THE EFFECTS AND THE ROLE OF INFORMATION TECHNOLOGY ON KNOWLEDGE MANAGEMENT SYSTEMS

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Abstract

Due to the rapid development of knowledge and information technology, business environments have become much more complicated. Information technology can help a firm aiming to gain a competitive advantage. This study explores the role and effect of information technology in the implementation of knowledge management system on firms and also relationships between knowledge management system and information technology. The two main role of information technology here is to help people share knowledge through common storage so as to achieve economic reuse of knowledge and help people locate each other and communicate so as to achieve complex knowledge transfer. Furthermore, this study discusses how to enhance the effectiveness and efficiency of implementing knowledge management system through appropriate information technology.

Keywords: Knowledge Management System, Information Technology, Knowledge Transfer, Sharing Knowledge.

Introduction

Knowledge has long ago been recognized as an important asset for sustaining competitive advantage. Recently, the use of information technologies within an organization has been identified, by many companies, as an important tool for managing or sharing organizational knowledge in order to improve business performance. However, most current empirical studies have explored the relationships among these three factors either in isolation or in pairs of two at a time. The knowledge management and information technology centred mainstreams appear to be equally valid in the manufacturing and service sectors. Many companies have tried, with varied achievement rates, to leverage knowledge assets by centralizing knowledge management functions or by investing heavily in information technology. In parallel, an increasing number of articles and research have proposed and tested models for the management of knowledge, with or without the support of information technologies. A considerably smaller number of such studies, though, have investigated into how companies can leverage knowledge in order to improve Business Performance.

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Knowledge Management

First, knowledge is a vital source for value to be added to business products and services and a key to gaining strategic competitive advantage. Second, explicit and tacit knowledge vary on their transferability, which also depends upon the capacity of the recipient to accumulate knowledge. Third, tacit knowledge rests inside individuals who have a certain learning capacity. The depth of knowledge required for knowledge creation sometimes needs to be sacrificed to the width of knowledge that production applications require. Forth, most knowledge, and especially explicit knowledge, when developed for a certain application ought to be made available to additional applications, for reasons of economy of scale.

Knowledge management is not the activity only for resources called knowledge, but the activity to consider how all resources are utilized. You have to make the new structure by repeating new discovery and new creation rather than storing knowledge and considering the combination. Creation can be performed only by people's capability instead of a system. when trying to manage organizational knowledge various types of information technology based systems have been devised, seemingly without much concern for the nature of knowledge or how knowledge is different from information. People convert data and knowledge into information for some purpose. They create new knowledge based on data and information. These conversion and creation require existing knowledge and some ability called intelligence[1].

Knowledge management is a collection of processes that govern the creation, dissemination, and utilization of knowledge in an organization. It involves the management of explicit knowledge and the provision of an enabling environment for the development, nurturing, utilization and sharing of employees’ tacit knowledge. Managers, consultants, information technology professionals and customers believe that they have finally discovered what makes organizations work: knowledge that invisible force that propels the most successful companies to stock market values which far exceed the visible assets of their financial balance sheet.

Thus, the knowledge movement has proposed to put knowledge on the balance sheet in the form of intangible assets that account for organizations’ intellectual capital. Such intangibles include: employees’ competence; the internal structure of organizations, given by their patents, their own models, concepts and processes, their administrative system and information technology infrastructure; their external structure, given by the relationships they have developed with customers and suppliers, their brand names, trademarks, image and reputation.

In today’s movement towards knowledge management, organizations are trying to best leverage their knowledge internally in the organization and externally to their customers and stakeholders. They are trying to capitalize on their organizational intelligence to maintain their competitive edge. the thrust of knowledge management is to create a process of valuing the organization’s intangible assets in order to best leverage knowledge internally and externally. Knowledge management, therefore, deals with creating, securing, capturing, coordinating, combining, retrieving, and distributing knowledge. The idea is to create a knowledge sharing environment whereby sharing knowledge is power as opposed to the old adage that, simply, knowledge is power.

The Role of Information Technology

To facilitate the implementation of knowledge management, a well-designed and operational knowledge management system should be in place. Such a knowledge management system should be built on existing computer and information technology infrastructures, including upgraded intranet, extranet, and Internet, and available software programs to facilitate the capture, analysis, organization, storage, and sharing of internal and external information resources for effective knowledge exchange among users, resource persons, publishers, government agencies, businesses and industries, and other organizations via multiple channels and layers. In recent years, many of the newly developed information technologies for database and information/document management can be utilized in knowledge management; such as, data warehousing, data mining, text mining, content management, knowledge extraction, knowledge mapping, groupware, and information visualization, etc[2].
The information technology infrastructure should provide a seamless “pipeline” for the flow of explicit knowledge through the 5 stages of the refining process to enable

- capturing knowledge,
- defining, storing, categorizing, indexing and linking digital objects corresponding to knowledge units,
- searching for ("pulling") and subscribing to ("pushing") relevant content,
- presenting content with sufficient flexibility to render it meaningful and applicable across multiple contexts of use.

