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STRATEGICALLY-FOCUSED ENTERPRISE KNOWLEDGE MANAGEMENT

Robert J. Mockler, Joseph F. Adams Professor of Management, Tobin College of Business, Graduate School of Business, St. John's University, 114 East 90th Street (1B), New York, NY 10128, Tel: (212) 876-5856, Fax: (212) 996-6976, E-mail: mocklerr@stjohns.edu
Dorothy G. Dologite, Professor, Computer Information Systems, School of Business, Department of Statistics and Computer Information Systems, Baruch College, City University of New York, 17 Lexington Avenue, New York, New York 10010, Tel: (212) 802-6232, Fax: (212) 996-6967, E-mail: Dorothy_Dologite@baruch.cuny.edu

ABSTRACT

This paper describes the characteristics and types of strategically focused knowledge management systems and the key conditions affecting their development and success. The discussion, which is based around company examples, focuses on various strategic management uses of these systems. The knowledge management process is designed to increase profitability and competitive advantage in the marketplace.

INTRODUCTION

Narrowly defined, knowledge refers to practical skills or expertise gained from actual experience, as shown in Figure 1. In practice, however, knowledge management generally refers to the process of identifying and generating, systematically gathering, organizing and providing access to, and putting to use anything and everything which might be useful to *know* when *performing* some specified business activity. The knowledge management process is designed to increase profitability and competitive advantage in the marketplace.

Figure 1
BASIC DEFINITION

Knowledge: includes data and information (organized data which is relevant and purposeful), and knowing how to apply and use that information and data. The term "ledge" means to put to work or apply. The word knowledge, therefore, means knowing how to put to work what we know, and so in popular usage can in certain situations encompass information and data.

The following is a composite of various definitions found in Webster's dictionary and in writings on the subject by a variety of commentators. As seen from these definitions or descriptions of the connotations of the terms, it is useful to distinguish rigidly among many of the concepts only in selective clearly circumscribed situations.

Data: something given or admitted as a fact on which an inference may be based. Simple observations of the world, which are often quantified, and easily structured, captured on machines, and transferred. The number of "baby boomers" born in a given year is data.

Information: knowledge derived from reading, observation or instruction, at times consisting of unorganized or unrelated facts or data. Data endowed with relevance and purpose, for example, a firm's balance sheet and income statement.

Knowledge: familiarity gained by actual experience, practical skill, or expertise. The act, or state, of understanding. Valuable information arising from reflection, synthesis, and other cognitive activities of the human mind. It is often, but not always, hard to structure, difficult to capture on machines, sometimes tacit, and hard to transfer.

Intelligence: information, news, and advice. Brain power or cognitive skills. IBM uses the term "Business Intelligence Systems" to describe their mixed integrated knowledge systems.

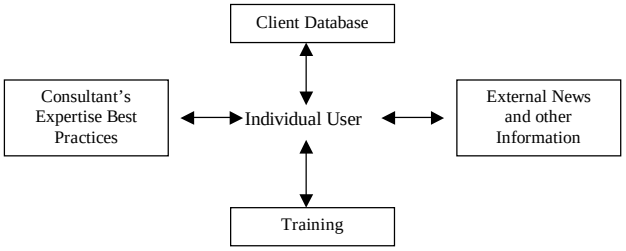
Technology: applied science, systematically organized knowledge.

Part of the difficulty in defining "knowledge" arises from the fact that "inform" and "know" refer to just about anything, which makes it difficult to foist a strict definition of "knowledge" onto the average reader.

As seen from Figure 1, which includes both commentators' and ***Webster's Dictionary's*** [2000] definitions of relevant terms, since the knowledge management process involves keeping informed about and getting to know anything useful to doing a business task, the process can encompass data, information, and knowledge. Further, the knowledge management process can involve employing any useful and practical means of communication and storage, manual or electronic. Useful manual means might include: service manuals; professional publications; personal correspondence and conversations; special studies and reports; client correspondence and summaries; competitor role playing; sales force feedback; current news; supplier feedback; and the like. Useful computer-based electronic technologies might include: e-mail; hierarchical, network, and relational databases and data warehouses; group decision support systems; Lotus Notes; intranets and internet web sites; browsers and search engines; expert and knowledge-based systems; and the like.

Because of the wide range of concepts and activities involved, the term knowledge management can more easily be understood by examples. Figure 2 outlines the knowledge management system (KMS) at a large consulting firm [Engoron 1998]. The strategic focus is the individual consultant who needs access to data, information, and knowledge in order to do his/her job. Since consulting is its business, the system is strategic. The system provides this access in large part electronically.

