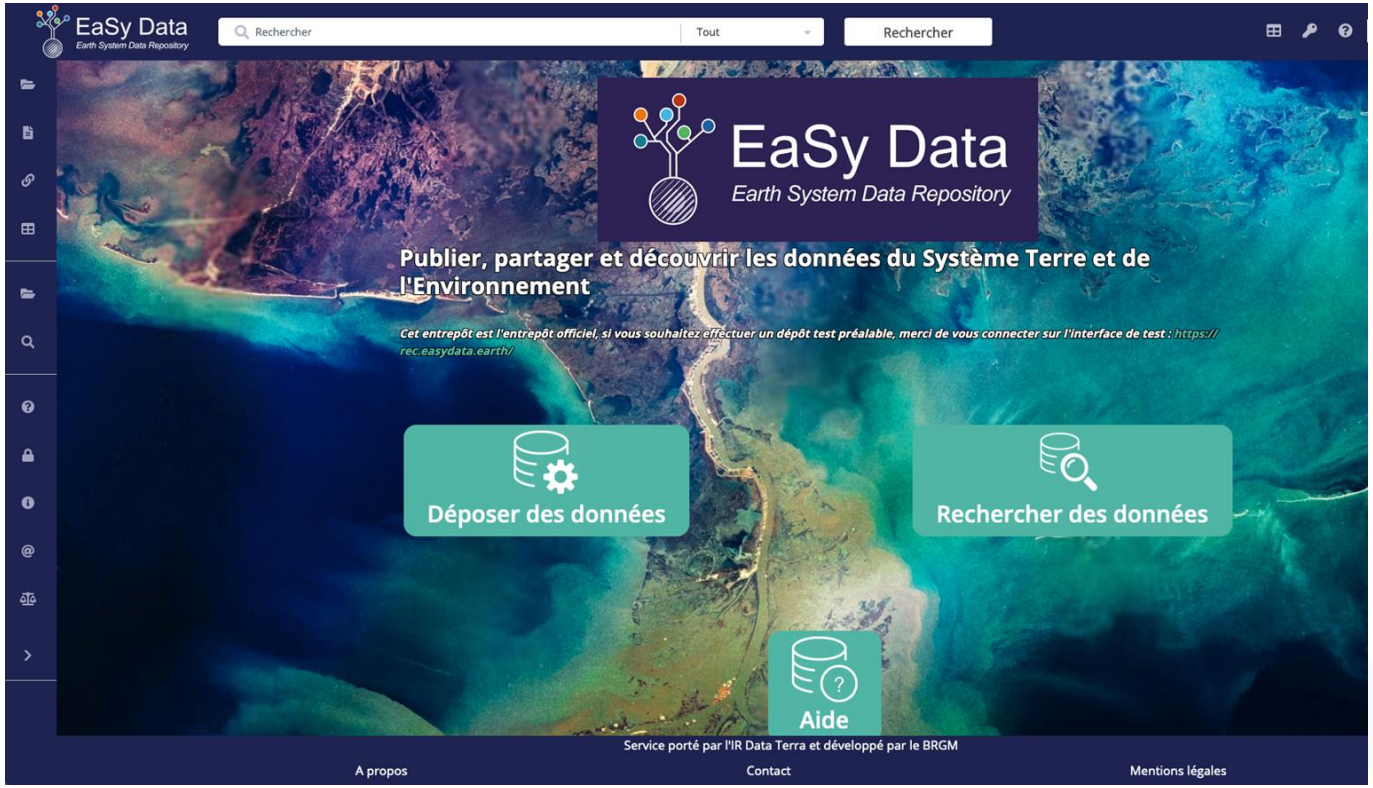


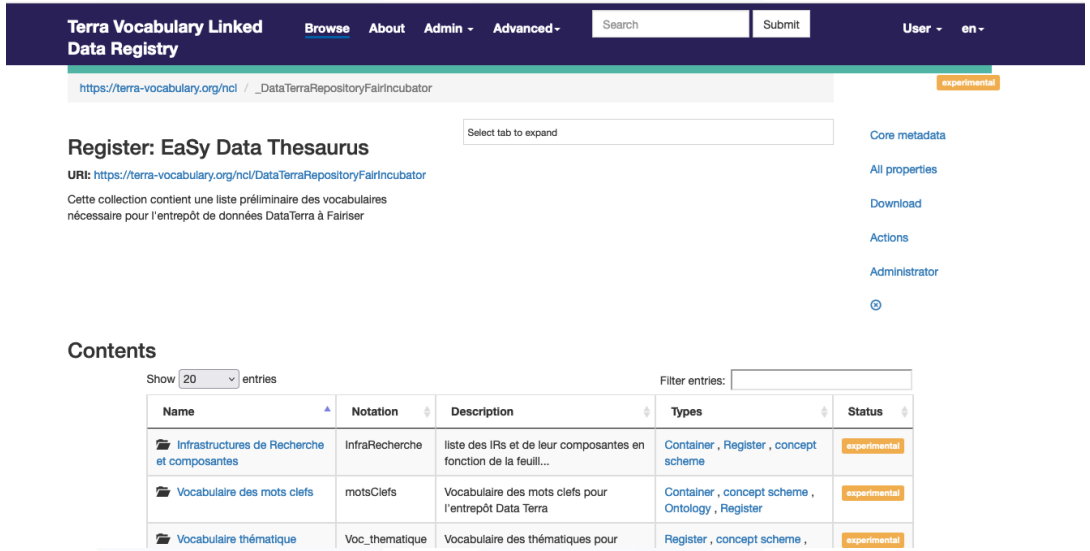




EaSy Data : National data repository for long-tail data relating to the Earth and the Environment
- Geonetwork to store metadata (catalog) + ad-hoc application layer (deposit, search)
- based on ISO 19115 Metadata standard

