

TEN PRINCIPLES OF KNOWLEDGE MANAGEMENT

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Introduction

Many companies are beginning to feel that the knowledge of their employees is their most valuable asset. They may be right, but few firms have actually begun to actively manage their knowledge assets on a broad scale. Knowledge management has thus far been addressed at either a philosophical or a technological level, with little pragmatic discussion on how knowledge can be managed and used more effectively on a daily basis. At this early stage of knowledge management in business, the most appropriate form of dialogue is not detailed tactics, but rather high-level principles. When an organization decides what principles it agrees upon with respect to knowledge management, it can then create detailed approaches and plans based upon the principles.

For the past two years I have been working with organizations in the area of knowledge management. Some of them have been working on the topic for years, but only recently realized that they were managing knowledge. More frequently, the topic of knowledge management has only recently emerged in these organizations. But there are enough lessons so that we can begin to articulate and debate some principles and rules of thumb.

Ten principles of knowledge management are listed below. I'm sure that there are more that could be stated, but the decimal system has a strong appeal. With each principle some implications and issues are also discussed. Where I am aware of firms who have wrestled with the principle and taken action on it, their experience is described.

1. Knowledge management is expensive (but so is stupidity!)

Knowledge is an asset, but its effective management requires investment of other assets. There are many particular knowledge management activities requiring investment of money or labor, including the following:

- ❖ Knowledge capture, i.e., creation of documents and moving documents onto computer systems
- ❖ Adding value to knowledge through editing, packaging, and pruning
- ❖ Developing knowledge categorization approaches and categorizing new contributions to knowledge
- ❖ Developing information technology infrastructures and applications for the distribution of knowledge
- ❖ Educating employees on the creation, sharing, and use of knowledge.

While few firms have calculated the cost of knowledge management, there are some quantified estimates. Robert Buckman of Buckman Laboratories estimates that his firm spends 7% of its revenues on knowledge management. McKinsey and Company has

long had an objective of spending 10% of its revenues on developing and managing intellectual capital.

But while knowledge management is expensive, the obvious retort is that not managing knowledge is even more so. What is the cost of ignorance and stupidity? How much does it cost an organization to forget what key employees know, to not be able to answer customer questions quickly or at all, or to make poor decisions based on faulty knowledge?

Just as organizations attempting to determine the value of quality determined the cost of poor quality products and services, if we wish to assess the worth of knowledge we can try to measure the cost of not knowing. Of course, such an assessment could lead to political problems, but that is another principle.

2. Effective management of knowledge requires hybrid solutions of people and technology

Business Week recently announced in the title of a recent article on artificial intelligence that, "Computers that think are almost here...The ultimate goal of artificial intelligence-human-like reasoning-is within reach." Reading this headline in 1995 may create a *deja vu* experience for managers and professionals, who have been hearing about machine-based knowledge since the 1950s. But the fact is that firms wishing to effectively manage knowledge today need a heavy dose of human labour. Humans are very good at certain types of activities, computers at others.

Human beings may be expensive and cantankerous, but they are quite accomplished at certain knowledge skills. When we seek to understand knowledge, to interpret it within a broader context, to combine it with other types of information, or to synthesize various unstructured forms of knowledge, humans are the recommended tool. These are the types of knowledge tasks at which we excel, and we should be employed for these purposes.

Computers and communications systems, on the other hand, are good at different types of things. For the capture, transformation, and distribution of highly structured knowledge that changes rapidly, computers are more capable than people. They are increasingly useful-though still a bit awkward-for performing these same tasks on less structured textual and visual knowledge. But it is still the case that most people don't turn to computers when they want a rich picture of what is going on in a particular knowledge domain.

Given this mixture of skills, we need to construct hybrid knowledge management environments in which we use both humans and people in complementary ways. Just as sophisticated manufacturers have realized that "lights out" factories aren't necessary the most effective or flexible, we have to build knowledge factories that combine someone to talk to with machines that talk in bits and bytes.