Figure 2
THE KNOWLEDGE MANAGEMENT SYSTEM AT A MAJOR CONSULTING FIRM



At the top of Figure 2 is a large computer database of information about clients, covering past assignments, consultants who worked on the assigned projects, outcomes, organized data on the company involved, and contacts who can provide further information. On the right, there is a system incorporating expert knowledge-based systems which scans news media and library resources daily and daily directs relevant intelligence material to different consultants [Newing 1999]. On the left is a database of consultants' expertise or knowledge including that acquired from experience during past assignments. This includes written summaries of what was learned from the assignments, videos in which consultants describe the highlights of their experiences or general knowledge, and contingent best practices guidelines in different areas (such as strategic alliances, all marketing and production areas, human resources management, and the like). At the bottom, there is available a bank of online training programs, which a consultant can make use of (privately) to sharpen skills needed to improve job performance.

On any given day that a consultant receives a new assignment, he/she could immediately review current relevant information in the media (intelligence) about the client and project area, gather information quickly about the client and past assignments involving the client, review the related knowledge expertise of other consultants, and brush up on needed skills. It is not hard to envision the enormous amount of preparation time the firm's composite knowledge management system saves and the speed with which a consultant is able to be ready to start an assignment – often a very critical factor when the assignment involves an emergency. At the same time, the consultant would make use of any relevant personal knowledge sources. The system is a good example of using a knowledge system to strategically manage resources – that is of a strategic management knowledge system.

Not all knowledge management systems are that complex or that *multidimensional* in scope. Some are narrowly *focused* on single activities. For example, Xerox in 1996 developed Eureka, an intranet communication system linked with a traditional corporate *computer database* that helps service representatives share repair tips, that is, knowledge. To date, more than 500 tips have been entered by Xerox technicians, and this practical knowledge is available to all via their laptops. For employees scattered around the world who travel often, the ability to share such know how means they don't have to miss out on the kind of knowledge typically exchanged at the watercooler [Hickens 1999].

A number of key characteristics of knowledge management can be identified from company experiences. These can apply to strategic and operational knowledge systems. First, the *types of knowledge management systems vary* considerably depending on the company situation requirements, a *contingency perspective*. Second, *knowledge generation* involves identifying knowledge relevant to strategic business activities, as well as its source and the way it is used or exploited. Third, *structuring* refers to designing knowledge management systems to capture and deliver the knowledge generated; such structures can range from simple ones involving individual business process areas, as at Xerox, to multidimensional complex enterprise-wide ones, as at the consulting firm. Their content can involve any company activity/business process or combination of them. Fourth, *diffusing* or communicating any type of relevant data, information, or knowledge involves transferring and absorbing knowledge to put it to work. In the company experiences studied, the main means of diffusion was electronic and audio/video tools. Knowledge is also very often continually transferred and absorbed informally through personal interaction.

The success of KMS is highly dependent on the *strategic fit* of structure and content with strategic requirements or critical success factors in the situation. The success of knowledge management also depends on the participation of *people sharing their knowledge* expertise with others, which in turn can depend on the way the system is designed, implemented, and managed *(the operational fit*), as well as on the degree to which a firm has a "learning" *organization culture* [Lucier and Torsilieri 1997]. Nurturing this sharing culture requires active leadership by a knowledge management champion, since very often people are reluctant to share their expertise [Manchester 1999(B)]. Like the structure, content, strategic and operational fit, design, implementation, organization, participation, management, and use or exploitation, the *enabling tools or technologies* used are contingent on the requirements of the situation. The following sections cover these basic knowledge management areas.

THE MAJOR TYPES OF KNOWLEDGE MANAGEMENT SYSTEMS

The following discussion describes a range or systems now in use by business. Many of the systems described in this paper were originally computer information systems to which were added knowledge expertise which complemented the information and data communicated. As use of the Internet expanded and intranets within companies were developed, many new knowledge expertise exchange systems were established. As seen in the above and following discussions, many knowledge systems are therefore *mixed*, that is, *integrated with traditional information and decision support systems*, as at the consulting firm, while many such as Xerox's focus specifically on expertise knowledge storage and transfer and so can be designated *focused* knowledge management systems. Expert knowledge based systems generally are *pure* knowledge systems [Mockler 1992, 1996; Mockler and Dologite 1992].

