



Landscape Analysis of Domain Ontologies

Identifying gaps, needs and requirements

Yann Le Franc, PhD / e-Science Data Factory

Objectives of the task

- Understand the current landscape of ontologies in Material Science and Manufacturing
- Analyze existing ontologies to understand diversity, coverage, overlap, maturity, existing gaps, common practices, ...
- Create a unique resource for domain experts to find and reuse existing semantic artefacts (ontologies, controlled vocabularies, ...)

Collecting domain ontologies

— Collecting information from domain experts using a dedicated survey

<https://ontocommons.eu/node/146>



Metadata for OntoCommons ontology catalogue

This survey is oriented to people who are aware of any ontology that could be useful for materials, manufacturing or related domains.

Our final goal is to develop an ontology catalogue in order to provide the materials and manufacturing communities with the most suitable ontologies in this area. In addition the catalogue also contains general domain ontologies frequently used across domains.

The estimated time required to complete the questionnaire is of 10 minutes. Once the form about an ontology is submitted it will be manually assessed and automatically processed. After this, the ontology will be included in the future OntoCommons Catalogue. Please note that there is a manual component in the process, therefore the on-line catalogue will not be updated immediately after the submission.

The questionnaire does not include any personal question and the confidentiality of the answers will be preserved. We only ask for an email address just in case you want to obtain information about the results we produce.

This questionnaire is being performed in the context of the [OntoCommons HORIZON2020 project](#).
If you have any question or comment about the questionnaire contact [ontocommons.registry\[at\]delicias.dia.fi.upm.es](mailto:ontocommons.registry[at]delicias.dia.fi.upm.es)

Name *

The name given to the ontology.

URI *

The URI of the ontology.

Description *

A free-text account of the ontology.

Collecting domain ontologies

— Collecting information from domain experts using a dedicated survey

<https://ontocommons.eu/node/146>

— Use the results to publish an ontology catalog

Ontologies
Datasets
About

smartcity.linkeddata.es

On the Semantic Web, ontologies define the concepts and relationships used to describe a given domain and annotate data about it. In the [READY4SmartCities FP7 CSA](#) we are collecting ontologies about smart cities, energy and other related fields. Here you can find the list of ontologies we have identified so far. You can also propose ontologies to be included in the catalogue, either [through a detailed form](#) if you have more time to fill the required data or [through a very short form](#).

Ontologies

Along the catalogue the following color code is used to represent different information. Furthermore, in addition to the color, each cell contains detailed information when available.

Green for positive indicators
Orange for intermediate indicators
Red for negative indicators
Blue for plain information
Grey for unknown fields

The first column of indicators shows whether the ontology is available online in **RDF** and **HTML** formats. For each format, RDF or HTML, we use the following colors and text tags: **CN OK** (for "Content Negotiation OK") if the corresponding content can be retrieved in the given format according to [content negotiation best practices for publishing RDF vocabularies](#), **NO CN** (for "NO Content Negotiation") if the content can be retrieved even though no content negotiation mechanisms are properly set up, and **Not Av** (for "Not Available") if the content can not be retrieved.

Filter by domain:

Ontology	Online Availability (RDF HTML)		Open License	Ontology Language	Syntax	Domain	Natural Language
The W3C PROV Ontology →	CN OK	CN OK	W3C	OWL	RDF/XML	provenance	en
COINS Building Information Model (CBIM) →	NO CN	Not Av	Unknown	OWL	RDF/XML	building usage	en
eDIANA context awareness ontology →	Not Av	Not Av	Unknown	OWL	RDF/XML	devices in a building	en
Adapt4EE Ontology →	Not Av	CN OK	Unknown	OWL	Turtle	kpi bim bpm device modelling building automation energy efficiency occupancy events building performance optimization	en
FIEMSER ontology →	Unknown	NO CN	Unknown	OWL	Turtle	bim devices in a building building space description wsn	Unknown
SPITFIRE Ontology →	Unknown	Unknown	W3C	OWL	Turtle	smart sensors	en
FIPA Device Ontology →	Not Av	CN OK	All rights reserve	OWL	Turtle	software agents device modelling	en
SAREF:Smart Appliances REFERENCE ontology →	Unknown	NO CN	Unknown	OWL	Turtle	device modelling devices in a building smart appliances	en
Global City Indicator Foundation Ontology →	CN OK	Not Av	Unknown	OWL	RDF/XML	city indicator	Unknown
DOLCE (Descriptive Ontology for Linguistic and Cognitive Engineering) →	NO CN	Not Av	Unknown	OWL	RDF/XML	generic ontology	en
Internet of Things (IoT) Ontology →	Not Av	CN OK	Unknown	OWL	RDF/XML	web of things Internet of things	en

