



FAIR-IMPACT

Expanding FAIR solutions across EOSC

FAIR-IMPACT Synchronisation Force workshop 2023

Concluding session, 8 February 2024

Marjan Grootveld, Sara Pittonet,
Maaïke Verburg, Josefine Nordling,
Olivier Rouchon, Esteban González Guardia

Welcome message, thank you and recap

Marjan Grootveld, DANS



Synchronisation Force

ONLINE WORKSHOP

eosc

FAIR-IMPACT

Expanding FAIR solutions across EOSC

2023 Edition

2 November 2023 - 8 February 2024

Plan for today

- Recap of the goal of the Synchronisation Force workshop 2023
- Key findings from the workshop, for discussion

Recap

The workshop aims to discuss common challenges and priorities related to turning the FAIR principles into practice.

Five online collaborative sessions in November-December 2023 assessed the implementation of **selected recommendations** and ambitions from the [Turning FAIR into Reality Report](#) (2018), the [EOSC interoperability framework](#) (2021), the [FAIRsFAIR White Paper](#) (2021), the [SRIA \(version 2022\)](#), the [EOSC Multi-Annual Roadmap](#) (2023-2024), and the [EOSC Multi-Annual Roadmap \(MAR\) 2025 and 2026-2027](#).

In today's **discussion session** we present a summary of the findings from the five topical sessions.

