

Chapter 19

Modeling for Knowledge Management in Organizations

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ABSTRACT

- Building a Knowledge Management Environment in a Large Company
 - Technical Information Management
 - Tools Involved in the Project
 - Implementing a Methodology
- Transfer of Expertise Through the Co-Modeling of Knowledge
 - Types of Expertise Transfer
 - The Co-Modeling Strategy
 - Participants' Perceptions of Knowledge Transfer and Elicitation
- Modeling a Computerized School
 - Graphic Model of the School

- Text and Media Versions of the Model
- Proposed Use of the Model

Knowledge Management has become in recent years a concern of most major organizations. Already, in 2002, a survey by the US Conference Board and the American Management Association had shown that 80% of the thousand largest American companies were implementing some form of knowledge management in their organizations.

Knowledge management embed concepts like “Intellectual Capital”, “Learning Organization”, “Business Intelligence”, “Process re-engineering and decision support” and “Competency Management”. It is a cross-disciplinary field using methods and technologies from cognitive science,

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expert systems and knowledge engineering, data and text mining, library and information sciences, document management, computer supported collaborative work (CSCW), communities of practice and organizational science. It is clear that knowledge modeling has a central role to play in such a context.

Knowledge management includes and extends traditional document or data management in many ways. Its goal is to promote the systematic identification, production, formalization, availability and sharing of knowledge in an organization, and also to increase the competencies of its personnel, rather than simply giving them information support. Knowledge management integrates the processing of higher-level knowledge, beyond raw data or factual information. It underlines the importance of principles, models, theories, processes and methods, and helps uncover the tacit knowledge of experts to make it available for learning, working and decision-making.

Because it promotes structured and higher-level knowledge, knowledge management puts much more emphasis than in the past on the knowledge and the competencies of persons working in the organization. It embeds two important processes: knowledge extraction and knowledge acquisition. *Knowledge extraction* transforms the knowledge of experts in a domain into organized information or knowledge resources that can be made available to the whole organization. *Knowledge acquisition* by people in the organization is the inverse process that transforms organizational information and knowledge into new competencies internalized by individual staff members through learning.

Knowledge modeling connects these two processes. Knowledge models, particularly ontologies for the semantic web, are used as knowledge and competencies acquisition tools by persons involved in formal or informal training activities. Knowledge modeling also helps represent use cases of a knowledge management system by describing the actors, the operations that they rule and the resources or learning objects that they use

or produce while processing domain knowledge. This corresponds to activity scenarios as defined in chapter 8. Conversely, actors involved in these use cases will help test, validate or identify improvements and extensions to the knowledge model or the ontology of a domain.

This chapter presents three applications of Knowledge Modeling using the MOT representation language and tools. These applications were performed by the LICEF team in partnership with different organizations. The first one is a project with a large company that aims to create a knowledge management environment to access technical information distributed in 30 different document bases. The second one focuses on the transfer of expertise supported by co-modeling a domain of expertise through collaboration between experts and novices. The third one uses knowledge modeling to describe the processes, the actors and the resources in a typical school, in order to identify the ICT tools that could help best support the organization in its activities.

19.1 BUILDING A KNOWLEDGE MANAGEMENT ENVIRONMENT IN A LARGE COMPANY

The transfer and retention of knowledge is a major challenge within organizations, especially when key resources leave at retirement. A large organization like Hydro-Quebec (HQ) is no exception especially because of the needs created by huge staff mobility and the great number of departures for retirement.

To avoid the lost of knowledge and ensure the continuation of its services, Hydro-Quebec uses Information and Communication Technologies (ICT) tools and methods for the transfer of knowledge. When the intention of an expert to retire is confirmed, one strategy is to transfer of knowledge to a new person, termed “novice” by co-modeling the expert’s knowledge. Another strategy is to put in place a knowledge management system

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