The Ford Motor Company case provides an example of how at a large firm the company-wide strategic knowledge systems are closely linked to and dependent on computer information systems [Austin 1997, 1999]. Ford is a multinational company with hundreds of locations in every major country. As part of an integration program in the early 1990s, computer information systems at Ford were standardized across the company, which enabled installation of an external Internet network – Extranet – with appropriate Web sites linking Ford with its suppliers and with its customers. Most of these were used initially for communication of information on available models, prices and availability of supplies, and other information (that is, targeted organized data). It also enabled development of an internal company Intranet system which also focused mainly on information conveyance initially.

The system also, however, served as a basis upon which to develop broader more strategic knowledge systems. For example, in the design area, as auto design and development facilities were more closely coordinated worldwide, knowledge about solving design problems and inconsistencies could now be resolved using the Intranet, a knowledge exchange process based on experiential expertise. Knowledge about lessons learned from experience in other business process areas, such as manufacturing, could also now be exchanged, since a worldwide system with Web sites was in place. Ford in early 1999, was exploring adding even more knowledge dimensions to their existing information systems structure.

Complex strategic knowledge management systems can also focus on critical business activity areas. For example, strategic alliances are extremely important to multinational companies today [Mockler 1999; Sparks 1999]. They involve, however, com-

plex human and business processes whose management requires in-depth expertise gained from experience. Capturing this developing knowledge base is a knowledge management activity. As a company undertakes alliances and begins learning from successes and failures, leaders in alliance management within a company emerge. These leaders, who are essentially gurus with experience and knowledge gained from experience, are the firm's initial imbedded alliance expertise capability. This initial experiential expert knowledge base in successful firms is extended in several ways. First, formal processes and procedures and a staff capable of managing alliance processes are developed. This is the initial knowledge depository for future use. The steps taken to collect, store, and disseminate this knowledge and to train people in order to further institutionalize alliance capabilities vary at different firms [Harbison and Pekar 1997 (A,B,C); Pekar and Harbison 1998].

Hewlett-Packard (H-P), for example, found that general seminars for managers on alliances were not enough. Managers needed H-P specific information on the best practices guidelines developed from H-P alliance experiences. A database of case histories, tools kits, checklists, and best practices was, therefore, developed and incorporated into training seminars. This database material was supplemented with studies of the best practices of other companies [Harbison and Pekar 1997 (A,B,C)].

In general, such a knowledge database would include a specific company's experiences with each of its alliance partners in each of the applicable best practices guidelines areas, areas which are outlined in alliance guidebooks [Mockler 1999]. These areas include strategic planning, negotiation, alliance structures and contracts, operational planning and management, and control. Companies, such as Ford, IBM, and Dun & Bradstreet, are in various stages of creating such company-specific database repositories; most often these are mixed systems – using computers and other approaches, as for example at H-P. The alliance knowledge databases include information on alliance partners, market reactions to alliance moves, and press releases related to company alliance. Several companies, such as Booz-Allen & Hamilton and Xerox, have created Web sites to disseminate alliance knowledge bases, Web sites which are accessible from laptop computers by consultants or service personnel at clients' offices [Harbison and Pekar 1997 (A,B,C,)].

As part of their strategic knowledge management systems, dissemination of this knowledge is usually supplemented through seminars and workshops. BellSouth, for example, has offered a two-day alliance workshop for 150 senior managers, a major means of developing personal information networks to encourage ongoing knowledge dissemination. H-P has conducted 50 two-day seminars on alliances for its top 1000 executives prior to 1999 [Harbison and Pekar 1997 (A,B,C,)].

CONCLUSION

These strategic alliance experiences are included here to illustrate the extent to which knowledge management, while using computer technology, goes well beyond it. First, supplemental knowledge dissemination approaches, such as seminars and workshops, are used where appropriate. Second, these supplemental approaches are used to communicate information on the field experiences which led to the knowledge developed, and so in this way help the users to acquire the knowledge in a more systematic, in depth, meaningful way. Third, knowledge repositories can include audio/video material and documents such as manuals. It is an example of the way in which knowledge systems, though related to and reliant on computer information systems, are more than computer information systems and build the intellectual capital of a firm in a way computer information systems by themselves cannot. these experiences also show that the concept "knowledge management" as used in general encompasses all useful forms of knowledge, information, and data.

As also seen in these experiences, for any type of strategic knowledge management effort to work, corporate culture must be favorable to the transfer of knowledge, that is, there must be a learning environment [Manchester 1999(A)]. This culture involves both the willingness of experts to reveal their expertise (and take the time to do that) as well as the willingness of people to listen to and absorb the expertise, which also takes time and a personality receptive to change [Glasser 1999].

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