Synchronisation Force workshop: goal and intended output

2022 Workshop

8 November - 12 December

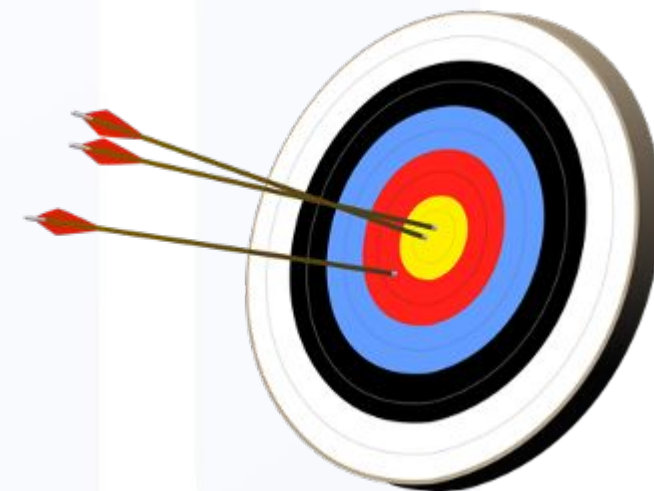
2023 Workshop

2 November - 7 December 2023

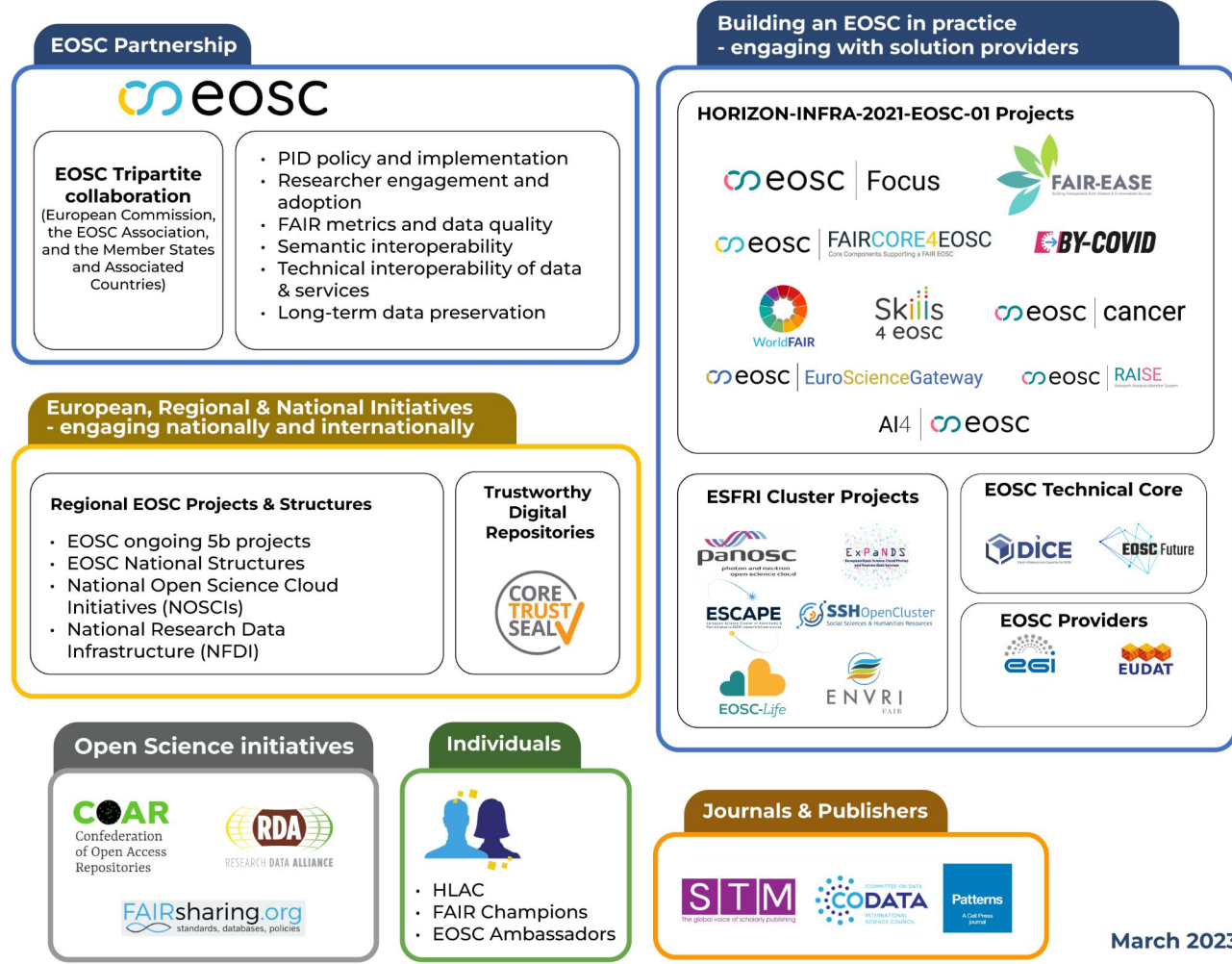
2024 Workshop

I want to stay tuned!

- Goal: chart developments in four to five areas from the represented projects and initiatives.
- Output of this workshop:
 - Spreadsheet with your input
 - Concise workshop report, to be finalised soon
- Output of the *three* workshops: White Paper with recommendations for how to encourage impact, alignment and synchronisation around FAIR and EOSC



FAIR-IMPACT stakeholder landscape



March 2023



More than 80 registered participants!

Structure of the workshop 2023

Date	Session Topic	Chair & Rapporteur
27 November 13.00-14.30 CET	Metrics and assessing FAIRness	Chair: Mike Priddy, DANS Rapporteur: Maaïke Verburg, DANS
28 November 10.30-12.00 CET	Metadata, semantics and interoperability	Chair: Esteban Gonzalez, UPM Rapporteur: Anne-Sofie Fink, DeIC
30 November 10.30-12.00 CET	Persistent Identifiers	Chair: Josefine Nordling, CSC Rapporteur: Liisa Marjamaa-Mankinen, CSC
5 December 14.00-15.30 CET	Trustworthy and FAIR-enabling repositories	Chair: Joy Davidson and Laurence Horton, DCC Rapporteur: Maaïke Verburg, DANS
7 December 15.00-16.30 CET	Legal & organisational interoperability	Chair: Olivier Rouchon, CNRS Rapporteur: Anne-Sofie Fink, DeIC



Highlights and recommendations

Timeslot	Topic
10.40-10.55	Metrics and assessing FAIRness: Maaïke Verburg, DANS 5 min + 10 min discussion
10.55-11.10	Persistent Identifiers: Josefine Nordling, CSC 5 min + 10 min discussion
11.10-11.25	Trustworthy and FAIR-enabling repositories: Marjan Grootveld, DANS 5 min + 10 min discussion
11.25-11.40	Legal & organisational interoperability: Olivier Rouchon, CNRS 5 min + 10 min discussion
11.40-11.55	Metadata, semantics and interoperability: Esteban Gonzalez, UPM 5 min + 10 min discussion
11.55-12.00	Wrap-up

