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Report on
populated domain ontology registry

Grant Agreement: 958371

Project Title	Ontology-driven data documentation for Industry Commons
Project Acronym	OntoCommons
Project Number	958371
Type of project	CSA - Coordination and support action
Topics	DT-NMBP-39-2020 - Towards Standardised Documentation of Data through taxonomies and ontologies (CSA)
Starting date of Project	01 November 2020
Duration of the project	36 months
Website	www.ontocommons.eu

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populated domain ontology registry

Work Package	Domain Ontologies
Task	Domain-specific Semantic Landscape Analysis
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Peer reviewers	Hedi Karray
Version	Final
Date	02/03/2022

Glossary of terms

Item	Description
RDF	Resource Description Framework
OWL	Web Ontology Language
SPARQL	SPARQL Protocol and RDF Query Language
URI	Uniform Resource Identifier

Keywords

Ontology; Ontology catalogue, Web interface

Disclaimer

Executive Summary

This document presents the "OntoCommons ontology catalogue" and how it is populated with ontology metadata. In this deliverable, an overview of the generated portal is included. It should be noted that this report is a short presentation of the outcome where more information on the technological infrastructure can be found in D4.4 [Poveda et al. 2022].

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1. Introduction

To pursue OntoCommons goals of identifying and reviewing semantic resources related to domains such as industry, manufacturing, construction, and materials, etc. This deliverable specifically intend to present the OntoCommons ontology catalogue.

The OntoCommons ontology catalogue is provided as a website available at https://data.ontocommons.linkeddata.es/index and the present document describes the process followed to generate and publish the catalogue, the technologies involved, an overview of the resulting catalogue, and the future lines of work to come. More detailed information about the infrastructure is provided in the document "Report on OntoCommons ontology registry infrastructure" [Poveda et al., 2022]. More precisely, the catalogue HTML views are generated dynamically from RDF data describing the metadata ontologies. That is, the catalogue is built on top of semantically annotated data and is also provided as knowledge graph by means of an SPARQL endpoint available for external queries. For automatically generating the HTML views the Helio framework[1] in combination with Thymeleaf[2], as server-side Java template engine, is used. Helio is a framework that allows the generation and publication as Linked Data service of RDF data from different heterogeneous sources.

As specified by the proposal, this effort is geared towards building a tangible, usable, and maintained software system to provide prospective adopter of ontologies an integrated access to existing and newly built ontologies as part of the harmonized ontology ecosystem. In that context, OntoCommons ontology catalogue encodes machine readable data for these semantic assets only at the meta-level. At the same time, OntoCommons ecosystem will also endorse one or more ontology repositories (e.g., IndustryPortal[3], MatPortal[4]) for persistent storage of the ontology source files along with version management, FAIR metadata, evaluation metrics, and content browsing services, including vocabulary search, annotator, recommender and mapping, based on NCBO BioPortal technology[5]. OntoCommons ontology catalogue will align its entries with the corresponding sources from the aforementioned repositories. The strategy for such alignment is given in Section 10

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[1] https://oeg-upm.github.io/helio/