Community controlled vocabularies used to fill some metadata elements
- 3 internal vocabularies defined for EaSy Data
- Some external vocabularies : licenses, ROR, Geonames, …





DATA TERRA

Statement

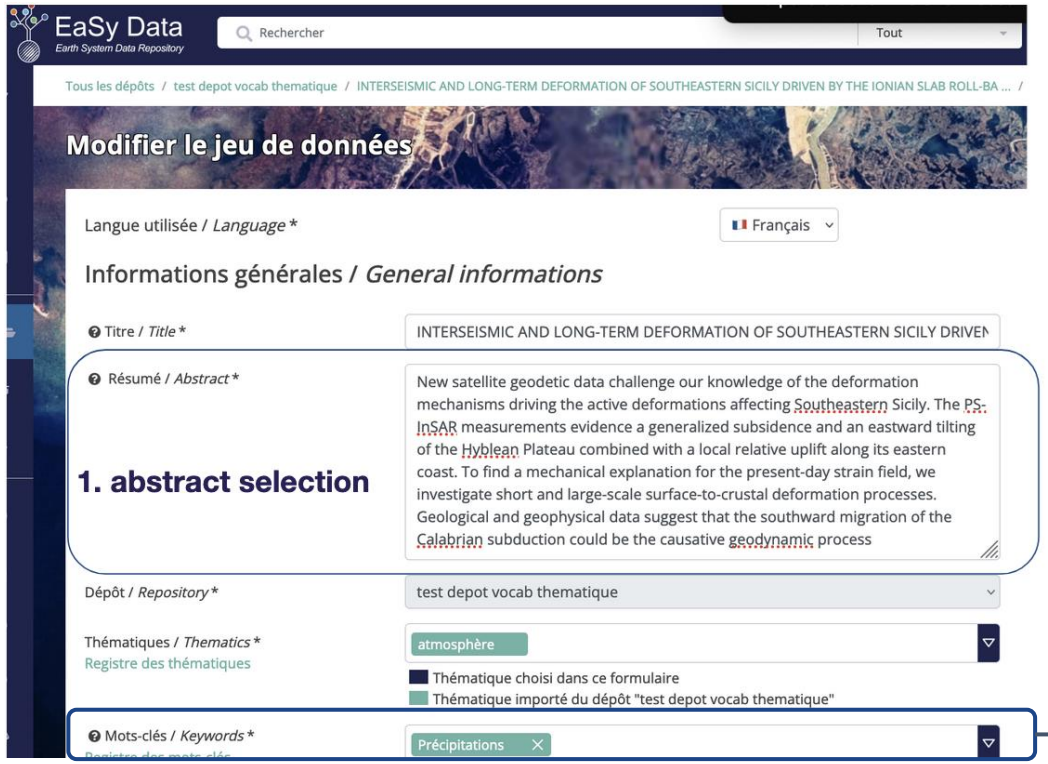
- Incomplete vocabularies that do not reflect the complex diversity of data deposited in EaSy Data
  -> need to use others vocabularies : Theia/Ozcar, Actris, …

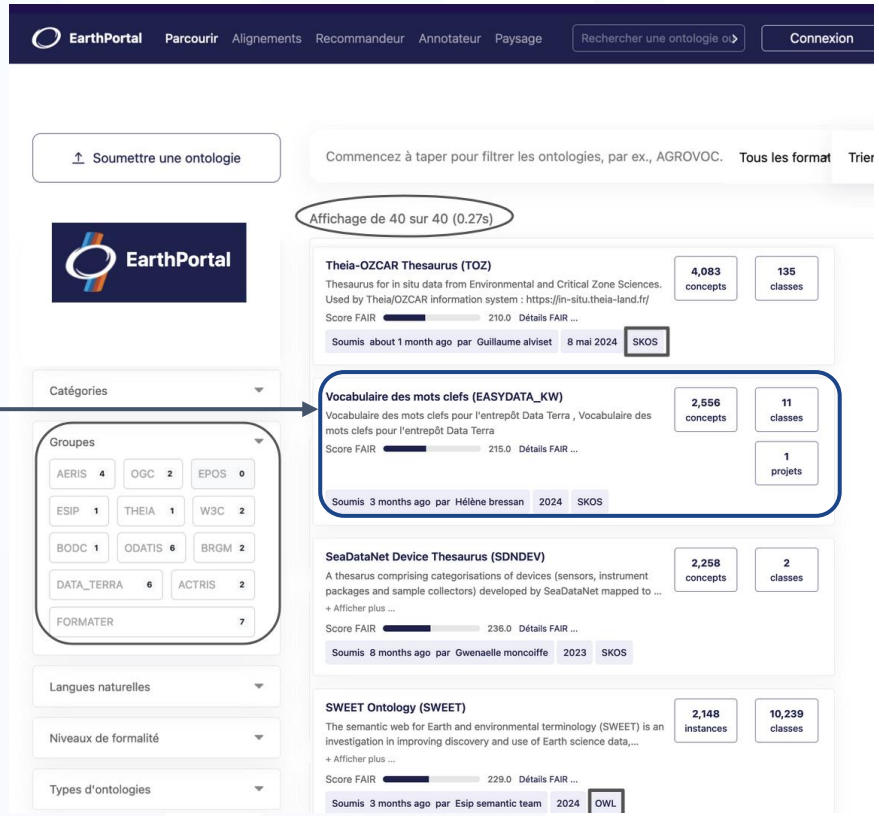
- Improve the interoperability of services offered by EaSy Data
  - Deposit, Search & Harvesting

