ITINERIS

Exploring meaning in data: a hands-on course in semantics and analysis for FAIR Research

Module 2: Semantic artefacts lifecycle

Martina Pulieri

Data lifecycle

A data lifecycle refers to the stages that data goes through from its creation or acquisition, through its usage and maintenance, to its eventual disposal.
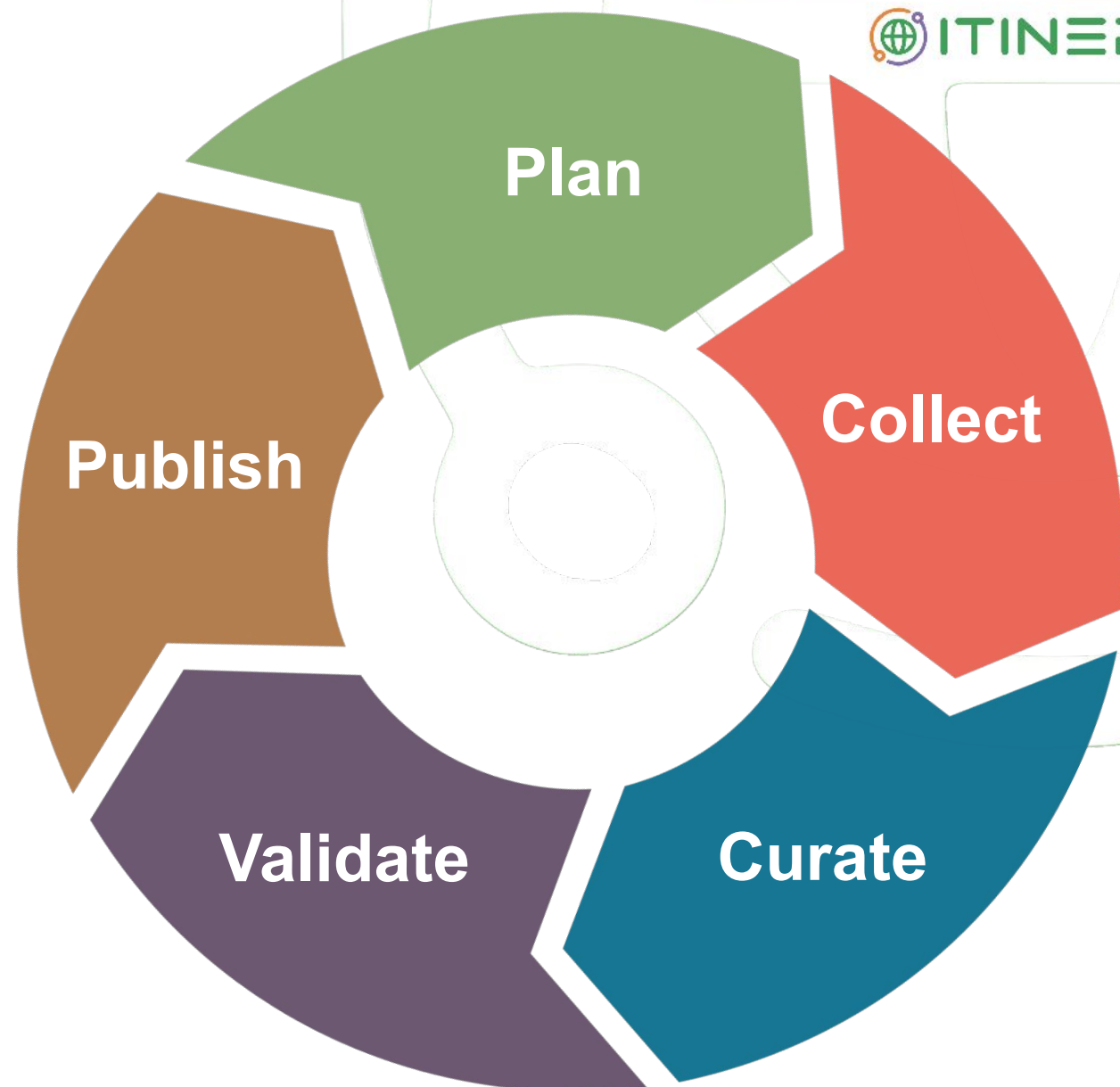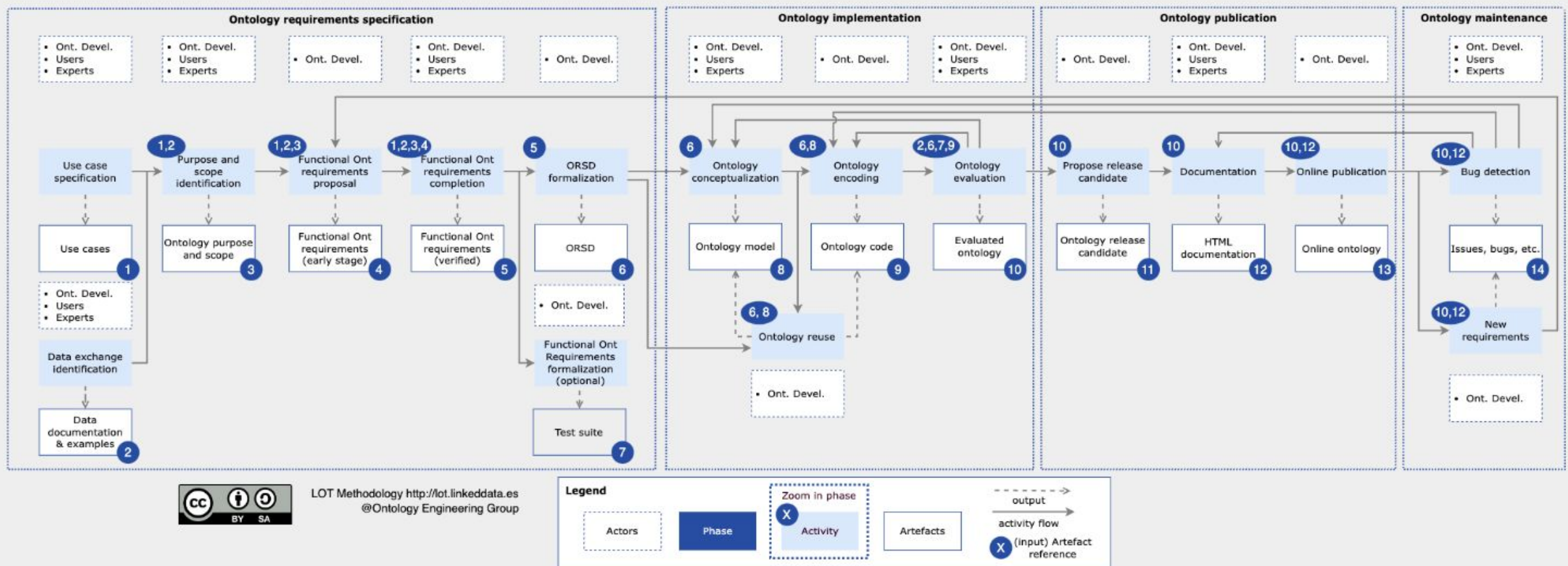
Which are the actors involved?
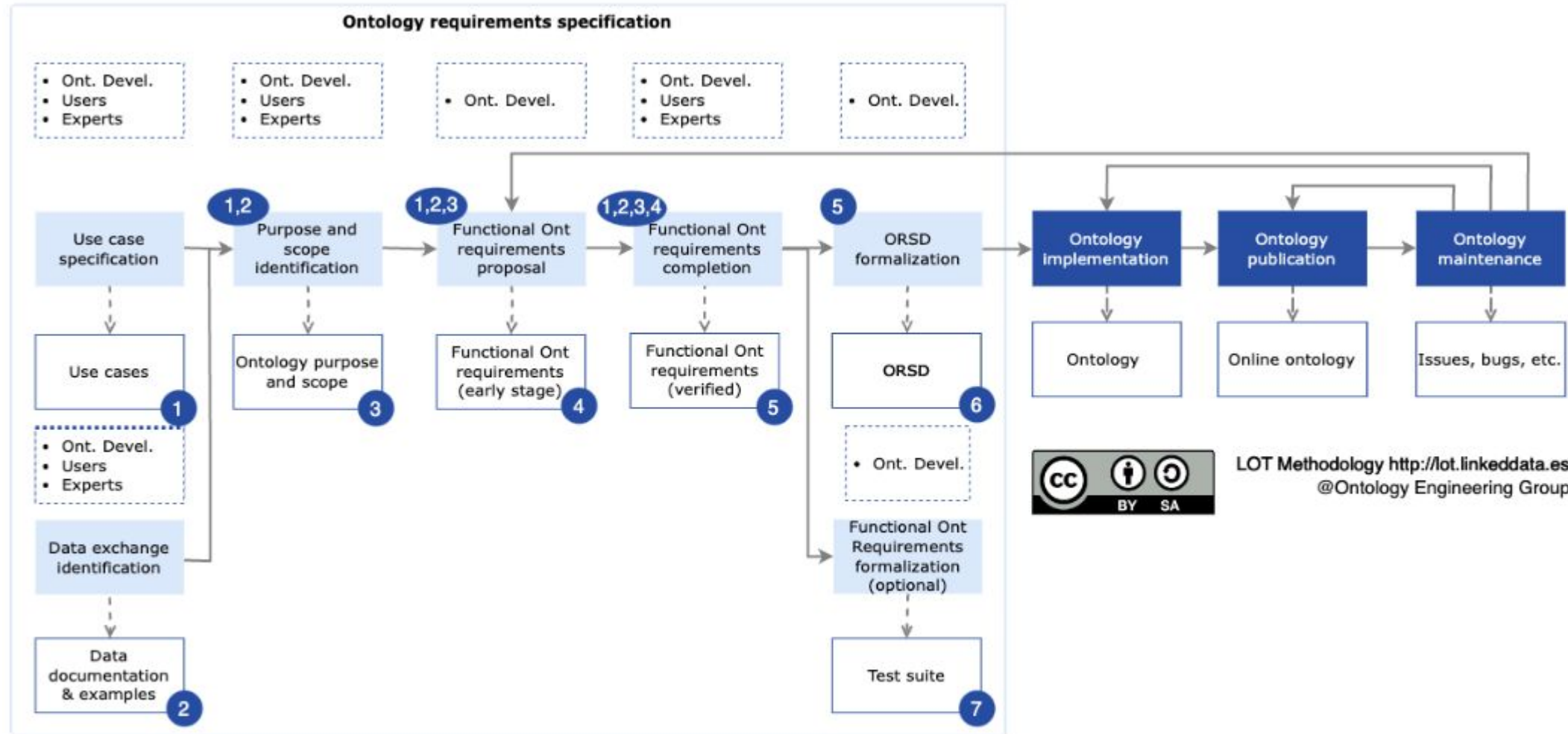

