Supporting Knowledge Management Through Technology

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The development of systemic support for knowledge management is a major mechanism for establishing knowledge practice. Information technologies that contribute to knowledge management solutions, such as KMS, improve the enterprise's business intelligence and its collaboration capabilities. A knowledge management system will be a powerful tool to increase team effectiveness and efficiency inside organizations or their extended environment. The acceptance by knowledge users determines the success or failure of a knowledge system.
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1 Introduction

Knowledge management is a process that helps organizations to identify, select, organize, disseminate, and transfer important information and expertise that are part of the organization's memory and that typically reside within the organization in an unstructured manner (Turban, et al., 2007). The IT that makes KM available throughout an organization is referred to as a KMS (Holsapplle, 2003a, 2003b; Park, Kim, 2006; Sedighi, 2006)

In the 1960s, information technology focused mainly on facilitating high productivity and throughput (Botten, McManus, 1998). Today, there is an increasing emphasis on enhancing an organization's business strategy through the use of systematic knowledge processes, including the development of consistent methods of capturing and sharing knowledge. Knowledge management systems offer the potential for an organization to create a unified and functional platform on which many different knowledge activities may flow and intersect (Debowski, 2006).

Knowledge management systems (KMS) provide the technical support to enable knowledge capture and exchange to occur freely, readily and openly across the many different stakeholders in organizations. KMS also provide each user with a channel to acquire, document, transfer, create and apply knowledge to meet the organisation's knowledge priorities. Good KMS ensure there is no major impediment to good knowledge practice as the user seeks to share or acquire knowledge from the many sources available. In fact, they enable this process, and may even add further value by anticipating the likely needs of the users (Moffett, et al., 2003).

2. Theory fundaments

2.1. Knowledge management systems principles

As the term system implies, KMS operate from some predictable and fixed principles (Ahituv, et al., 1994). Systems have a defined purpose and boundary. In the case of knowledge systems, the purpose is to facilitate knowledge capture and distribution in an organizational environment. Further, systems are normally controllable; knowledge management systems determine what comes in and what goes out. Systems also incorporate a number of interrelated components. Typical KMS subsystems, for example, enable communication, knowledge capture, storage and transfer of knowledge objects.

Various stakeholders have important roles in supporting the KMS. The end-user contributes, acquires or consumes knowledge through use of the system. Any system must be both accessible and compatible with end-users. The system manager controls the system to ensure it operates in a functional, effective, efficient and accommodating manner. The system manager is also responsible for protecting the corporate assets held in the KMS, so that they are accessible to people in the organization (not necessarily to those outside the organization). This manager also

monitors the use of the system and is responsible for the planning, budgeting and delivery of the system to users. Content managers have control over the intellectual content held in a particular subsystem. This role ensures that the right people gain access to the knowledge in the subsystem.

Concluding, we can note the high dependency across the system on human intervention.

o KMS are determined by corporate strategy and in turn facilitate the conversion of strategy into corporate knowledge.

o End-users contribute content to the system and benefit from the system as they strengthen their knowledge use. They also benefit from the technical knowledge system and applications in the KMS to access knowledge.

o Other related systems draw from important organisational functions, such as finance, archives or human resources.

o Services to the end-user also facilitate access and successful application of the many different KMS features.

o The KMS supports control of the content to ensure it is accessible, retrievable and secure.

o The ultimate outcome of the KMS is efficient and effective support of the knowledge community. This includes end-users and the overall corporate knowledge priorities.

Most importantly, the KMS allows close connectivity among the many different members of that knowledge community, regardless of where they work.

2.2 Knowledge system components

The KMS can comprise many different subsystems (Segars, Hendrickson, 2000). The sophistication and capabilities of the KMS will vary between organisations. This depends, to a large extent, on the capacity of an organization to fund the components and to continue their maintenance and support after their introduction.

A range of technologies support knowledge management in four broad areas of activity: business process management, content management, web content management, and knowledge applications management.

o Business process management describes the processes that are required to support the business practices of the organization. Various systems operate in the firm to ensure effective business integration is achieved. Some typical systems are those relating to finances, human resource management and decision making. Ideally, these should be linked to the knowledge management practices, so that members of the firm have access to accurate and current information on which to build their knowledge.

o Content management relates to the intellectual content of the KMS. This ensures users can efficiently retrieve knowledge on a particular topic or theme. Content management provides a range of strategies for indexing, organizing and storing the resources that are linked to the KMS.

o Web content management focuses on building an effective web site framework through which users may access the KMS. It ensures the KMS architecture is appropriate to achieving a logical and accessible arrangement of content and links. A particularly important element of this aspect of knowledge system development is the construction of the client interface, that is, the communication channel through which users interact with the knowledge system.

o Knowledge applications management ensures users are provided with the application packages and specialist tools for creating and using their knowledge. Applications are software which helps the user with creating knowledge. For example, word processing and email are applications. These products also help with workflow management, that is, the management of various activities which contribute to a final product. Increasingly, these are interdependent activities which involve a number of people. Project management relies strongly on workflow management.

