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Research Article

Key Ingredients to the Success of an Organization's Knowledge Management Strategy

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Knowledge management is a key strategy that organizations are embracing to manage their organizational knowledge for strategic advantage. Unfortunately, like any new and maturing field, overexpectations are being created by so-called knowledge management consultants and vendors. This paper describes the six essential ingredients in order for knowledge management to have a chance of succeeding in an organization. Copyright © 1999 John Wiley & Sons, Ltd and Cornwallis Emmanuel Ltd.

INTRODUCTION

Knowledge management is the process of creating value from an organization's intangible assets. In the author's view, knowledge management (KM) is the amalgamation of concepts from the applied artificial intelligence, software engineering, business process reengineering, organizational behavior, and information technology fields (Liebowitz and Wilcox, 1997; Liebowitz, in press). It deals with creating, securing, combining, retrieving, and distributing knowledge in the organization, both internally and externally.

With the previous focus being on the 'collection' of information and knowledge, web-based and intranet technologies can now provide the 'connectivity' between these isolated knowledge bases to form the bridges between them (Liebowitz, 1997; De Hoog and van der Spek, 1997). By doing so, knowledge sharing can be better facilitated to create 'the sharing of knowledge is power' instead of simply 'knowledge is power'.

Liebowitz and Beckman (1998) propose an eight-stage process for knowledge management:

- Stage 1: Identify—Determine core competencies, sourcing strategy, and knowledge domains.
- Stage 2: Capture—Formalize existing knowledge.
- Stage 3: Select—Assess knowledge relevance, value, and accuracy. Resolve conflicting knowledge.
- Stage 4: Store—Represent corporate memory in knowledge repositories with various knowledge schema.
- Stage 5: Share—Distribute knowledge automatically to users based on interest and work. Collaborate on knowledge work through virtual teams.
- Stage 6: Apply—Retrieve and use knowledge in making decisions, solving problems, automating or supporting work, job aids, and training.
- Stage 7: Create—Discover new knowledge through research, experimenting, and creative thinking.
- Stage 8: Sell—Develop and market new knowledge-based products and services.

In order to implement such a knowledge management process, several important elements are needed:

(1) A Knowledge Management Strategy with support from senior leadership

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(2) A Chief Knowledge Officer (CKO) or equivalent and a knowledge management infrastructure within the organization
(3) Knowledge ontologies and knowledge repositories to serve as organizational/corporate memories in core competencies
(4) Knowledge management systems and knowledge management tools
(5) Incentives to motivate employees to share knowledge
(6) A supportive culture for knowledge management.

Each of these six ingredients will be discussed in turn.

INGREDIENT 1: KM STRATEGY WITH SENIOR LEADERSHIP SUPPORT AND ACTIVE INVOLVEMENT

One of the key elements for KM success is to develop an overarching enterprise-wide KM strategy for the organization, with senior leadership support in moral and financial terms. This KM strategy can take various forms. One strategy may be to first focus on a particular core competency of the organization (which may have a 'graying' employee base) to best leverage knowledge internally within the organization's employee base and externally to the customers. Dow Chemicals used this strategy in leveraging their knowledge in the patent area first, and then used Intellectual Capital Asset Management teams to leverage knowledge in other key areas in their organization.

A second strategy is to create Corporate Knowledge Centers or Centers of Expertise (CoE), like used by American Management Systems. Liebowitz and Beckman (1998) and Liebowitz and Wilcox (1997) believe there should be a Center of Expertise for each knowledge domain, discipline, or subject matter speciality with several roles:

- Create, research, improve, and manage the domain Knowledge Repository
- Set and enforce standards, methods, and practices for domain discipline
- Establish partnerships and align/coordinate interests with related COE specialities, projects and processes, as well as negotiating conflicts between these entities
- Assess workforce competency and performance, identify gaps, and remedy deficiencies
- Support, develop, and enable the workforce by providing educational and consulting services, as well as coaching and tools
- Supply competent workers to staff projects and processes through assignment, hiring, outsourcing, and developing.