Metrics and assessing FAIRness

Key questions, to be answered in the survey:

1. **What does your project or initiative do** to implement FAIR assessment metrics?
2. **Which tools for automated FAIR assessment of digital objects** <...> does your initiative, community or organisation use? What informed your decision?
3. Is your project, initiative <...> investigating or implementing **discipline or community-specific metrics** for FAIR assessments? Please provide links <...>
4. Do you have any **suggestions to improve** the <...> metrics and tools you use?
5. Do the tools and metrics require further **convergence**?
6. How is the **adoption of FAIR principles being measured** in your community or infrastructure?

Chair: Mike Priddy, DANS

Rapporteur: Maaïke Verburg, DANS

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Topic Session 1: Monday, November 27, 13.00-14.30 CET: Metrics and assessing FAIRness

Chair: **Mike Priddy**, DANS

Rapporteur: **Maaïke Verburg**, DANS

In this session, we will look into the metrics, their associated tests, and tools available for the FAIRness assessment of digital objects, but this time concentrating on research software and semantic artefacts, although information and experience with metrics and assessment tools for data objects is most definitely welcome. We will discuss current topics, such as discipline specific metrics for FAIR assessments, harmonisation, benchmarking of metrics and tools, and the most effective use and interpretation of tools and their results.

From the [last Synchronisation Force workshop](#) on metrics and assessing FAIRness these recommendations will be used to guide the discussions and information gathering in this workshop:

- We need to work on a **further convergence of metrics and tools**, which requires further discussion, synchronisation and alignment;
- We need **more domain-sensitive assessment methods**, in order to incorporate domain maturity as well as specific good practices and requirements.
- We need **assessment tools** for other research outputs, like **software and semantic artefacts**.
- The instrument of **FAIR assessment and scoring** should be seen and used as the **starting point** for assistance and improvement.

The [EOSC Multi Annual Roadmap \(MAR\)](#) objectives relevant for this workshop are:

- **Objective 2 - European level priority F** "Focus on community-specific FAIR metrics and data quality constraints (especially on the interoperability of these) by engaging with research clusters to apply FAIR in their contexts. (2025)"
- **Objective 2 - European level priority G** "Support the emergence of a widely representative

Recommendations we started with

- We need to work on a **further convergence of metrics and tools**, which requires further discussion, synchronisation and alignment;
- We need **more domain-sensitive assessment methods**, in order to incorporate domain maturity as well as specific good practices and requirements.
- We need **assessment tools for other research outputs, like software and semantic artefacts**.
- **The instrument of FAIR assessment and scoring should be seen and used as the starting point for assistance and improvement.**

Highlights

- Around 40 participants from various different backgrounds → Effort for convergence in itself
- Very active area currently, many updates to discuss and exciting things to look forward to
- Specific focus on Software and Semantic Artefacts in this round, discovering overlap and unique qualities of object types
- Topics seen reflected in the updated Multi Annual Roadmap

What is missing or could be improved

- **End user experiences**
 - How to find which tool to use?
 - How to understand the results a tool gives?
 - How to act on the results a tool gives?
 - Not just information, but dedicated support needed
- **Further facilitation of convergence**
 - FAIR Implementation Profiles are useful, but difficult to find/reuse
 - Shift focus to methods for cross-cutting convergence
- **Semantic artefact challenges**
 - Level of granularity
 - Sustainability and governance

Recommendations

- The wider community should be consulted and invited to collaborate on any work to develop a **catalogue of methods**.
- There is a need for community cooperation on the development, sharing, discoverability, and reuse of **FAIR Implementation Profiles (FIPs)** to support the definition of domain-specific assessments.
- There is a need for **improved governance** of semantic artefacts.
- **Pre-assessments** may play a key role in supporting incremental improvement of research output FAIRness over the research lifecycle.
- Researchers need access to **dedicated local support** to support the generic and discipline-specific FAIRification process of data, research software, and semantic artefacts.

