Report D1.10
"Ontology-based
uropean Data Infrastructure v1"

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"Ontology-based
European Data Infrastructure v1"

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Task	T1.4	Integration of OntoCommons within the EOSC landscape
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Glossary of terms

Item	Description
API	Application Programming Interface
EOSC	European Open Science Cloud
F2DS	Federated FAIR Data Space
FAIR	Findable, Accessible, Interoperable, Reusable
NERC	Natural Environment Research Council (https://www.ukri.org/councils/nerc/)
ORDM	Open Research Data Management
RDA	Research Data Alliance
SRIA	EOSC Strategic Research and Innovation Agenda

Keywords

EOSC; Data Infrastructure; Collaboration

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Executive Summary

One of the OntoCommons objectives is to leverage relevant ongoing efforts and create synergies by close cooperation with all relevant bodies and initiatives. Particularly relevant for this document, (which describes the work in Task 1.4) is establishing a cooperation with the European Open Science Cloud, relevant EU projects, RDA and FAIR communities. Actionable and useful resources depend on integration of ontologies with infrastructures.

Data infrastructures have become a key service for researchers and data professionals (Millerand & Baker, 2020). An important characteristic of data infrastructures is that they must accommodate not only the technical changes of working with data, but also the organizational changes.

In this document we describe the main components of a (data) infrastructure that can serve the OntoCommons community and not only. We explain, then, the state of matters with respect to European Data Infrastructure.

To interact with the relevant EOSC, EU projects, RDA and FAIR communities, we have established a Knowledge Exchange Space for Data Management and Documentation (KExS) which, currently, is manifested through a sequence of workshops and meetings attended by OntoCommons members and members of EU, EOSC, RDA, and FAIR related projects and initiatives. The document presents a snapshot of the work done in Task 1.4, which pursues close cooperation in infrastructures via EOSC, and EOSC related initiatives.

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1.Introduction

This document consists mainly of contributions from Task 1.4 "Integration of OntoCommons within the EOSC landscape". Since there is a large overlap in the stakeholders groups addressed by the work in this task and those in Task 1.3 "OntoCommons for FAIR initiatives", this report contains also some elements of the work done in Task 1.3. We have coordinated the work of these two tasks in order to avoid overloading stakeholders – who voluntarily participate to the OntoCommons events – with requests for input to and collaboration with OntoCommons.

The rest of the document contains a section dedicated to data infrastructures (definition of data infrastructure, identifying a European dimension, looking for ontology-based infrastructures). We then describe the KExS collaboration space where stakeholder groups meet on a regular basis to maintain awareness of relevant activities to OntoCommons and existing infrastructures, to express needs for (data) infrastructures both in the material modelling domain and other domains, to learn from each other's experiences with use of data infrastructure and tools. In this context, we present the main discussion points during these meetings. Finally, we conclude the document by presenting the next steps in the work of Task 1.4.

2.Data Infrastructures

As computation and storage resources became available on large scale, research and innovation activities have drastically changed in character, even more so as systems became interconnected via intranets and the internet. The large scale availability of the digital resources has been a significant accelerator of the research and innovation activities. The current work processes underline a need for collaboration, for networking, and raising awareness of the different stakeholder communities. All these bring challenges that must be addressed appropriately such that they do not become a hurdle.

Data infrastructures have become a key service for researchers and data professionals (Millerand & Baker, 2020). An important characteristic of data infrastructures is that they must accommodate not only the technical changes of working with data, but also the organizational changes. The ideal (data) infrastructure is transparent to its users, blending in with their work environment.

2.1 Definition

In general, "infrastructure" is defined as basic and necessary systems and services facilitating the effective operation of countries, organizations, or companies[1]. Researchers have tried over the years to outline what makes an infrastructure in e.g. technological, societal, or material domains of our society (Buhr 2003, Videka et. al. 2008, Prud'homme 2004). Frischmann considers them to be

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[1] See, for example, the Cambridge Dictionary entry for "Infrastructure":
https://dictionary.cambridge.org/dictionary/english-german/infrastructure

resources that are consumed non-competitively, required as inputs to support downstream activities, and used to create a variety of goods and services (L. Dodds and P. Wells 2019, Frischmann 2013).