Davenport and Prusak (1998) indicate that KM Project Offices could be used as a strategy in the organization. They identify four types of KM projects and related activities:

- Knowledge Repository—determining the technology for storing the knowledge, persuading employees to contribute to the repository, creating a structure for holding the knowledge
- Knowledge Transfer—identify, develop, and monitor both human and electronic channels for knowledge sharing
- Knowledge Asset Management—calculating knowledge valuations, negotiating with holders of desired intellectual capital, managing a knowledge asset portfolio
- Infrastructure Development—analyzing financial needs, working with external vendors of technologies and services, developing human resources management approaches.

Another strategy is to provide the framework, knowledge repository ontology, and knowledge management tools to employees throughout the organization to let their groups or departments develop their own knowledge repositories. The World Bank is using this approach where they are spending about $50–60 million in 76 sectors of knowledge to develop knowledge-based help desks for lesser developed countries.

INGREDIENT 2: NEED A CKO OR EQUIVALENT AND A KNOWLEDGE MANAGEMENT INFRASTRUCTURE

The second ingredient for knowledge management to be successful is the need for a Chief Knowledge Officer (CKO) or equivalent (Director of Knowledge Management, Intellectual Capital Director, etc.) and a knowledge management infrastructure within the organization. For example, Buckman Labs recognized in 1992 that knowledge was their critical asset and competitive edge. Under their CEO and a newly appointed CKO-equivalent, a Knowledge Transfer Department was established which developed the K'Netix (knowledge management and transfer system) in Buckman Labs. According to an Arthur D. Little study, 41% of the *Fortune 500* companies already have a CKO or equivalent. This is certainly evident in the Big 5 and major consulting firms.

The CKO needs to be the advocate for knowledge and learning. In many ways, the CKO is a cartographer in mapping expertise to skills in the organization and a geologist in mining for knowledge. The CKO should be the designer and overseer of an organization's knowledge infrastructure, and take the leading role in the design and implementation of an organization's knowledge architectures. It is extremely helpful if the CKO has expertise in the disciplines of business reengineering, innovative IT, change management, as well as knowledge management.

There is a question as to where to put the CKO in the organization. The author's opinion is that the CKO should be a staff position next to the CEO. Other organizations

have positioned the CKO within the IS/IT, Human Resources, or Business Management directorates of the organization.

INGREDIENT 3: NEED KNOWLEDGE ONTOLOGIES AND KNOWLEDGE REPOSITORIES

According to O'Leary (1998), ontologies are explicit specifications of conceptualizations. Within the context of knowledge management systems, ontologies are specifications of discourse in the form of a shared vocabulary. They provide the structure, terminology, and relationships in which to build the knowledge repositories. Organizations need to have these knowledge ontologies defined to ensure standardization and integrity of the development of the repositories as well as to facilitate maintenance and controlled growth of these repositories.

Abecker *et al*. (1998) feel there should be an enterprise ontology, information ontology, and domain ontology. The enterprise ontology provides the context for the information ontology and the domain ontology provides the content for the information ontology.

These ontologies are applied to building the knowledge repositories. Methods for building these knowledge repositories can take several forms. These forms are combinations of active/passive knowledge collection versus active/passive knowledge analysis and dissemination. For example, passive collection and passive analysis/dissemination is in the form of using a knowledge repository as an archive which is consulted when needed—i.e. the individuals workers enter their lessons learned and no analysis or dissemination of these lessons learned is actively done. Another approach is active collection but passive analysis/dissemination where the organization is actively trying to create a knowledge repository. Passive collection and active analysis/dissemination is called the knowledge publisher approach whereby the entering of lessons learned is left to the individual workers but there is a group which analyzes these lessons and sends them to appropriate individuals (who could benefit from these lessons) in the organization. The last approach, called the knowledge pump, is active collection and active analysis/dissemination. The Center for US Army Lessons Learned applies this technique where web-based electronic observation forms are used and entered, and the Center analyzes the lesson learned and then sends it to appropriate individuals.

