

## NeOn Glossary of Activities

- ❑ **Ontology Aligning** refers to the activity of finding the correspondences between two or more ontologies and storing/exploiting them. A synonym for this activity is Ontology Mapping.
- ❑ **Ontology Annotation** refers to the activity of enriching the ontology with additional information, e.g. metadata or comments.
- ❑ **Ontology Assessment** refers to the activity of checking an ontology against user requirements, such as usability, usefulness, abstraction, quality, etc.
- ❑ **Ontology Comparison** refers to the activity of finding differences between two or more ontologies or between two or more ontology modules.
- ❑ **Ontology Conceptualization** refers to the activity of organizing and structuring the information (data, knowledge, etc.), obtained during the acquisition process, into meaningful models at the knowledge level according to the ontology specification document. This activity is independent of the way in which the ontology implementation will be carried out.
- ❑ **Ontology Configuration Management** refers to the activity of recording all the versions of the documentation, software and ontology code, and of controlling the changes.
- ❑ **Control** refers to the activity of guaranteeing that scheduled activities in the ontology development process are completed in the manner intended to be performed.
- ❑ **Ontology Customization** refers to the activity of adapting an ontology to a specific user's needs.
- ❑ **Ontology Diagnosis** refers to the activity of identifying parts of the ontology directly responsible for incorrectness and incompleteness. Ontology diagnosis is triggered by ontology validation.
- ❑ **Ontology Documentation** refers to the collection of documents and explanatory comments generated during the entire ontology building process.

*Note:* Examples of documents external to the implemented ontology include ontology specification documents, sources used for acquiring knowledge, ontology conceptualization document, design and decision criteria, ontological commitments, etc.

Information inside the implemented ontology includes natural language comments, ontology metadata, and implementation code.

In summary: anything that could be useful to help users, who did not build the ontology, to understand and learn how the ontology was built. Note that the level of granularity of descriptions (might) help or hinder the understanding of the ontology.

- ❑ **Ontology Elicitation** is a knowledge acquisition activity in which conceptual structures (e.g. T-Box) and their instances (e.g. A-Box) are acquired from domain experts.
- ❑ **Ontology Enrichment** refers to the activity of extending an ontology with new conceptual structures (e.g., concepts, roles, axioms, etc.).
- ❑ **Ontology Environment Study** refers to the activity of analyzing the environment in which the ontology is going to be developed.

- **Ontology Evaluation** refers to the activity of checking the technical quality of an ontology against a frame of reference.
- **Ontology Evolution** refers to the activity of facilitating the modification of an ontology by preserving its consistency.
 

*Note:* Ontology Evolution can be seen as a consequence of different activities during the development of the ontology.
- **Ontology Extension** is an ontology enrichment activity for stretching the ontology in width.
- **Ontology Feasibility Study** refers to the activity of answering questions like: is it possible to build the ontology? is it suitable to build the ontology?, etc.
- **Ontology Formalization** refers to the transformation of a conceptual model into a formal or semi-computable model according to a knowledge representation paradigm (e.g., description logics, frames, rules, etc.).
- **Ontology Forward Engineering** refers to the activity of outputting a new implementation of the ontology on the basis of the new conceptual model.
- **Ontology Implementation** refers to the activity of generating computable models according to the syntax of a formal representation language (e.g., RDF(S), OWL, FLogic, etc.).
- **Ontology Integration** refers to the activity of including one ontology in another ontology.
- **Knowledge Acquisition for Ontologies** comprises activities for capturing knowledge (e.g., T-Box and A-Box) from a variety of sources (e.g., documents, experts, data bases, etc.). We can distinguish between: Ontology Elicitation, Ontology Learning and Ontology Population.
- **Ontology Learning** is a knowledge acquisition activity that relies on (semi-) automatic methods to transform unstructured (e.g. corpora), semi-structured (e.g. folksonomies, html pages, etc.) and structured data sources (e.g. data bases) into conceptual structures (e.g. T-Box).
- **Ontology Localization** refers to the adaptation of an ontology to a particular language and culture.
- **Ontology Mapping** refers to the activity of finding the correspondences between two or more ontologies and storing/exploiting them. A synonym for this activity is Ontology Aligning.
- **Ontology Matching** refers to the activity of finding or discovering relationships or correspondences between entities of different ontologies or ontology modules.
 

*Note:* Ontology Matching can be seen as the first stage of Ontology Aligning.
- **Ontology Merging** refers to the activity of creating a new ontology or ontology module from two or more, possibly overlapping, source ontologies or ontology modules.
- **Ontology Modification** refers to the activity of changing the ontology, without considering the consistency.
- **Ontology Modularization** refers to the activity of identifying one or more modules in an ontology with the purpose of supporting reuse or maintenance.
 

