

# Technology and Knowledge Management

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## INTRODUCTION

Rapid and extensive advances in technology, particularly in the area of communications, have had a considerable impact on the way organizations operate and opened pathways to access vast amounts of information. Information, however, is static unless knowledge is applied to translate it into something meaningful and with the potential to be actionable. From the time organizations commence business, they accumulate information about the markets in which they operate, yet often, knowledge is not applied in a way that it can be exploited to bring benefit. The ability to share knowledge, to develop ideas, and to become more innovative is increasingly important for businesses, and the range of technologies now available provides a conduit for knowledge to flow through the organization to enable sharing to occur. Technology is frequently referred to as “just an enabler,” but it can also be identified as a value-adder.

## INFORMATION AND KNOWLEDGE

In their paper, Evans and Wurster (1997, p. 71) referred to changes that had taken place over the previous 10 years as organizations adapted their “operating processes” to “information technologies,” recognizing that accessing information was going to have an important bearing on where industries would be going in the future. During this period, technology was moving forward at a rapid rate, and organizations were investing huge sums of money in information technology.

Information is defined as facts and data organized to describe a particular situation or problem. The definition used for knowledge is that by Davenport and Prusak (1998):

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms. (p. 5)

Connectivity, it is suggested by Evans and Wurster (1997), provided the most important change in the infor-

mation revolution: “What is truly revolutionary about the explosion in connectivity is the possibility it offers to unbundle information from its physical carrier” (p. 73). Amidon (1997) referred to the major change from information processing to knowledge processing that has taken place, “which includes the concepts of learning tools, intelligent electronic coaching, decision-making systems, and more” (p. 87). The availability of such tools, and their ongoing development, add considerable value to an organization by providing a means through which more efficient and effective management techniques can be introduced. This evolving of expectations indicates that organizations are not only anticipating more from technology but are also becoming more reliant upon it.

As interest grows beyond information per se, organizations are looking to technology to progress toward the development of knowledge management systems. Bhatt (2001) referred to business managers who believe computers and communication technologies provide an avenue for the harvesting of knowledge from data repositories of organizations, while other managers say knowledge “resides in human minds, and therefore, employee training and motivation are the key factors to knowledge management” (p. 68). The development of technology has taken the drudgery out of searching, analyzing, and converting data into information to which knowledge can be applied.

Technology and knowledge, however, do not stand in isolation. There are many interacting factors, not least of which is the environment in which the organisation operates. According to Bhatt (2001), the “...pattern of interaction between technologies, techniques and people is unique to an organization” (p. 69). Such uniqueness is important, because it is not easy to replicate. The organisation that promotes the value of the knowledge, skills, and competencies of its people, and recognizes the importance of technology, is providing well for its future (Carneiro, 2000; Bhatt, 2001).

From a productivity perspective, Grant (2000) indicated the value of digital technology. He referred to knowledge no longer being held exclusively by people. Codification and use of technology provides the opportunity for knowledge replication. While costly to create, replication and distribution can be reduced to almost “zero marginal cost” (Grant, 2000, p. 32). In the long term, and with the arrival of new technologies, the rate of

productivity growth is likely to accelerate (Grant, 2000). People have skills and knowledge, but it is technology that enables them to access in a timely manner huge amounts of data available both internally and externally to the organization. While technology enables people to access data, the added value comes in its ability to allow the data to be assembled in a meaningful way for the purpose of decision making.

### SHARING KNOWLEDGE

An environment in which knowledge sharing is encouraged leads to the creation of new knowledge, but as Marshall, Prusak, and Shpilberg (1996) indicated, it is not easy to encourage voluntary sharing of knowledge by employees. An organisation that develops a knowledge-sharing environment increases opportunities for the creation of new ideas that have the potential to add value to it.

Barriers to sharing knowledge exist, and for managers advocating knowledge sharing, they should examine the existing practices within the organization. It is possible that somewhere in the organization, the “knowledge is power” syndrome exists, and if so, it does not auger well for knowledge sharing. There may also be concern over job security, “if I share my knowledge, I am no longer of value to the organization, and therefore, my job will be in jeopardy.” A barrier to knowledge sharing may simply rest on the premise that a person may not realize that knowledge acquired in another situation could be of value to the organization. Managers may need to look to changing the organizational culture to one that recognizes, and acknowledges, the value of shared knowledge.

Bhatt (2001), referring to the need for the distribution and sharing of knowledge throughout the organisation, suggested that interactions among technologies, techniques, and people have a direct bearing on the effectiveness of the distribution of knowledge.

### RANGE OF TECHNOLOGIES

According to Frappaola and Capshaw (1999): “Knowledge management refers to the practices and technologies that facilitate the efficient creation and exchange of knowledge on an organizational level” (p. 44).

From the literature, it appears that there are a number of applications specifically designed for sharing knowledge (Davenport, 1997; LaPlante, 1997; Fahey & Prusak, 1998). The benefits of applications, such as groupware, data warehousing, knowledge maps, client server systems, and chat rooms, are recognized as providing the

means through which knowledge can be shared. A useful aspect of such applications is that they allow for interaction and sharing of information that is highly unstructured in nature (Shani, Sena, & Stebbins, 2000). Research carried out by Mitchell in 1999 indicated that people are finding groupware applications useful mechanisms for sharing knowledge.

A number of writers, Allee (1997), Amidon (1997), Marshall (1997), Watt (1997), and Davenport and Prusak (1998), refer to the intranet as providing channels through which organizational knowledge can flow. E-mail is now well accepted as a useful and valuable medium of communication, and for knowledge to flow through an organization (Bontis, Fearon, & Hishon, 2003). The advent of electronic conferencing provides an avenue through which people geographically dispersed can interact without the time and cost involved in traveling. Networking, bulletin boards, and the establishment of virtual teams also provide opportunities for people to interact over distances and to share knowledge.

Reference is made by Beckett (2000) to the “Data warehousing knowledge set” containing reference data, defined as market trends, operational data, and customer performance needs. From this knowledge set, actions can be taken that ultimately benefit stakeholders and customers. While the knowledge set may be considerable, ideally, its value only becomes realistic when there is in place the means to allow for the “free” flow of knowledge throughout the organisation and when there are people who can recognize that value can be gained from it. It is most unlikely that organizations allow for a free flow of knowledge, because issues such as privacy and confidentiality, “need to know,” and other constraints restrict access to knowledge. However, providing access to knowledge that can be made available should be the aim of organizations wanting to encourage a knowledge-sharing environment.

Technology has opened avenues to the customer to search for opportunities and products that may better serve their needs. The opportunity, however, is also open to the organization to exploit the potential of technology to create greater value for its customers.

### KNOWLEDGE MANAGEMENT STRATEGY

Hansen, Nohria, and Tierney (1999) identified management consultants as being among the first to recognize the potential of information technology for the capture and dissemination of knowledge. It was found that organizations tend to employ two very different strategies for the management of knowledge. One is the “codification strat-

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