In Search of a Corporate Memory

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Introduction

Much has been written of late, concerning the topic of Knowledge Management (KM). Confusion over what actually constitutes KM has caused U.S. industry to invest over one trillion dollars in technology over the past two decades, while realizing little improvement in the efficiency and effectiveness of its KM workers (Malhotra, 2000). For those professionals who have not had previous exposure to KM, a simple definition is provided. KM is defined as a formal, directed process of figuring out what information a company has that could benefit others in the company, then devising ways of making it easily available (Von Hoffman, 1999). Whereas Information Management focuses primarily on data and data access, KM expands the focus to the process of how people create the data, and also how they use the data (Bukowitz & William, 2000). Information Management could therefore be considered a subset of KM.

Organizations should not only be concerned with knowledge itself, but also with the nature of the knowledge, either explicit or implicit knowledge. Explicit knowledge is the kind of information that can be captured and codified for general use, whereas implicit, also known as tacit knowledge, is the kind that is needed to generate new insights and creative ways of tackling business problems or opportunities (Hansen & Oetinger, 2001).

As a healthcare executive having worked in a variety of administrative settings, one management dilemma that continues to surface, relates to the issue of developing corporate knowledge. As a healthcare executive, I am certain that other executives have encountered at least one of the following KM concerns identified in table 1.

Table 1
KM concerns

Event	Result
Employee leaves the company	Organization loses valuable employee knowledge
New manager is hired	Staff attempt to locate archived information to orientate new manager
New disparate computer resource is added onto the network	Information collection and archival becomes fragmented
Critical information is not archived	Loss of information, loss of productivity

The overall impact associated with each of these examples is a duplication of effort on behalf of the organization. This translates into a management dilemma of a loss of employee/corporate productivity and perhaps corporate profits. As a healthcare executive, one must ask where to begin on this journey towards developing a corporate memory.

Corporate KM Development

A 1997 survey of 200 large U.S. corporations by CAP Ventures, a strategic consulting firm, found that over 80 percent of respondents had knowledge management initiatives in place or under development, while most of the others were giving serious consideration to implementing knowledge management programs (Saffady, 2000). Development of a formal KM program can be a daunting task for companies, considering its multi-faceted nature. KM does not operate within a vacuum; rather KM has intricate relationships within the social, organizational and managerial culture of an organization, as well as within the underlying technical infrastructure of a company.

In order for a new KM program to succeed, the program must be embedded within the social, managerial and organizational culture of an organization. Socially, people must be willing and motivated to participate and collaborate in electronic information exchange (Bukowitz & William, 2000). Managerially, there must be a commitment from supervisors to encourage contribution, sharing and archival of information. Organizationally, these practices should become embedded within the business and strategic plans of an organization. When beginning to explore the development of a KM program, all elements including the physical (technology), social (people), and virtual (knowledge) nature of the project should be identified and considered.

KM Solutions

In 1999, the American Productivity and Quality Center (APQC) conducted a benchmarking study to ascertain how best practice organizations create an environment that encourages knowledge sharing to take place. The APQC found that simply using information technology is not enough (Comeau-Kirschner, 2000). According to Baltazar (2001), if you can't get your employees to capture their information within the framework of a corporate network, no technology will make that information available. Analysts place failure rates of knowledge management systems at between 20% and 50% of all projects implemented (Bort, 2001). Herein lies the problem for organizations embarking on development of new KM programs. Do companies invest their efforts into transforming corporate culture, KM technology, or a combination of both?

