



# Report D1.8

## “FAIR Recommendations and cooperation report v1”

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## “FAIR Recommendations and cooperation report v1”

<b>Work Package</b>	WP1   Cooperation
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# Executive Summary

OntoCommons aims at defining a semantic interoperability framework to support the documentation of industrial data with ontologies. Ontologies are at the cornerstone of the FAIR principles (Wilkinson et al., 2016).

The FAIR principles provides a framework for machine actionable data and are used to support the implementation of the Open Science and Research Data Management strategy of the European Open Science Cloud (European Commission, 2022). They gained momentum both internationally in the research communities but also in industry. Supporting the implementation of the FAIR principles is one of the key objectives of the OntoCommons project. To achieve this goal, Task 1.3 aims at working together with the existing European and international projects and initiatives to both reuse their outcomes and to contribute to the their enrichment with industrial constraints.

This document summarises the efforts of T1.3 to establish collaborations with relevant projects and initiatives in order to identify and use existing recommendations, guidelines and frameworks for supporting the implementation of FAIR principles within OntoCommons. This report provides a snapshot of our ongoing work in the course of the project.

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# 1. Introduction

The FAIR principles (Wilkinson et al., 2016) are a set of guidelines to follow in order to produce machine-readable and machine-actionable data for open science and beyond. Since their inception, the FAIR principles are being discussed and integrated as a core element for data management internationally by scientific organisations and by industry (in particular the pharmaceutical industry<sup>1,2</sup>, see also Wise et al., 2019; van Vlijmen et al., 2020). These principles are at the centre of the development of the European Open Science Cloud as explicitly stated in the Strategic Research and Innovation Agenda (SRIA) of the EOSC (European Commission, 2022). Several international and European initiatives as well as Horizon 2020 funded projects are currently investigating the implementation of the FAIR principles in various domains.

Providing support to the manufacturing industry for generating FAIR data is one of the key objectives of the OntoCommons project. The aims of the OntoCommons Task 1.3 is to ensure the integration of existing work on the implementation of the FAIR principles by exchanging and collaborating extensively with other relevant initiatives. For this purpose, the Task 1.3 collaborates internally with T1.1 which aims at coordinating collaborations across the project and T1.4 which aims at collaborating with EOSC related projects and with the Research Data Alliance.

In this document, we are describing our approach, together with Task 1.4, to establish collaboration with relevant initiatives and we are highlighting the positive impact of these collaborations on the OntoCommons project. We are then presenting our plans for the remaining duration of the project.

## 2. Laying out the foundations for collaboration: the Knowledge Exchange Space

### 2.1 Defining the FAIR project landscape

In the first stage of this work, we collaborated with Task 1.1 and Task 1.4 to identify a list of relevant projects and initiatives involved in the implementation of the FAIR principles. This list is provided in table 1 below. We decided to synchronise with Task 1.4 activities as we observed that there is a large overlap between the stakeholder group active in projects and initiatives related to FAIR principles and those active in EOSC or RDA related projects and communities.

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<sup>1</sup> <https://www.europeanpharmaceuticalreview.com/article/157371/implementing-the-fair-data-principles-is-now-a-critical-endeavour/>

<sup>2</sup> <https://fairtoolkit.pistoiaalliance.org/why-fair-data-is-important/>

