The State of the Notion:

Knowledge Management in Practice

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In Managing in a Time of Great Change, Peter Drucker writes that "knowledge has become the key economic resource and the dominant—and perhaps even the only—source of comparative advantage." The consequent implications of this notion for the way in which a business is run are far reaching and dramatic, influencing everything from a company's strategy to its products, from its processes to the very way the firm is organized. The term that has been applied to the early rumblings of this perspective shift is "knowledge management"—a term which has now come to be used to describe everything from organizational learning efforts to database management tools. A search for books and articles touching on knowledge management issues returned about 20 responses in 1986, and almost 160 in 1996. As anyone who has done a search for the term on the World Wide Web will tell you, the buzz is palpable—and certainly there are those who will tell you that "buzz" is exactly the right word. However, knowledge management is more than a sales pitch. It is an approach to adding or creating value by more actively leveraging the know-how, experience, and judgment resident within and, in many cases, outside of an organization.

This article examines the results of a study of 431 U.S. and European organizations, conducted in 1997 by the Ernst & Young Center for Business Innovation, and describes what firms are doing to manage knowledge, what else they think they could be or should be doing, and what they feel are the greatest barriers they face in their efforts.

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Knowledge Processes

It was important for the integrity of our study that we establish a point of view from which to view the role of knowledge in the firm. Too many discussions of this subject never establish enough of a shared context to push past definitions of knowledge. Our solution was to turn to the great deal of management theory in recent years that has focused on process-based views of the firm, especially when thinking about what it is that actually gets managed in organizations. Then, we took this process perspective and applied it to what can be managed about knowledge, proposing eight major categories of knowledge-focused activities:

- generating new knowledge
- accessing valuable knowledge from outside sources
- using accessible knowledge in decision making
- embedding knowledge in processes, products, and/or services
- representing knowledge in documents, databases, and software
- facilitating knowledge growth through culture and incentives
- transferring existing knowledge into other parts of the organization
- measuring the value of knowledge assets and/or impact of knowledge management

The executives who responded to our study did not hold high opinions of their organizations’ performance in any of these areas (see Chart 1). For example, only 13 percent thought that they were adept at transferring knowledge held by one part of the organization to other parts. Even “generating new knowledge,” the process about which respondents had the highest confidence in their organization’s capabilities, still received above-average ratings from fewer than half (46%) of the executives. However, 94 percent of the executives agreed that “it would be possible, through more deliberate management, to leverage the knowledge existing in my organization to a higher degree.”

Knowledge Management Efforts Underway

The eight knowledge processes are usually not managed as processes in and of themselves. Instead, firms conduct specific projects intended to improve performance in one or more of these areas. Therefore, our study focused on a set of specific project types, asking the executives to indicate which projects were currently underway, planned, and not planned but which they felt should be done. The overall results of this inquiry are reflected in Chart 2.

The four most popular current project types represent the state of the practice in knowledge management. (The company examples presented here are not necessarily drawn from the study participants, but are simply good illustrations of real world activity representative of each project type.)
Creating an Intranet

While not every intranet project should be considered a knowledge management effort, intranets are often used to support knowledge access and exchange within organizations. Using technologies such as TCP/IP protocols and linked hyper-text web pages, intranets operate within a firm’s boundaries, which are usually delineated by firewalls and password access. Increasingly, however, these boundaries are drawn to include close allies, suppliers, and customers in order to allow them to participate in the exchange of knowledge. For example, Hewlett-Packard’s well-established intranet has over 2,500 servers, handles daily traffic of 1.5 million e-mail messages, and carries some 7 terabytes of information monthly. It is used to support a variety of needs, from information sharing among design teams to equipping salespeople with product details and account backgrounds. In addition, its intranet-based Electronic Sales Partner was designed to create a tighter connection between HP and its primary customers. By enabling the customer to access relevant information and interact directly with HP, customer knowledge is enhanced by a constant flow of information not only within, but also across organizational boundaries.

Data Warehousing/Creating Knowledge Repositories

Knowledge repositories capture explicit, codified information wrapped in varying levels of context. They are used to store and make accessible “what we
CHART 2. Project Priorities

know" as an organization. Such repositories include "data warehouses," which are useful in knowledge management when the mining and interpretation of their content allows employees to become better informed. The warehouses themselves are relatively devoid of context, however, requiring significant interpretation by users. More sophisticated repository approaches attempt to wrap more context around information as it is captured. For example, Intraspect's software allows users to comment on the vast assemblage of materials (such as text documents, spreadsheets, images, and audio recordings) collected within its database. Likewise, Digital Knowledge Assets' dynamic repository/collaboration
approach (called sceneServer™) enables users to blend the representations of internal and external resources—be they documents, people, conversations, e-mail, or web pages—into an integrated, personalized view. Whatever the level of sophistication, repositories essentially capture data, information, and knowledge in forms and through processes that enable access throughout the company. Over time, these repositories contribute to the maintenance of the firm’s shared intelligence and organizational memory.

