



Ontology Requirements Specification

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What is an Ontology Requirements Specification?

Ontology Requirements Specification

Definition

Ontology Requirements Specification refers to the activity of collecting the requirements that the ontology should fulfill (e.g., reasons to build the ontology, target group, intended uses) and possibly reach through a consensus process

Goal

The activity states why the ontology is being built, which its intended uses are, who the end-users are, and which requirements the ontology should fulfill

Input

A set of ontological needs

Output

Ontology Requirements Specification Document (ORSD).

Who

Software developers and ontology practitioners, who form the ontology development team (ODT), in collaboration with users and domain experts

When

This activity must be carried out at the beginning of the ontology project and in parallel with the knowledge acquisition activity

What is the output?

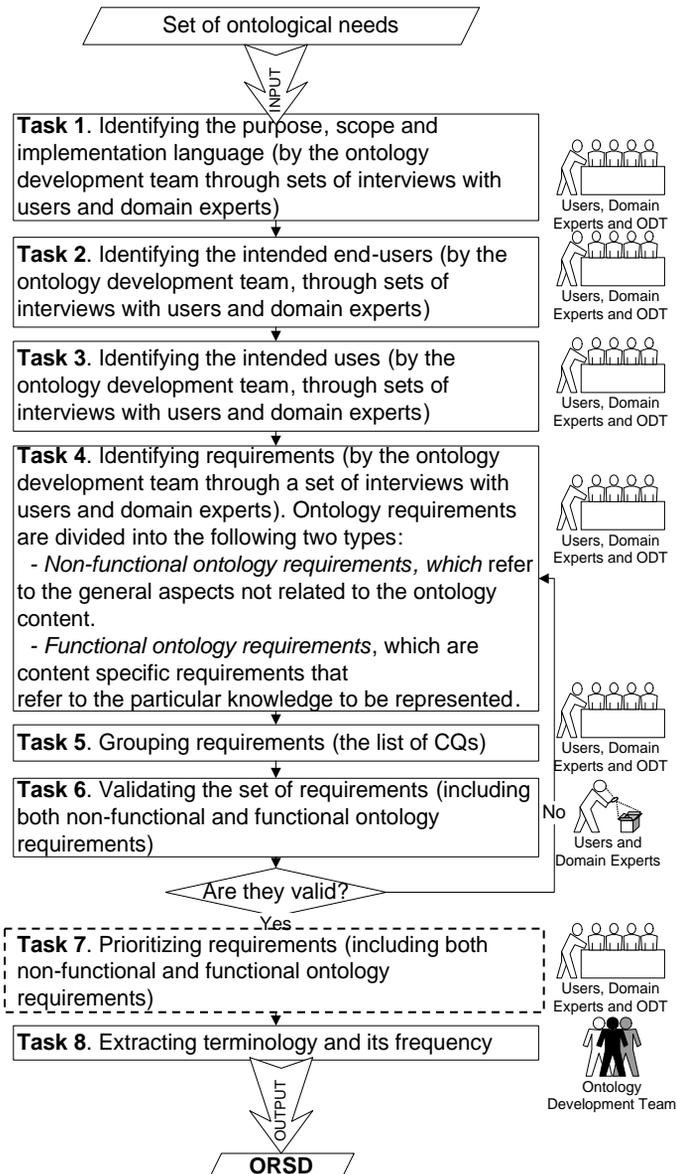
Ontology Requirements Specification Document Template

| | |
|---|--|
| 1 Purpose | The main goal of the ontology. In other words, the main function or role that that the ontology should have. |
| 2 Scope | The general coverage and the degree of detail that the ontology should have. |
| 3 Implementation Language | The formal language that the ontology should use. |
| 4 Intended End-Users | The intended end-users of the ontology. |
| 5 Intended Uses | The intended uses of the ontology. |
| 6 Ontology Requirements | |
| a. Non-Functional Requirements | The general requirements or aspects that the ontology should fulfill, including optionally priorities for each requirement. |
| b. Functional Requirements: Groups of Competency Questions | The content specific requirements that the ontology should fulfill in the form of groups of competency questions and their answers, including optional priorities for each group and for each competency question. |
| 7 Pre-Glossary of Terms | |
| a. Terms from Competency Questions | The list of terms included in the competency questions and their frequencies. |
| b. Terms from Answers | The list of terms included in the answers and their frequencies. |
| c. Objects | The list of objects included in the competency questions and in their answers. |

Motivation

One of the critical activities when developing ontologies is to identify their requirements. Requirements included in the ORSD facilitates the ontology development in different ways: (1) allowing the identification of which particular knowledge should be represented in the ontology; (2) facilitating the reuse of knowledge resources by means of focusing the resource search towards the particular knowledge to be represented in the ontology; and (3) permitting the verification of the ontology with respect to the requirements that the ontology should fulfill.

What is the process?