- => **Connecting EaSy Data with the EarthPortal**

DATA TERRA

Deposit Use case : Harvest vocabularies directly from the Earth Portal's existing REST API

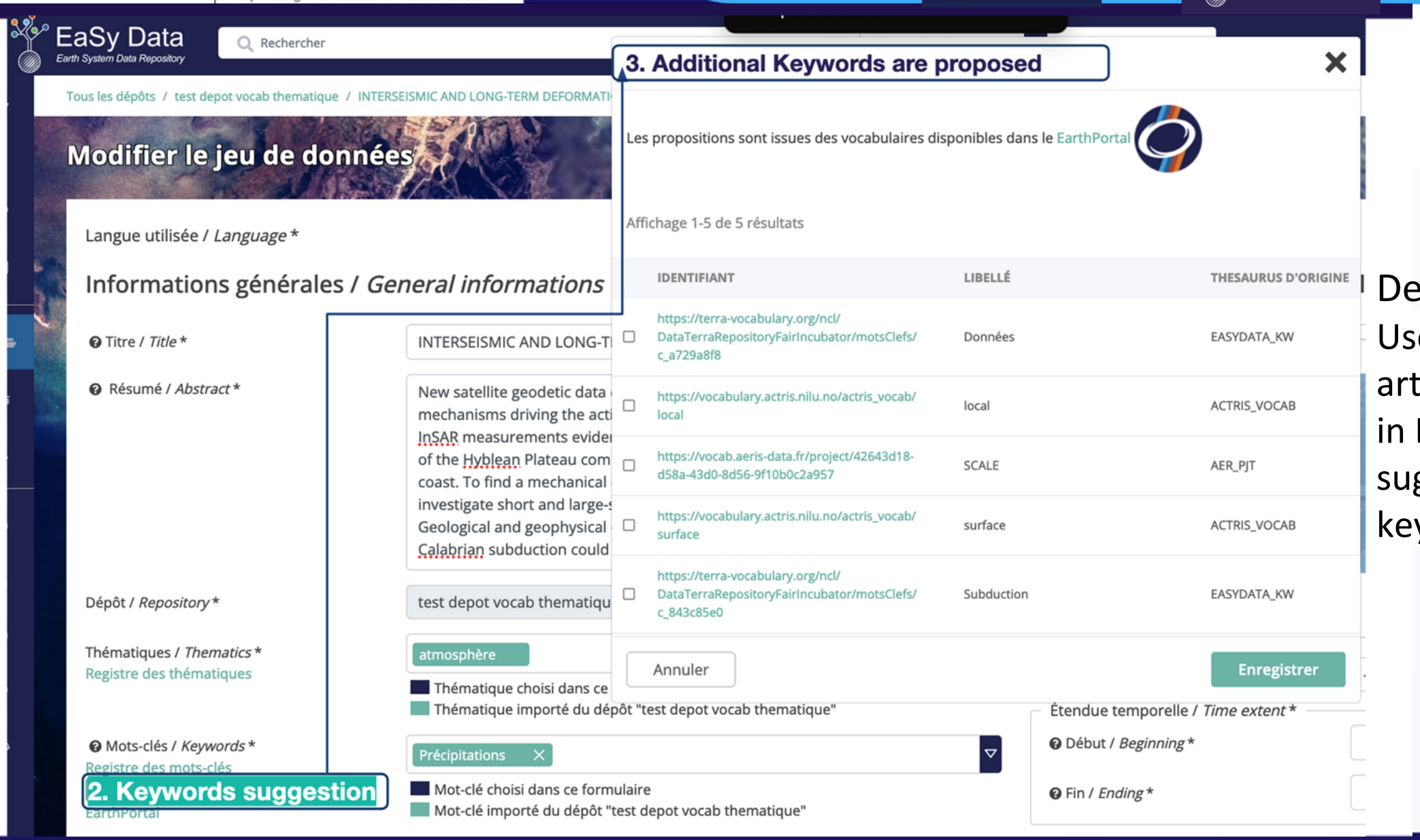




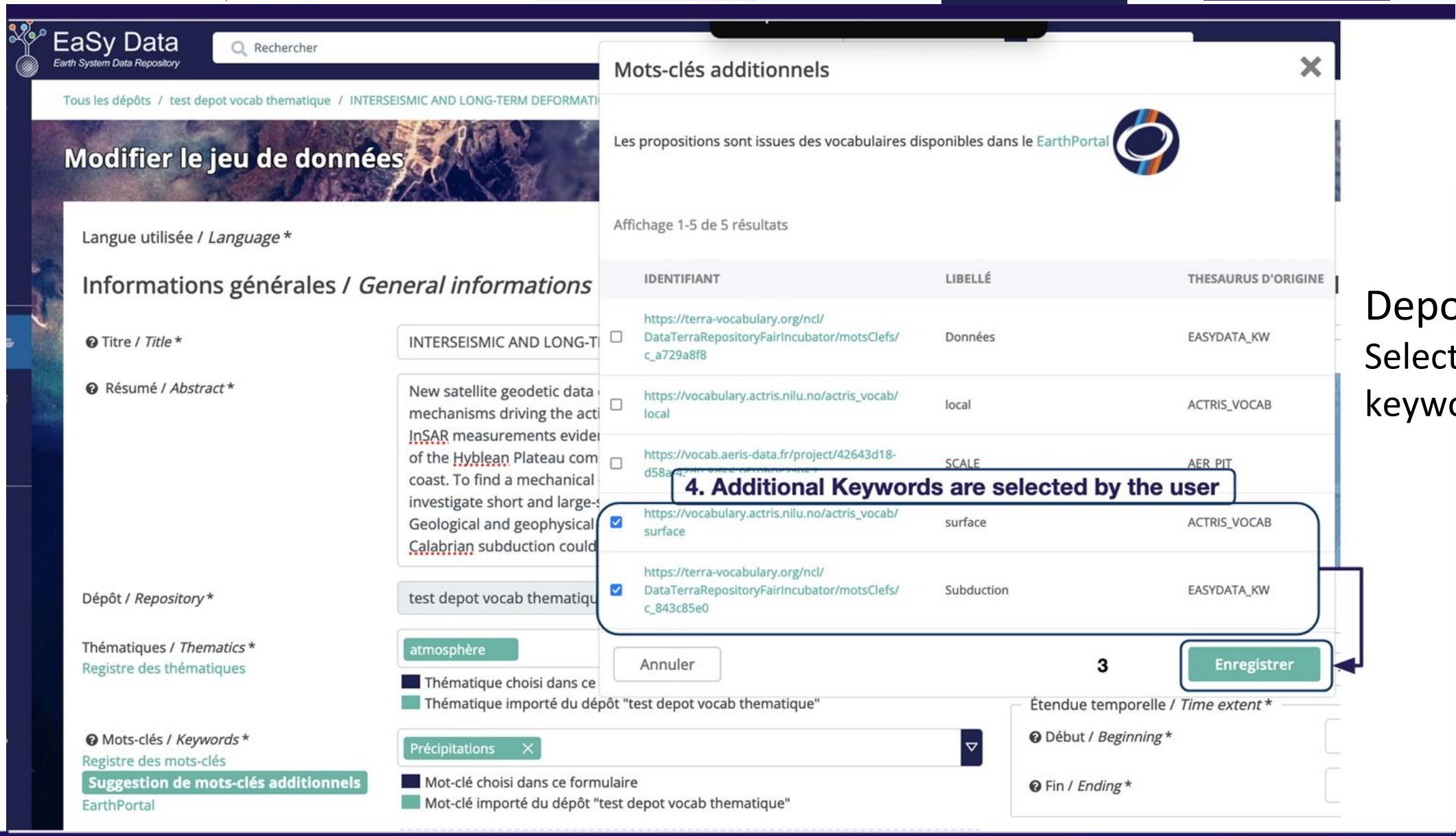
DATA TERRA

Deposit Use case :