Although there is a proliferation of commercial off-the-shelf KM solutions, no one solution will meet the KM needs for every organization. Each company is unique in nature and thus has uniquely defined KM requirements. As such, companies will have to determine which KM solution(s) will work best for the organization. All KM solutions will typically include the addition of some type of new software and possibly hardware components. Typically included within most KM solutions are some of the following features: data-warehousing, data-mining, web-portals, intelligent agents, and document managers. A data warehouse is essentially a large-scale central database loaded with information from multiple operating databases, for the express purpose of easy and end-user access and decision support (Data Warehousing, 1997). The data mining process provides the interface between the data warehouse and the specific type of information that is desired; search engines and web browsers provide the user with a tool for locating and accessing specific data. Closely associated with data mining is the concept of a web-portal. A web-portal can provide internal customers such as employees, and external customers such as patients with a common access interface to the informational resources they desire. The web portal relies upon a back-end server, e.g. database, application, file server, etc. to provide the necessary data. A web-portal presence can provide a robust knowledge dissemination tool for internal customers as well as an E-commerce/E-business platform for the healthcare organization. The necessity for a web-portal presence may be dictated as personal use of the Internet continues to grow, and web-based electronic transactions become more ubiquitous.

Intelligent agents differ from data mining in that intelligent agents use a combination of profiling techniques, search tools, and recognition algorithms to provide "push" information to the decision maker on a regular basis (Stawser, 2000). Finally, document managers provide some standardization for how the data is actually organized within the data warehouse. In other words, document managers are the librarians of the knowledge base; they provide check-in and checkout facilities, with indexing and categorization capabilities—crucial for ensuring that information are current and accessible (Stawser, 2000). Closely aligned with document management is the desire to structure data resources into some type of common data format such as Extensible Markup Language (XML).

Several examples of successful KM programs were discovered during the literature review of the subject matter. Two companies that were identified as having benchmark KM programs were Xerox and Arthur D. Little Consulting. At Xerox, KM is not technology driven rather, internal KM experts in the company say that 80 percent of designing KM systems involves adapting to the social dynamics of the workplace; only 20 percent involves technology as the enabling mechanism (Hickens, 1999). Today, Xerox is one of the top five "Most Admired Knowledge Enterprises" chosen by senior executives at Fortune's 500 companies (Hickens, 1999). In 1996, the company developed Eureka, an intranet based communication system linked with a corporate database that helps service repair technicians share repair tips. To date, more than 5,000 tips have been entered by Xerox technicians, and they are available to all technicians via their laptop computers (Hickens, 1999). Docushare is another example of a Xerox KM initiative. The tool was developed in 1996 to enable 500-plus employees at Xerox's research labs to share information. The program is now available company-wide and allows work teams to create a virtual, 3-D office space on the corporate intranet, where visitors can navigate through and access filing cabinets containing electronic documents.

According to Arthur D. Little, head of the premier consulting firm in the United States, the computer system is just one element in a broad initiative to maximize the potential of their knowledge resources. In addition to hardware and software, the consulting firm concerns itself with issues of content, culture and process; the technology provides only about 20% of the overall solution (Chait, 1999). Since the company cannot physically link its 3,000 staff members, they have built virtual links using a state-of-the-art, web-enabled system. The information system known as ADL Link, is designed to connect people worldwide for learning, information, and knowledge sharing. The ADL link is a Lotus Notes application hosted on a series of Domino servers and is available to staff members via Netscape Navigator browser through a global wide-area network (Chait, 1999).

KM Program Development

As technophiles and Information Technology (IT) managers, we have to remember that there is a reason "information" comes before technology in IT; if you can't get your employees to capture their information within the framework of a corporate network, no technology will make that information available (Baltazar, 2001). According to Greengard, (1998) there are three major cultural barriers faced by new KM initiatives. The first is that people are usually not inclined to share their brightest ideas. The second is that people refuse to rely on others' ideas because doing so might make them seem less knowledgeable and more dependent on others. The last hindrance is that people see themselves as experts and refuse collaboration. One of the first steps that a company might take to begin to explore their knowledge resources is to conduct a KM audit. A KM audit entails interviewing target users to find out what's going on in their heads, where the knowledge is created, how it is being created, and how it is being used (Bort, 2001). Often times, companies create an application, and then impose it upon people and expect them to adapt. If you take a look at how people are naturally sharing information and build a system that supports that, you're more likely to be successful (Hildebrand, 2000). A KM audit will also allow you to assign a level of strategic significance or importance to those knowledge assets using the organizational data already established. This ensures that you know not only what knowledge exists, but also that you identify those resources that are critical to the success of the organization (Henczel, 2001). Incorporated within the knowledge audit are three types of audits: the needs analysis, the information audit and the knowledge audit (Henczel, 2001). The needs analysis is a process by which information users are asked precisely what information resources or services they need to perform their job. The information audit goes one step further in not only finding out what information resources and services people need to do their jobs, but how those information resources and services are actually used. The challenge is that people are contributing valuable information, not just reams of information. KM can collapse under information overload (Greengard, 1998). When an organization is unaware of the strategic significance of its knowledge assets, it manages everything rather than what is necessary to manage. The direct costs increase as the program requires more people and technical resources and the indirect costs increase as the program is unable to identify strategically significant knowledge (Henczel, 2001). Finally, a knowledge audit will allow an organization to assign a level of strategic significance or importance to those knowledge assets using the organizational data already established. This ensures that you not only know what knowledge assets exist, but that you identify those that are critical to the success of the organization (Henczel, 2001).

