

# STRATEGIC IMPLEMENTATION AND USAGE OF KNOWLEDGE MANAGEMENT

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## Abstract

*Knowledge management is an emergent technology that seeks to address the explicit and tacit knowledge within an organization. Explicit knowledge is easily documented and transferred, consisting of such things as access to market research and analyst reports. Tacit knowledge is the specific knowledge of experts within an organization and is difficult to capture, store and transfer. Knowledge management systems seek to make both tacit and explicit knowledge available to the organization to improve the overall performance of the firm.*

*Three knowledge management applications are analyzed. Fireman's Fund Insurance recently installed a knowledge management application that they are hoping will radically alter the communication culture of their organization. Buckman International Laboratories is one of the early pioneers in the area of knowledge management and has successfully integrated knowledge management throughout their organization. KPMG Peat Marwick is one of the leading consulting firms in the world. They recognized early that a strategic objective for them to remain competitive is the incorporation of an integrated knowledge management system.*

**Keywords:** Knowledge Management, Knowledge Repositories

## REVIEW OF THE LITERATURE

One of the essential emerging information system strategies is the transition from competitive advantage-based information into optimization based knowledge management [12]. Jack Welch stated, "An organization's ability to learn and translate that learning into action rapidly is the ultimate competitive business advantage" [13]. Knowledge can be defined as information combined with experience, context, and interpretation. Knowledge management is the transformation of knowledge into a format that can be utilized effectively and efficiently throughout an organization [5]; knowledge management is a set of processes for transferring the intellectual assets of the firm to value processes such as innovation and knowledge acquisition [9]; or stated simply knowledge management is making shared information useful [4].

Knowledge management involves a strategic commitment to improving the organization's effectiveness as well as improving its opportunity enhancement. The goal is not cost control [6]. Knowledge management as a process improves an organization's ability to execute its core processes more efficiently.

Lane and Lubatkin [11] identified three methods of learning new external knowledge: passive, active and interactive. Passive learning occurs when a firm acquires technical knowledge from sources such as training, seminars and journals. Active learning occurs when a firm enhances its capabilities through benchmarking and competitor analysis. Interactive learning requires face-

to-face interaction to assimilate tacit knowledge. Their research concluded that face-to-face interaction was necessary for inter-organizational learning to take place. Future informal knowledge repositories may overcome this deficit through expanded use of multimedia databases.

Knowledge management projects that involve establishing a knowledge environment conducive to the transfer, creation or use of knowledge attempt to build cultural receptivity. These attempts are centered on changing the behavior of the firm to embrace the use of knowledge management. Behavioral centric projects require a high degree of support and participation from the senior management of the organization to facilitate their implementation. One way in which organizations have looked to achieve this is through the creation of a knowledge manager position, or *chief knowledge officer* (CKO). This person is responsible for defining the area of knowledge within the firm that will be the focal point, based upon the mission and objectives of the firm [6]. The CKO has the responsibility for standardizing the enterprise wide vocabulary and for controlling the knowledge directory. This is critical in areas that must share knowledge across departments to ensure uniformity.

Knowledge management consists of four basic functions: externalization, internalization, intermediation and cognition [7]. Externalization consists of capturing knowledge in an external repository and organizing it according to a classification system. Internalization tries to store a body of knowledge that will benefit specific segments of users. Knowledge is extracted from the firm, filtered and stored for subsequent access. Intermediation is the transfer of tacit knowledge. It tracks the experience of individuals and links them by subject area to other peoples needs. This is automated utilizing groupware and intranet technologies. When an organizations workflow cannot explicitly identify the knowledge expert, a heuristic analysis of previous experience is performed. Few technologies exist that support cognition, which tries to replicate the functions of human intelligence. The technologies that do exist are comprised of artificial intelligence or expert systems.

The interrelationship between organization design and the development of processes for managing knowledge will become increasingly important. Organizations can benefit from implementing a knowledge management strategy. Some of these benefits may include [9]:

- (1) Reduced loss of intellectual capital from people leaving the company.
- (2) Reduced costs by achieving economies of scale in obtaining information from external providers.
- (3) Reduced redundancy of knowledge based activities.
- (4) Increased productivity by making knowledge more quickly and readily available.
- (5) Increased employee satisfaction by enabling greater empowerment.
- (6) Gain a competitive advantage in the market.