3. Knowledge management systems development

The successful implementation of a KMS will be achieved only if three criteria are met:

1. the system reflects and is responsive to

corporate requirements; 2. the system reflects knowledge management principles, particularly the encouragement of collaboration and communication; 3. the system reflects a deep concern for the individual throughout all phases of development.

When introducing a complex technical system such as the KMS, staged development should be carefully planned (Gao, et al., 2002). Broadly, the stages are:

a. justifying the need for a knowledge management system; b. identifying the need system requirements; c. clarifying the system specifications; d. evaluating potential systems; e. selecting the system and/or its relevant components; f. implementing the system; g. evaluating the system acceptance and adoption.

The planning and implementing process of a new KMS is a conditional process: the enactment of a new stage is conditional on successful completion of the previous stage.

4. Discussion

Many technological innovations fail, mainly because their designers have emphasized the technical system instead of resolving issues relating to the organizational context, managing the introduction of the system, recognizing the needs and concerns of stakeholders, and involving managers and end-users in the change process (Clegg, et al., 1997). We will examine the various stages of introducing a new KMS into an organization.

a. Justify the need for a KMS

KMS is not essential for all businesses. In some cases existing application and off-the-self packages can support the level of knowledge activity. The justification for introducing a purpose-built KMS needs to be carefully tested. The existing technological characteristics of the firm can be significant influence on KMS development (Moffet, et al, 2003). First, the sunk cost of past systems may determine the selection and integration of the KMS, as it will need to interact closely with different preferences about how the system should be constructed, or be very reluctant to change existing approaches (Cooper, 2000). Third, the KMS may need to be flexible enough to navigate around various technological platforms.

b. Identifying the system requirements

There are many different ways the KMS requirements can be clarified. Articles on knowledge systems and discussions with colleagues in other organizations also offer valuable insights. In this first stage, the system sponsor, the knowledge and systems manager, organizational developers, human resource managers, key operational managers and representative users (including unions and other key members) will need to explore the overall scope of the envisaged system and the potential applications.

c. Clarifying the system specifications

Most organizations follow a rigorous selection process, particularly when large amounts of money are to be spent. It is necessary to clarify what can reasonably expected of the system for the proposed budget and the context in which it will operate.

d. Evaluating potential systems

Following development of the system specification and consideration of vendor submission, a Request for Tender may be initiated. Often this is by invitation to those vendors who are deemed to have sufficient credibility to be considered further.

e. Selecting the system and/or its relevant components

As part of the selection process, it is important to view the system in operation. Many vendors showcase their package using a canned demonstration, that is, one which is prepackaged and planned. The contract for the system needs to be carefully managed so that initial support and training are provided by vendor.

f. Implementing the knowledge management system

Chait acknowledges that successful system implementation relies on concerted support for change in four areas: content, culture, process and infrastructure (Chait, 2000). This approach ensures that there is acceptance of the change process to build stronger user and organizational awareness. The introduction of a new system needs to be managed as both a systemic flow and a cultural change

process. This may required more time discussing issues and identifying the required supportive infrastructure.

g. Promoting the knowledge system

Successful adoption relies on widespread recognition of value of the system change and the potential to support the individual's own interests. In other words, there needs to be a clear message that the change will benefit all concerned.

5. Conclusions

There are many different approaches toward knowledge management. Many concepts focus on social and cultural aspects only and ignore the role of technology. There are other approaches that are very technology-minded but provide no solutions to cultural challenges of knowledge management. Therefore, many companies have sophisticated concepts on how to manage knowledge, but have little understanding of how to implement and deploy them. The implementation of efficient knowledge management solution often proves to be very challenging.

Knowledge management systems are important components of the overall knowledge strategy, as they are the vehicle through which knowledge sharing and applications are accomplished. These systems are complex, as they evolve and adapt to many demands.

KMS need to be appropriate for the enterprise, and should recognize the organizational structure and context, as well as systemic issues. This may result in quite different strategies when developing a particular KMS.

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