



Prospecting for Knowledge[®]

Jüris Kelley

Knowledge in Motion LLC

This article describes the four pillars of knowledge management – content, people, process, and technology. It discusses the challenges of managing tacit knowledge, as well as overcoming the critical obstacles to ensure portal success. Knowledge harvesting approaches are presented, along with how to perform an effective knowledge audit.

It is often said that people are an organization's most valuable asset. While that remains true for some, others find the pendulum has swung toward the organization's other key asset: information, or more accurately stated, *content* (data and information).

Some may disagree. They are quick to point to the Internet's vast holding of content and how useless it can seem as you drown in data yet thirst for information. Those people, however, do a great injustice to modern knowledge-management tools and related solutions that can be used to harvest valuable information from such vast content repositories. They are like the Luddites¹ of the British industrial revolution who opposed technological change; they will even destroy any laborsaving system that may diminish their sense of employment.

Knowledge management (KM) is not so much about managing tacit (existing) institutional knowledge as it is about managing the disparate content sources and providing information-harvesting capabilities to our teams. KM is about optimizing the communities of practice or other work groups and enabling them, through information technology (IT), to efficiently manage the enterprise's content and their own work group practices and procedures. KM attempts to eliminate the continuous reinvention of the wheel by providing repositories of best practices and knowledge nuggets. A KM tool kit provides us with the ability to efficiently gather, contribute to, organize, distribute, collaborate, and refine information.

We focus on information for a reason; knowledge itself happens only when human experience and insight are applied to data and information. As Charles West Churchman concluded more than 30 years ago, "Knowledge resides in the user and not in the collection of information. It is how the user reacts to a collection of information that matters" [1].

Our goals, therefore, are to leverage

the knowledge held by our employees (often referred to as *corporate memory*) and to make effective use of enterprise content to enable others to efficiently create knowledge.

KM Defined

Even though I am more of a practitioner than a theoretician, I am often asked for a definition of KM. I must first admit that I am not a big fan of that term, for it is impossible to manage *knowledge*. KM is more of a *new economy* buzzword than anything else is. If you want to call the concepts of effectively managing content and collaboration *knowledge management*, then so be it.

"A KM [knowledge management] tool kit provides us with the ability to efficiently gather, contribute to, organize, distribute, collaborate, and refine information."

With that in mind, I have assembled this definition: "Knowledge management is a concept that combines content (data and information) with organizational processes and people, as well as the technologies that enable their effective use." It is a concept only, for we cannot manage knowledge itself. Knowledge exists between our ears. What is both attainable and desirable in today's information-based economy is to provide the right content to the right people at the right time, thus allowing people to leverage their tacit knowledge with timely content to effect organizational decision making for a competitive advantage. KM is the

fusion of content, people, processes, and technology.

From an IT perspective, KM combines records management, databases, workflow, and middleware tools, along with collaborative concepts and process improvement philosophies.

It is important to recognize that KM is a concept, or as others have suggested, a management practice, notion, or process. It clearly is not a software product, or a technology, or any single methodology.

Knowledge is something that has been widely discussed in religion as well as in scholarly and political pursuits throughout history. In the Bible in Job 34:35, "Job speaks without knowledge; his words lack insight." Chairman Mao Tse-tung in "On Practice" in 1937 wrote, "All genuine knowledge originates in direct experience." Similarly, Islam discusses knowledge in detail. The Koran teaches that knowledge depends on the use of our sight, hearing, intelligence, and other senses. It further correlates the stages of human existence with the three sources of knowledge.

Whether the Bible, the teachings of Chairman Mao, or the Koran, they would all agree that knowledge is not manageable, and it certainly does not reside in e-mail or a database.

Four Pillars of KM

Content represents one of the four pillars that must be effectively managed and optimized throughout the enterprise. The other three pillars are people, processes, and technology. These four represent the four pillars of Knowledge Nirvana[®] (see Figure 1).

The need to optimize our data and information content should be intuitive. However, most organizations today only effectively manage their operational data, so long as it resides in a database. The document is the default format in which we create, store, and share information, and most of these documents reside on unmanaged PCs.

Improving employee efficiency is yet

© 2002 Knowledge in Motion LLC. All Rights Reserved.
[®] Knowledge Nirvana is a registered mark of Jüris Kelley.

another area in which most organizations need drastic help. Employees can walk out the door or be transferred at any time, taking with them your organization's corporate memory. This issue is only subjectively addressed by most organizations.

Processes, either structured or ad-hoc, are at the heart of any functioning enterprise. Content is the subject of most processes and may reside within the process. Processes, especially the ad-hoc informal processes, build a trust relationship between those in the organization that may not be apparent to management or even to themselves. This *social network* builds trust between people more quickly than formal, mandated processes ever could.