### **Knowledge Repositories**

Orman [14] asserts that knowledge management is made up of many components, such as data, constraints, queries, rules, and transactions. Of these constraints, data, which is the simplest component, is the only knowledge management component that can be designed by the end user, structured and organized for efficient retrieval. Data is also viewed as the nucleus, which

combines to form information, which further forms knowledge [10]. Orman [14] further states that most components of knowledge are represented via example, and their execution reduces to data comparison. Data comparison, which is simpler than procedural comparison, can be implemented in a knowledge management database through the use of integrity constraints. Integrity constraints are rules that have to be obeyed by the data at all times.

Data integrity is frequently the responsibility of the database administrator and the DBMS software. The proliferation of data in an organization has led to the development of models developed by end users [1]. The development of the knowledge model is one of the essential first steps in the development of a knowledge repository. The knowledge model should ensure semantic consistency for all of the variables used within the model. In addition, it should ensure that there is definitional consistency. The third key component of the knowledge model is consistent context usage. A knowledge model is the first step in the development of the knowledge repository. We now turn to the three cases.

### **Fireman's Fund Insurance**

On January 25, 1999, Fireman's Fund Insurance Company unveiled their new knowledge management application that they named Portal. They are looking to utilize this technology to dramatically change the communication culture of their organization. The system consists of a series of Lotus Notes and Domino™ databases that are accessed by their 8,500 employees across their corporate Intranet using Netscape Navigator. One of the primary goals of the implementation is to achieve high task-technology fit as measured by high system utilization. They want to provide a seamless exchange of information not a forced system implementation. David Kliman, vice president of corporate communications reported, "I liken this to the introduction of the telephone one hundred years ago, in terms of the next explosion for people sharing information. We are breaking down the silos of information, which have never been linked before. This isn't unique but we feel we are using this technology to embrace change in the communications culture in a big time way".

One of the significant problems that they realized early on was filtering the right knowledge and keeping it up to date, such that users would find value in the information. To accomplish this they first identified knowledge experts. Some were appointed, others volunteered; in both cases the identification of their specific knowledge into Portal has now become part of their job description. To facilitate this process, they have established a divisional communications manager within each of their major operating units (human resources, information technology, commercial lines, personal lines, and claim) whose part-time responsibility is to ensure that the knowledge experts within their operating unit are updating the knowledge repository with current and relevant information. In addition, they have established a new full-time, corporate gatekeeper position that has overall responsibility for the knowledge databases. The divisional communications managers have a dotted line reporting relationship to the corporate gatekeeper. Additionally, to reinforce the importance of utilization they have established a Web Café in the main lobby of their home office. In addition to the access that employees already have from their desk, this provides additional ease of access to their knowledge repositories.

“What started as a cheap date, an exploratory project that was worked on by three people from June 1998 until January 1999 has established a foundation to greatly expand the use of information technology to enable our business. This is only the beginning, we have plans to expand our databases to support multimedia capability this year. This will be the most significant use of information technology in our organization this year”, reported Kliman.

### **Buckman International Laboratories**

Buckman International Laboratories is a producer of speciality products for the paper, leather and plastics industries located in Memphis, Tennessee. CEO Bob Buckman embraced the concept of collaboration and information sharing enabled through knowledge management in 1991. His view was, “why should people be forced to constantly re-invent the wheel when a steady stream of information and knowledge is available within the organization?” [8]. One year later, they developed a knowledge sharing network that they named K’Netrix. To transform their organizational culture into one of knowledge sharing and collaboration, they established incentives for employees. One incentive program was to reward the top 150 contributors to the K’Netrix system with a one week seminar in Scottsdale, Arizona (U.S.A.). In addition, they made contribution to the system part of the employee performance evaluation process. Their goal was to ensure that people meaningfully contributed, not just providing reams of useless information. Buckman Laboratories has been successful in attaining several lucrative contracts from larger competitors as a result of its knowledge network.

Buckman attributed his implementation of knowledge management throughout his organization to a quote that he heard from Jan Carlson in 1984, “An individual without information cannot take responsibility; an individual who is given information cannot help but take responsibility” [3]. To develop a system to take advantage of the knowledge that existed in the heads of the associates of the firm, they first looked at where the employees normally worked. They spent less than 14 percent of their available time in the office, as a result the system had to support remote usage, and could not be limited to a LAN and desktop environment. The success of the K’Netrix system has been attributed to several factors. First, is the speed of response. They were able to cut their response time to customers from weeks to days. Second, the system enabled greater spans of influence by its users. Finally, it changed the role of middle management in the organization from an information gatekeeper to one that supports closing the gap between the organization and the customer.