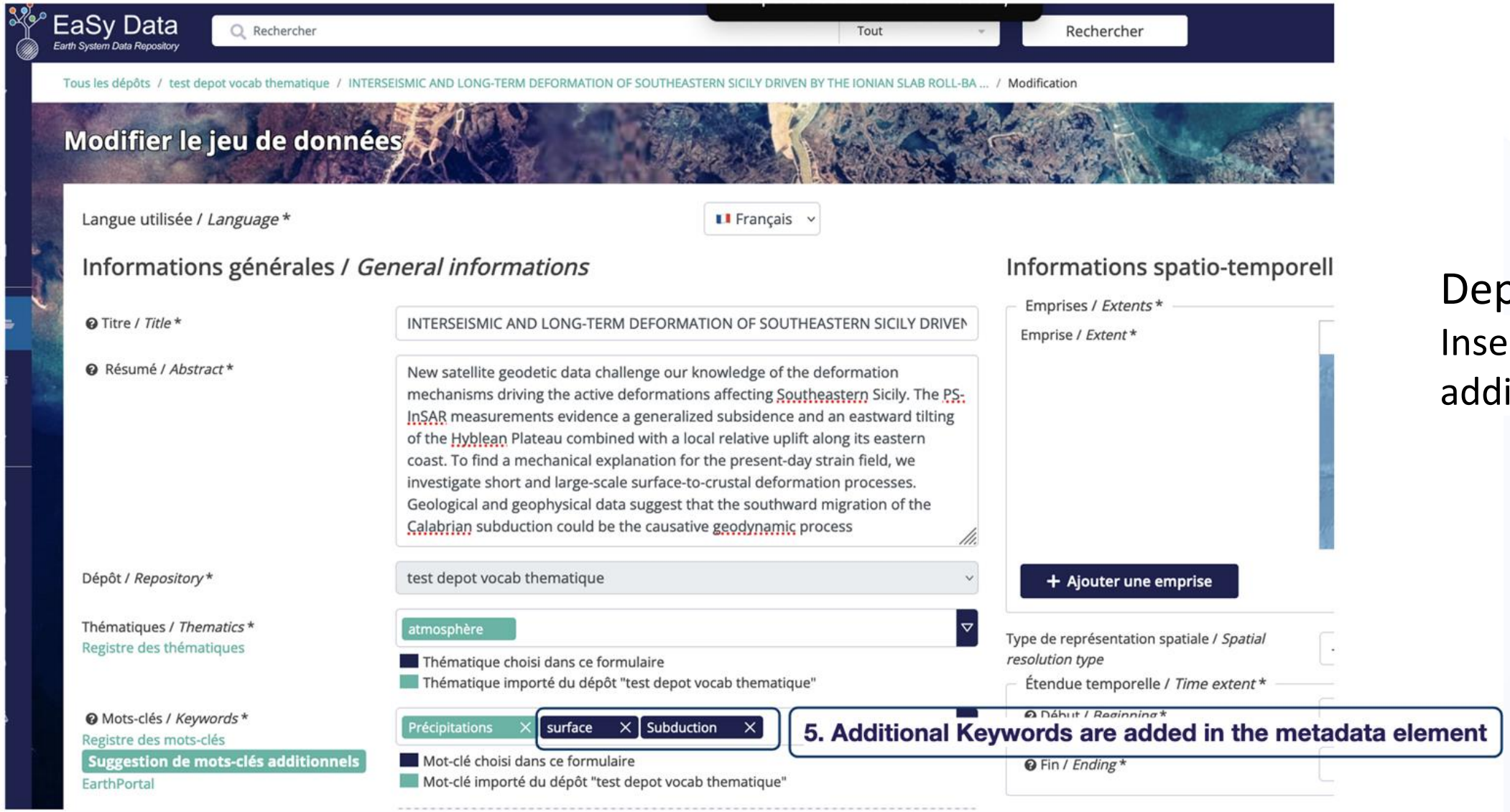
Use the EarthPortal annotation service



Deposit Use Case : Use semantic artefacts available in EarthPortal to suggest new keywords