<https://www.ontocommons.eu/>

*Table 1 - List of relevant FAIR initiatives and projects (T1.3)*

Project/Initiative name	Website	Contact Point	Type of initiative	Status
FAIRsFAIR	<a href="https://www.fairsfair.eu/">https://www.fairsfair.eu/</a>	Wim Hugo (DANS)	H2020 project	Ended 28/02/2022
FAIRSharing	<a href="https://fairsharing.org/">https://fairsharing.org/</a>	Susanna Assunte Sansone (Oxford)	Standard database	Active
GOFAIR	<a href="https://www.go-fair.org/">https://www.go-fair.org/</a>	Erik Schultes (LUMC)	International Foundation	Active
FAIR DO	<a href="https://fairdo.org/">https://fairdo.org/</a>	Peter Mutschke (Gesis)	International initiative	Active
RDA Vocabulary and Semantic Service Interest Group	<a href="https://www.rd-alliance.org/groups/vocabulary-services-interest-group.html">https://www.rd-alliance.org/groups/vocabulary-services-interest-group.html</a>	Alexandra kokkinaki (BODC)	International initiative	Active
FAIR4Health	<a href="https://www.fair4health.eu/">https://www.fair4health.eu/</a>	Eva Mendez (UC3M)	H2020 project	Ended 30/11/2021
FAIRPlus	<a href="https://fairplus-project.eu/">https://fairplus-project.eu/</a>	Susanna Assunta Sansone (Oxford)	IMI funded project	Active
EOSC Association TF - FAIR Metrics and Data Quality	<a href="https://www.eosc.eu/advisory-groups/fair-metrics-and-data-quality">https://www.eosc.eu/advisory-groups/fair-metrics-and-data-quality</a>	Mark Wilkinson (UPM)	European Working Group	Active

As several EOSC related projects and Research Data Alliance Interest Groups also present a component related to FAIR implementation, we are also adding them to the list of targeted initiatives. They are listed in the table 2 below.

*Table 2 - List of relevant EOSC projects and RDA IG/WG related to FAIR principles (Task 1.4)*

Project/Initiative name	Website	Contact Point	Type of initiative	Status
EOSC Pillar	<a href="https://www.eosc-pillar.eu/">https://www.eosc-pillar.eu/</a>	Fulvio Galeazzi (GARR)	H2020 project	Active
EOSC Nordic	<a href="https://eosc-nordic.eu/">https://eosc-nordic.eu/</a>	Lene Krøl Andersen (NeIC)	H2020 project	Active
Ni4OS	<a href="https://ni4os.eu/">https://ni4os.eu/</a>	Andreas Athenodorou (The Cyprus Institute)	H2020 project	Active
EOSC Synergy	<a href="https://www.eosc-synergy.eu/">https://www.eosc-synergy.eu/</a>	Isabel Campos (CSIC)	H2020 project	Active
RDA Materials Data, Infrastructure and Interoperability Interest Group	<a href="https://www.rd-alliance.org/groups/rdacodata-materials-data-infrastructure-interoperability-ig.html">https://www.rd-alliance.org/groups/rdacodata-materials-data-infrastructure-interoperability-ig.html</a>	Vasily Bunakov (STFC)	International initiative	Active
Chemistry Research Data Interest Group	<a href="https://www.rd-alliance.org/groups/chemistry-research-data-interest-group.html">https://www.rd-alliance.org/groups/chemistry-research-data-interest-group.html</a>	Stuart Chalk (University of North Florida)	International initiative	Active
DOME 4.0	<a href="https://dome40.eu/">https://dome40.eu/</a>	Vasily Bunakov (STFC)	H2020 project	Active

Once the list of relevant project and initiative defined, we contacted the different stakeholders to invite them to participate in our workshops.



## 2.2 Creating an information exchange platform

Together with T1.4, our aim is to establish an information exchange platform where participants can become aware of the ongoing work within these different initiatives and where we can also present OntoCommons activities.

To organise such a multi stakeholder collaboration, we created a collaboration space by initiating two initial meetings in 2021. The first meeting<sup>3</sup> was organised in July 1<sup>st</sup> and gathered 18 participants from the following projects: DOME 4.0, EOSC Nordic, EOSC Pillar, GOFAIR, FAIRsFAIR, Ni4OS, EOSC Secretariat and RDA Chemistry IG.

The second workshop was held on Oct. 22, 2021<sup>4</sup>. During these workshops we discussed potential axis of collaboration between OntoCommons and the other projects.

We presented our approach during the OntoCommons Horizontal workshop during a dedicated session entitled: "Establishing a Knowledge Exchange Space ". This session was co-organised with T1.4 and involving GOFAIR, the EOSC association and RDA (November 3<sup>rd</sup>, 2021). During this session, we discussed how to build a sustainable collaborative environment with the different stakeholders and how it can support OntoCommons.