*Note:* We can make distinctions between: Ontology Module Extraction and Ontology Partitioning.

- **Ontology Module Extraction** refers to the activity of obtaining from an ontology concrete modules to be used for a particular purpose (e.g. to contain a particular sub-vocabulary of the original ontology).
- **Ontology Partitioning** refers to the activity of dividing an ontology into a set of (not necessary disjoint) modules that together form an ontology and that can be treated separately.
- **Ontology Population** is a knowledge acquisition activity that relies on (semi-) automatic methods to transform unstructured (e.g. corpora), semi-structured (e.g. folksonomies, html pages, etc.) and structured data sources (e.g. data bases) into instance data (e.g. A-Box).
- **Ontology Pruning** refers to the activity of discarding conceptual structures (e.g., part of T-Box) of a given ontology that are not or no longer relevant.

*Note:* Pruning is mostly used in combination with ontology learning methods to discard potentially irrelevant learned concepts/relations.

- **Ontology Quality Assurance** refers to the activity of assuring that the quality of each and every process carried out and product built (ontology, software and documentation) is satisfactory.
- **Non Ontological Resource Reengineering** refers to the process of retrieving and transforming an existing non ontological resource (data bases, controlled vocabularies, etc.) into an ontology.
- **Ontology Reengineering** refers to the process of retrieving and transforming a conceptual model of an existing and implemented ontology into a new, more correct and more complete conceptual model which is reimplemented.
- **Ontology Restructuring** refers to the activity of correcting and reorganizing the knowledge contained in an initial conceptual model, and detecting missing knowledge.

*Note:* This process contains two phases: analysis and synthesis. The "analysis phase goal" is to evaluate the ontology technically, that is, to check that the hierarchy of the ontology and its classes, instances, relations and functions are complete (contain all the definitions required for the domain of chemical substances), consistent (there are no contradictions in the ontology and with respect to the knowledge sources used), concise (there are no explicit and implicit redundancies) and syntactically correct. The "synthesis phase" seeks to correct the ontology after the analysis phase and document any changes made.

- **Ontology Repair** refers to the activity of resolving errors (incompleteness, incorrectness) in the ontology and it is triggered by ontology diagnosis.
- **Non Ontological Resource Reuse** refers to taking available non ontological resources (data bases, controlled vocabularies, etc.) for the development of ontologies.
- **Ontology Reuse** refers to using an ontology or an ontology module in the solution of different problems. Ontology reuse is the activity that allows employing an ontology or an ontology module in, for example, the development of new ontologies, the development of different ontology-based applications, the activity of ontology aligning (as background knowledge), etc.
- **Ontology Reverse Engineering** refers to the activity of outputting a possible conceptual model on the basis of the code in which the ontology is implemented.

- **Scheduling** refers to the activity of identifying the tasks to be performed during the ontology development, their arrangement, and the time and resources needed for their completion.
- **Ontology Search** refers to the activity of finding candidate ontologies or ontology modules to be reused.
- **Ontology Selection** refers to the activity of choosing the most suitable ontologies or ontology modules among those available in an ontology repository or library, for a concrete domain of interest and associated tasks.
- **Ontology Specialization** is an ontology enrichment activity for extending the ontology in depth.
- **Ontology Specification** is a collection of requirements that the ontology should fulfill, e.g. reasons to build the ontology, target group, intended uses, possibly reached through a consensus process.
- **Ontology Summarization** refers to the activity of providing an abstract or summary of the ontology content.

*Note:* The summary can include, for example, a couple of top levels in the ontology class hierarchy (perhaps a graphical representation of these top-level concepts and links between them).

- **Ontology Translation** refers to the activity of changing the representation formalism or language of an ontology from one to another.
- Note:* Ontology Translation can be part of an ontology reengineering process.
- **Ontology Update** refers to minor changes carried out in an ontology that could not be considered an upgrade.
  - **Ontology Upgrade** refers to the activity of replacing an existing ontology with a new version.
  - **Ontology Validation** is the ontology evaluation that compares the meaning of the ontology definitions against the intended model of the world aiming to conceptualize.

*Note:* It answers the question: Are you producing the right ontology?.

- **Ontology Verification** is the ontology evaluation which compares the ontology against the ontology specification document (ontology requirements and competency questions), thus ensuring that the ontology is built correctly (in compliance with the ontology specification).

*Note:* It answers the question: Are you producing the ontology right?.

- **Ontology Versioning** refers to the activity of handling ontology changes by creating and managing different versions of the ontology.