

# A STUDY ON KNOWLEDGE MANAGEMENT IMPLEMENTATION AND ITS BEST PRACTICES IN SOFTWARE ORGANISATION

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## ABSTRACT

*The globalization of business, the shift from production-based to a knowledge-based economy, the growth of information communications technology (ICT), the strive to become learning organizations and the emergence of the needs for knowledge workers have made knowledge management practice a must today across all types and levels of firms (Chong, 2005). However, because the concept is so new, there exist different views among practitioners and even researchers on how a knowledge management program can be designed and implemented in organizations. This paper is a discussion of the evolution and development of a Knowledge Management system and its best practices at a major project based software organisation that delivers custom IT enabled business solutions to customers across the globe, which will refer to as ABC, Inc. These critical factors will provide a greater understanding to the researchers and practitioners of the enablers of a successful knowledge management program.*

**Keywords:** Knowledge Management, Best Practices,

## I. INTRODUCTION

### **Relevance of Knowledge management:**

Knowledge Management (KM) is very relevant to any learning organization, and learning is the basic premise of continuous process improvement. KM is an essential part of the making of a learning organization. According to (Nonaka, 1994) "knowledge creation should be at the epicentre of a company's corporate strategy." The role of information and communication technologies is to support the KM effort in its various activities and to suggest new efforts made possible by the existence of or cost-effectiveness of enabling technologies. For project-based organizations, there is a dire need to capture the learning from individual projects and individual groups and make it available throughout the organization. The challenge is to gather, codify, communicate, and eventually reuse such knowledge.

### **What is knowledge management?**

Knowledge Management comprises a range of strategies and practices used in an organization to identify, create, represent, distribute, and enable adoption of insights and experience. Such insights and experiences comprise knowledge, either embodied in individuals or embedded in organizational processes or practice.

Knowledge Management is more about processes than products. But products and technology enable these processes and provides required tools for an effective knowledge management program. Knowledge Management provides order to unstructured enterprise data and information into knowledge that is actionable and provides business value. The responsible personnel in the organization for knowledge management should know the building blocks and their interaction with the processes.

### **Knowledge Management consists of following components:**

- Collaboration
- Content Management
- Search

- Taxonomy management
- Business Process Management
- Business Intelligence
- Portal

Most knowledge is stored in the heads of individuals and within business processes, and will never be translated into useful electronic forms.

### **Best Practices:**

A best practice is a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark. In addition, a "best" practice can evolve to become better as improvements are discovered. Best practice is considered by some as a business buzzword, used to describe the process of developing and following a standard way of doing things that multiple organizations can use.

Best practices are used to maintain quality as an alternative to mandatory legislated standards and can be based on self-assessment or benchmarking. Best practice is a feature of accredited management standards such as ISO 9000 and ISO 14001.

### **The knowledge management best practice against the following performance dimensions are:**

1. Strategy
2. Leadership
3. Culture
4. Process
5. Technology

### **Discussion of Knowledge Management Implementation to software organization:**

#### **Knowledge management: The ABC, Inc., Perspective.**

As an innovation and project-based software organization located in India, ABC, Inc. (not its real name) recognized early on the need to capture the learning from individual projects and make it available throughout the organization. This is a major concern in many organizations worldwide. Knowledge is viewed in progressive companies like ABC, Inc. as 'intellectual capital', and there has been a focus on recognizing the value of the organization's knowledge base. In ABC, Inc., Knowledge Management reflected company's desire to increase the productivity of its knowledge workers, breaking down some of the barriers to knowledge sharing which are associated with 'professionalism' or 'departmental ownership'.

**Despite the issues is better known at the end of this stage of the process knowledge management course, we review the main factors of knowledge management projects fail. The main reasons are as follows:**

1. Hasty planning and command and to desire to extract the knowledge of experts.
2. Sheer care on expository aspect of design and sacrificing accuracy for speed.
3. Lack of primary study and evaluating knowledge requirements.
4. Outsourcing, justify irreversible renal extraction process to consultants outside the organization and Disclaimer.
5. Lack of proficiency and familiarity of advisors.
6. Lack of employer and advisor's care to necessity of make culture and planning in order to making physical and spiritual incentives for experts.
7. Mere reliance on a very inefficient and display software to display in bringing the so-called sciences extracted.
8. Designating a too little time in order to extracting skillful and experienced experts.
9. Lack of stress on educating particular courses of knowledge management to experts.
10. Releasing the extractions after interviews and lack of proper evaluating for completing, editing and filtering the experts.
11. Lack of predicting of strategies in order to accretion of practical knowledge and creating collective knowledge.
12. Lack of planning for participating before, during and after the interviews with experts.

#### **Obstacles in making knowledge management in organizations:**

1. The shortage of human relations in organizations which causes increase of knowledge.
2. Lack of proper relations between knowledge management and organizational guidelines.