Finally, technology, which is the great enabler that allows us to achieve our goals, compresses the time and effort of processes and allows us to effectively manage enterprise content. There are many such technologies at our disposal. Document and records management repositories are useful for the majority of unstructured content. Workflow products allow us to manage processes. Portals, although a generic term that is comprised of many technologies, represent a key software solution that all enterprises should leverage today.

Decision support systems, which have been used for more than a decade, attempt to aggregate large quantities of structured data to drive automated analysis and provide management with decision options. Like portals, decision support systems, which are also referred to as *business intelligence systems*, is really a generic term for a number of technologies, techniques, and specific software tools that attempt to support cognitive reasoning. Decision support systems are usually comprised of tools and applications that perform data extraction, transformation, data loading tools, data warehousing, data modeling, and query and reporting capabilities.

When faced with an issue, people can efficiently think cognitively and intuitively using their decision-making skills to assess the situation and establish a course of action. People easily use cognitive reasoning (learning from the past to make decisions for the future).

Decision support systems, however, have failed to support cognitive decision-making. This is largely due to their limitations to act in real time. Today's online environment in which we act at the speed of thought has all but shattered the dream of automating the decision process. Nevertheless, the technologies

developed and refined during the years under the banner of *decision support systems* are invaluable today as tools that perform functions such as data extraction and transformation.

Tacit Knowledge

Prospecting for knowledge is like Charles Dickens' musings: "... we had everything before us, we had nothing before us ..." [2]. We have vast knowledge before us, yet we are challenged to find it.

Employees accumulate knowledge – tacit knowledge – as they perform their jobs. They develop skills, certain expertise, and understandings during the course of their duties, both with their current employer and with prior employers. Consciously or not, most employees establish their own *best practices*. While this may be useful, it has limited value to the organization as a whole; others must go through their own experiences and eventually build on their own lessons learned to create a set of best practices.

Making this tacit knowledge explicit is a key objective of any KM initiative; however, this is nearly impossible to achieve. While there are some occasions during which we attempt to capture and manage this tacit knowledge, which is described later, we are left for the most part with a more humble objective of capturing the work products of those employees. In this respect, prospecting for knowledge is a little misleading; you do not really seek knowledge, you seek content. Within that content resides critical business information that either forms the foundation for, or is used by, the knowledge that exists between our ears.

Relevant Content

Most people focus on building an enterprise portal or other such application to manage their content. They have either performed a cost-benefit analysis or have agreed to its intrinsic value, and so they proceed. Performing the requirements analysis, designing the architecture, building the application, and deploying the system are the relatively easy tasks. The real challenges are in acquiring the content and ensuring that the content remains relevant.

I worked with one large IT company on the East Coast that decided to deploy a repository for one of its departments. It was clearly a good idea and could have offered great value to its employees and enhanced departmental productivity. When the portal-based repository became operational, there was enthusiasm to populate it with content. That

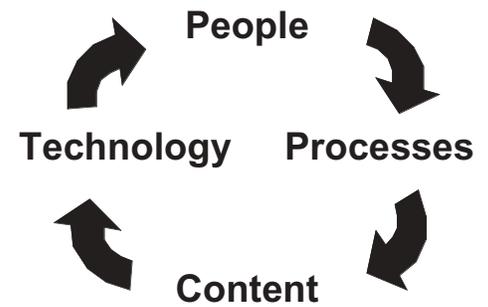


Figure 1: *The Four Pillars of Knowledge Nirvana*

enthusiasm lasted about one week. After that, people had their *real jobs* to do and started neglecting the repository. This is a key challenge for most repositories: ensuring that content is continuously contributed.

There are two primary ways to ensure that employees contribute content: the carrot-and-stick approach and the process approach. A third way – intimidation – has also been known to work.

The carrot-and-stick approach is intuitive and simple. Unfortunately, it also rarely works for very long. That East Coast IT department with its portal-based repository used the carrot-and-stick approach. The portal was operational for about one month when they realized that it was getting harder and harder to get employees to contribute content. Some employees who had been enthusiastic when the repository first became operational began to significantly reduce the amount of content they were contributing. Consequently, they had to be prodded with verbal requests for content. The time and therefore the cost of such prodding grew and finally resulted in the need for a full-time system administrator. Management then tried another tactic. They started offering rewards for employee contributions. Posters were created and hung in the hallways and elevators announcing the rewards – a drawing for free travel. The grand prize was a free three-day trip to Phoenix, Ariz., for two. Each contribution to the repository entitled that employee to one chance to win.