In the context of this document, we limit the term "Infrastructure" to Research Infrastructures as defined by art. 2 of the EU Regulation 2021/695 that establishes Horizon Europe. In this respect, infrastructures provide resources and services for the communities to efficiently conduct their research and innovation development. We can further define the term "infrastructure", then, as a concept comprising of everything from hardware and physical networks, via a software stack, services and API definitions, to organizational aspects such as rules of participation, financial regulations, up to actual human resources to operate and maintain the infrastructure, with the additional requirement of long-term stability[2]. This is in line with other authors who describe (data) infrastructures as more than just physical assets (servers, storage, network) but including other social, regulatory, and organisational aspects (L. Dodds and P. Wells 2019).

As defined by Dodds and Wells, a data infrastructure consists of:

- Data assets, such as datasets, identifiers, and registers.
- Standards and technologies used to curate and provide access to data assets.
- Guidance and policies that inform the use and management of data assets and the data infrastructure itself.
- Organisations that govern the data infrastructure.
- The communities involved in contributing to or maintaining it, and those who are impacted by decisions that are made using it.

Such infrastructures are critical to improving cross-domain collaboration.

2.2 Ontology-based European Data Infrastructures

In Europe, discussions on data management, data infrastructures and open data have intensified with the establishment of thematic European Research Infrastructure Consortia since 2009, and lately, concrete steps towards Europe-wide infrastructures (where non-European contributors and users are often project partners and stakeholders) have been taken by the European Strategy Forum on Research Infrastructures (ESFRI). The establishment of EOSC, the European Open Science Cloud, is another concrete step towards a federated (data) infrastructure for research and innovation. Further projects, both active and finished, contribute to various parts of these efforts. In OntoCommons an extensive list of such projects is maintained as an output of Task 1.1. In Task 1.4 we have selected a first set of such projects (see Section 3.1) with which we established contact and started a discussion on the subject of an infrastructure that is appropriate to the OntoCommons stakeholders.

From our interactions with these EOSC, RDA, and FAIR related initiatives, we could not identify platforms for interoperable ontology sharing and ontology-based data repositories and infrastructures. So far, we observed, ontologies have been used in isolation, as tools specific to

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particular tasks. The Report[3] on the EOSC Interoperability Framework from the EOSC Executive Board Working Group (WG) FAIR and Architecture, published in February 2021 (Corcho et al., 2021), does emphasize the need for ontologies and services for data infrastructures, and also gives a proposal for the design and implementation of the EOSC IF.

3. Collaboration with Projects in the European Landscape

3.1 Project landscape

OntoCommons is dedicated to the standardisation of data documentation across all domains related to materials and manufacturing. It lays the foundation for interoperable, harmonised and standardised data documentation through ontologies, facilitating data sharing and pushing data-driven innovation, to bring out a truly Digital Single Market and new business models for European industry, exploit the opportunities of digitalization and address sustainability challenges.

To make this a reality, it is essential to draw on already existing networks of (European) bodies, projects and initiatives with the objective of establishing a shared data documentation framework. The main objective of this task is to build the basis for further cooperation between OntoCommons and projects related to EOSC infrastructure and data management good practices (Research Data Alliance), and to the implementation of the FAIR principles. Our goal in OntoCommons is to leverage existing work in these areas and exchange knowledge by bringing together OntoCommons, Industry, the EOSC landscape, and the FAIR initiatives.

We synchronised our activities with Task 1.3 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. In order to create a knowledge exchange space with projects in the European landscape, we collaborated with Task 1.1 and (as mentioned) Task 1.3 to identify a list of relevant projects, listed in the table 1 below[4].

Table 1 List of EOSC, RDA, and FAIR related projects

Project/Initiative name	Website	Contact Point	Type of initiative	Status
Chemistry Research Data Interest Group	https://www.rd-alliance.org/groups/chemistry-	Stuart Chalk (University of North Florida)	International initiative	Active

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[3] https://op.europa.eu/en/publication-detail/-/publication/d787ea54-6a87-11eb-aeb5-01aa75ed71a1 (Accessed: Apr. 29 2022)

[4] This list displays the projects we have been in contact with. The complete list of relevant projects is available through the deliverables provided by Task 1.1, which is continuously maintained and which we follow for expanding the reach of discussions.