[2] https://www.thymeleaf.org/

[3] https://industryportal.enit.fr/

[4] https://matportal.org/

[5] https://ontoportal.org/the-ontoportal-virtual-appliance/ (developed and maintained by Standford University)
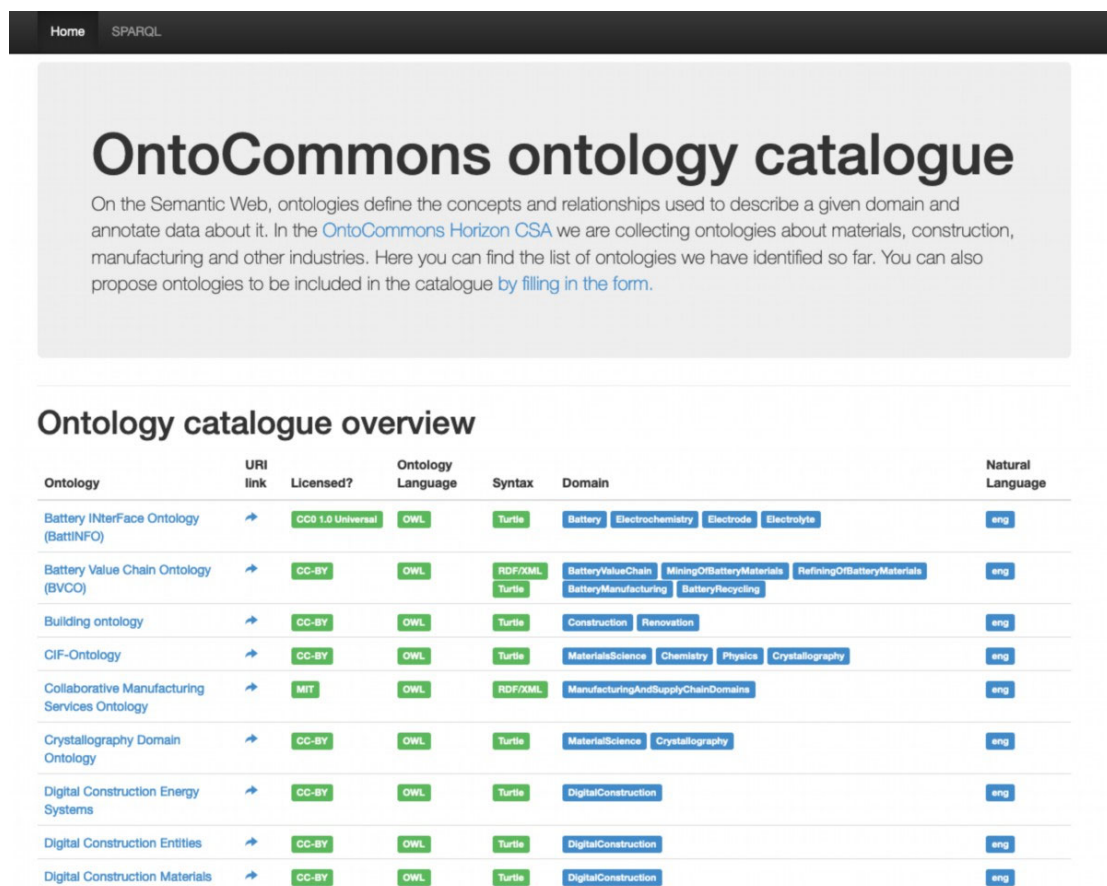
2. OntoCommons ontology catalogue population

As already mentioned, the ontology metadata that is populate the ontology registry has been gathered in close collaboration with project partners. In order to collect ontologies and their metadata in the domains of interest, an online survey was set up. This survey was completed by community members external to the OntoCommons project and by project partners. Such survey has served as input to the ontology landscape analysis reported in "Report on existing domain ontologies in identified domains" [Le Franc et al., 2021]. For more information about the ontologies gathered, we advise readers to consult this report. It should be noted that the responses gathered from the survey have been curated in order to generate the ontology catalogue with more clean and homogeneous data.

In order to generate the semantically annotated data in RDF the ontologies and the elements to describe such data should be defined. For doing so, the OntoCommons partners involved and reviewed the online survey form to match each question with existing ontologies. The prefixes and namespaces of the reused ontologies are listed in **Fehler! Verweisquelle konnte nicht gefunden werden.** and the agreed correspondences between the survey fields and the different metadata ontologies analyzed are provided in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

3. OntoCommons ontology catalogue overview

The OntoCommons ontology catalogue is provided as a website. Figure 1 depicts an excerpt of the main or landing page of the catalogue, an example of a generated page for a vocabulary is shown in Figure 2, and finally Figure 3 depicts the information shown for each domain.

Figure 1. Excerpt from the OntoCommons ontology catalogue landing page

Figure 2. Example of OntoCommons catalogue vocabulary view

Figure 3. Example of OntoCommons catalogue domain view

4. Conclusions and future work

This document presented a brief overview of the OntoCommons ontology catalogue that is populated based on community input and contributions from project partners.

As the catalogue is intended to evolve over the course of the project, it should not be considered as a final product at the end of the project. Indeed, as the next action points, refinement of input data, gather more information on ontologies not yet included in the catalogue, and include information from existing repositories.

Finally, it should be mentioned that due to the architecture deployed based on RDF and customized HTML template in a modular way, the ontology catalogue infrastructure could be used as basis for other project metadata that could be of interest for publication that is represented or intended to be formalized as a knowledge graph. In this sense, for each entity to be represented a new HTML template and possible SPARQL query should be defined.

5. References

[Le Franc et al., 2021] Yann Le Franc, Gerhard Goldbeck, Arkopaul Sarkar, Jesper Friis, María Poveda-Villalón, Alba Fernández-Izquierdo, Hedi Karray. "D3.2 Report on existing domain ontoloiges in identified domains". OntoCommons project deliverable. 2021.

[Poveda et al., 2022] María Poveda-Villalón, Andrea Cimmino, Raúl García Castro. "D4.4 OntoCommons ontology registry infrastructure". OntoCommons project deliverable. 2022.