### **KPMG Peat Marwick**

KPMG Peat Marwick is one of the largest accounting and consulting firms in the United States. During the mid-1990’s, their deputy chairman and chief operating officer, Roger Siboni described his vision for the need for knowledge management technology as, “We need to provide our professionals with the knowledge of the entire firm – and deliver it to the clients on demand, anywhere, at any time” [2]. Working from that vision, they created a knowledge management environment that tied together legacy systems, an intranet, the World Wide Web, a data warehouse, document management, and new applications for the purpose of capitalizing on the knowledge contained by the firms professionals. This initially resulted in the development of KMAN, their knowledge management platform. Subsequent to this implementation, they

modified their strategy to develop KWeb, a single integrated architecture that makes use of Web technology and serves as a single, consolidated, knowledge management system accessible by all of their employees. The platform was chosen to enable an architecture that supported knowledge capture and dissemination, access to internal and external databases, collaboration and messaging tools, internet linkages, and an environment for enabling various software tools. An important consideration in the development of KWeb was the content and maintenance of the knowledge repository. The knowledge domain that they deemed critical included: the nature of engagement projects, proposal documents, win-loss proposal statistics, leads and opportunities, client satisfaction statistics, and client contracts. According to Alvi [2], there were three underlying principles that guided the knowledge management process. The first was that knowledge management must be integrated into the firm's business process. An infrastructure needed to be developed that integrated knowledge management as a part of the professional processes, instead of being viewed as additional work. The second principle was that content management was to be ownership based and distributed to the knowledge experts, not centrally controlled. The third principle was that content was to be submitted in a single stream but have multiple destinations. This meant that within each electronic community there was a single source of knowledge input.

KPMG utilized a six-phase approach in the development of their knowledge management process. These phases consisted of acquisition, indexing, filtering, linking, distribution, and application. Knowledge centers were established throughout each group to support knowledge management at the local level. These centers were responsible for knowledge management education and promotion, assistance in the creation and content of knowledge, content classification and cataloging, internal and external research support for access to content information, and Web page construction and administration. The Shared Knowledge Center was created to link knowledge management to the senior management strategy, and to implement broad knowledge management policies.

The success of KWeb was dependent upon the seamless integration of three technical components, the knowledge database and database management, communication and messaging, and secure browsing.

## DISCUSSION

Each of the three cases illustrates several critical success factors necessary in order to effectively implement and maintain knowledge management systems. Fireman's Fund Insurance focused on the cultural changes needed to gain acceptance of a knowledge-sharing environment. Effort and emphasis are required by the senior management of an organization in order to encourage people to willingly share knowledge that in the past was viewed as a source of internal competitive advantage. The organizational culture needs to evolve to a point where knowledge sharing becomes an accepted practice and performed routinely as part of day-to-day work activities.

The KPMG experience highlights the need for a single uniform infrastructure that is accessible to all of the people who need access to organizational knowledge regardless of physical location. The knowledge management infrastructure needs to be integrated within the business practices of the individuals within a firm.

Buckman International Laboratories continues to be a pioneer in knowledge management. Their experiences demonstrate two knowledge management critical success factors. First, given the right knowledge, workers become self-empowered to help an organization achieve its mission. People will take responsibility when they feel they have the right knowledge to do the job. Second, if the right incentive is provided, workers within an organization will be enticed to support a knowledge management program. In addition, specific incentives change over time.

### CONCLUSION

Knowledge management is a concept that effectively integrates current technology to maximize the expertise that is contained within an organization. There are several characteristics that distinguish an organization that embraces the knowledge management concept. One of the key characteristics is the use of a central knowledge repository that is maintained by the knowledge experts within a firm. The knowledge repository must be readily accessible throughout an organization. In addition, it must be fine-tuned, such that the knowledge base is kept current and relevant. Web and groupware technologies such as LOTUS Notes have been utilized to establish a knowledge foundation. In order to effectively create and manage a knowledge repository, a firm must first recognize the need to capture existing knowledge. They must then utilize this knowledge to create new knowledge within the firm.

One of the strategic enablers of a knowledge management system is its ability to link internal knowledge with external knowledge. The knowledge repository allows for more immediate retrieval, of greater amounts of strategic and tactical information, by exploring more facts and relationships in information managed by the organization.

### FUTURE WORK

Knowledge repositories have begun to have more wide spread usage in all industries. A future study is planned to empirically measure the effectiveness and usage of knowledge repositories. Additionally, a study of the organizational issues in the development and implementation of knowledge repositories will be undertaken.

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