	research-data-interest-group.html			
DOME 4.0	https://dome40.eu/	Vasily Bunakov (STFC)	H2020 project	Active
Cos4cloud	https://cos4cloud-eosc.eu/		H2020 project	
EOSC Association TF - FAIR Metrics and Data Quality	https://www.eosc.eu/advisory-groups/fair-metrics-and-data-quality	Mark Wilkinson (UPM)	European Working Group	Active
EOSC Nordic	https://eosc-nordic.eu/	Lene Krøl Andersen (NeIC)	H2020 project	Active
EOSC Pillar	https://www.eosc-pillar.eu/	Fulvio Galeazzi (GARR)	H2020 project	Active
EOSC Synergy	https://www.eosc-synergy.eu/	Isabel Campos (CSIC)	H2020 project	Active
FAIR DO	https://fairdo.org/	Peter Mutschke (Gesis)	International initiative	Active
FAIR4Health	https://www.fair4health.eu/	Eva Mendez (UC3M)	H2020 project	Ended 30/11/2021
FAIRPlus	https://fairplus-project.eu/	Susanna Assunta Sansone (Oxford)	IMI funded project	Active
FAIRsFAIR	https://www.fairsfair.eu/	Wim Hugo (DANS)	H2020 project	Ended 28/02/2022
FAIRSharing	https://fairsharing.org/	Susanna Assunte Sansone (Oxford)	Standard database	Active
GOFAIR	https://www.go-fair.org/	Erik Schultes (LUMC)	International Foundation	Active
Ni4OS	https://ni4os.eu/	Andreas Athenodorou (The Cyprus Institute)	H2020 project	Active
RDA Materials Data, Infrastructure and Interoperability Interest Group	https://www.rd-alliance.org/groups/rdacodata-materials-data-infrastructure-interoperability-ig.html	Vasily Bunakov (STFC)	International initiative	Active

RDA Vocabulary and Semantic Service Interest Group	https://www.rd-alliance.org/groups/vocabulary-services-interest-group.html	Alexandra Kokkinaki (BODC)	International initiative	Active

3.2 Creating an information exchange platform

After defining the list of relevant projects and initiatives, we established contact to the different stakeholders and invited them to participate in our workshops.

Together with Task 1.3, our aim is to establish an information exchange platform where participants can become aware of on-going OntoCommons activities and other on-going work within the different initiatives. To organise such a multi stakeholder collaboration, we created a collaboration space, the "Knowledge Exchange Space (KExS)," by initiating two meetings in 2021:

The first workshop[5] was organised on 1 July 2021 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 structure of the workshop included a short introduction of the OntoCommons Work Packages (WPs) relevant for collaboration with the mentioned communities (that is WPs 2, 3, 4 and 5), followed by brief introductions of the projects and initiatives of the invitees. A dedicated session for discussions to identify and assess potential and future collaboration opportunities followed. The projects and initiatives represented at the workshop include Dome 4.0, EOSC-Nordic, EOSC Pillar, EOSC Secretariat, EOSC Synergy, FAIRsFAIR, the GO FAIR Foundation and the Chemistry Research Data IG. Potential future collaboration opportunities include:

- The organization of further KExS workshops;
- The participation in events such as the EOSC Symposium, or the RDA Plenary;
- The creation of Discussion Groups in order to further support dialogue and knowledge exchange;
- The creation of an Ontology FAIRness Detector or an Ontology Clinic to consult on what OntoCommons is producing and assess its course;
- The Identification of opportunities to work together at project level and leverage existing work.

The main intention[6] of these two workshops was to establish contact with relevant stakeholders in the FAIR, EOSC, and RDA communities, with a first round of brainstorming on possibilities and avenues of collaboration.

The second KExS workshop[7] was held on 22 October 2021. Eight representatives of the following projects and initiatives were present: FAIRsFAIR, Cos4Cloud, EERAdata, EOSC Pillar, EOSC Task Force

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[5] https://ontocommons.eu/news-events/events/creating-knowledge-exchange-space-data-management-and-documentation-kexs-0

[6] Full report: https://drive.google.com/file/d/1-WouXYwLR8S1TTqy6VUF9hg9h17YNZDJ/view?usp=sharing

[7] https://ontocommons.eu/news-events/events/2nd-kexs-workshop-creating-knowledge-exchange-space-data-management-and

FAIR Metrics and Data Quality, NI4OS-Europe as well as the International Union of Pure and Applied Chemistry (IUPAC) via the RDA Chemistry Research Data IG.