During the two previous meetings, we defined with the participants the communication channels and the organisation of the group. To communicate, we have set up a common mailing-list as well as a Slack channel for asynchronous discussions and information. KeXS meetings are organised on a regular basis (monthly or bi-monthly depending on the needs).

Through these continuous regular interactions, we have been able to identify relevant efforts in EOSC related project that could be of interest for OntoCommons.

In addition, it allowed us to organise joint workshops on FAIR principles as this special session: <https://ontocommons.eu/news-events/events/applying-fair-principles-open-science-and-industry-drive-innovation-challenges> during Open Science FAIR

Finally, during these regular meetings, we also discuss the ongoing work around the FAIR principles with EOSC related projects. As of now, we identified several relevant outcomes within the Ni4OS and EOSC Pillar projects. In particular, the EOSC Pillar project is currently building different services to support the FAIRification of the data which would be relevant for the various partners in OntoCommons. More details about the content of these discussions is to be provided in D1.10.

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<sup>3</sup> <https://ontocommons.eu/news-events/events/creating-knowledge-exchange-space-data-management-and-documentation-kexs-0>

<sup>4</sup> <https://ontocommons.eu/news-events/events/2nd-kexs-workshop-creating-knowledge-exchange-space-data-management-and>  
<https://www.ontocommons.eu/>

## 3. Practical outcomes of the collaborations

### 3.1 Interaction with RDA

Through the involvement of Y. Le Franc as co-chair of the Vocabulary and Semantic Service Interest Group, the project OntoCommons has been briefly presented during the group session organised during the 17<sup>th</sup> RDA Plenary meeting<sup>5</sup>. This presentation raised interest in the community and allowed to establish a direct collaboration with the ontology repository dedicated to material science, MatPortal<sup>6</sup>. This collaboration had a direct impact on the work of the Task 3.2 which aims at providing a landscape analysis of the ontological resources in material science and manufacturing. This impact is further detailed in the deliverable D3.2.

### 3.2 Interaction with GOFAIR

GOFAIR is an international organisation dedicated to promote the FAIR Principles<sup>7</sup>. To support these activities, GOFAIR was relying on working groups called Implementation Networks with various focus.

We identified several relevant Implementation Networks (INs) relevant to OntoCommons: GO INTER on cross disciplinary semantic interoperability<sup>8</sup>, NOMAD<sup>9</sup>, Chemistry IN<sup>10</sup> and GO NANOFAB<sup>11</sup>. We have a direct link between GO INTER and OntoCommons through the participation of Yann Le Franc in this Implementation Network. However, the other relevant Implementation Networks have not yet answered our initial requests for contact. Since 2021, many of these INs are not active following the transformation of the GOFAIR organisation and the voluntary work involved in these groups. We will make another attempt to get in touch to identify relevant outputs to be used by the project.

During the regular meetings, we discussed with the representative of GOFAIR who introduced the FAIR Implementation Profiles<sup>12</sup> approach as well as the Metadata for Machine (M4M) workshops<sup>13</sup> organised by GOFAIR. One of the potential axis of collaboration would be to organise a M4M workshop as well as a FAIR Implementation Profile (FIP) workshop with the demonstrators to leverage these tools developed by GOFAIR to implement the FAIR principles in Industry. This will be discussed in the next steps section.

### 3.3 Integrating FAIRsFAIR outcomes

The FAIR principles strongly rely on ontologies as per the principle I2 which requires the usage of FAIR ontologies, controlled vocabularies, and any other semantic artefacts (for definition, see Glossary and Le Franc et al., 2020). To support the alignment of semantic artefacts with the FAIR

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<sup>5</sup> <https://www.rd-alliance.org/plenaries/rda-17th-plenary-meeting-edinburgh-virtual/so-long-and-thanks-all-fair-semantics>