Deposit Use Case :
Selection of keywords of interest

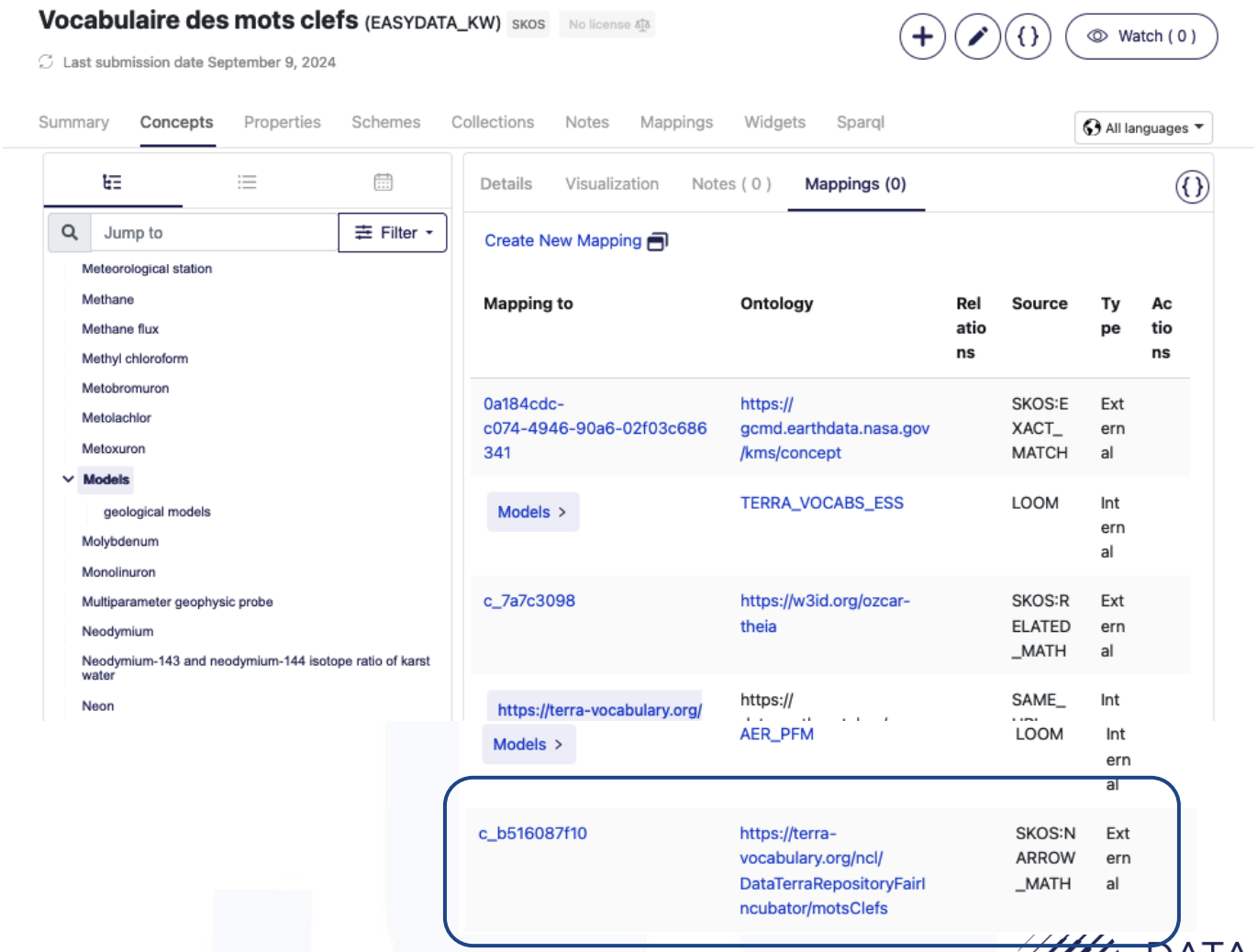


Deposit Use Case :
Insertion of additional keywords

Next steps :

- Search : Use the mapping found in the EarthPortal to propose a smart research

- Harvesting : Annotate free text metadata elements from harvested repositories with URIs from vocabularies



Thanks for your attention!

Do you have any questions ?

eosc | FAIR-IMPACT

Expanding FAIR solutions across EOSC

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Funded by the European Union

Use of semantic artefacts, via DataCite and HAL, about PerSCIDO

French National Roadshow FAIR-IMPACT

Fabrice JOUANOT & Nacira ABBAS - CNRS, LIG - Grenoble Alpes University