Information technologies such as the World Wide Web offer a potentially useful environment within which to build a multimedia repository for rich, explicit knowledge. Input is captured by forms for assigning various labels, categories, and indices to each unit of knowledge. The structure is flexible enough to create knowledge units, indexed and linked using categories that reflect the structure of the contextual knowledge and the content of factual knowledge of the organization, displayed as flexible subsets via dynamically customizable views[3].

Effective use of information technology to communicate knowledge requires an organization to share an interpretive context. The more that communicators share similar knowledge, background and experience, the more effectively knowledge can be communicated via electronically mediated channels. At one extreme, the dissemination of explicit, factual knowledge within a stable community having a high degree of shared contextual knowledge can be accomplished through access to a central electronic repository. However, when interpretive context is moderately shared, or the knowledge exchanged is less explicit, or the community is loosely affiliated, then more interactive modes such as electronic mail or discussion databases are appropriate. When context is not well shared and knowledge is primarily tacit, communication and narrated experience is best supported with the richest and most interactive modes such as video conferencing or face-to-face conversation.

Information technologies, such as intranets, web portals, and groupware, are often used to facilitate the sharing of knowledge among a group of in an organization because of their capabilities in extending the reach as well as enhancing the speed of knowledge transfer. In most organizations, the key professionals involved in knowledge management activities are human resource managers, process & product developers, and information technologists[4].

**Knowledge Management and Information Technology**

Information technology supports knowledge management and includes a variety of devices and the connectivity that links them, in order to enable all forms of electronic communication. Our vision fosters the creation of a knowledge management environment to maximize the power of information technologies.

To achieve that vision:

- Data gathering takes place once, accurately, and at the original source. Data is integrated and is gathered in anticipation of future needs.
- Information is available in a timely, useful, and intuitive way to those with the need to know.

There is an ongoing lively debate about the role that information technology can play for knowledge management. On the one hand, information technology is used pervasively in organizations, and thus qualifies as a natural medium for the flow of knowledge. A recent study from the American Productivity and Quality Center shows that organizations embarking in knowledge management efforts generally rely, for accomplishing their goals, on the setting up of a suitable information technology infrastructure[5,6].

The danger that this viewpoint sees is that information technology driven knowledge management strategies may end up objectifying and calcifying knowledge into static, inert information, thus disregarding altogether the role of tacit knowledge. Knowledge management strategies of this type would bring back the ghost of the infamous, and none too far in time, re-engineering days, when the corporate motto was “More information technology, less people!”; they conjure grim scenarios of organizations with enough memory to remember everything and not enough intelligence to do anything with it[7].
The best way of applying information technology to knowledge management is probably a combination of two factors: on the one hand, the awareness of the limits of information technology, and of the fact that any information technology deployment will not achieve much, if it is not accompanied by a global cultural change toward knowledge values; on the other hand, the availability of information technologies that have been expressly designed with knowledge management in view. Researchers from information science have been trying to establish their own knowledge science using the rapid developing information and communication technology. There is a hierarchy of knowledge science from the viewpoint of information scientists. At the bottom, there is the foundation of information engineering, and at the second level, there are elements of knowledge science, and then these are objects of knowledge science, finally, there are many applications.

Conclusion

In the business world, knowledge management has been regarded as strategically important for organizations to gain a competitive advantage over their competitors, to add value to their products, and to win greater satisfaction from their customers. Knowledge management is as important for libraries as for the businesses minus the competitive, proprietary, and moneymaking concerns. Many of such knowledge and skills of librarianship can be applied to knowledge management. Information technology and systems can provide effective support in implementing knowledge management. Furthermore, knowledge management should never be viewed as a way to control the process of knowledge creation. By the name of knowledge science, we are developing methodologies and methods related to information environment with which we can convert subjective, implicit or individual ideas into justifiable or hopefully reliable ones. This is not necessarily implies the utilization of information technology only. The methods and ideas in knowledge science should be those that guarantee justifiable trans-disciplinary knowledge exchange. The role of systems science is crucial for development of knowledge science.

Reference