*Coexist with previous recommendations

Persistent identifiers

Key questions, to be answered in the survey:

1. **What does your project or initiative do to implement PIDs?** Please provide links.
2. What are the **guiding principles for you when choosing a PID system** or service?
3. What does in your opinion constitute trust in a PID service?

Chair: Josefine Nordling, CSC

Rapporteur: Liisa Marjamaa-Mankinen, CSC

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Topic Session 3: Thursday, November 30, 10.30-12.00 CET: Persistent identifiers

Chair: **Josefine Nordling**, CSC

Rapporteur: **Liisa Marjamaa-Mankinen**, CSC

The goal of this session is to provide input for the PID Policy assessment regarding the more qualitative factors, especially those related to trust and sustainability. The session will begin with short presentations of the PID Compliance Assessment Tool done in FAIRCORE4EOSC and the integrated PID use cases in FAIR-IMPACT. Representatives of these use cases, *PIDs in data production workflows*, *PIDs in complex data citation and PIDs and sensitive data*, will reflect on the relevant PID solutions and requirements and identify gaps. They will also describe how they evaluate different PID services and systems.

Following this, the workshop will be organised around three questions:

- 1. What does your project or initiative do to implement PIDs? (Please provide any relevant links.)
- 2. What are the guiding principles for you when choosing a PID system or service?
- 3. What does in your opinion constitute trust in a PID service?

In the EOSC context this session is related to the objective **OO11 Implement the EOSC persistent identifier (PID) policy and architecture by 2025** in the [Strategic Research and Innovation Agenda](#) and relates to the following recommendations in the draft [EOSC Multi-Annual Roadmap \(MAR\) 2025 and 2026-2027](#):

- Promote and sustain the use of Persistent Identifiers (PIDs) that are already common practice. Support activities where PID usage is not yet a common practice. (2.1 A, 2.2 H)

and it supports the national and institutional level recommendation:

- Integrate widely used and adopted PIDs into institutional services and incentivise usage of PID technologies being developed in EOSC (like PID Meta Resolver, Data Type Registry, PID graph, PID

Recommendations we started with

- Strategic EOSC guidelines:
 - “Implement the EOSC PID policy and architecture” (SRIA)
 - Promote, sustain, support, integrate & incentivise PIDs/PID usage (MAR)
- From SF workshop 2022:
 - **Adaptation of the EOSC PID Policy role definitions** and provide good examples of the roles to ensure a comprehensive description of the responsibilities
 - Analysis and discussion is needed to find out to which extent identifiers are or should be considered **emerging PIDs**
 - **Communities should make recommendations on PID use** and describe their use cases to create a shared understanding
 - PID systems themselves should be **sustainable**
 - All stakeholders to **develop explicit PID policies**, either as separate documents or as part of e.g. a data policy

Highlights

- Stakeholders from various (33!) projects, initiatives and domains participated in the discussions
- Discussing the value of the Compliance Assessment Toolkit and EOSC PID Policy
- Demonstration of CAT in research workflows → discussion on the research life cycle and PID usage within
- Use case partner's and other participants bringing valuable reflections on trust and sustainability in PID systems, which generated a lively discussion
- Getting a deeper insight into different stakeholders' principles that guide the usage of PID systems

What is missing or could be improved

- Recognising efficient ways of marketing and involving stakeholders to clarify the roles within the PID Stacks → creating a knowledge base using Compliance Assessment Toolkit (CAT)
- Communicating the benefits of PIDs to Data Stewards to enable research communities and research-performing organisations to gain early and good experiences with PIDs
- Close follow-up on the development of emerging PIDs in different contexts and scientific disciplines
- Establishing (research funders) a funding structure which takes into account the development needed to foster interoperability and sustainability of PID systems

Recommendations

- Research communities and research-performing organisations should **gain early and good experiences with PIDs**
- PID providers should provide **long-term persistence** of both PID registries and PID resolution
- PID providers should provide **clarity about how different PIDs are related**
- PID providers and managers should provide **clarity about the roles defined in the EOSC PID Policy** and who is responsible for which part of the maintenance of a PID system