The main objectives[8] of this workshop were to strengthen the basis for further cooperation between OntoCommons and projects related to FAIR implementation, EOSC infrastructure and data management good practices (RDA) as well as to decide on preferred work modes and the next steps to take.

We presented our approach during the OntoCommons Horizontal workshop in a dedicated session entitled: "Establishing a Knowledge Exchange Space ". This session was co-organised with Task 1.3. The sessions had impulse talks from GOFAIR, the EOSC association and RDA (November 3rd, 2021). During this session, we discussed how to build a sustainable collaborative environment with the different stakeholders and how it can support OntoCommons.

On common agreement with the participants in these KExS events, we defined the communication channels and the organisation of the group: 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 (initially on a monthly basis, with meetings in January, February, and March 2022, currently on a bi-monthly basis).

Through these continuous regular interactions, we have been able to identify relevant efforts in EOSC related projects that could be of interest for OntoCommons. In addition, it allowed us to organise joint workshops on FAIR principles as a special session during Open Science FAIR[9].

Finally, during these regular meetings, we also discussed 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 various OntoCommons stakeholders.

3.3 Discussions in the information exchange platform

3.3.1 Relevant work in KExS participating projects

EOSC Pillar is currently building a semantic index to provide quick access to concepts from semantic artefacts published in semantic artefact repositories used by the communities involved in the project (e.g. Bioportal, Agroportal, NERC Vocabulary Service). For this purpose, they initiated a landscape analysis to identify relevant semantic artefact repositories and key semantic artefacts in the various domains involved in the project i.e. Cultural Heritage, Geology, Ocean Sciences, and Climate, Humanities, Health. To build this index of concepts, the project uses the Federated FAIR Data Space (Cazenave et al., 2020) to aggregate the heterogeneous and distributed semantic artefact

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[8] Full report : https://drive.google.com/file/d/13TPPmNvWg5ZYzNehio9U6LCWUq2JR5qh/view?usp=sharing

[9]   https://ontocommons.eu/news-events/events/applying-fair-principles-open-science-and-industry-drive-innovation-challenges

repositories identified and they deployed an OntoPortal[10] instance to publish ontologies not accessible on the web.

The idea is to bring all the semantic artefacts that do not have an API into that repository and make those that have one accessible as well. The FAIRness of the semantic artefacts is currently assessed via an internal Excel sheet; the stored semantic artefacts do not go through a curation process.

The plan is to integrate the EOSC Pillar OntoPortal repository via the F2DS service, where API's can be registered in order to harvest the ontologies to their database. The F2DS service and the semantic index should be integrated into EOSC. The first step to integrate a service to EOSC is to register it at the EOSC marketplace (https://marketplace.eosc-portal.eu/), which is not really a marketplace but rather a register of EOSC related services.

The repository for semantic artefacts that are not machine accessible will be created for OntoPortal, but everything is still in the testing phase. For OntoCommons a new portal was created. WP3 will also host a FAIRness assessment service, which is a clear collaboration between EOSC Pillar and OntoCommons to find the most appropriate tools to be deployed on the portal.

In the long run, the F2DS service is to be complemented by tools that use domain ontologies to enrich meta data descriptions of data sets. The ontologies are to be aggregated and indexed for easy access.

NI4OS Europe focuses on the development of soft skills with a training-focused agenda. Additionally, they developed freely available data management tools, which can be found on the NI4OS Wiki (e.g. License Clearance Tool, EOSC RoP Legal & Ethics). The project also is working on a NI4OS service catalogue, has created a NI4OS Semantics and Ontologies Working Group (WG) with the purpose of raising awareness on these topics. An output of this project will be a metadata schema for the digital cultural heritage domain and a release of best practices for creating ontologies. Through training events and workshops, this project aims to increase the data management literacy for researchers. NI4OS has created multilingual training materials for FAIR principles and data management. The following questions related to FAIR enabling services were also discussed:

- Does a service support metadata?
- Does a service support semantics?
- Are the metadata standards available for a specific domain?
- How much FAIR educated are the scientists developing the service?
- How about semantic interoperability?
- How do we facilitate the inclusion of semantics, metadata schemas, ontological solutions on a service at practical level?