When we are compiling computerized databases of organizational knowledge, we need to include "pointers to people." For example, at GM Hughes Electronics, best process reengineering practices were captured in a database that combined human and computerized knowledge. Each entry was submitted to an editor, who screened it for

usefulness and relevance. Entries recorded just enough about the practice to pique the reader's interest, and included the name and phone number of a person who could describe it in detail. Use of the database is solid and growing, and some division presidents have instructed that their divisions be well-represented in the database.

3. Knowledge management is highly political

It is no secret that "knowledge is power," and thus it should not surprise anyone that knowledge management is a highly political undertaking. If knowledge is associated with power, money, and success, then it is also associated with lobbying, intrigue, and back-room deals. If no politics appear around the knowledge management initiative, it is a good indication that the organization perceives that nothing valuable is taking place.

What do knowledge politics mean for effective knowledge management? Some managers will decry politics and argue that they only get in the way. But astute managers of knowledge will acknowledge and cultivate politics. They will lobby for the use and value of knowledge. They will broker deals between those who have knowledge and those who use it. They will cultivate influential "opinion leaders" as early adopters of knowledge management approaches. At the highest level, they will try to shape the governance of knowledge to better utilize it across the organization.

4. Knowledge management requires knowledge managers

Key business resources like labour and capital have substantial organizational functions devoted to their management. Knowledge won't be well-managed until some group within a firm has clear responsibility for the job. Among the tasks that such a group might perform are collecting and categorizing knowledge, establishing a knowledge-oriented technology infrastructure, and monitoring the use of knowledge.

Several professional services firms already have knowledge management roles in place. McKinsey, Andersen Consulting, Ernst & Young, Price Waterhouse, and A.T. Kearney all have "Chief Knowledge Officers" in place. Buckman Laboratories reoriented its Information Systems organization to become managers of knowledge, and now calls the group the Knowledge Transfer department. Hewlett-Packard created one knowledge management group within its corporate Product Processes Organization, and another within its Computer Systems marketing group.

A knowledge management function could inspire resentment and concern within the organization if it seeks to assemble and control all knowledge. The goal of such an organization should merely be to facilitate the creation, distribution, and use of knowledge by others. Furthermore, the knowledge managers themselves should not imply by their words or actions that they are more "knowledgeable" than anyone else. In fact, one knowledge manager at Hewlett Packard argues that the most important qualification for such a role is being "egoless."

5. Knowledge management benefits more from maps than models, more from markets than from hierarchies

It is tempting when managing knowledge to create a hierarchical model or architecture for knowledge, similar to the Encyclopedia Britannica's Propaedia, that would govern the collection and categorization of knowledge. But most organizations are better off letting the knowledge market work, and simply providing and mapping the knowledge that its consumers seem to want. These dispersion of knowledge as described in a map may be illogical, but is still more helpful to a user than a hypothetical knowledge model that is best understood by its creators, an rarely fully implemented. Mapping organizational knowledge is the single activity most likely to yield better access.

Knowledge managers can learn from the experience of data managers, whose complex models of how data would be structured in the future were seldom realized. Firms rarely created maps of the data, so they never had any guides to where the information was in the present.

Letting the market work means that knowledge managers try to make knowledge as attractive and accessible as possible, and then observe what knowledge gets requested using what specific terms. For example, at Teltech, a Minneapolis firm that manages a knowledge network of external experts, clients who call for expert referrals are unlikely to always use the same terms as the experts use in describing their work. The function of connecting client needs to available expertise is performed using Teltech's online search and retrieval system, the "KnowledgeScope." The KnowledgeScope is effectively a map or thesaurus of over 30,000 technical terms. It is maintained by several full-time "knowledge engineers," who add 500 to 1200 new concepts per month to the database and remove outdated ones as well.