Ontology Requirements Specification

Experiments and examples

SEEMP Reference Ontology Requirements Specification Document

| | | | | | | | |
|--|----|---|---|--------------------------------|---|--------------------------|---|
| 1 Purpose | | | | | | | |
| The purpose of building the Reference Ontology is to provide a consensual knowledge model of the employment domain to be used by public e-Employment services. | | | | | | | |
| 2 Scope | | | | | | | |
| The ontology has to focus just on the ICT (Information and Communication Technology) domain. The level of granularity is directly related to the competency questions and terms identified. | | | | | | | |
| 3 Implementation Language | | | | | | | |
| The ontology has to be implemented in WSML language. | | | | | | | |
| 4 Intended End-Users | | | | | | | |
| User 1. Unemployed candidate searching for a job or another occupation for immediate or future purposes User 2. Employer who needs more human resources. User 3. Public or private employment search service that provides assistance to gather CVs or job postings and to prepare some data and statistics. User 4. National and Local Governments that want to analyze the situation on the employment market in their countries and to prepare documents on employment, social and educational policy. | | | | | | | |
| 5 Intended Uses | | | | | | | |
| Use 1. Publishing CV. Job seeker places his/her CV on the PES Portal. Use 2. Publishing Job Offer. An Employer places a Job Offer on the PES Portal. Use 3. Searching for Job Offers. The Employer looks for candidates for the Job Offer through the PES Portal. Use 4. Searching for Employment information. Job Seeker looks for general information about employment in a given location at the PES Portal. | | | | | | | |
| 6 Ontology Requirements | | | | | | | |
| a. Non-Functional Requirements | | | | | | | |
| NFR1. The ontology must support a multilingual scenario in the following languages: English, Spanish, Italian, and French. NFR2. The ontology must be based on the international, European or de-facto standards in existence or under development. | | | | | | | |
| b. Functional Requirements: Groups of Competency Questions | | | | | | | |
| CQG1. Job Seeker (14 CQ) | | CQG2. Job Offer (11 CQ) | | | | | |
| CQ1. What is the Job Seeker's name? Lewis Hamilton CQ2. What is the Job Seeker's nationality? British; Spanish; Italian; French; CQ3. What is the Job Seeker's contact information? Tel: 34600654231. Email: jsanz@fi2.upm2.es CQ4. What is the Job Seeker's current job? Programmer; Computer Engineer; Computer Assistant CQ5. Which is the Job Seeker's desired job? Radio Engineer; Hardware designer; Software Engineer CQ6. Which are the Job Seeker's desired working conditions? Autonomous; Seasonal Job; Traineeship; Consultant CQ7. What kind of contract does the Job Seeker want? Full time; Partial time; Autonomous; Seasonal Job CQ8. What is the Job Seeker's work experience? 6 months, 1 year, 2 years CQ9. What is the Job Seeker's area of knowledge? Java Programming; C Programming, Database Administration CQ10. What is the Job Seeker's expertise? Software Engineering CQ11. Which are the Job Seeker's skills? SQL programming, network administration | | CQ12. What is the employer's information? CEFRIEL Research Company, Milano, Italy; ATOS, Madrid, Spain CQ13. What kind of job does the employer's offer? Java Programmer; C Programmer, Database administration CQ14. What kind of contract does the employer's offer? Seasonal Job; Autonomous CQ15. How much salary does the employer's offer? 3500 Euros, 3000 USD CQ16. What kind of economical activity does the employer have? Research; Financial; Education; Industrial CQ17. What is the description of the job offer? Sun Certified Java Programmer CQ18. What are the working conditions of the job offer? Full time; Partial time; Autonomous; Seasonal Job CQ19. What is the required education level for the job offer? Basic education; Higher education/University CQ20. What is the required work experience for the job offer? 1 year, 2 years, 3 years, 4 years, 5 or more years CQ21. What is the required knowledge for the job offer? Java, Haskell, Windows CQ22. What are the required skills for the job offer? ASP Programmer, Data warehouse, Hardware programming | | | | | |
| 7 Pre-Glossary of Terms | | | | | | | |
| a. Terms from Competency Questions + Frequency | | | | | | | |
| Job Seeker | 27 | Name | 4 | Address | 1 | Objective | 3 |
| CV | 2 | Gender | 1 | Nationality | 1 | Job Category | 3 |
| Personal Information | 3 | Birth date | 1 | Contact (phone, fax, mail) | 3 | ... | |
| b. Terms from Answers + Frequency | | | | | | | |
| SW engineer, programmer | 5 | Autonomous, Seasonal Job, | 2 | Research, Financial, Education | 4 | 3000 Euros per month | 1 |
| British, Spanish, Italian, French | 1 | Basic education, Higher education | 1 | 1 year, 2 years, 3 years | 1 | CEFRIEL Research Company | 1 |
| c. Objects | | | | | | | |
| Andorra, Argentina, Australia, Bolivia, France, Italy, Spain, etc.; Euro, Zloty, Great British Pound, US Dollar, Peso, etc.; CEFRIEL, ATOS, etc. | | | | | | | |

Additional information:

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- NeOn Deliverable D5.4.1 (http://www.neon-project.org/web-content/images/Publications/neon_2008_d5.4.1.pdf)
- ODBASE'09 Paper: "How to write and use the Ontology Requirements Specification Document". Mari Carmen Suárez-Figueroa, Asunción Gómez-Pérez, and Boris Villazón-Terrazas