Editors

ICTs

Validators

Plan

Collect

Curate

Validate

Publish

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Linked Open Terms workflow
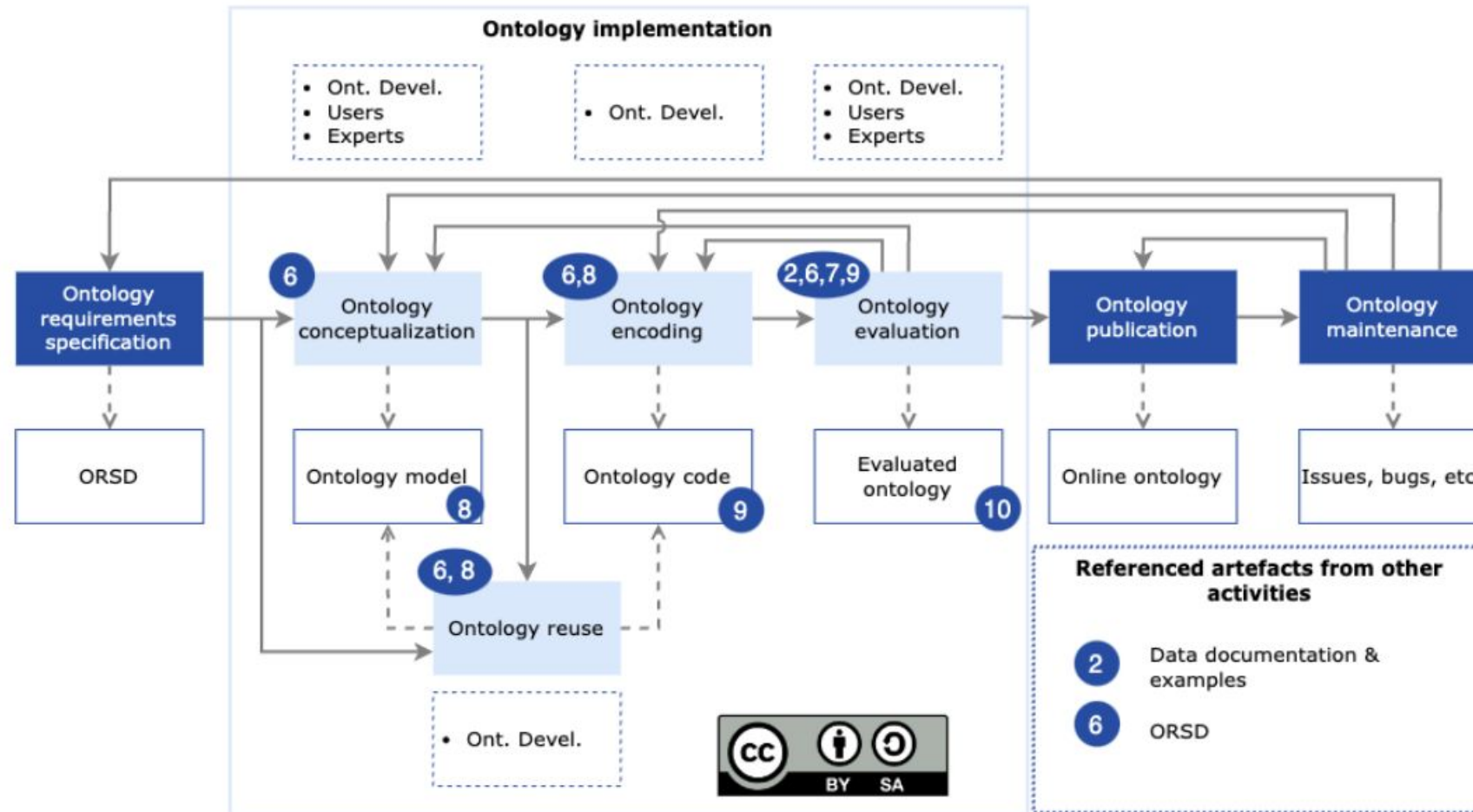

Methodology detailed workflow

Semantic artefact requirements specification
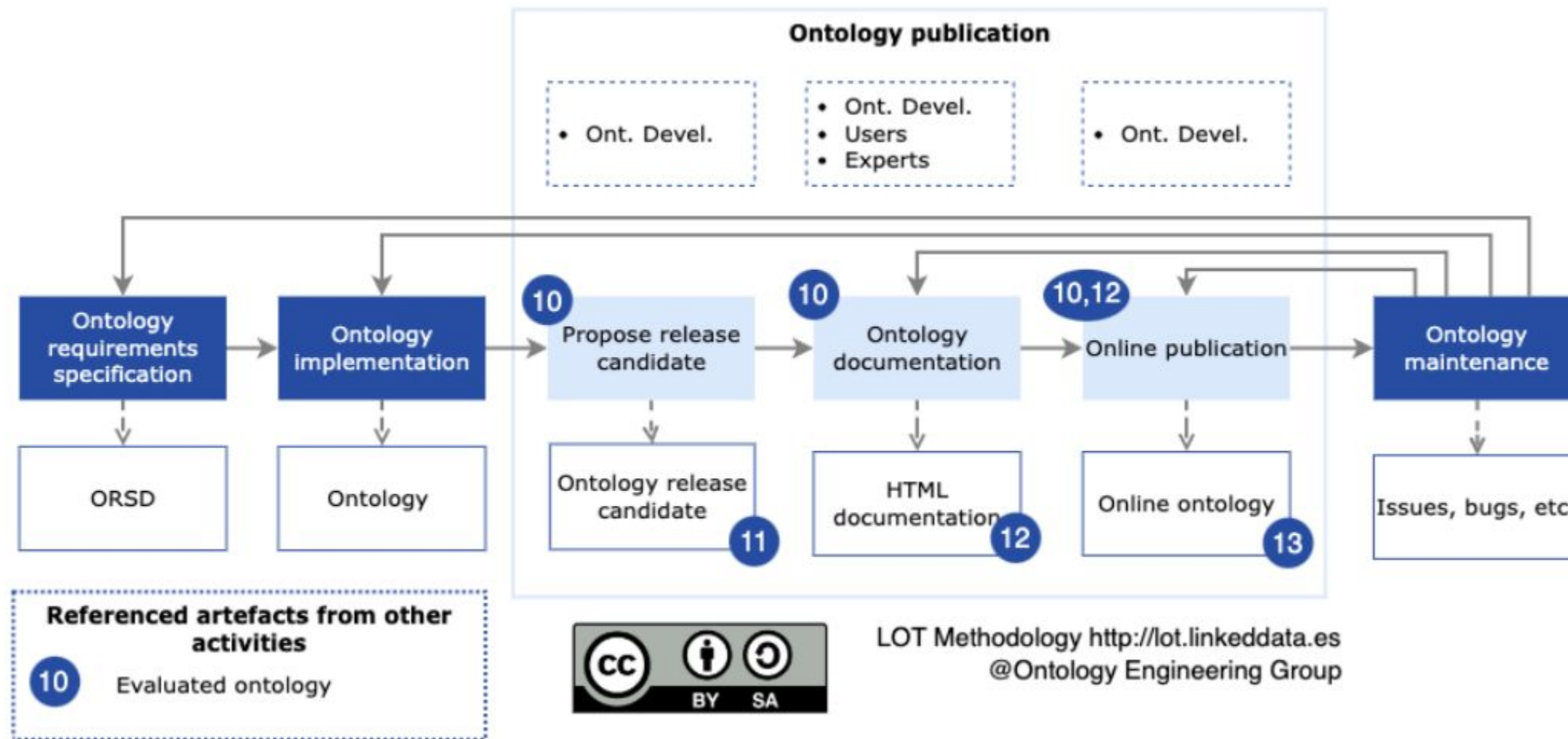