That was not a bad idea; however, such an approach will have a minimal and short-term impact. An organization cannot afford to offer such prizes forever, thus limiting the carrot. Furthermore, the quality of contributions tends to decrease since a few employees will contribute like crazy while others will not. Those who do not contribute as readily tend to guard their content more closely and do not contribute anything of any great value.

While the carrot-and-stick approach

may be useful in getting employees excited about a new corporate initiative, for any long-term success you will need to incorporate the repository into the business process; hence, the process approach.

Each business process should be defined and carried out in accordance with the approved process. Hopefully those processes have been optimized through some form of business process analysis. It would then be fairly easy to append the process to include copying and registering key documents into a repository.

That East Coast IT firm eventually did update some of its defined processes to further facilitate capturing content. They chose selected key processes such as the client engagement proposals, which followed a defined process of proposal development. At the end of that proposal development process, new steps were incorporated to ensure that the proposal and related supporting documents were properly captured in a proposal repository. Capturing that content consistently and repeatedly later proved to be of great value for content reuse.

With either approach, it is important to quantify knowledge sharing. This will allow management to assess the success of the organization's sharing or the lack thereof.

Process Approach

There are other ways to prospect for knowledge both within the enterprise and externally. Besides relying on employees to contribute their content, you can actively seek out that content and automatically populate a repository.

If your organization utilizes a document management system or even a simple file system on a shared server, you have the opportunity to access those files. Remember that every organization serious about productivity should have a document management system. There are no excuses for not utilizing this basic tool.

There are many products available that allow you to define numerous file directories for automatic scanning to identify newly added or changed files. Once tagged as new or changed, they can be copied into an actively managed repository. The challenge with this method is to properly index those documents. While there are automatic indexing tools, they all have limited use due to their relatively high error rate. A better approach would be to utilize the metadata entered by the author within the application; e.g., entering metadata within Microsoft Word by using the Properties Summary function to enter author name, an abstract, and key words.

As long as you have access to the files,

it is possible to copy them into a repository. For the most part, the only time you will not have this option is for locally stored files such as those on each employee's hard disk drive. Unfortunately, this is where most individuals store their content and as stated earlier, this practice should not be tolerated by any modern organization.

External content can also be captured with Internet-based tools often called *spiders*. A spider crawls into a Web site and copies all or selected content into your repository. Many organizations point their crawler to their competitor's Web site thus getting near real-time information on posted changes, such as new press releases. Obviously this has limited use given the highly controlled nature of Web content on corporate sites. Nevertheless, it is yet another tool that you can utilize to capture content.

Institutional Knowledge

There are other occasions when organizations actively prospect for knowledge. One of the most popular times is just prior to losing a valuable employee either through retirement, transfer, or termination.

Given the immense value in that employee's mind – their institutional knowledge – many firms offer employees an incentive to share that knowledge before they go. This is often performed by a recorded interview of the employee. This interview, whether or not it is videotaped, is referred to as *knowledge harvesting*.

Digitizing and storing the videotape is of limited value unless it can be keyed to find specific information at a later date. Otherwise, some tapes could take 20 hours to view, making them virtually useless in today's hectic business environment. One solution is to transcribe the interview word for word, providing a means to adequately search the content. When a hit is found, the application could provide a short synopsis of the surrounding text, or jump directly to the video segment that relates to the hit.

Another approach is to inventory the employee's video content in parallel with recording. Additional metadata and context could be added afterwards with the employee's guidance. This documented information then becomes considerably more searchable, shareable, and useful.

An organization also may want to capture content for high-value, repeatable, decision-making processes. It may be worth the investment to track and document this decision-making process. For example, technicians fix equipment in the field, which is a repeatable process.

Having support engineers or other technicians working in the field is relatively expensive. Small savings in their time would add up to significant savings in labor and travel costs. While every equipment manufacturer has repair manuals, any good field engineer has his or her set of notes that are relied upon much more than published manuals. As you can imagine, the value of these notes is high. Collecting them from various field engineers and assembling them into a collective document that all technicians could use would result in a very high-value, knowledge-sharing initiative.

In your organization, think about what institutional knowledge exists in employees' minds, and likewise what tangible, critical information exists in employees' possessions. Their documents, e-mail, and even scraps of paper in notepads may turn out to be much more valuable than every document submitted by the new programmer in order to be eligible for that free trip to Phoenix.

Knowledge Audit

Employees' collective knowledge is an organization's most valuable resource, yet organizations spend a great deal of time prospecting for that knowledge and its byproduct: information. A small and nimble organization thus tends to be better adapted at harnessing this knowledge, while large organizations can only benefit from that collective knowledge if they overtly harness it. To do so, the large organization must proactively encourage knowledge sharing. Sharing such knowledge and related quantifiable content such as white papers, reports, briefings, etc., all require an organization with a high *organizational IQ*. The more mature an organization, the greater its sharing and reuse of content and employee knowledge.