Contact: Fabrice.Jouanot@univ-grenoble-alpes.fr

Université Grenoble Alpes

PerSCiDO: Principles and functionalities of an open and interoperable platform for dataset sharing

https://persyval-platform.univ-grenoble-alpes.fr/

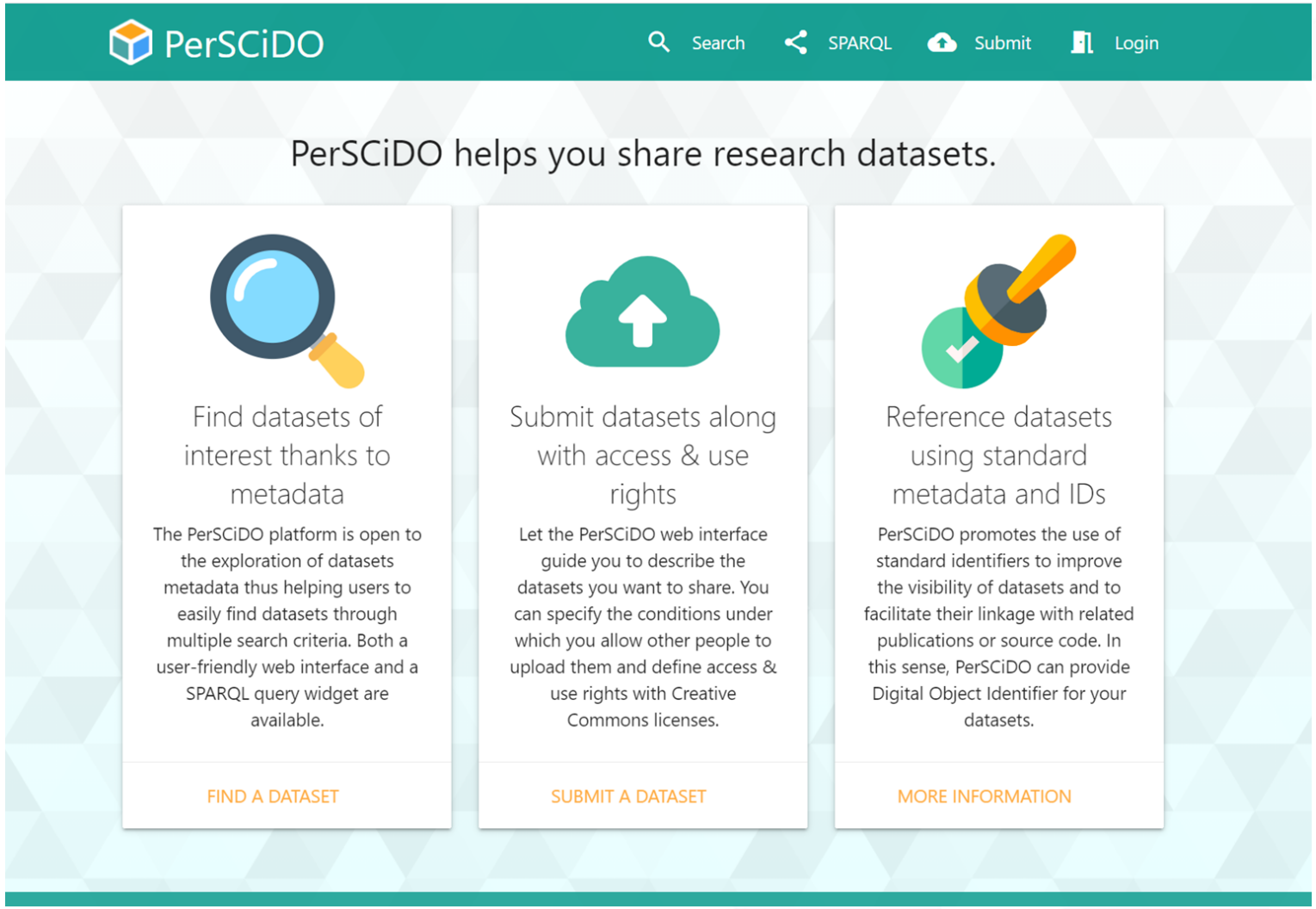
- Encouraging best practices
  - ✓ Encourage researchers to reference their datasets in a French platform using rich metadata
  - ✓ Encourage researchers to anticipate the desired citation for their dataset
  - ✓ Encourage researchers to specify the usage rights of their data sets through a Creative Commons license
- Using an Ontology as semantic artefacts for metadata
- Providing research capabilities with full metadata support (SPARQL)

