Knowledge Discovery Solutions for Intelligent Enterprises

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INTRODUCTION

The exponential increase in information—primarily due to the electronic capture of data and its storage in vast data warehouses—has created a demand for analyzing the vast amount of data generated by today's organizations so that enterprises can respond quickly to fast changing markets. These applications not only involve the analysis of the data but also require sophisticated tools for analysis. Knowledge discovery technologies are the new technologies that help to analyze data and find relationships from data to finding reasons behind observable patterns. Such new discoveries can have profound impact on designing business strategies. With the massive increase in data being collected and the demands of a new breed of intelligent applications like customer relationship management, demand planning and predictive forecasting, the knowledge discovery technologies have become necessities to providing high performance and feature rich intelligent application servers for intelligent enterprises. The new knowledge based economy entirely depends upon information technology, knowledge sharing, as well as intellectual capital and knowledge management.

Knowledge management (KM) tools and technologies are the systems that integrate various legacy systems, databases, ERP systems, and data warehouse to help facilitate an organization's knowledge discovery process. Integrating all of these with advanced decision support and online real-time events would enable an organization to understand customers better and devise business strategies accordingly. Creating a competitive edge is the goal of all organizations employing knowledge discovery for decision support. They need to constantly seek information that will enable better decisions that in turn generate greater revenues, or reduce costs, or increase product quality and customer service. Knowledge discovery provides unique benefits over alternative decision support techniques, as it uncovers relationships and rules, not just data. These hidden relationships and rules exist empirically in the data because they have been derived from the way the business and its market work.

The following is a brief synopsis of the major tools and major considerations required to enable an organization to go through the key processes of knowledge sharing, knowledge distribution, knowledge creation, knowledge capture and codification as well as embracing effective knowledge management (KM).
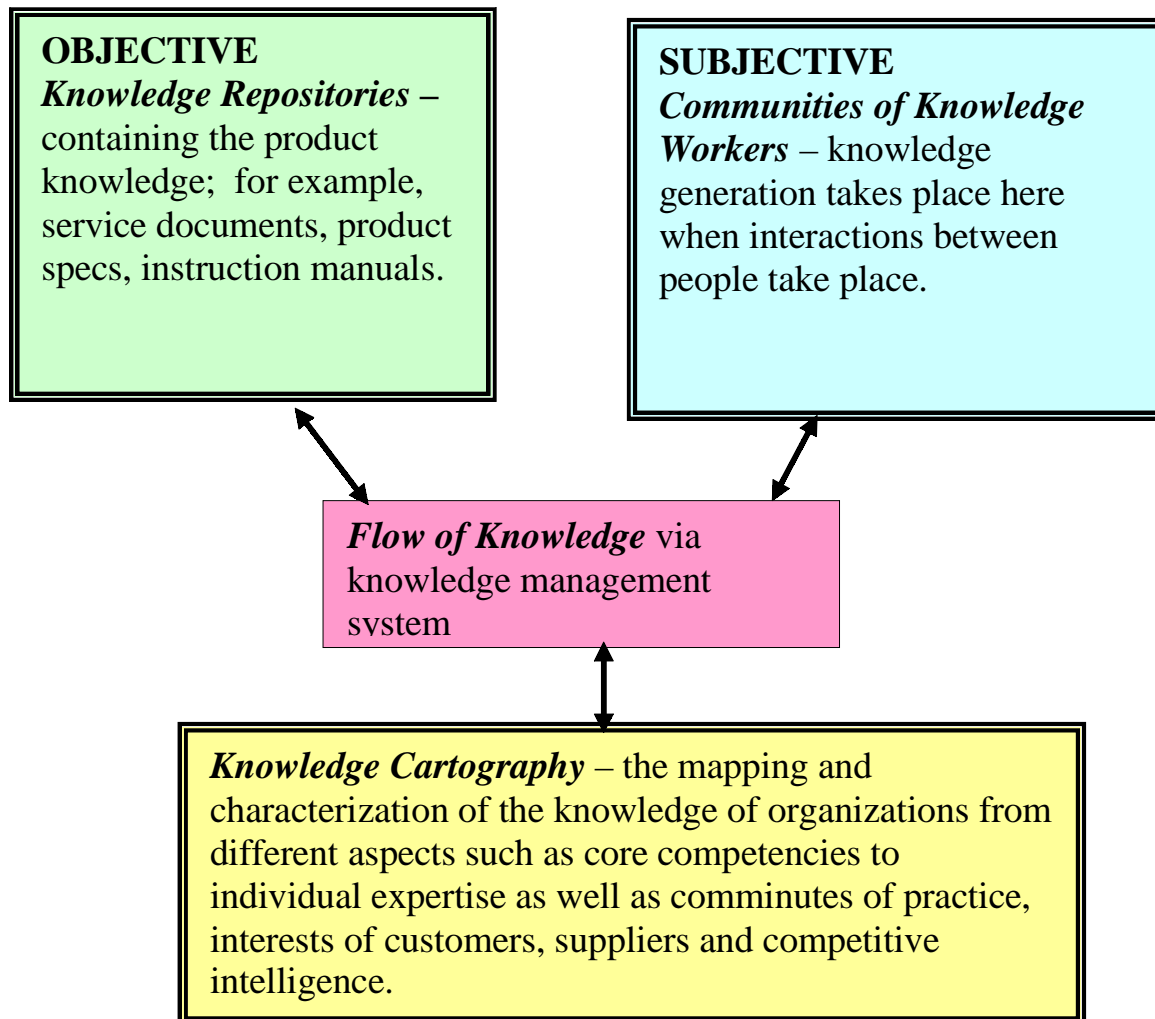
ESTABLISHMENT OF KM INFRASTRUCTURE

The KM infrastructure, in terms of tools and technologies (hardware as well as software) should be established so that knowledge can be created from any new events or activity on a continual basis. This is the most important component of a learning organization. The entire new know-how or new knowledge can only be created for exchange if the KM infrastructure is established effectively. The KM infrastructure will have a repository of knowledge, and distribution systems to distribute the knowledge to the members of organization and a facilitator system for the creation of new knowledge. A knowledge-based infrastructure will foster the creation of knowledge, and provide an integrated system to share and diffuse the knowledge in the organization (Srikantaiah & Koenig, 2000).

KNOWLEDGE ARCHITECTURE

Architecture, specifically the information technology architecture, is an integrated set of technical choices used to guide an organization in satisfying its business needs

Figure 1. The knowledge architecture (Wickramasinghe & Mills, 2001)

OBJECTIVE
Knowledge Repositories – containing the product knowledge; for example, service documents, product specs, instruction manuals.

SUBJECTIVE
Communities of Knowledge Workers – knowledge generation takes place here when interactions between people take place.

Flow of Knowledge via knowledge management system

Knowledge Cartography – the mapping and characterization of the knowledge of organizations from different aspects such as core competencies to individual expertise as well as comminutes of practice, interests of customers, suppliers and competitive intelligence.

(Weil & Broadbent, 1998). Underlying the knowledge architecture (refer to Figure 1) is the recognition of the binary nature of knowledge; namely its objective and subjective components. What we realize when we analyze the knowledge architecture closely is that knowledge is not a clearly defined, easily identifiable phenomenon; rather it has many forms, which makes managing it even more challenging.

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