One way to start a knowledge-prospecting effort is to perform a *knowledge audit*. A knowledge audit will reveal what knowledge the organization has, how it flows, what the sharing and collaboration obstacles are, and what technology and infrastructure exist to enable such knowledge sharing. The knowledge audits will likely focus on processes and information flows just as much as documenting what knowledge currently exists in the organization.

The knowledge audit may take a macro view focusing on high-level repositories, flows, and general cultural attitudes within the organization. A more detailed audit may also be performed that would analyze the specific knowledge and content assets, information flows, and bottlenecks.

Once the audit has been performed, with its findings reported to management, the knowledge prospecting team will have a much clearer understanding of their project's scope and the challenges that lay ahead.

Not sharing the collective knowledge that exists is lost knowledge, and lost knowledge is squandered capital. ♦

References

1. Churchman, Charles West. *The Design of Inquiring Systems*. Basic Books, 1971.
2. Dickens, Charles. *A Tale of Two Cities*. Book One. Signet Classic, 1859.

Notes

1. These were people of any of a group of British workers who, between 1811 and 1816, rioted and destroyed laborsaving textile machinery in the belief that such machinery would diminish employment.

About the Author



Jüris Kelley is president of Knowledge in Motion LLC and author of the new book "Knowledge Nirvana[®]," Xulon Press, from which this article is adapted. Kelley focuses on content management and optimizing team collaboration to achieve the organizational competitive advantage. Kelley has consulted leading public-sector organizations and Fortune 100 companies, and has held project- through executive-level positions in virtually every aspect of the information technology life cycle. During the past 15 years, Kelley has designed, developed, and installed numerous systems, ranging from small departmental applications to several international solutions, each serving more than 20,000 users. Kelley is a technology mentor with the University of Maryland's Smith School of Business and serves on the American National Standards Institute C.22 Standards Committee for Electronic Content Legality.

Knowledge in Motion LLC
11234 Leatherwood Drive
Reston, VA 20191
Phone: (703) 216-5125
Fax: (703) 391-0758
E-mail: kelley@kinm.com

LETTER TO THE EDITOR

Dear CrossTalk Editor,

I thoroughly enjoyed the article "Evolutionary Trends of Programming Languages" by Lt. Col. Thomas M. Schorsch and David A. Cook, Ph.D. (CrossTalk Feb. 2003). I thought it created a clear and concise description of where computer languages have been, and where they are likely to go.

Even though I have been an information technology professional for more than 25 years, it is very difficult to keep up with all the trends in the technology. This article has clarified many

questions I have had over the years about languages and their uses. I was particularly interested in the authors' discussion of the differences and roles of system programming versus scripting languages. It has changed my whole view on how enterprise architecture needs to be addressed.

Although I have not seen your publication before, you can be assured I will check your Web site on a regular basis.

Keep up the good work.

James Blackburn
Independent Consultant

WEB SITES

Software-Engineer.Org

www.software-engineer.org

The Software-Engineer.Org promotes its site as a community for software engineers. Its objective is to improve communication about software engineering. The Web site is dedicated to free information sharing between software engineers, professionals, faculty members, and students. The site features links, articles, tools, downloads, a message board, active discussions, and more.

People Capability Maturity Model

www.sei.cmu.edu/cmm-p

Developed by the Software Engineering Institute, the People Capability Maturity Model[®] (People CMM[®]) is a framework that helps organizations successfully address their critical people issues. Based on the best current practices in fields such as human resources, knowledge management, and organizational development, the People CMM guides organizations in improving their processes for managing and developing their work forces.

Software Technology Support Center

www.stsc.hill.af.mil

The Software Technology Support Center is an Air Force organization established to help other U.S. government organizations identify, evaluate, and adopt technologies to improve the quality of their software products, efficiency in producing them, and their ability to

accurately predict the cost and schedule of their delivery.

bizjournals.com

www.bizjournals.com

Bizjournals.com compiles business news from 41 local markets and 46 different industries. News can be searched by industry, including software. The site includes sections for the latest news, business resources, marketplace, networking, and more.

Amplifying Your Effectiveness

www.ayeconference.com

The Amplifying Your Effectiveness (AYE) Web site contains information to participate in the next AYE conference. The conference is designed to increase effectiveness in leadership, coaching, managing, influencing, and working in teams. The AYE Conference is for people who work in arenas where problem solving is a key skill – such as systems development, product development, quality assurance, information technology infrastructure, customer service, and consulting.

Project Management Institute

www.pmi.org

The Project Management Institute (PMI) has more than 86,000 members worldwide. PMI establishes Project Management standards, provides seminars, educational programs, and professional certification for project leaders.