Trustworthy and FAIR-enabling repositories

Key questions, to be answered in the survey:

1. **What is your project or initiative doing to help define trustworthiness?**
2. **What is your project or initiative doing to increase the number and visibility of trustworthy, FAIR-enabling and/or certified repositories?**
3. **Are you planning to sustain your activities and/or efforts? If so, how?**
4. **How can we best work together to progress a network of TDRs?**

Chair: Joy Davidson and Laurence Horton, DCC
Rapporteur: Maaïke Verburg, DANS

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**Topic Session 4: Tuesday, December 5, 14.00-15.30 CET:
Trustworthy and FAIR-enabling repositories**

Chair: **Joy Davidson and Laurence Horton**, DCC
Rapporteur: **Maaïke Verburg**, DANS

In this session we will discuss the current mechanisms and cooperation opportunities for Trustworthy and FAIR-enabling repositories. We will look into the wider range of transparency and trust, and the incremental and sustainable support needed. This session aims to pick up on progress against the three recommendations identified from the 2022 Synchronisation Force session which were to:

- Measure the percentage of repositories in EOSC that will have a certification such as CoreTrustSeal or expose trustworthiness using other mechanisms
- Provide incremental, continuous and sustainable guidance and assistance to repositories, and certification processes
- Contribute to cooperation across the current initiatives to build and sustain a network of trustworthy digital repositories

Questions that participants in this session will explore:

1. What is your project or initiative doing to help define trustworthiness?
2. What is your project or initiative doing to increase the number and visibility of trustworthy, FAIR-enabling and/or certified repositories?
3. In your project, initiative, or community, do you work with repositories that consider themselves to be trustworthy and/or have a certification such as CoreTrustSeal?
4. For those repositories that are not certified, is any support or guidance provided to help them to expose their trustworthiness using other mechanisms?
5. Are you planning to sustain your activities and/or efforts? If so, how? How can we best work together to progress a network of trustworthy digital repositories?

Expected outcomes:

Recommendations we started with

- Measure the percentage of repositories in EOSC that will have a certification such as CoreTrustSeal or expose trustworthiness using other mechanisms;
- Provide incremental, continuous and sustainable guidance and assistance to repositories, and certification processes;
- Contribute to cooperation across the current initiatives to build and sustain a network of trustworthy digital repositories.

Based on FAIR-IMPACT SyncForce Workshop 2022 report: <https://doi.org/10.5281/zenodo.7692063>

Highlights

- Around thirty active participants from various backgrounds in the workshop.
- Trustworthiness of repositories includes aspects like sustainability, transparency, documentation, provenance, expertise, as well as connection to the community.
- Network(s) of repositories provide a lot of added value.

What is missing or could be improved

- Ambiguous and multifaceted terms make measuring the trustworthiness or quality of a repository hard: e.g.
 - Researchers will talk about scientific quality assessments
 - Repository guidance will focus on quality in terms of 'compliance'
- Support from other repositories for certification or enabling FAIRness is important, but can be timecritical for formal certification.
- Discussing weaknesses of your repository requires a smaller environment of trust.

Recommendations

- If we want to measure repository trustworthiness it is important to make the process more transparent. *Trust through transparency* is the motto.
- The creation of support networks for repositories should be encouraged at all levels (thematic, national, international) since they bring clear benefits.
 - Networks work best with different levels of maturity.
- When considering repository support, there is a need for both generic support that can fit everyone, and for detailed and tailored support that can be more local or individual.

Legal and organisational interoperability

Key questions, to be answered in the survey:

1. Are you aware of **existing registries, catalogues or vocabularies** enabling any of the following <...>
2. In your project / initiative, what are the **licensing terms and conditions** of datasets? Are they compatible? <...>
3. How is **data protected** in accordance with privacy laws? Any obligations related to data anonymization, pseudonymization, or consent **when combining datasets**?
4. How do **intellectual property rights** affect the use, distribution, and modification of combined datasets?
5. How do the **terms of use impact end user rights**?
6. **What does your project or initiative do to implement legal interoperability**? Please provide links

Chair: Olivier Rouchon, CNRS

Rapporteur: Anne Sofie Fink, DeIC

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Topic Session 5: Thursday, December 7, 15.00-16.30 CET: Legal & organisational interoperability