Requirements specification workflow

LOT Methodology http://lot.linkeddata.es
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Semantic artefact implementation

Ontology implementation workflow
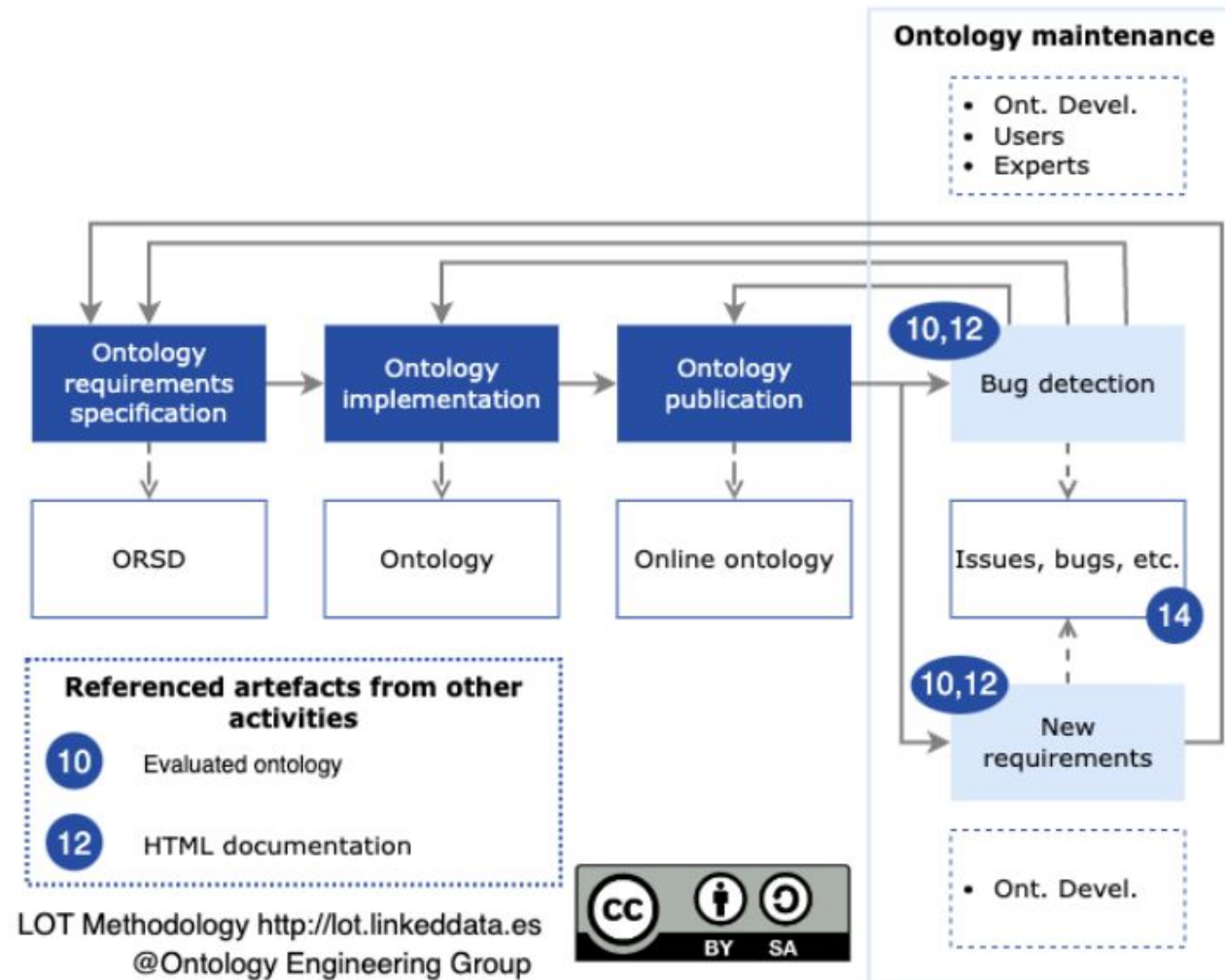
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Semantic artefact publication

Ontology publication workflow

Semantic artefact maintenance

Ontology maintenance

- Ont. Devel.
- Users
- Experts

Ontology requirements specification → Ontology implementation → Ontology publication → Bug detection (10,12)

ORSD | Ontology | Online ontology | Issues, bugs, etc. (14)

New requirements (10,12)

- Ont. Devel.