3. Non-clearance of knowledge and knowledge management value and inaccurate assessment of knowledge assistant which can be given to the organization.
4. Lack of complete value in knowledge management practices.
5. Oral skills problems in organization.

**Obstacles in making knowledge management according to Davenport's viewpoint:**

**A-Organizational viewpoint:**

1. Time destruction, necessity of heavy work and high expenses.
2. Imposing extra work from knowledge management.
3. Limitation in knowledge based systems technology.
4. Problems of data extraction from the text.
5. Increase over information.
6. Coding difficulty tacit knowledge.
7. Necessity of powerful culture for creating observation justification.
8. Possibility of sending incorrect message from knowledge staff and information manager.

**B-Knowledge committee and members' viewpoint:**

1. Personal effort to perceive knowledge with expecting reward.
2. Scare of criticism and be charged from management and other chairman.
3. Lack of respect to the other fields.
4. If lack of respect, trust and shared goals, efforts to reverse.
5. Extra works which imposed to other parts of staff.

**C-Personal viewpoint:**

1. Distaste to joint information.
2. Knowledge is power source, advantage, reward and penalty.
3. Challenge among professionals.
4. Sense of worth and dignity due to skills.

**Preventing obstacles, knowledge management usage and creation new knowledge:**

1. Assure employees to declaring creative thoughts without fear of interested critics.
2. Encourage the employees to have critical viewpoints to accepted procedures and ideas about organization products and strategies.
3. Making epistemology knowledge.
4. Promotion of meritocracy.
5. Designating part of a time to some people in order to do their favourite activities.
6. Encourage to relaxation and recreation in desirable workplace.

**KM: ABC, Inc. Challenges:**

The following were recognized by the leadership within ABC, Inc's KM Group as the major challenges faced by the company in developing a successful KM program, as described in company reports and as gleaned from conversations with the KM Group members:

- Promote a sharing culture: This is one of the most important and difficult problems facing KM in all organizations. At local levels, people often have good insights about various problems and situations, but when you look at the question of sharing from their motivational standpoint, a typical employee is essentially trying to figure out how to keep out of trouble or how to get up the next step of the career ladder. But they are the ones who have to be involved in this sharing mode of thinking. A fundamental shift in organizational structure or design may be required.

- Evangelize the movement
- Build trust
- Promote group interest over self-interest
- Reduce the "What good is this for me/my project/my department anyway?" thinking Make contributions & reuse happen
- Tacit knowledge transfer - how to do it
- Intelligent analysis of information. This is a fast growing software area, and strives to make vast amounts of knowledge items tangible, accessible, and useful. Some of the technologies that are applied in this area are expert systems, OLAP (On- Line Application Processing,) neural networks, and intelligent filters (for external news).
- Build and sustain momentum
- Inadequate information and communication technology tools

- Ensure quality and currency of content
- Measure the benefits of KM

**Other specific challenges included:**

- Granularity/type of knowledge items, e.g., full-text or summarized or sign posts or yellow pages
- Source credibility/authenticity
- Avoid information overload/clutter
- Need to respect data/information protection because of various reasons such as client preferences
- Uncover the knowledge hidden in "legacy data" by use of data mining techniques
- Evolution from search engines to "Knowledge navigators," by using the latest developments in Artificial Intelligence
- Knowledge representation & search tools that give user only "useful" knowledge for the user's needs, Artificial Intelligence based

## LESSONS LEARNED FROM THE ABC, INC. CASE

The highly successful effort undertaken at ABC, Inc. to establish a KM portal and an effective company-wide KM system using the available information and communication technologies provided some very valuable lessons, which we summarize in this section.

### 1 Collection and organization of knowledge items

KM becomes effective when knowledge can be turned into timely aid for action. The collection of sharable content, if not properly managed, can increase cost and can make later reuse difficult or impossible. After all, just having sharable content, a knowledge repository, does not translate into knowledge. If that were the case, we all could buy books and skip the cost of college. It is clear that to have an effective KM program the collection as well as reuse of sharable content must be integrated into and become normal by-products of our work processes. Collection of sharable content as an after-the-fact activity in a separate KM system that is not a part of the day-to-day work processes will not be successful.

There needs to be a well-defined and mature process for collecting and organizing the information that is of value. It is more common for companies to store unmanaged information, which may not be usable, on their intranets. The browser then becomes a well-integrated information portal to browsing the many repositories of information—databases, e-mail, discussion groups, computer-based training, collaborative tools, file servers, Web servers, applications etc. The process should include a method of identifying the collective and usable knowledge of the company, delivering just what people need to do their jobs and filtering out the rest, and managing this knowledge so it's always current and focused.

Also, the KM portal should satisfy employees' need for personalized, just-in-time information. Such information may be "pulled" from the Knowledge Centre or "pushed" to end users by e-mail or another vehicle, whenever it is needed. Employees ought to be able to personalize the Knowledge Center as their "home page," resulting in the display of information relevant to their work and interests. The Knowledge Center could include, in addition to the KM portal itself, a set of separate applications that employees can launch to do specific tasks: survey employee skills for assembling a project team, schedule consultant time, register for a class as a team, read competitive intelligence, and so forth.