PerSCIDO Ontology

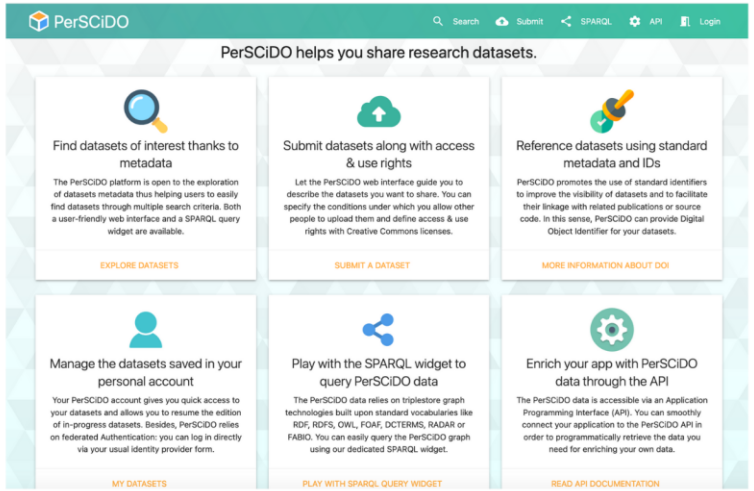
- Follow the standards of Linked Open Data
  - ✓ in terms of data model (RDF)
  - ✓ as well as specialized metadata vocabularies such as Dublin Core, Friend Of a Friend, Creative Commons, Radar, etc.
- With predefined values to avoid free text input as much as possible for metadata values

- And Evolve to match with Fair Data Object (FDO) Specification (PID + metadata)
  - ✓ **Referencing datasets using persistent identifiers (PID):** A DOI (Digital Object Identifier), advocated by DataCite => Agreement signed with INIST (DataCite)
  - ✓ Updating and enriching Ontology (DataCite metadata, HAL Ontology)

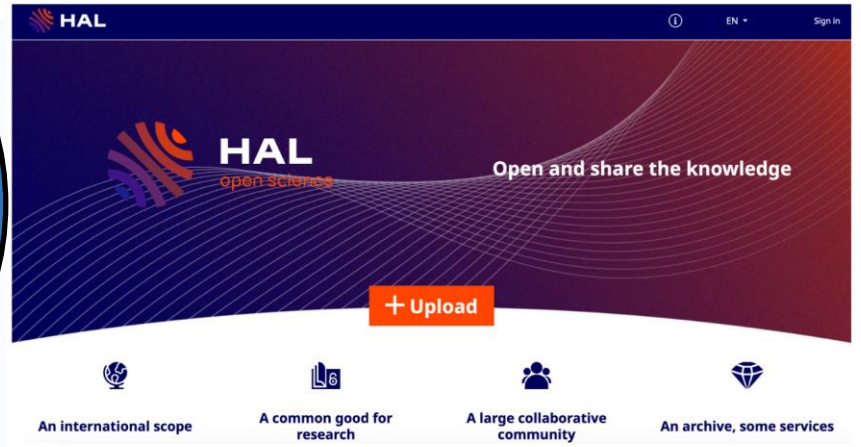
Perscido Demo



Interoperability Scenario: HAL



3 NOTIFY
The COAR Protocol for utilizing W3C Linked Data Notifications



1
FDO (atomic Entity for a Fair Ecosystem)

2 RO-CRATE
A lightweight approach for packaging research data with metadata on schema.org annotations in JSON-LD

In Progress

Apply CAT to Perscido

CAT
EOSC Compliance Assessment Toolkit

eosc | FAIRCORE4EOSC

Enabling a FAIR EOSC ecosystem

The **Compliance Assessment Toolkit** will support the EOSC PID policy by providing:

- Vocabulary Services
- API Services
- User Interfaces

Thanks for your attention!