Chair: **Olivier Rouchon**, CNRS

Rapporteur: **Anne Sofie Fink**, DeIC

Legal interoperability seems sometimes to have been overshadowed by semantic and technical interoperability in the EOSC [interoperability framework](#). However, legal interoperability is of almost importance for realising the EOSC as a [web of FAIR data and related services](#). Legal interoperability is about ensuring that organisations operating under different legal or organisational frameworks, policies and strategies are able to work together. This might require that legislation does not block the establishment of European public services within and between Member States and that there are clear agreements about how to deal with differences in legislation across borders, including the option of putting in place new legislation. In this session we will pick on the issues of legal interoperability in the perspectives of different scientific domains.

Recommendations to be assessed during the session

From the [EOSC Interoperability Framework](#)

Selected legal/organisational interoperability recommendations:

- Organisational
 - Usage recommendations of standardised data formats and/or vocabularies, and with their corresponding metadata.
 - A clear management of permanent organisation names and functions needs to be provided.
- Legal
 - Standardised human and machine-readable licenses, with a centralised source of knowledge and support on copyright and licenses.

Recommendations we started with

- A clear management of permanent organization names and functions needs to be provided.
- Standardized human and machine-readable licenses, with a centralized source of knowledge and support on copyright and licenses.
- A clear list of EOSC-recommended licenses and their compatibility with Member States' recommended licenses.
- GDPR-compliance for personal data.

Key question: What is the status and adoption of the legal and organizational recommendations presented by the EOSC Interoperability Framework in different scientific domains?

Highlights

- ~35 participants in the room from a large variety of projects, initiatives, including representatives from the FAIR Champions as well as experts on the subject matter creating a lively conversation, also in the chat;
- Attendants gave clear examples of the need for harmonisation of licenses
 - across countries in a project consortium
 - across legally independent research centers under one umbrella association
 - across time when dealing with historical astronomy datasets;
- IPR is not a pressing concern for the attendants. Several reported that in their domain or organisation, datasets are open and therefore don't need IPR;
- The notion of IPR is related to the – confusing – notion of ownership of data.

What is missing or could be improved

- It is hard to untie the respective aspects of legal interoperability such as licensing, IPR, data sharing agreements and ownership;
- Legal and organisational interoperability is little formalized, and there are too few technical answers to address the wide range of issues from the communities
- Uptake is rather confined as of yet and machine-actionability of legal constraints is hard to achieve.

Recommendations

- CC licenses should be promoted unless another license (or license family) is more widely accepted in one's research domain or community. This should be done by EOSC and relevant others, given that EOSC, via the EOSC Interoperability Framework, promotes permissive licences.
- Data creators and (potential) data users should not have to worry about the impact of a license. This requires harmonisation on the one hand and proper guidance, for instance by local or domain data stewards, on the other hand. EOSC should play a role in the harmonisation.
- For research-performing organisations an integrated support programme for managing, protecting and licensing data is recommended.

Metadata, semantics and interoperability

Key questions, to be answered in the survey:

1. **What does your project/institution/community do to implement semantic artefacts** (ontologies, schemas, standard, vocabularies, etc) into your (meta)data?
2. In your project/institution/community do you **publish your (meta)data following FAIR principles**?
3. Do you **reuse data** from other projects/ institutions/ communities? Provide links and challenges.
4. What are the **worst data practices** adopted in your project/institution/community?

Chair: Esteban Gonzalez, UPM
Rapporteur: Anne-Sofie Fink, DeIC

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Topic Session 2: Tuesday, November 28, 10.30-12.00 CET: Metadata, semantics and interoperability

Chair: **Esteban Gonzales**, UPM
Rapporteur: **Anne-Sofie Fink**, DeIC

Interoperability is one of the FAIR Principles that recently has taken up more and more attention. Interoperability will often be the more challenging principles of the four principles - indeed when we want to address interoperability across scientific domains. In this session we will explore the subject of semantic and technical interoperability within and across scientific domains. **The aim of the workshop will be to explore the semantic and technical interoperability adopted by representatives from different research communities and institutions to explore their compliance with the EOSC Interoperability Framework's recommendations.** We expect participation from different scientific domains in order to get a picture of their semantic and technical practices. Our point of departure for addressing semantic and technical interoperability is the [EOSC interoperability framework](#).