The WG also aims at providing more context on the subject of FAIR enabling services, at working with service providers to identify the different types of metadata, at contributing to the implementation of domain data protocols (as an upcoming Agos DMP service) as well as to the EOSC TF FAIR Metrics and Data Quality. It is pursuing the following of activities:

- Organization of webinars for on-boarding service providers and repository managers

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[10] https://ontoportal.org/

- Providing a pathway on integration and alteration that are necessary for enhancing existing services or new services
- Feedback on ORDM Tools (RePol, LCT, RoLECT)

NI4OS is organizing a webinar for its WG on metadata, ontologies and semantics, service providers and external collaborators to support service providers with FAIR implementation, especially in the aspects of understanding service operations in RDM Lifecycles, collect demands and provide tailored advice.

Regarding the collaboration with OntoCommons, the NI4OS project invited OntoCommons to co-organize a webinar to provide industry-related examples and share best practices in the use of ontologies. . Further common workshops on sharing usage practices and training were favourably seen by the KExS participants.

FAIRsFAIR is a project that worked on a highly improved version of the FAIR semantics recommendation, in which they are presenting the minimum, community-established, metadata schema to make semantic artefacts FAIR (Le Franc et al., 2022).

EOSC Task Force on FAIR Metrics and Data Quality is in its inception phase, with goals and actions of this task force being defined. Up to now, it has been established that a digital object may obtain very different scores from evaluators. The effort is to understand the reasons behind these score differences and assess the impact the different approaches to discover and harvest metadata describing the object has on the object's score. A focused workshop aiming at harmonizing digital the assessment of digital objects (ontologies being included) has already taken place. The TF is likely to involve RDA and participate in RDA plenaries in the near future. In addition, a survey on Data Quality[11] was launched, to which OntoCommons partners were invited to reply to, and bring in their expertise and needs from a material modelling perspective. A second survey on FAIR metrics is in the planning.

Cos4Cloud (Co-designed citizen observatories for the EOS-Cloud) is a European Horizon 2020 project meant to facilitate citizen science technologies.

EERAdata develops, explores, and tests a FAIR and open data ecosystem in the low-carbon energy field.

Other projects: Two projects not part of the EOSC landscape, though matching the content-related context, related to the Digital Humanities/Cultural heritage domains are: Ariadne-plus https://ariadne-infrastructure.eu/ and Parthenos https://www.parthenos-project.eu/

- PARTHENOS project (2015-2018) realized an ontology based on CIDOC-CRM for digital humanities and research infrastructures in the domains of cultural heritage. The project developed a training section devoted to ontology (https://training.parthenos-project.eu/sample-page/formal-ontologies-a-complete-novices-guide/existing-formal-ontologies/getting-started-with-ontologies)

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[11] https://www.eosc.eu/news/complete-data-quality-survey

- The ARIADNEplus project (2019-2022) is the extension of the previous ARIADNE
  Integrating Activity, which successfully integrated archeological data infrastructures in
  Europe using an ontology based on CIDOC-CRM as well. The project developed a tool
  to map and annotate data. A semantic search is also under development in the portal
  (https://ariadne-infrastructure.eu/portal/).

3.3.2 Identified gaps and needs

As previously stated, so far, semantic technologies and ontologies have been used in isolation within
the EOSC related projects, depending on the particular aims of the project. We could not identify
recommendations on using ontology and ontology-based data repositories and infrastructures
except for the EOSC Interoperability Framework document (Corcho et al., 2021). Neither are there
recommendations on the use, and maintenance of ontology repositories. In their vast majority,
ontology repositories, independent of the domain of research and innovation, only provide services
that catalogue and aggregate existing ontologies. There is no cross-domain common service that
can be used to evaluate the quality of an ontology[12]. In this respect, KExS participants have expressed
their wish that EOSC will provide a service for ontology curation, as well as guidance for FAIRness
improvements to their data and services[13].

The EOSC portal provides a "marketplace" for data and services, including ontologies, ontologies,
which, at the time of writing this document has a set of very limited features making it, currently, a
registry. The functionality of this platform is to be extended, at the time of writing this document it
listed the following four ontology-related services:

- B2NOTE: https://marketplace.eosc-portal.eu/services/b2note
- OpenMinTeD: https://marketplace.eosc-portal.eu/services/openminted-catalogue-of-
  ancillary-resources
- EDMERP: https://marketplace.eosc-portal.eu/services/seadatanet-european-directory-of-
  marine-environmental-research-projects-edmerp
- Data-driven Atlas Production: https://marketplace.eosc-portal.eu/services/data-driven-
  atlas-production

Service and data semantic interoperability, as well as ontologies, are included in the SRIA[14] .
Additionally, during one EOSC General Assembly, plans for collaborating with the RDA on industry
commons related topics have been discussed. OntoCommons, through its works in WP1, will follow
these developments and stay aware of any emerging efforts of collaboration, especially in the area
of materials modelling.