Referenced artefacts from other activities

10 Evaluated ontology

12 HTML documentation

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Ontology maintenance workflow

Tools for semantic artefacts editing

Name	Type	Supported Standards	Key Features	License	Link
Protégé	Desktop/Web	OWL, RDF, RDFS	Full-featured editor, plugins, reasoning support	Open Source	protege.stanford.edu
PoolParty	Web	SKOS, OWL, RDF	Semantic taxonomy, Linked Data, enterprise knowledge graphs	Commercial	poolparty.biz
VocBench	Web	SKOS, OWL, RDF	Collaborative, multilingual, open data–ready	Open Source	vocbench.uniroma2.it
TemaTres	Web	SKOS, ISO 25964	Multilingual thesaurus management, RDF export	Open Source	vocabularyserver.com
SKOS Play!	Web	SKOS	Visualization and validation of SKOS thesauri	Open Source	skos-play.sparna.fr

Semantic artefact catalogues

- Ding and Fensel, 2001. Ontology libraries: "A system that offers various functions for managing, adapting and standardising groups of ontologies. It should fulfil the needs for re-use of ontologies."

- Hartman et al., 2009. Ontology repository: "A structured collection of ontologies (…) by using an Ontology Metadata Vocabulary. References and relations between ontologies and their modules build the semantic model of an ontology repository. Access to resources is realised through semantically-enabled interfaces applicable for humans and machines.".

Semantic artefact catalogues

- BioPortal
- AgroPortal
- EcoPortal
- BiodivPortal
- EarthPortal
- OntoBee
- OBO Foundry
- EBI Ontology Lookup Service (OLS)
- AberOWL
- Linked Open Vocabularies
- OntoHub
- Marine Metadata Initiative's Ontology Registry and Repository
- ESIP Federation's Community Ontology Repository
- ARDC Research Vocabularies Australia
- NERC vocabulary server
- Loterre
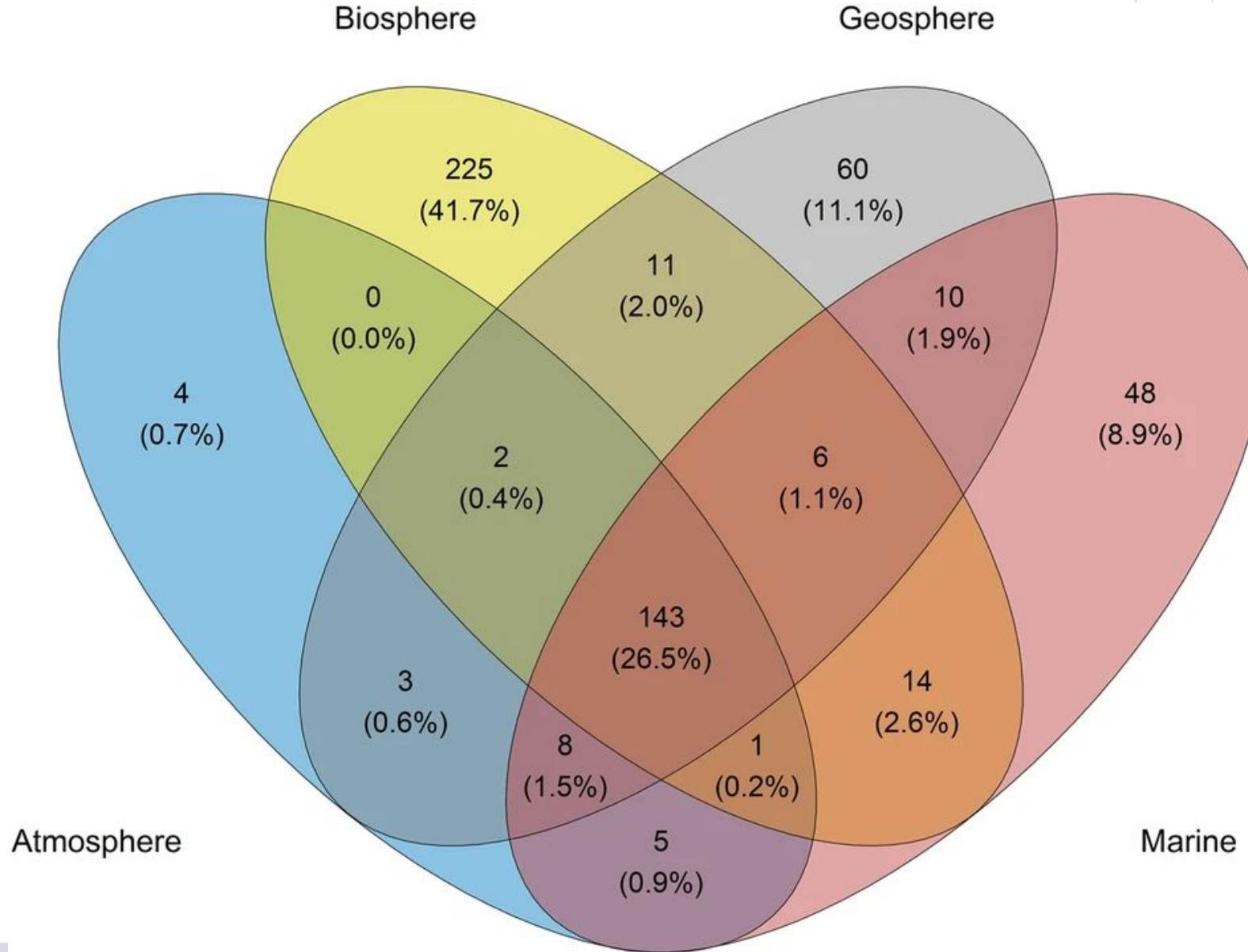
Skosmos

