Chapter III

Essential Factors in Knowledge Management with COTS Products

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Introduction

Knowledge management is concerned with the effective management of enterprise knowledge, the knowledge that an organization lives by and is built upon. Enterprise knowledge is often buried in different kinds of documents and media and is not easily captured and managed with conventional tools such as database and expert systems that are designed to work with structural information. As a result, document-centric knowledge management has become an important, or the most typical, kind of knowledge management approach recently. The objective of a document-centric knowledge management systems is to make the knowledge buried in these documents, and the relationship among these documents, explicit in such a way that they can be found, accessed, and reused in an efficient manner. There are many possible knowledge management strategies, some of which can be based on commercial off-the-shelf (COTS) products.

Many organizations are considered to be information organizations today in this so-called information age. In fact, many organizations do possess abundant valuable knowledge. Take Jet Propulsion Laboratory (JPL) as an example. JPL has long been involved in all
aspects of deep space scientific research. It is an organization filled with a wide spectrum of knowledge from the construction, control, and operation of small scientific instruments to that of the whole spacecraft. Much of this knowledge exists in the form of documents. This kind of knowledge is very informal, and, as a result, was not well managed in the past, making it hard to keep track of, or to search, share, reuse, and transfer this knowledge. We often need to rely on human experts who bear the knowledge, but this knowledge will be gone along with their leaving of the organization.

The emergence of the Web and Internet technologies in recent years encourages sharing of information, but the abundance of Web pages can outgrow the advantage of this sharing if it is not well managed. JPL has thousands of Web sites and mountains of Web pages, of which many have limited institutional support. Internet-strength search engines do exist, but cross-site searches can be limited, not to mention that various kinds of desktop documents and databases are beyond the scope of these search technologies. A knowledge management approach can potentially be a solution to end these problems and other shortcomings.

Enterprise knowledge management has gained much attention lately (Koulopoulos 1997; O’Leary 1998). Various tools and techniques are evolving and maturing. The question is are we ready for it? A whole set of questions related to KM must be dealt with. What are the potential obstacles? How can we successfully deploy a knowledge management system? What are the features required from a knowledge management system? How sophisticated should the system be? Should we buy or build? How can integration be achieved between various systems? In particular, how can the knowledge management system be integrated into other systems as part of the enterprise information infrastructure? Can the Web and Internet technologies help, and if so, how?

This chapter is devoted to talking about our approach and experience towards these questions, drawing our experience from a project that is aimed at providing knowledge management in a collaborative engineering environment. We believe that the experience we gained from this project, in particular the essential factors identified, could be helpful to those organizations that face the same kind of challenges and share similar goals.
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