INGREDIENT 4: KNOWLEDGE MANAGEMENT SYSTEMS AND TOOLS

Knowledge management systems and knowledge management tools to create these systems need to be part of the overall knowledge management strategy. Buckman Labs has K'Netix as their knowledge management system, and Arthur Andersen has KnowledgeSpace, Price Waterhouse has Knowledge View, and the list goes on. The knowledge repositories described in the previous section form part of these knowledge management systems. Careful attention must be given to user interface design issues.

Many of these knowledge management systems are using tools such as Lotus Notes, Infofinder (by Arthur Andersen—an intelligent agent that learns about a user's information interests in a document repository), GrapeVine, Topic, Autonomy, Magic Solutions, Open Text, Perspecta, and InXight. Lotus Notes is a groupware-based tool. Autonomy, Infofinder, Topic, Open Text and Magic Solutions are search tools. Perspecta and InXight are visualization tools.

The key idea to remember is that these tools are not, by themselves, knowledge management. These tools assist in the development of the knowledge management systems. However, knowledge management is not simply 'technology'. It involves a combination of people, technology, and culture to create a 'system' for knowledge management.

INGREDIENT 5: NEED INCENTIVES TO ENCOURAGE KNOWLEDGE SHARING

Many people don't want to give up their competitive edge and share their knowledge with others. Although, a recent benchmarking study of 150 companies indicated that the reason for this was *not* due to wanting to hold one's knowledge close to one's heart (i.e. the selfish, competitive edge reason). Rather, people didn't want to use other people's knowledge because then they couldn't put their thumbprint on it.

In order to get knowledge management systems to be used, incentives will invariably need to be given to at least encourage initial use of these systems. Buckman Labs initially offered monetary incentives to use their knowledge management system. Gradually, the use of their K'Netix became a daily occurrence because the CEO would use it on a regular basis and the employees felt that it must have value if the CEO is using it. Additionally, over time, its use became part of the 'knowledge culture' of the organization.

Other organizations have given frequent flyer mileage to the first '*x*' number of individuals to use their knowledge management system. Companies like Andersen Consulting and Lotus evaluate their employees, as part of their annual job performance review, on how much (and the quality) of knowledge that they provide to the knowledge repositories and how they have applied the knowledge from these repositories.

Strong incentives and a healthy culture are needed to encourage knowledge sharing and innovation. The organization must think about their reward, compensation, and motivational systems in order to make knowledge management successful.

INGREDIENT 6: BUILD A SUPPORTIVE CULTURE

In many organizations, especially bureaucratic ones, employees and managers are discouraged from sharing knowledge and expertise. Knowledge is often considered a source of power, and hoarding it from others is not only expected but is often rewarded (Liebowitz and Beckman, 1998). Additionally, the Not Invented Here syndrome is often evident in many organizations, so it may be difficult to get employees to use and apply expertise developed by someone else.

Davenport and Prusak (1998) believe that 70–80% of learning is done through 'informal' methods versus 'formal' approaches (like reading books, documents, etc.). They believe that the working knowledge in the organization is often transferred via people networks whereby chatting, conversations, luncheons, and other less formal means are used to learn about an organization. In this manner, companies like Johnson and Johnson have established 'Knowledge Fairs' or 'Knowledge Exchanges' to promote informal gatherings between employees to encourage knowledge sharing.

Bob Buckman feels that 90% of the success of knowledge management is due to building a supportive culture while developing these knowledge management systems. The two, culture and knowledge technology, need to work hand in hand. There also need to be ways of measuring the success of these knowledge management systems (for example, through new product/service development, improved customer satisfaction, increased customer loyalty, etc.).

RWD Technologies has formed an organization-wide Knowledge Management Council and has Friday informal knowledge-sharing forums to encourage employees and management to share their knowledge and expertise. They also invest heavily in employee training and development as well as R&D to develop a knowledge-oriented culture.

SUMMARY

This paper tried to synthesize important lessons learned from organizations in terms of the six major ingredients for making knowledge management successful in an organization (Liebowitz, 1998). By paying close attention to these critical elements, knowledge management will be a key competitive strategy to the organization in the future.

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