Skosmos
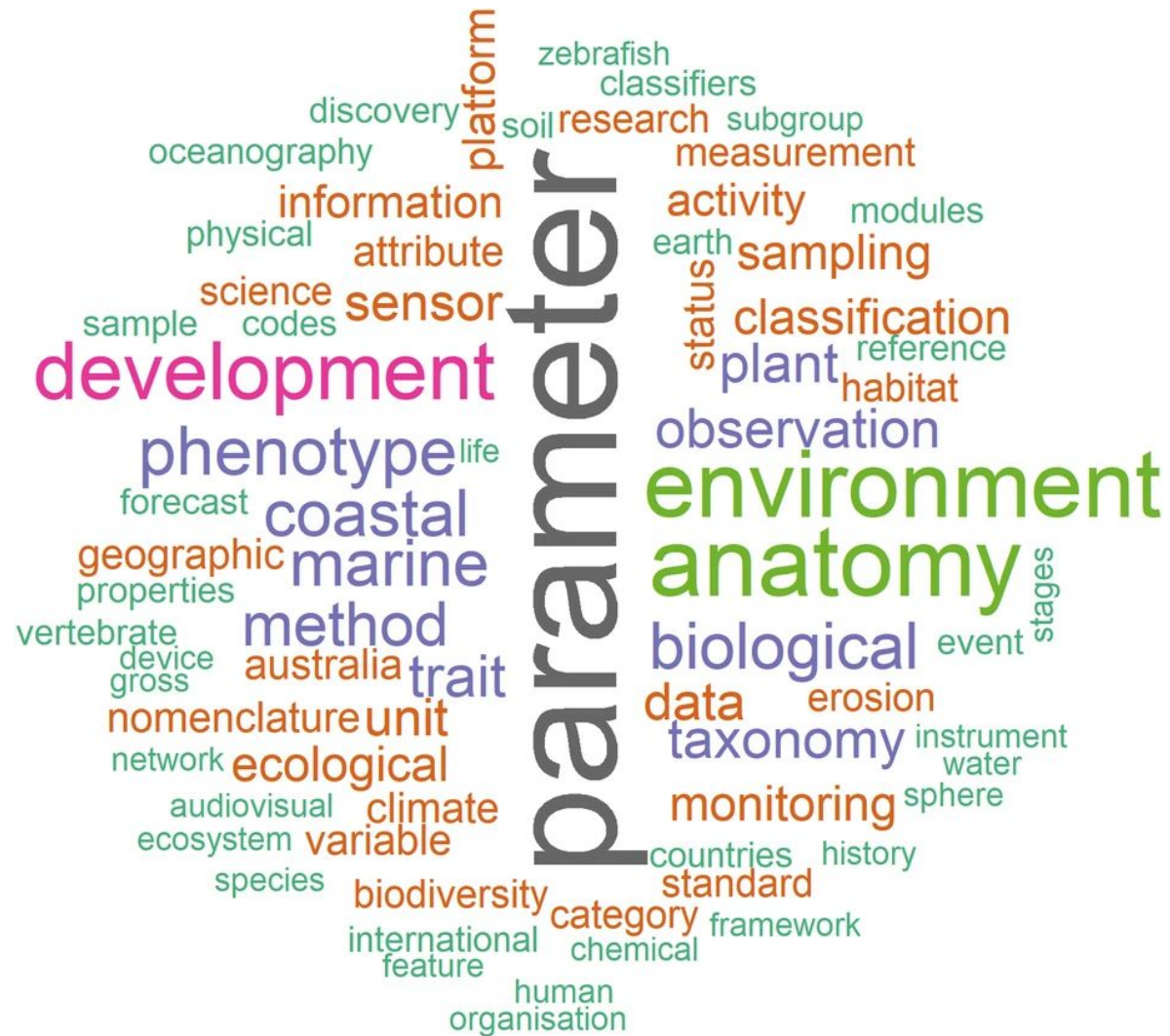
OntoPortal technology

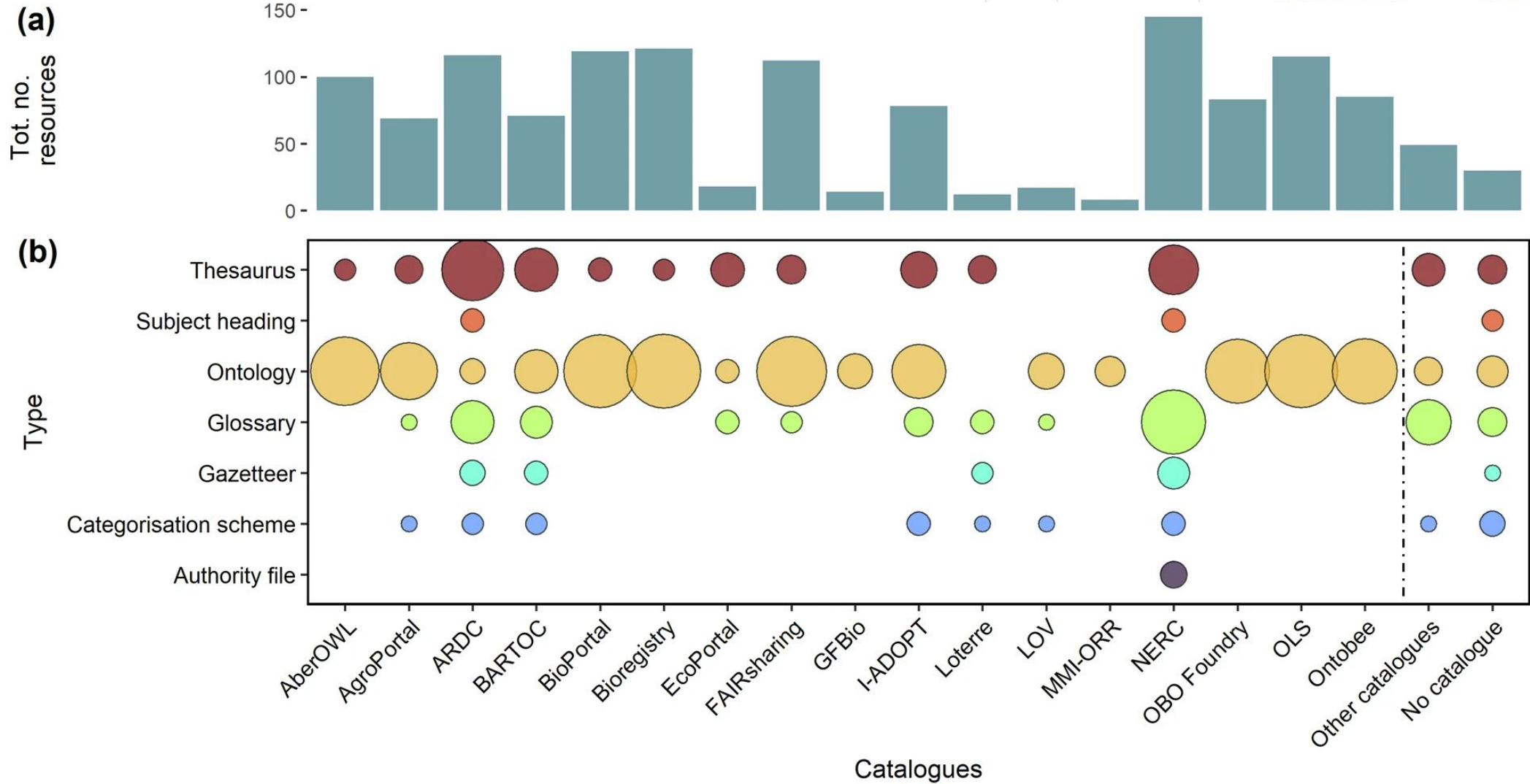# Multiple catalogues with similar thematic niche

Venn diagram displaying the number and percentage (in bracket) of shared and unique semantic artefacts of the four environmental domains considered in this study according to the ITINERIS classification of environmental domains.

# Multiple catalogues with similar thematic niche

Word Cloud showing the most common terms used to describe the semantic artefacts included in this study. The image is the result of a text mining analysis performed on the titles of the compiled semantic artefacts.