Once the KM audit is complete, the company will have a baseline to represent what the company's information resources look like. From there, a company will need to identify which information resources are most critical, determine how to convert the information into knowledge, and finally, must align their knowledge resources with their corporate strategy. In research that was conducted with more than 25 firms, strategy was the most important context for guiding KM programs (Zack, 1999). In practice, the link between knowledge management and business strategy has been widely ignored (Zack, 1999). The starting point for the strategic alignment process is to develop an appropriate corporate KM strategy. You don't succeed by simply introducing an intranet and telling people to share information. According to Greengard, (1998) you find ways to provide value for both the individual and the organization (Greengard, 1998). Without a corporate philosophy that embraces learning and sharing, even the best KM technologies won't put you ahead of the competition (Hickens, 1999).

One tool that is readily available to assist with development of a KM strategy is the Strengths (S), Weaknesses (W), Opportunities (O) and Threats (T) or SWOT method of evaluation. Strengths and weaknesses represent what the company can do, while opportunities and threats dictate what they must do. Companies use SWOT to map their knowledge resources and capabilities against their strategic opportunities and threats to better understand their points of advantage and weaknesses. They can use this map to strategically guide their KM efforts, bolster their knowledge advantages and reduce their knowledge weaknesses. Having mapped the firm's competitive knowledge position, an organization can perform a gap analysis to determine what knowledge gaps they might have. The greater the number, variety or size of the current and future knowledge gaps, and the more volatile the knowledge base, the more aggressive the knowledge strategy that will be required (Zack, 1998).

Once a KM strategy has been developed, a company must ensure that the strategic vision links with the organizational objectives and strategies. The people must then be aligned with the vision. And finally, the alignment must be present from the top down and all across the organization (Chait, 1999). Managing knowledge is a multidimensional process. It requires the effective concurrent management of four domains: content, culture, process and infrastructure (Chait, 1999). A firm's senior leaders must actively share their knowledge management vision and provide support for the KM program. At Xerox, this has translated into senior managers adopting a hands-off policy towards KM projects to ensure that the process of innovation isn't hindered by bureaucracy or budgetary considerations (Hickens, 1999). Xerox assumes that KM initiatives can be as low tech as notes on a refrigerator door or as high-tech as its intranet-based virtual office solutions. Xerox's KM implementation strategy is based on aligning knowledge sharing with business goals and allowing workplace habits, not IT, to drive the process (Hickens, 1999). Likewise at Siemens, the company has shown that its top management is behind their KM program by appointing 100 internal KM champions. These champions are drawn from all units across the nation and are responsible for answering questions, and monitoring their KM program (Sharing the Wealth, 2001). At

Buckman Laboratories, managers learned that they no longer were responsible for overseeing the flow of information within the company. In contrast, they were now responsible for helping their employees get the information they needed. Early on, the company began offering workshops to communicate the power of KM. The organizations top executives immediately began contributing to forums and discussion groups to show management's unwavering commitment to KM (Greengard, 1998).

Measuring KM Success

Evaluating the success of a new KM program can be a difficult proposition due to the variances in time between initial development and maturity. According to the consulting firm Ernst and Young, development of new KM programs can vary considerably among consulting agencies. A KM project should take between 20 and 26 weeks, but Ernst and Young advise companies that they should spend between six months and a year to develop a carefully planned and constructed KM program (Zerega, 1998).

