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Chapter VIII

An Architecture for Active and Passive Knowledge Management Systems

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ABSTRACT

Knowledge management systems (KMSs) offer an environment for organizations to manage their information assets (e.g., documents, databases, etc.). Existing KMSs passively employ knowledge by querying a database, showing a document, displaying a Web page, etc. KMSs can be extended to incorporate active components, such as expert systems and business rule systems. Currently, business rules reside in application code and database triggers. A KMS with an embedded expert system using business rules from the organization, combined with the connectivity of a server in a client/server

architecture, provides an excellent environment for automating business activities at both local and enterprise levels. The segregation of business rules into the knowledge tier (KT) should lower the cost of development and maintenance, increase accuracy and ensure corporation-wide consistency. In addition, knowledge verification tools are now being developed that will allow the computerization of less structured tasks, enabling another round of increased efficiency through computerization.

INTRODUCTION

Corporate rightsizings of the 1980s, combined with the information technology-driven productivity gains of the 1990s and the pending retirement of baby boomers, has and will result in the continued loss of enterprise and job-specific knowledge. The massive loss of intellectual capital resulting from these three events is an unacceptable consequence for most government and private organizations. Consequently, those organizations that can retain knowledge and use it to act upon business situations will have a significant competitive advantage.

Knowledge about an organization or industry is an intellectual asset that, although paid for in part by the employer, is difficult to control and manage. This is because knowledge is fragmented in documents, policies, procedures and other storage mediums. Managing knowledge also presents a challenge for management to retain the knowledge in a form that is easily retrievable. This is not an easy task, since the enterprise must first identify the location of all needed knowledge, and second determine the easiest way to retrieve it.

Before proceeding, three related but not interchangeable concepts need to be defined. Data is a set of discrete, objective facts about events. Information is organized data presented in context. Data becomes information when its creator adds meaning or value. Similarly, knowledge is derived from information, as information is derived from data. Knowledge can be viewed as information in context, together with an understanding of how to use it. Knowledge can be either explicit (knowledge which a person is able to make available for inspection) or tacit (knowledge which a person is unable to make available for inspection) (Davenport & Prussak, 1998; Brooking, 1999).

There are many definitions of knowledge management, but the Gartner Group's (1999) description seems most appropriate for the perspective expressed in this chapter.