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An Ontology-based Model for Competence Management

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ABSTRACT
In the last years, the need for developing strategies, models and tools to manage competences clearly emerges in numerous scenarios. For instance, this emergence especially raises when it is required to realize effective recruiting platforms, decision support systems for human resource management, learning management systems and so on. This work proposes an ontology-based model for the representation of competences able to support a wide range of scenarios where it is fundamental to model, organize and represent professional competences, enable interoperability and co-operation among different and heterogeneous tools and, lastly, execute queries and inference operations over these competences. The proposed model starts from the outcomes of the specialized literature and the related R&D projects and produces a novel integrated model that represents both job offers and demands to support recruiting initiatives and to develop employability strategies aiming at a best matching as well as a careful skill gap analysis.
The model has been evaluated by means of a three-level approach also in the context of the SIRET project whose goal is defining a recruiting and training integrated system able to represent the professional competences of users and to understand the supplies and the demands in order to find optimal agreements in the job market.

KEYWORDS:
Ontology Engineering; Competence-based Management; Semantic Web; Context Space Theory; Fuzzy Logic

1 Introduction

Nowadays, competences, intended as professional human behaviour abstractions, are going to be fundamental in the management of knowledge and abilities of the workers in many application domains [37]. In fact, competences allow approximating the human *performance* with the respect to the traditional notion of *knowledge*. In the human resource management (HRM), competences may be the criterion to select people for specific tasks. The competence-based selection allows pointing out the person closer to requirements and raising up the *performance* level inside the enterprise. The competence management may support the definition of learning plans and assessment phases in many contexts by facilitating personalization and adaptation processes, by giving details for competence gap evaluation [44]. Competences may be the means to use in the self-regulation for learning experiences by representing the way to elaborate comparisons among profiles and specific