Once the appropriate tools are in place, i.e. technology, business strategy, culture, etc., a company must find some way to determine whether their KM program is successful and whether or not there is enough justification to continue expenditures on KM. Perhaps one of the simplest measures of success of a KM program, is the degree to which employees utilize a KM system to either contribute or mine useful data. The previously cited Xerox Eureka program shows an example of this measure of success. Xerox discovered that their technicians were more than happy to add tips to the Eureka database because they received credit for their contributions, which enhanced their standing among their colleagues. When management suggested attaching financial incentives to the tips, technicians resisted the idea. They felt that this would diminish the value of their contributions (Hickens, 1999).

For Hill and Knowlton, an international public relations and public affairs firm, a successful KM program is measured by the number of repeatable high-margin projects with clients, based upon the knowledge that has been captured through use of their KM program (Berry, 2000). Hill and Knowlton have been rewarding contributors to their KM program with Beenz from Beenz.com. Beenz are virtual dollars that can be used for the purchase of various awards such as magazine subscriptions, compact disks, and other consumer products. What the company has learned is that the relative value of a Beenz reward is more important than the absolute number awarded for a knowledge contribution (Berry, 2000). When it comes to rating its KM program, IBM benchmarks its success based upon the number of unique employee hits to the company's data repository. Using the software program Lotus Notes, IBM is able to develop metrics which will show how popular a piece of knowledge is by the number of hits or downloads that the contribution has received (Berry, 2000). IBM has gone one step further by offering a knowledge-for-compensation program. IBM offers compensation for knowledge in three broad categories: actions taken to win in the marketplace, actions taken for flawless execution internally and externally, and actions taken to encourage collaboration outside the employee's department, division or IBM itself (Berry, 2000).

In addition to the internal measurement of employee's willingness to contribute and make use of knowledge within a KM program comes the management concern of financial ROI. It is clear from the literature that there are numerous examples of companies that attribute a high level of financial ROI in relation to their KM investment.

Since 1991, Chevron has cut its annual operating expenses by about $1.8 billion, reduced its per barrel oil cost by 7% and its overall cost structure by $400 million (Bicknell, 1999). Chevron has done this through use of its KM program to share best practices throughout the company. By using best practices, Chevron can cut costs, reduce production cycle times, and still grow in targeted areas. The Chevron knowledge-sharing program is estimated to have resulted in a 15% improvement in capital efficiency since 1991 (Bickinell, 1999).

Another good example of ROI can be found within the Texas Instruments Company. Despite a booming semiconductor industry in the nineties, Texas Instruments was reluctant to build a costly new fabrication plant, given the dynamic nature of the market. Texas Instruments instead developed a knowledge-sharing program similar to Chevrons'. Texas Instruments focused on learning to produce more and different types of semiconductors without building additional semiconductor plants. Through this effort, Texas Instruments has saved more than $1 billion dollars by disseminating best practices throughout its existing semiconductor plants (Von Hoffman, 1999). Further examples of ROI can be found within the Siemens Corporation. Siemens has over 461,000 employees spread throughout the globe. The company has managed to develop a corporate KM program called ShareNet (Sharing the Wealth, 2001). ShareNet is basically a website that combines elements of a chat room, a database, and a search engine. Since its inception in 1999, ShareNet has been utilized by over 12,000 sales personnel working for their Information and Communications Networks Group, which provides telecommunications equipment and services. ShareNet has cost the Siemens company roughly $7.8 million dollars, but has added $122 million dollars in sales through use of the ShareNet KM program (Sharing the Wealth, 2001).