Multiple catalogues with similar thematic niche

17

Multiple catalogues with similar thematic niche

Not specified 24.6%

Other 2.0%

Other CC BY 2.6%

CC0 6.5%

CC BY 64.3%

18
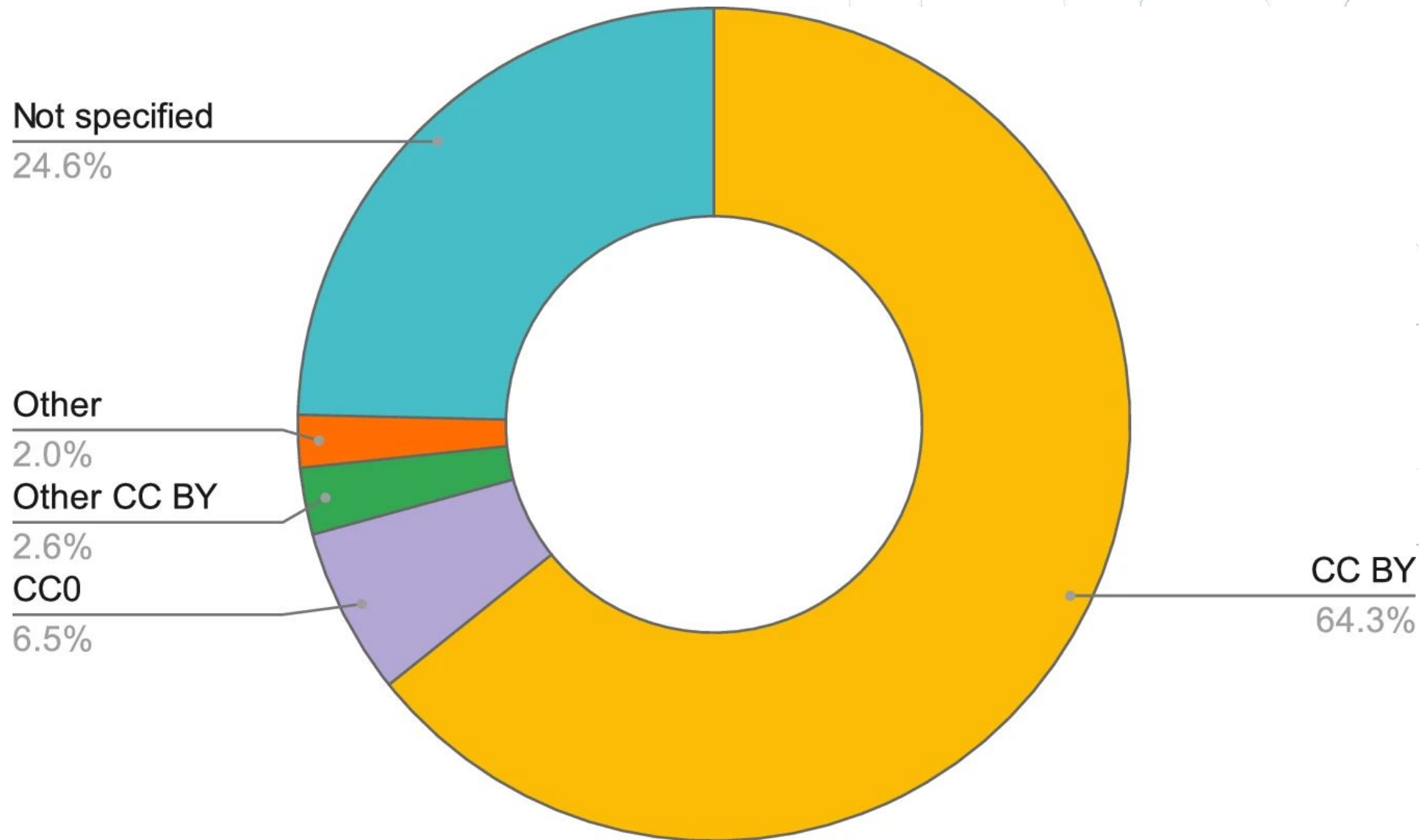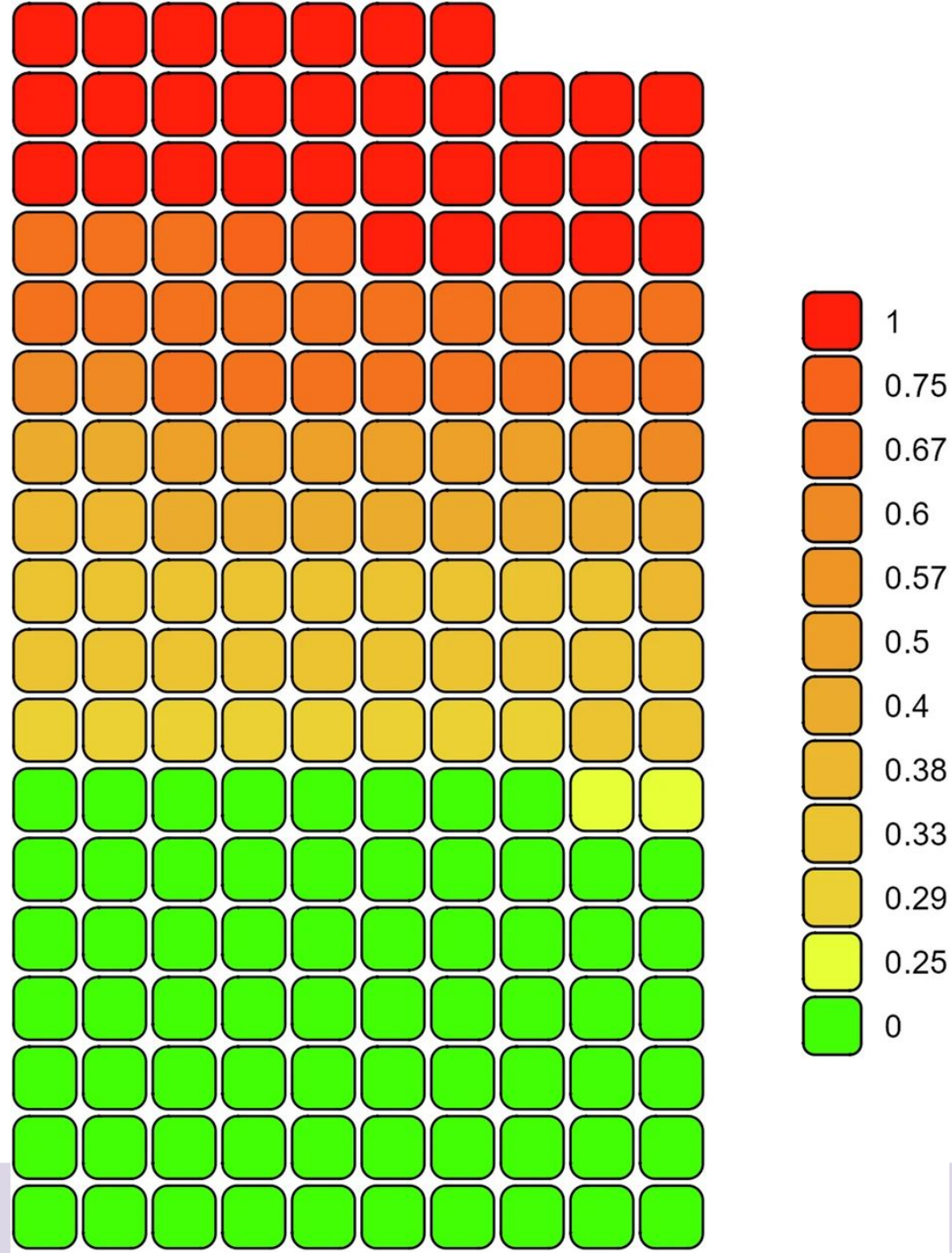
Waffle chart showing the versions' misalignment of semantic artefacts available with version information on multiple (at least two) semantic catalogues. The misalignment is expressed as the proportion between the number of times in which each resource had a unique value and the number of catalogues in which the resource was available with a specified version. In the figure, each square represents a single semantic artefact (N = 177) and the proportion of misalignment varies from 0 (no existing misalignment among catalogues) to 1 (maximum misalignment among catalogues).

OntoPortal Federation

Metadata for Ontology Description and Publication Ontology (MOD)

MOD: Metadata for Ontology Description and publication

Release December 6, 2021

This version:
https://w3id.org/mod/2.0

Latest version:
https://w3id.org/mod/2.0

Previous version:
http://www.isibang.ac.in/ns/mod/1.4

Revision:
2.0

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Download serialization:
Format JSON LD   Format RDF/XML   Format N Triples   Format TTL

License:
License CC4.0

Visualization:
Visualize with WebVowl

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THANKS!