Chapter 2.9
Knowledge Sharing Model of 24–Hour Knowledge Factory

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ABSTRACT

In order to improve the level of decision making and competitive advantage, organizations are actively trying to develop and incorporate new knowledge management techniques that are suited for the evolving global economy; the notion of globally distributed team environments represents one area of heavy focus. In implementing a globally distributed work environment, decision makers are faced with an increasingly daunting task of reconciling disparate distributed and heterogeneous data sources. Further, these data sources are growing every day as corporations dedicate more of their resources to a multinational scenario, rather than to a domestic or geographically-specific focus. In order to address this growing problem of knowledge sharing, the authors propose a knowledge sharing model that incorporates the notion of the 24-Hour Knowledge Factory, in conjunction with grid computing and case-based reasoning (CBR). This chapter begins with a description of the 24-Hour Knowledge Factory, the Enterprise Common Knowledge Shared (ECKS) methodology, and the evolving time-shift sharing model. Next, a CBR-adapted approach, based on grid computing, is presented for use in a 24-Hour Knowledge Factory environment. Finally, several types of enterprise knowledge transfer mechanisms are presented in this paper.

1. INTRODUCTION

In today's rapidly changing business environment, we have entered a new era of knowledge management; humans must now live and work in a knowledge-based society as knowledge workers

(Drucker, 1993). Various streams of knowledge management (KM) research have emerged. Early research focused on understanding the differences among data, information, knowledge and classifications, such as tacit versus explicit knowledge (Polanyi, 1962; Nonaka, 1995), and individual versus collective knowledge (Spender, 1996). Other research has viewed knowledge as a source of competence and as a competitive resource (Hung et al., 2001). A goal of many KM initiatives is to develop a global knowledge community where knowledge is shared and utilized within the community. However, knowledge sharing is inherently a difficult process, and only partial knowledge fragments can be created and shared. Information technology (IT) has been long thought of as a way to facilitate sharing of knowledge; indeed, the use of IT to supplement knowledge sharing amongst communities of practice has been explored (Pan & Leidner, 2003), and the notion of 'virtual teams' has been proposed as a basic construct for this activity. Within virtual team environments, four key challenges exist: constraints on transaction memory; insufficient degree of mutual understanding; failure in sharing and retaining contextual knowledge; and inflexibility of organizational ties. Various knowledge management system approaches have been posited as potential solutions to meet these challenges (Alavi & Tiwana, 2002). Overall, the advent of knowledge management has transformed the way decisions are made and how companies manage common knowledge.

We are interested in knowledge management for decision support applications, especially as it pertains to enterprise knowledge shared in global, virtual teams. Decision makers are faced with a challenge: accurate and quick knowledge sharing is especially difficult when dealing with distributed, heterogeneous, and asynchronous knowledge assets that exist when dealing with geographically dispersed virtual teams. The skills and technologies utilized by virtual teams are a blend of both old and new concepts, each useful for a variety of different tasks and each with its own advantages and disadvantages (Gillam & Oppenheim, 2006). In order to address the problem of knowledge sharing in geographically dispersed environments, an integrated knowledge sharing framework is proposed; this incorporates concepts of the 24-Hour Knowledge Factory, grid computing, and case-based reasoning (CBR).

The 24-Hour Knowledge Factory (Gupta, 2009) is a paradigm that decision makers can employ for distributed, team-based work. For this paradigm to be employed in an effective manner, one needs to consider the following types of research questions:

1. How can we build a common knowledge sharing model for decision support in the 24-Hour Knowledge Factory?
2. How can CBR and grid computing concepts be utilized to enhance the capabilities of the 24-Hour Knowledge Factory, and what patterns and technologies must be used to facilitate this union?
3. How can a time-shift model be developed for the 24-Hour Knowledge Factory using prior research that has largely disregarded the aspect of time-shifts within globally distributed sub-organizations?
4. How does a distributed work sharing model address the KM issues brought up by the 24-Hour Knowledge Factory?

The chapter is organized as follows: Section 2 defines the 24-Hour Knowledge Factory; Section 3 adapts the CBR approach for the 24-Hour Knowledge Factory based on grid computing; Section 4 discusses the ECKS model for the 24-Hour Knowledge Factory based on decision evolution; Sections 5 and 6 present the ECKS modeling and service model based on grid computing; and, Section 7 provides the concluding remarks.

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