**Implementing Decision-Support Tools**

Making available the wealth of knowledge that exists throughout the organization is of real benefit to firms that wish to improve the ability of employees to make decisions. Technology is often brought to bear in support of this objective. Expertise is elicited from leading practitioners, formed into rules and guidelines, and then made available to others, usually via computers to ease the upgrading of the knowledge base. CIGNA Property and Casualty addressed this objective by arming its insurance underwriters with a computer-based “Underwriter’s Desktop,” containing codified best practices culled from CIGNA’s leading underwriters. In addition, the software allows the incorporation of feedback and recommendations from the field, meaning that each underwriter is able to not only draw from, but also contribute to a dynamic, evolving, firm-wide experience base.

**Implementing Groupware to Support Collaboration**

Groupware (a term which used to be synonymous with Lotus Notes™) has long been seen as a way to encourage the sharing of ideas in a much more free-flowing manner than repositories or codified decision-support systems allow. Collaboration is indeed strongly conducive to knowledge generation and transfer. Ever since Doug Englebart’s initial efforts over three decades ago, the search has been on for ways in which technology can be utilized to support “anytime, anywhere” collaboration spaces. However, despite high levels of interest, implementation efforts often fall victim to a “build it and they will come” approach. Still, many firms have been able to find the right mix of people, process, and technology elements and use their groupware systems as the backbone of their knowledge-sharing infrastructure. Among the professional services firms, Ernst & Young supports its thousands of knowledge workers with its KnowledgeWeb (KWeb), Arthur Andersen has its Knowledge Xchange, and Price Waterhouse its KnowledgeView system. Each firm has its own approach, content categories, and usage policies, but all rely on the ability to not only represent ideas, but also discuss them.

**Knowledge Management “Should-Do” Efforts**

It is impressive that, for each of the above project types, at least a third of the study participants have an effort underway. While it is heartening that
so many firms are developing knowledge management capabilities, it is quite apparent that firms are concentrating on technology. Is this a problem? Not necessarily, but it is interesting to see what the executives say they should be doing.

The following are the top three “Should Do” results represented in Chart 2:

- Mapping sources of internal expertise (33%)
- Creating networks of knowledge workers (30%)
- Establishing new knowledge roles (28%)

While “should do” does not necessarily mean that these things should be done instead of the projects currently underway, they were identified as areas where executives felt more emphasis needed to be placed.

**Mapping Sources of Internal Expertise**

While repositories and their affiliated search and access tools are useful for finding nuggets of corporate wisdom that have been codified, there is a great deal of corporate knowledge that remains uncoded. As such, it is also extremely useful to be able to find expertise still embedded securely in the mind of the expert. Phone and e-mail directories arranged by knowledge areas can be very helpful to those in the organization looking for resident (or occasionally non-resident) subject matter experts. In one case, as a part of its overall Drug Approval Process knowledge map, Hoffmann-LaRoche included a “Yellow Pages” catalog of relevant people, arranged according to expertise, questions, and issues. It serves as a pointer to the know-how associated with the know-what of the process steps. Of course, such directories come with their fair share of headaches (such as who determines who is listed, and whether those who are the best in the firm really want to get all those phone calls). Even so, such maps are extremely helpful in connecting people, and people are still the best source of deep expertise.

**Creating Networks of Knowledge Workers**

Pointing systems that help people find each other on an “as needed” basis are also useful for solving certain types of problems. This is especially true for problems requiring significant expertise for a short period of time, such as finding an answer to a specific esoteric question. However, a great deal of what people learn, and therefore of what the organization comes to know, results from interactions among workers. In fact, the Institute for Research on Learning (a group that has led the field in studying such interactions) says it is the informal, socially constructed communities of practice that form within organizations that are the true mechanisms through which people learn and through which work gets done. When Chrysler reorganized from functional into platform-based units (e.g., Jeeps, trucks), they realized quickly that unless the Suspension specialists could communicate easily with each other across platform types, their expertise would rapidly deteriorate. In response, they formed Tech Clubs, bring-
ing people together—virtually and in person—to exchange and build their collective knowledge in each of the specialty areas. Whether formalized or not, such networks are excellent mediums for knowledge exchange.

