

Chapter XV

Ontology-Based Competency Management for Corporate E-Learning

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Abstract

The synergies between ontology management, competency management, and e-learning have been explored during recent years both on theoretical and practical levels. This chapter describes the architecture, design, and deployment of a system that integrates ontologies with competency management and e-learning, as well as with other human resources functions. Moreover, a detailed description of the supportive methodology and the main lessons learned in technical and organisational areas are presented. This system currently is being deployed for research purposes in a national subsidiary of Microsoft, the information technology (IT) services multinational firm. The objective of this chapter is to provide the reader with an overview of the key concepts in competency-based management, a non-technical methodology for supporting the effective deployment of an ontology-based competency management system and an analysis of the lessons learned during the first deployment phase.

Introduction

Competency-based management has become a very crucial element in the effective operation of an enterprise or an organization, due to the increased need of the latter to be agile enough to adapt to quick market changes and re-orientation of its business plans. In this situation, competency management systems (CMS) become the core human resource tool, which enables the enterprise to manage and develop the skills of their employees, recruit the most appropriate candidates, and make effective succession planning and employee development plans.

Apart from enterprise competency management systems, research is being conducted on the development of ontology-based CMS, which can provide possibilities such as the easy integration and mapping of different competency ontologies. Moreover, research efforts have been realized in the development of ontological e-learning systems. However, very few – if any – systems exist that integrate e-learning functionality with an ontological CMS. The mapping of employee or departmental/organizational skill gap analysis with the appropriate learning objects is crucial in order to develop the correct learning paths and consequently the appropriate competencies of employees or organizations.

This chapter focuses on the description of an ontology-based competency management system, which also integrates e-learning functionality in order to address this issue. The interested reader can find an essential introductory overview of the key concepts in competency-based management, as well as a methodology that supports the efficient deployment of such a system in an enterprise. The practical experience of the authors derives from the deployment of a Microsoft .NET version of the described system in Microsoft Hellas, the Greek subsidiary of the leading IT enterprise Microsoft Corporation.

In the next section, we provide a brief history of competency management, a definition of the term and a description of its core elements. In the third section, we describe the research efforts conducted in ontological CMS and ontological e-learning systems. In the fourth section, we describe the system design and architecture, while in the next two sections we provide the supportive methodology and the lessons learned during the first phase of the deployment. Finally, conclusions and possible topics for further research are presented.

Competency-Based Management Key Concepts

The competency approach to human resources management is not new. The early Romans practiced a form of competency profiling in attempts to detail the attributes of a “good Roman soldier.” The introduction of competency-based approaches was realized around 1970, and their development since then has been rapid. The distinguished Harvard psychologist David McClelland is credited with introducing the idea of “competency” into the human resource literature, in his efforts to assist the United States Information Agency in improving its selection procedures. The latter argued that traditional intelligence tests, as well as proxies such as scholastic grades, failed to predict job performance. McClelland’s counter-argument to the growing dissatisfaction with intelligence testing and the traditional job analytic approaches to personnel selection was the proposal to test for competency. As

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