

Chapter XVIII

Managing Knowledge in Organizational Memory Using Topic Maps¹

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ABSTRACT

Organizational memories play a significant role in knowledge management, but several challenges confront their use. Artifacts of OM are many and varied. Access and use of the stored artifact are influenced by the user's understanding of these information objects as well as their context. Theories of distributed cognition and the notion of community of practice are used to develop a model of the knowledge management system. In the present work we look at a model for managing organizational memory knowledge. Topic maps are used in the model to represent user cognition of contextualized information. A visual approach to topic maps proposed in the model also allows for access and analysis of stored memory artifacts. The design and implementation of a prototype to test the feasibility of the model is briefly examined.

INTRODUCTION

The late Dr. Peter Drucker had declared that we are in an era of knowledge economy. Understandably, any efficient functioning of the knowledge economy must rely on managing knowledge well. Individuals, organizations, countries, and economies must manage their knowledge through appropriate mechanisms and policies. Knowledge management requires the capture, storage, and use of several types of information and knowledge. Researchers have noted that organizational knowledge may be accumulated and retained using several organizational memory systems (Haseman et al., 2005; Nemati et al., 2002; Nevo & Wand, 2005). Advances in information technologies have helped in accumulating knowledge, but the paradigms applicable to collecting and storing the knowledge do little to motivate its use by managers and decision makers. Accessing and using organizational memories have been a challenge because of the multifaceted nature of memories and knowledge sources. Moreover, characteristics of the decision tasks where the knowledge and memory support are used pose interesting challenges in designing and developing knowledge management systems. In this article, we describe a model that makes use of topic maps to navigate the lattices of organizational memory and employ appropriate knowledge management and analysis tools.

ORGANIZATIONAL MEMORY AND KNOWLEDGE GENERATION

Organizational memory (OM) is a stored collection of organizational history reflected among the many parts (Walsh & Ungson, 1991). It includes both stored records and tacit knowledge and covers the various facets of organizational tasks, employees, and their task environments (Argote et al., 2003; Choy et al., 2005; Lee et al., 1999; Nonaka & Konno, 1998). Because it can

be a large and valuable repository of information and knowledge, several researchers have recognized the import of organizational memory in effecting organizational performance (Akgun et al., 2006; Brockman & Morgan 2003; Jennex & Olfman 2002; Ji & Salvendy, 2004; Lesser & Storck, 2001).

Ackerman and Halverson (2004), however, take a critical view of prior research on OM and argue for a theoretical base to properly define and empirically validate future research. They state that as socio-technical systems, organizations and their memories conform to social structures and norms while employing technical models. They use the theory of distributed cognition to develop a theoretical foundation for organizational memory. The basic tenets of this theory are that knowledge evolves from a community of practice and that cognition and inferences result from the shared meaning among the participants (hence the distribution) (Hollan et al., 2000). Communities of practice fulfill a number of functions with respect to the creation, accumulation, and diffusion of knowledge in an organization through exchange and interpretation of information, by retaining knowledge, by stewarding competencies, and providing homes for identities (Wenger, 1998). Collective thinking creates knowledge that otherwise would not be evident. Additionally, changes in state of the memory, as in change from internal to external representation via artifact changes or through the movement of information among the participants (trajectory of information), are necessary to fully utilize an OM. A cycle of changes comprising contextualization to decontextualization and again to recontextualization of the information object takes place as organizational members relive their experience through the stored information object or artifact. An essential feature of knowledge management systems is this capability to change the state of the information object.

Using empirical data and qualitative methods, Ackerman and Halverson (2004) illustrate ap-

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