**Establishing New Knowledge Roles**

There is an ongoing debate these days about the need or value of a Chief Knowledge Officer (CKO). Just over half the executives in our study felt that having a formal CKO would be at least somewhat valuable in their organizations. These executives recommended that CKOs should focus on:

- Leveraging Knowledge
- Enabling Knowledge (training/technology)
- Making Knowledge Visible (identifying gaps/establishing priorities)

Other knowledge roles we have seen firms establish include knowledge editors, knowledge engineers, knowledge navigators, knowledge brokers, and knowledge stewards, with responsibilities ranging from repository management to coaching and facilitation. The National Security Agency recently developed the position of Knowledge Strategist, whose job is to focus—at the very highest levels—on the role knowledge plays in shaping the organization and its strategic direction.

Interestingly, the “should do” project types focus much more on people issues than the more technology-centric “current” projects. It appears that although these executives understand that knowledge is highly people-based, they are stuck with an investment model that is geared primarily toward technology implementations. When asked who led their knowledge projects, the study participants pointed to I/T twice as often as the runner-up, Senior Management. And yet, when asked whether their organizations’ ability to compete based on knowledge depends more upon people, process, or technology issues, the aggregate responses placed the emphasis heavily on people (50%), with the other two areas carrying equal, secondary weight (25% each).

Projects appear to follow the path of least resistance. When asked about the biggest difficulties in managing knowledge in their organizations, 56 percent of the study participants cited “changing people’s behavior” (see Chart 3). The biggest impediments to knowledge transfer in their organization? Here too, the number one choice, selected by 54 percent of the respondents, was “culture” (see Chart 4). While “people issues” may be endemic to any change initiative, knowledge management activities seem to bring them out in abundance. On a more positive note, however, 67 percent of the executives said their number one obstacle could indeed be overcome by more deliberate management.

**What To Do?**

The results of our study show that many companies are progressing along similar lines when rolling out knowledge management efforts. They generally
start with the implementation of a technological capability, which allows them (at least in principle) to capture and share corporate know-how. This may be a necessary early step in organizations where the basic capability to access, embed, and transfer knowledge does not exist.

Ironically, it may be that only after the technological capability exists that many firms realize how vital the people factors are. It may simply be a sign of the learning process, as well as the fact that the current projects are so technology-heavy, that the people-related efforts top the “should do” list. This progression should not be taken as prescriptive, however. Knowledge management is a relatively new set of ideas for the general business community, so the early adopters can be forgiven for a bit of casting about while looking for solutions. Most managers faced with a new challenge approach it with tools they are already familiar with, and when the problem seems at first to be one of content management, those tools tend to be technological. However, as the nature of this particular challenge is much more about the interrelationship of content,
context, and the people who put the pieces together, it is inevitable that the technology will not be enough. In fact, if the people issues do not arise, the effort underway is probably not knowledge management. If technology solves your problem, yours was not a knowledge problem.

So, if what we have seen is not prescriptive as much as descriptive of lessons learned, what are the prescriptions? If we have learned nothing else in four years of observing the knowledge management vanguard, we have seen clearly the importance of getting the approximately 50/25/25 people/process/technology balance right from the outset. Assemble an integrated portfolio of activities from the list, keeping in mind which issues current efforts are likely to give rise to. And remember that technology won’t bring down your greatest knowledge-sharing barriers. This doesn’t mean that I/T can’t lead the effort, but there had better be plenty of folks involved who are ready to resist the strong pull of the technology-only solutions, especially when these solutions look so neat and easy.

Most of the projects underway involve moving knowledge around in organizations, which can certainly lead to process improvements, cost reductions, and a better shared context. However, also keep in mind that 54 percent of the executives who participated in our study felt that their organizations were not particularly good at generating new knowledge. This is a big problem,
especially given the rapidly changing, highly competitive markets in which most firms compete. The ability to move ideas swiftly around a company is worthless if those ideas are old and irrelevant. It is vital that the specific knowledge management projects that companies are undertaking be directed at improving those knowledge processes that add the most value. While the ever-popular efforts involving capture, access, and transfer of knowledge can lead to increased efficiency, knowledge generation is the key to growth.

Knowledge is a difficult thing to “manage.” It does not do well in captivity and it does not survive for long outside its native habitat. To add to the difficulty, the life span of knowledge ranges from mere seconds to eons. Despite all of this, the sentiments of almost every executive who participated in this study echo those of Drucker: that leveraging organizational knowledge is not only important, but it may be the most important job management has.

Notes

1. A survey-based study with follow-up interviews; full report issued by The Ernst & Young Center for Business Innovation and Business Intelligence as “Executive Perspectives on Knowledge in the Organization,” 1997.
2. Study participants were promised anonymity.
4. Doug Englebart sired the concept of groupware in the 1960s and 1970s while at the Stanford Research Institute. During that time, he developed (among other things) Augment, the first integrated, hypertext-enabled knowledge-sharing system.
5. For a thorough treatment of the subject, see E. Wenger, Communities of Practice: Learning, Meaning and Identity (New York, NY: Oxford University Press, 1998).