Do you have any questions ?

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Expanding FAIR solutions across EOSC

@fairimpact_eu /company/fair-impact-eu-project

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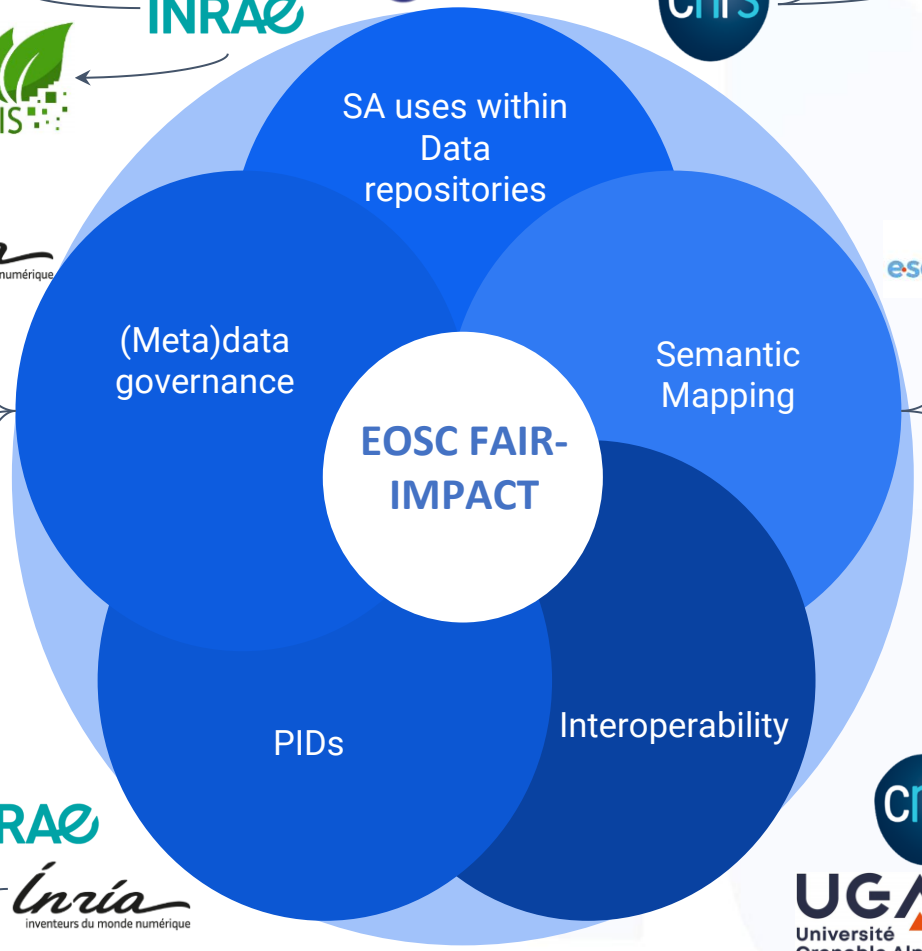
the European Union



Assessing FAIRness for Earth and Environmental Data. Use case by Dataterra and PANGAEA

Semantic artefact governance models and disciplinary approaches for inclusion within EOSC

Guidelines for recommended metadata standard for research software within EOSC

Metrics for automated FAIR software assessment in a disciplinary context

Guidelines and methodology to create, document and share mappings and crosswalks - *To come*

Workshop serie

Providing a recommendations document on PIDs usages

Referencing software source code artifacts: identifiers for digital object

Core metadata schema for legal interoperability

Specification of shared metadata description of semantic artefacts and their catalogues including common reference API

To be continued …

Institut Henri Poincaré, 11 Rue Pierre et Marie Curie, 75005 Paris

Merci aux organisateurs de l'évènement Tripartite EOSC France pour la communication sur leurs réseaux.

Trust-IT Services
communicating to markets

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Rita Meneses
Julie arteza

Data Archiving and Networked Services
DANS

Ingrid Dillo - *Project Coordinator*

MINISTÈRE
DE L'ENSEIGNEMENT
SUPÉRIEUR
ET DE LA RECHERCHE
Liberté
Égalité
Fraternité

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Speakers

Clement Jonquet
Nina Grau
Salomé Landel
Dimitri Szabo
Llorenç Cabrera-Bosquet
Christelle Pierkot
Guillaume Alvisset
Fabrice Jouanot
Nacira Abbas

INRAE
cnrs
DATA TERRA
UGA Université Grenoble Alpes

INRAE headquarters center for the reception

Flaticone

Cocktail and talk time !

Take the elevators or stairs up to the 8th floor

-> at the end of the corridor

Thank you for your attention

Slides on zenodo coming soon

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