An important component of an ontology-based infrastructure is a component that will be able to
assess the level of interoperability between data sets, between data and services, between services.
With respect to FAIR, interoperability is reduced to selecting an ontology for describing the (meta)
data and used commonly agreed on formats. This is often not sufficient, as the common practice

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[12] We comment here that compliance with the FAIR principles do not assumes a quality check of the data.
[13] During the KExS meetings, two existing tools for ontology FAIRness evaluation were mentioned: O'FAIRe and FOOPs!
[14] EOSC Strategic Research and Innovation Agenda https://www.eosc.eu/sria

does indeed use some ontology to describe data, but without the requirement to specify data provenance, or versioning, such aspects of data, which are often critical for a data infrastructure, are lost.

3.3.3 Discussion on OntoCommons Roadmap

The OntoCommons Roadmap is one of the expected results from the OntoCommons Coordination and Support Action, WP1. The aim is to develop a long-term strategic development document that lists both milestones and recommendations in relation with data documentation. A chapter in the Roadmap document describes the infrastructure aspects of an ecosystem dedicated to the OntoCommons stakeholders (material modelling community). Following the various interactions with relevant stakeholders (KExS events, OntoCommons workshop events, direct interactions with experts) we have singled out the following groups of needs, gaps, and necessary steps:

- **Identify industrial needs** are often very complex simulations
  - There is a need of collaborative tools (inter-stakeholder) especially in regards to secure interaction / access to data and data collection & digital market
  - Other types of very important tools are
    - visualization
    - data quality and analytics
    - (ontology / data) validation tools, FAIR
    - access to pools of experts
  - Data and Tools on different platforms to be "brought" together
  - The very important questions lays on the **long term sustainability**
- **State of the Art:**
  - Tools and MM data landscaped in OntoCommons
  - Important: existence of data and service provisioning
- Several **gaps** have been identified there:
  - Missing fundamental low-level ontologies
  - Ontology / data provisioning (outside of their own environment)
  - Federated, interconnected virtual research environments (VRE)
  - pilot end-to-end application demonstrators (cross-walks)
  - (service) Pipelines
  - **Most importantly**: Insufficient support for transfer from R&D department and funding stream activities into infrastructure operations
- **Actions:**
  - creation of fundamental low-level ontologies (sufficient number of)
  - sustainable service provision, with resilience and stability
  - Virtual Research Environments described and used
  - end-to-end demonstrators (cross-walks) at different levels of complexity, cross-domain

We comment, here, that each of the gaps and needs identified fall into at least one of the infrastructure components given in Section 2.1.

4. Conclusion and Next Steps

The main goal of the work done until now is to identify and establish contact to relevant stakeholders (projects, experts, communities) in the EOSC, RDA, and FAIR communities, pinpointing the most fruitful collaborations for both these stakeholders and OntoCommons. Teaming up with Task 1.3, we have established a Knowledge Exchange Space that aims to be a forum of discussion and experience sharing of use cases and practices in working with data. Up to the time of writing this document, we have had two initial workshops, and three further meetings, each focusing on a topic of relevance for both OntoCommons and KExS participants (FAIR services and tools, Infrastructure Roadmap, EOSC TF FAIR Metrics and Data Quality).

In the following, we will continue the regular KExS meetings, maintaining the dialogue with the identified projects, inviting further EOSC related projects to the discussion table, especially those funded under the INFRAEOSC call.

Service and data semantic interoperability, as well as ontologies, are included in the SRIA (https://www.eosc.eu/sria) and, additionally, during one EOSC General Assembly plans for collaborating with RDA on industry commons related topics have been discussed. OntoCommons, through its works in WP1, will follow these developments and stay aware of any emerging efforts of collaboration. OntoCommons should also help co-authoring the next SRIA iteration (semantic-related parts). Material Sciences are key when it comes to ontologies and should be of interest to EOSC.

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