### 2 Personnel Support

A dedicated knowledge-management staff should oversee the selection and presentation of information across the organization. ABC, Inc.'s idea of having a company-wide KM Champions Group of representatives selected from each project and each department is a good one, because such a group can be of major assistance to the small KM staff. In addition to serving as the champions of KM within their teams, this group of individuals may also perform certain KM-related activities. Should there be dedicated staff to manage the day-to-day KM activities? It turned out that ABC, Inc.'s KM solution did not have one, instead they relied on voluntary efforts of its already over-worked workforce. "Without a full-time staff to manage [this kind of activity,] we'd have a million documents that help no one," says Alden Globe, a designer of J.D. Edwards' Information Network and a product manager in their Knowledge Information Systems Group. "If people don't have a way to quickly find just what they need and no more, when they need it, information isn't actionable and can't do anyone any good."

### 3. Minimize knowledge sharing overhead:

Quality processes should be minimally changed to ensure contribution to knowledge sharing as a natural by-product of project execution. This may be done in part by “automating” the capture of knowledge. Such a knowledge capture scenario may consist of the following sequence of steps:

- a). Document the thought processes, however brief, that went into the activity, real time, using mandatory fields in web forms used for tracking
- b). Team leaders review, add short comment, and post it
- c). Other reviews, feed backs etc. should follow.

With rewarding, encouraging, highlighting, and in time mandating this activity, documenting thought processes can become as routine as code documentation.

### 4 . Reward scheme for participating in knowledge contribution and knowledge reuse.

Knowledge contribution and knowledge reuse activities would not just happen, but may have to be tied to incentives in order to be popular and widespread. ABC, Inc. did implement a reward scheme when this study was made, which in time became a big success for the company and for its KM effort.

### 5. Annual “conferences”

An annual conference may be conducted for sharing of new knowledge arising from the ‘research’ of individual employees. Presentations may be for employees by employees and invited guests; this may perhaps include some training on KM. This is similar to Motorola University’s well-known annual conferences held worldwide. Such forums provide “a means to distill the knowledge created on the fringe of employees’ activities and make it a part of the core knowledge, in a constantly churning process of organizational transformation that essentially turns the organization inside out” (Baldwin and Danielson, 1997).

### 6. Middle management support

Apart from the obvious need for upper management support, middle management must be sold on KM, because support and acceptance at that level is crucial to success and widespread acceptance of the concept. Middle management can help evangelize and effectively convert the work force under their charge. Yet, many in middle management positions are not quite sold on quality, let alone KM; these are perceived as not contributing to the bottom line. Middle management must be kept posted of the KM initiatives being planned and developed, through periodic meetings and other methods of communication.

### 7. KM Support Group

The Practice Champions (PC), though good, may not work if it consists of one part time person per project or department. This individual's work will tend to be “mocked” by the majority of a KM-unfriendly project team as “not contributing to the bottom line.” This was found to be happening in connection with the Quality Champions in some projects. It is important to get the confidence of everyone, especially the Project Leader and the Team Leader. PL’s and TL’s may be made a part of a wider KM Support Group.

### 8. Information and Communication Technologies (ICT)

The use of the latest, most up-to-date and the best ICT tools cannot be overemphasized in the design and in maintaining the most effective KM system possible. Even though most of the emphasis in KM research is on what a colleague calls the “soft skills,” it is still the power of the technology that mostly dictates what can or cannot be done. The plethora of software tools that are available to support the main stream and the supporting KM activities are constantly getting better, with newer technologies such intelligent agents, semantics web, service-oriented computing, web services in general, agile computing, ubiquitous and pervasive computing, mobile technologies, advances in data mining and machine learning, advances in information security, just to name a few, all have a place in the future end-to-end workforce collaboration and knowledge management system of any company, as is being shown by successful efforts in organizations such as ABC, Inc. 6.9 Continuous Improvement in the KM Process

Last, but not least, there is no substitute for the establishment of a continuously improving and mature process. KM frameworks, KM services and KM technologies will constantly surface and make their waves. As the successful experiments of companies such as ABC, Inc. show, a systematic and grass-roots effort in developing a sound and mature process with the clear aim of developing a scalable and evolving enterprise-wide system that harnesses the sharable intellectual capital of the knowledge-work force is what would ultimately pay dividends.



## 2 . SUMMARY

The study of the development of KM at ABC, Inc. showed several noteworthy “best practices” as well as lessons learned. As one of the more progressive and “KM-mature” software organizations spread across geographical regions and expanding rapidly in its workforce, the company was in a sense forced to invest in examining and then developing a first-class KM system that would later become a model for other similar project-based organizations and others. In this case study I have tried to capture some of the issues that the KM Group had to deal with during the development of the KM system and the main lessons learned.

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