<sup>6</sup> <https://matportal.org>

<sup>7</sup> <https://www.go-fair.org/>

<sup>8</sup> <https://www.go-fair.org/implementation-networks/overview/go-inter/>

<sup>9</sup> <https://www.go-fair.org/implementation-networks/overview/nomad/>

<sup>10</sup> <https://www.go-fair.org/implementation-networks/overview/chemistryin/>

<sup>11</sup> <https://www.go-fair.org/implementation-networks/overview/go-nanofab/>

<sup>12</sup> <https://www.go-fair.org/how-to-go-fair/fair-implementation-profile/>

<sup>13</sup> <https://www.go-fair.org/resources/go-fair-workshop-series/metadata-for-machines-workshops/>  
<https://www.ontocommons.eu/>

principles, the project FAIRsFAIR<sup>14</sup> developed a set of recommendations. A first community-based version has been released in March 2020 (Le Franc et al., 2020) and a second release incorporating community feedback and aligned with RFC 2119 has been published in January 2021 (Hugo et al., 2021). A final release of these recommendations has been published by FAIRsFAIR (Le Franc et al., 2022).

These recommendations have been used as a basis for evaluating FAIRness of ontologies identified in the landscape analysis work done in T3.2 in OntoCommons. FAIRsFAIR had not yet proposed an evaluation grid with metrics to quantify the level of FAIRness of ontologies. In task 3.2, the recommendations have been analysed and an initial set of indicators to evaluate a subset of ontologies from the landscape dataset has been designed. The use of these recommendations has been discussed during the first and second KeXS workshop. The FAIR evaluation work developed in T3.2 can be used by FAIRsFAIR to enrich their project output. Unfortunately, the FAIRsFAIR project has ended and did not integrate these outcomes.

The latest version of the FAIR Semantics recommendation (Le Franc et al., 2022) includes two relevant additions: a proposal for a minimum metadata schema for FAIR Semantic artefacts and an ideal service architecture to support FAIR Semantics. These two specific topics should be discussed internally in the upcoming months once the final version of the minimum metadata schema is released.

### 3.4 Providing information regarding FAIR implementation to OntoCommons demonstrators

We contributed directly to the organisation of a session dedicated on FAIR principles and OntoCommons demonstrators organised by WP5 during the OntoCommons Horizontal Workshop. For this purpose, we contacted our collaborators to present their work during the session. The session started with a first presentation of the FAIR principles and the activities of the GOFAIR Foundation given by Barbara Magagna. It was then followed by a presentation from Philippe Rocca Serra on the FAIR Cookbook developed in the context of the FAIRPlus project. This presentation gained a lot of attention and this resource is being used by some of the OntoCommons partners (personal communication).

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<sup>14</sup> <https://www.fairsfair.eu/>

<https://www.ontocommons.eu/>

## 4. Conclusion and next steps

Our main goal was to identify projects and initiatives involved in the implementation of the FAIR principles and to establish collaboration with them. For this purpose, we teamed with T1.4, which has similar aims, and establish the Knowledge Exchange Space to collect existing recommendations and information regarding the implementation of the FAIR principles in different domains.

The KExS meetings have been quite successful and allowed us to be informed about relevant work on FAIR principles (recommendations and tools) that has been used and integrated within the OntoCommons project.

In the next phase of the project, we are planning to continue with the KExS meetings on a bimonthly basis. One of the main outcomes of our meeting was a proposal for organising a FAIR workshop for OntoCommons in collaboration with GOFAIR and other related projects. Such workshop should be organised within the next 6 months and should include a M4M workshop and a hackathon session for putting together FAIR Implementation Profile for industry.

As several projects arrived at their terms, we will also analyse and discuss the final outputs of these projects and their relevance for OntoCommons. In the meanwhile, new projects related to FAIR will emerge following the first Horizon Europe program call. As soon as they are officially launched, we will make sure to add them to our list and to establish collaborations.

Finally, we will consider to establish a FAIR Recommendations dashboard for OntoCommons partners which will list the existing recommendations and project output they should consider and then evaluate which ones have been used. This will require some further discussion within the project.

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