Dell Computer Corporation is a final example of how development of a KM program can have a tremendous financial ROI. From 1989 to 1998, Dell's working capital moved from a positive 70 days to a negative 11 days due to implementation of a KM program (Sviokla, 2001). What enabled such a dramatic change was the knowledge that Dell gained about computer configuration, customer demand, parts availability and supplier quality. Dell uses the knowledge of what customers want through their telephone and website orders and makes that knowledge available for its suppliers who make and assemble the parts. When Dell passes along the knowledge that a first-time buyer generally won't pick a 21-inch monitor on to its monitor suppliers, the suppliers can increase production of smaller monitors based on the percentage of first-time computers buyers who visit Dell's website (Sviokla, 2001). This in turn allows Dell to ship computers faster, collect cash faster and use fewer assets.

Implications for the Health Care Administrator

As a health care executive, the value of exploring development of a formal KM program is quite apparent. Among the most tangible benefits of a formal KM program is improved communication across the enterprise, and improved access to critical organizational information. Return on investment is often difficult to quantify with regard to KM initiatives. The correlation between the absence of a KM infrastructure and the loss of employee time due to inefficiencies and/or duplication of effort is quite apparent.

The nature and degree of a health care executive's involvement in development of a KM program may vary greatly, depending on the scope and nature of the project, e.g. standalone technical solution, etc. Another influential factor will be the type of position that the executive occupies within the organization, e.g. CEO, Chief of Staff, Administrator, etc. Certainly, time constraints and primary job responsibilities will affect the amount of time that can be dedicated towards implementation of a KM program. For the purpose of this discussion, I will limit my focus to the role of the healthcare administrator.

The health care administrator will be primarily involved in three distinct facets of a KM program: coordination, strategic planning and communication. First, the administrator must serve as one of the formal champions for the KM project. The administrator will be one, among several members of an integrated project team (IPT), which should also include representation from clinical, ancillary and business departments such as Finance, Personnel, and Information Systems/Information Management. It might also include membership from other departments such as Quality Assurance. The role of the administrator on this IPT will be to ensure that the team has the necessary resources at its disposal to embark upon the venture. The administrator's presence will also validate the commitment that has made to the project.

A key responsibility of the administrator will be to ensure that the new KM project will meet the overall strategic goals and objectives of the organization. For example, if one of the organization's long-term goals is to develop a new web-based portal for employee use, the administrator must ensure that the proposed KM plan takes these types of strategic initiatives into account. If they are not considered, the organization runs the risk of developing a KM program in a vacuum, which might ultimately place the program at risk.

From a financial perspective, the administrator must ensure that any resources expended on a KM solution fall in line with any enterprise resource planning (ERP) efforts. Certainly if development of a KM program does not fall within the ERP of the organization, continued funding for the project will be closely scrutinized.

Another role that the administrator will play, will be to help guide the organization in the selection process of an outside consultant or vendor. In reality, a quick technical solution is never a quick technical solution, and therefore requires careful consideration and oversight. The administrator must ensure that any partnering efforts will meet the needs of the organization, and that all legal, financial, contractual, and technical considerations and requirements are properly addressed.

Perhaps the greatest challenge for the administrator will be to ensure that good communication exists all around. The administrator must ensure that not only the IPT members are communicating with one another, but that the committee is aware of the needs of the organization as a whole. The administrator must also ensure that the committee is a representative sample of the underlying social culture within the organization.

Finally, the administrator will play a pivotal role in ensuring that upper management, i.e. CEO, board of directors, etc., are aware of the progress and direction of the committee. This will help to ensure a continued interest and commitment on the behalf of upper management.

Conclusion

KM is by no means a quick process by which, some additional computer software and hardware can be added to the network to assist with the harvesting of information. KM has to be approached in a very strategic manner with the full support of the organization. There must also be incentives offered to encourage individuals to contribute to the organizational knowledge pool. No longer can organizations afford to lose valuable information and knowledge that is being developed by their employees. Organizations must assess the relative value of information, determine the method for knowledge production, storage and retrieval. It is my premise that KM is not simply one of the latest buzzwords in management but rather has some very tangible, long-term benefits that simply cannot be ignored. Time will tell whether or not KM remains as the descriptive catchword for this program. One thing is for certain; KM is something that organizations cannot afford to ignore in our technology-driven corporate society. Ultimately, it will be up to the organizational leadership such as healthcare administrators, to determine whether or not to invest in a corporate memory, or to remain in the dark.

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