Collecting domain ontologies

— Collecting information from domain experts using a dedicated survey

<https://ontocommons.eu/node/146>

— Use the results to publish an ontology catalog

Ontologies

Datasets

About

Material Science and Manufacturing Ontology Catalog

Ontologies

Along the catalogue the following color code is used to represent different information. Furthermore, in addition to the color, each cell contains detailed information when available.

Green for positive indicators
Orange for intermediate indicators
Red for negative indicators
Blue for plain information
Grey for unknown fields

The first column of indicators shows whether the ontology is available online in **RDF** and **HTML** formats. For each format, RDF or HTML, we use the following colors and text tags: **CN OK** (for "Content Negotiation OK") if the corresponding content can be retrieved in the given format according to [content negotiation best practices for publishing RDF vocabularies](#), **NO CN** (for "NO Content Negotiation") if the content can be retrieved even though no content negotiation mechanisms are properly set up, and **Not Av** (for "Not Available") if the content can not be retrieved.

Filter by domain:

Ontology	Online Availability (RDF HTML)		Open License	Ontology Language	Syntax	Domain	Natural Language
The W3C PROV Ontology →	CN OK	CN OK	W3C	OWL	RDF/XML	provenance	en
COINS Building Information Model (CBIM) →	NO CN	Not Av	Unknown	OWL	RDF/XML	building usage	en
eDIANA context awareness ontology →	Not Av	Not Av	Unknown	OWL	RDF/XML	devices in a building	en
Adapt4EE Ontology →	Not Av	CN OK	Unknown	OWL	Turtle	kpi bim bpm device modelling building automation energy efficiency occupancy events building performance optimization	en
FIEMSER ontology →	Unknown	NO CN	Unknown	OWL	Turtle	bim devices in a building building space description wsn	Unknown
SPITFIRE Ontology →	Unknown	Unknown	W3C	OWL	Turtle	smart sensors	en
FIPA Device Ontology →	Not Av	CN OK	All rights reserve	OWL	Turtle	software agents device modelling	en
SAREF:Smart Appliances REFERENCE ontology →	Unknown	NO CN	Unknown	OWL	Turtle	device modelling devices in a building smart appliances	en
Global City Indicator Foundation Ontology →	CN OK	Not Av	Unknown	OWL	RDF/XML	city indicator	Unknown
DOLCE (Descriptive Ontology for Linguistic and Cognitive Engineering) →	NO CN	Not Av	Unknown	OWL	RDF/XML	generic ontology	en
Internet of Things (IoT) Ontology →	Not Av	CN OK	Unknown	OWL	RDF/XML	web of things Internet of things	en

Analysing the landscape

- Alignment with FAIR principles: evaluate against the recommendations proposed by FAIRsFAIR on FAIR Semantics

Doi: 10.5281/zenodo.4314321

- Domain criteria (coverage, overlap, semantic gaps, usage, ...)
- Ontology Engineering criteria (format, use of Top Level Ontologies, ...)

How?

- Analysing survey results (internal and external respondents)
- Organising dedicated expert workshops



Thank you for your attention !

Questions?

FOLLOW US ON:  

ylefranc@esciencefactory.com



OntoCommons “Ontology-driven data documentation for Industry Commons” has received funding from the European Union’s Horizon Programme call H2020 -NMBP-TO-IND-2020-singlestage, Grant Agreement number 862136