Recommendations to be assessed during the session

Overall session recommendations:

- More cross-disciplinary work is needed to align semantic artefacts with the same terms or concepts.
- Maintenance, sustainability, and governance of semantic artefacts deserve attention and agreement across disciplinary communities.
- The FAIR-at-large community should intensify the work on crosswalks and mappings to produce more best practices.

Recommendations from relevant literature:

- Recommendation 1: Develop domain and cross-domain interoperability frameworks at the level of vocabularies, ontologies, and metadata schema ([FAIRsFAIR white paper - Rec1](#)).

Recommendations we started with

- More cross-disciplinary work is needed to **align semantic artefacts** with the same terms or concepts.
- Maintenance, sustainability, and governance of semantic artefacts deserve attention and **agreement across disciplinary communities.**
- The FAIR-at-large community should **intensify the work on crosswalks and mapping.**

Highlights

- More than 40 participants with different backgrounds and projects.
- Preparation questionnaire
 - 70% use any kind of semantic artefact (only 2 ontologies).
 - 70% have some FAIR guideline to publish their data
 - 40% reuse data from other domains
 - Worst data practices
 - metadata using free text
 - no agreement on how to provide metadata inside communities
 - editors don't use PID provided by authors to cite data
 - carelessness in using the concepts of open and private
- Key enabling components or building blocks of semantic interoperability are still under construction and not stable (catalogues and crosswalks).
- Lack of knowledge of semantic artefacts existence -> problem to align semantic artefacts.

What is missing or could be improved

- More discussion related with the recommendations given by the related EOSC Task Forces.
- Need to integrate more interoperability frameworks such as CDIF (Cross Domain Interoperability Framework).
- More focus on the study of the interoperability between other resources such as software, services, etc.

Recommendations

- There is a great need for **common understanding of semantic artefacts definitions** to reduce ambiguity.
- There is the need to **align cross-disciplinary semantics artefacts**. While it is common to build domain-specific ontologies or semantic artefacts, the approach for developing and managing them should be similar and shared, up to the limits of possible agreement. Access across registries might facilitate this.
- The communities need **more services supporting the adoption and implementation of semantic artefacts**.

Recent publications

Semantic Interoperability TF

(DRAFT) Developing and implementing the semantic interoperability recommendations of the EOSC Interoperability Framework -> **indicators of success**

<https://zenodo.org/records/10518860>

Technical Interoperability of Data and Services TF

Design Considerations for Technical Interoperability in EOSC -> **principles**

<https://zenodo.org/records/8109528>

A landscape overview of the EOSC Interoperability Framework - Capabilities and Gaps -> **guidelines**

<https://zenodo.org/records/8399710>

Next steps



workshop report. Your feedback on the survey.

Thank you to the FAIR-IMPACT Synchronisation Force

One last question - answers in the chat, please

Was participating in this workshop useful for you?

1. Yes, for networking
2. Yes, for learning about developments in other domains
3. Yes, and I will share information with others
4. Yes, and I look forward to the next Synchronisation Force workshop

Thank you and best wishes for your journey towards more FAIRness!

New Open Call for Support

FAIR-IMPACT's second open call for Route 2 support launched on 31st January, 2024. This open call includes support actions relating to:

- creating EOSC compliant persistent identifier policies using the FAIRCORE4EOSC Compliance Assessment Tool (CAT)
- recommendations for creating FAIR research software
- assessing the FAIRness of research software using a tailored version of F-UJI
- recommendations for improving the transparency and trustworthiness of data repositories
- monitoring the research data policy landscape using FAIRsharing

<https://fair-impact.eu/events/fair-impact-events/fair-impacts-second-open-call-route-2-support>

(recording and slides)

Deadline for applications: 31 March 2024



Open Call WEBINAR

**2nd Open Call for Support
Route 2: Cascading Grants**

15:00 - 16.00 CET - 31 January 2024

FAIR Implementation Team Online

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