Each technical term has a preferred usage and several possible synonyms. Teltech's goal is to have the terms in the database that are used by clients. Therefore, each day the knowledge engineers receive a list of terms sought unsuccessfully in the database by Teltech's knowledge analysts or by clients accessing the database directly. Many of the unsuccessful searches are misspellings, but valid misses are added to the database. Until recently, Teltech's approach to structuring knowledge had been hierarchical, rather than thesaurus-based. Its previous database was called the "Tech Tree" and it had several key knowledge branches, including scientific/technical, medical, chemical, etc. However, both clients and Teltech knowledge analysts found it difficult to navigate through the tree, and new terms tended to be added at inappropriate levels of the tree. Teltech has found the thesaurus approach to be much more satisfactory. It has mapped the knowledge world rather than modelling it.

6. Sharing and using knowledge are often unnatural acts

If my knowledge is a valuable resource, why should I share it? If my job is to create knowledge, why should I put my job at risk by using yours instead of mine? We sometimes act surprised when knowledge is not shared or used, but we would be better off as knowledge managers assuming that the natural tendency is to hoard our knowledge and look suspiciously upon that from others. To enter our knowledge into a system and to seek out knowledge from others is not only threatening, but also just plain effort-so we have to be highly motivated to undertake such work.

If the knowledge manager adopted this principle, we wouldn't take sharing and use of knowledge for granted. We wouldn't assume that the installation of Lotus Notes will lead to widespread sharing, or that making information available will necessarily lead to its use. We would realize that sharing and usage have to be motivated through time-honoured techniques--performance evaluation, compensation, for example.

There are some firms that are beginning to evaluate and reward personnel for knowledge sharing and use. Lotus Development, now a division of IBM, devotes 25% of the total performance evaluation of its customer support workers to knowledge sharing. Buckman Laboratories recognizes its 100 top knowledge sharers with an annual conference at a resort. ABB evaluates managers based not only on the result of their decisions, but also on the knowledge and information applied in the decision-making process.

7. Knowledge management means improving knowledge work processes

It is important to address and improve the generic knowledge management process, but knowledge is generated, used, and shared intensively in a few specific knowledge work processes. The specific processes vary by firm and industry, but they include market research, product design and development, and even more transactional processes like order configuration and pricing. If real improvements are to be made in knowledge management, improvements must be made in these key business processes.

Two colleagues and I recently carried out research on over 25 firms that had attempted to improve knowledge work processes. We found processes oriented to creating (e.g., research), packaging (publishing), and applying (system development) knowledge. In general, the most effective improvement approaches struck a middle ground between top-down "reengineering" of the process and bottom-up design by autonomous knowledge workers. Creative knowledge work required less top-down intervention, and knowledge application processes a bit more. However, surveys of companies on their reengineering efforts have confirmed that knowledge work processes of any type are only rarely addressed in process improvement initiatives.

8. Knowledge access is only the beginning

If knowledge access were sufficient, then there would be long lines outside the nation's libraries. Access is important, but successful knowledge management also requires attention and engagement. It has been said that attention is the currency of the information age.

In order for knowledge consumers to pay attention to knowledge, they must become more than passive recipients. More active involvement with knowledge can be achieved through summarizing and reporting it to others, through role-playing and games based on usage of the knowledge, and through receiving the knowledge through close interaction with providers. This is particularly important when the knowledge to be received is tacit, as Ikujiro Nonaka has long noted.

Some firms have already begun to help their managers and employees engage in knowledge. Jane Linder, an information (and market research and strategic planning)

As one can easily deduce from these principles, managing knowledge in organizations will lead to a variety of new problems and issues. And this type of initiative will face resistance. Knowledge management runs counter to the direction of American society; we prefer television to books, intuition to research, pragmatists to theorists. The serious pursuit of knowledge in organizations will be challenged by an anti-intellectual orientation in the U.S. that has been present since the days of the frontier.

But now the new frontier is in our minds. As free natural resources and cheap labour are exhausted, the last untapped source of commercial advantage is the knowledge of people in organizations. It is very early days for knowledge management, and even the principles and rules of thumb described above will engender considerable disagreement. The good news is that almost anything that a firm does in managing knowledge will be a step forward.