Using Ontologies to Encode and Match Qualifications and Learning Outcomes for Internet Related Jobs

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The lack of a commonly accepted representation of competences and qualifications has led to a mismatch between the outcome of education / training courses and true market needs. Frameworks like EQF and e-CF attempt to deal with the problem by providing an abstract, all-encompassing structure that classifies qualifications into levels of formal education. Being so abstract, these frameworks have to be adapted in order to become useful. Moreover, in order to feed the market needs regarding qualifications to the educational system, a further mapping level is required, that which maps qualifications to learning outcomes. Although several attempts have been made, we have not come across a tool that could automate part of the process. For this reason, in the context of EU project PIN, we have developed a semantically rich mechanism that represents job profiles, qualifications and learning outcomes and maps them to EQF and e-CF levels.

In this paper, we present the ontologies that constitute the core of this mechanism. We have developed ontologies that represent the EQF and e-CF frameworks [2], competences, qualifications and job profiles, and learning outcomes based on the Bloom's taxonomy [1]. Then we combined these ontologies and filled them with actual job profiles (that were developed in the PIN project) in order to evaluate them. In the paper, we describe the ontology engineering methodology, the ontology properties and the ways they can be used to provide a commonly accessible knowledge layer for semantic Web applications that would need to match qualifications and learning outcomes.