

Proposal for Presentation at the TPDL 2011 NKOS workshop

SKOS extensions to cover mapping requirements

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Relevance

This is a proposal for a presentation at the NKOS workshop to be held at TPDL 2001, on 28-29 September 2011 in Berlin. The topic falls under proposed **theme 4: SKOS Extensions**.

Topic

The European Commission is developing the **ESCO taxonomy**, the European Standard Classification of Occupations. ESCO is a multilingual classification that links occupations to skills and qualifications. ESCO has the potential to become the European Commission's standard classification for the labour market. Improving matching between CV's and vacancies is one of the main aims of ESCO.

ESCO is published as a SKOS extension to provide standards based web accessibility and supporting systems knowledgeable about SKOS core/xl semantics through LOD and SPARQL. SKOS very well supports the multilingual aspect of the concept schemes - ESCO needs to be available in 23 languages. Extensions are needed because SKOS (-core and -xl) does not always comes up to the mark to accurately detail mappings of ESCO with other classifying systems.

In this presentation we give specific examples related to ESCO to illustrate **the need for extending the SKOS mapping properties**. Where the current mapping relations in SKOS don't cover the mapping requirements we propose SKOS extensions to do so and we will compare these requirements to the mapping as proposed in ISO 25964 Part 2.

ESCO was originally built as an extension of the ISCO taxonomy, the International Standard Classification of Occupations (by ILO¹). ESCO refines the lowest level of aggregation in ISCO by adding a level of detail: Occupation Groups are subdivided into Occupations. This first type of mapping is constructed using the mapping property `skos:narrowMatch`. The challenge in this type of mapping is in versioning rather than in expressing the right mapping property, since both of the classifying systems (ISCO and ESCO) will typically evolve independently from each other.

A second type of mapping requires extending SKOS mapping properties. ESCO links skills and qualifications to occupations, so one would be able to define an occupation in terms of needed competences and required diplomas. The SKOS property `skos:relatedMatch` could link the concepts, but it carries no semantics. The linking property should support business rules such as "a given occupation *requires* a certain qualification" or "a specific skill is *recommended* for an occupation". The exercise presents a proposal on how to extend SKOS with a domain specific ontology for these **business mapping properties**.

A third type of mapping is needed when ESCO is used by national or independent employment offices. These offices usually have their own classification of occupations, customized to the regional or national

¹ <http://www.ilo.org/public/english/bureau/stat/isco/index.htm>

labour market needs and developed independently of ESCO. In order to make use of ESCO, the concepts in the national classifying systems need to be mapped to ESCO concepts. Mostly these are 1-on-1 mappings constructed by the SKOS properties `skos:exactMatch`, `skos:closeMatch`, `skos:narrowMatch` and `skos:broadMatch`. Some cases require a **compound mapping**, for example when a national classifying system and ESCO manage different levels of detail. We illustrate how SKOS can be extended with compound mappings.

Speaker

Johan De Smedt, co-founder and CTO of TenForce, has over 30 years of experience in IT architecture in general. More specifically his expertise is in the field of modeling - information modeling, knowledge representation and software systems architecture – for a wide variety of application domains such as publishing, telecom and manufacturing. He co-developed the SKOS extensions of thesauri for European Commission projects for EURES (DG EMPL) and EUROVOC (OPOCE).

Johan is a contributor to the ISO 25964 - Part 2 on interoperability of thesauri and other controlled vocabularies.