

# intelligentKM

August 12, 2002

## Serving Knowledge

### Seven insights about knowledge management in the IT service industry

By Kemal A. Delic

Since the early 1990s, the subject of knowledge management (KM) has created huge interest throughout various domains, attracting many people to explore this field. A strong indicator of this interest is that more than 200 books on KM have been published during this period, several other publications cover KM exhaustively, and specialized conferences on KM are proliferating. One typical bibliography on KM (see the [Resources](#) list) contains more than 1,000 entries, and today a common search on the Internet for "knowledge management" will return hundreds of thousands of hits.

In IT service industries, KM has the potential to improve business dramatically. KM appears to be not only a principal ingredient of service businesses, but also a key growth factor and profitability denominator. (Review the IBM papers in the Resources list for supporting information.) Some of the most successful companies in the IT services industry include Cisco Systems Inc., Microsoft, and IBM Global Services. Cisco built a \$12 billion business in 10 years, starting in 1988-89. Microsoft built a \$20 billion business in 24 years. IBM Global Services built a \$30 billion business in nine years. Such inflection points could not possibly have happened without a focus on knowledge management.

In this article, I will outline the most typical approach to enterprise KM (EKM), as well as sketch generic EKM architecture and provide insight through practical EKM deployments with the IT services sector. I will conclude with commentary on EKM's future role and perspectives within the IT service industry.

### Defining KM

Paradoxically enough, there is no commonly agreed-upon definition for knowledge management. This ambiguity has opened the door wide for members of various communities and interest groups to claim that their activity actually is the one and only truly pertaining to "knowledge management." In all practicality, the consequence of this is that many people consider the KM field to be a pseudoscience, the offspring of snake-oil marketing, or a solution/technology looking for the suitable problem domain. (Refer to the "KM Fairy Tale" link in the Resources list for an amusing take on KM's unfortunate snake-oil associations.)

Still, despite all that buzz and hype, there are industries critically dependent on the efficient

treatment of knowledge, which also represents the bread and butter of their businesses. For example, education, banking, and healthcare are centuries-old, stable, classical industries that depend heavily on knowledge resources to proffer their traditional services. Only recently, have these industries evolved to the point where they are considering technologically advanced e-learning and e-banking services.

### **KM At Your Service**

These relatively new knowledge-based IT industries have created huge markets for IT support services. The estimated size of the services market today is around \$400 billion. Each dollar spent on hardware or software is followed by an additional \$7-14 spent on support and services. Modern IT consulting practices and innovative IT-based services are thriving on this simple fact.

Key players in service markets are large corporations — enterprises belonging either to the Fortune 1000 or Global 2000 groups, which are deploying various KM approaches to address a wide variety of problems. Typical objectives are twofold: to better handle internal inefficiencies and/or to deliver services in a cost-effective manner.

Traditional and newly created service industries share "knowledge" as the principal element of the service delivery, where workers are sometimes called "knowledge workers" and are supposed to be well educated, significantly experienced, and constantly retrained.

### **Defining Enterprise KM**

Knowledge management is an umbrella term covering the activities of people using tools, according to prescribed processes, to capture their knowledge and experience to share with others. These three ingredients (people, tools, and processes) have triggered very different communities to claim ownership of the subject — ranging from business management gurus to tool vendors and quality assurance circles. The fact is that knowledge management is a balanced mix of all three ingredients, aimed at very precise benefit targets.

For the purposes of this article, "enterprise" is defined as any business having more than \$1 billion in annual revenue, approximately 5,000 employees, 500 IT professionals servicing roughly 5,000 desktops, notebooks, and PDAs, and 500 servers spread over dozens of sites. According to estimates based on research from IDC and Delphi Group (see reports in the Resources list), enterprises are losing around \$5,000 per employee per year because of lack of information, training, or requisite skills —adding up to losses of about \$20 per employee per day. Therefore, the overall money wasted by the average KM-deficient enterprise (as described above) is about \$25 million per year. This surprisingly large figure also gives us the basis for calculating the return on investment (ROI) for KM projects.

In the course of their work, enterprise employees could obtain more information to eliminate some KM inefficiencies by exposing rational choices through suggestions and clarifications from experts. Estimates or guesses from experts (inside or outside the organization) might help and their interpretations could augment understanding. Through knowledge-seeking activities,

employees might find answers to simple questions or ultimately solve some problems. However, these efforts also cost the enterprise money, as shown in Table 1.

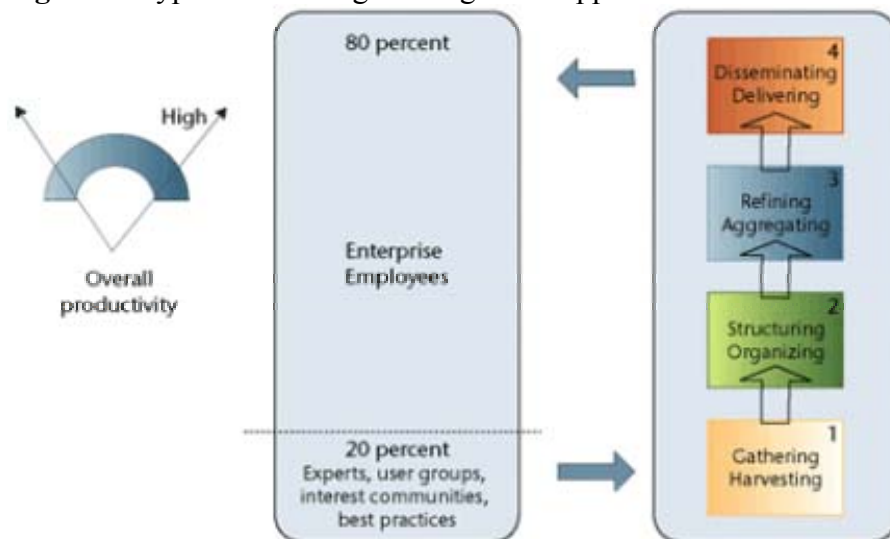
**Table 1.** Typical knowledge artifacts and estimated values.

Knowledge Artifact	Estimated Value/Transaction
Question answered	\$1
Professional advice given	\$10
Professional problem solved	\$100
Professional decision supported	\$1000

All the artifacts in Table 1 are the usual products of human intellectual activities, while knowledge management is about emulating these human activities by transforming tacit knowledge into explicit knowledge, and vice-versa. Table 1 lists some of these knowledge artifacts and estimates their value for referral purposes.

Figure 1 shows a typical enterprise KM setup. This scenario splits the user community into two segments of unequal size. The smaller segment (only 20 percent of users) consists of experts, communities, and interest and practice groups aiming to transfer their know-how, (as well as their know-what, know-why, know-if, know-where, know-who, and know-when) to others (the 80 percent user segment) for overall productivity improvement benefits. Observe that each "know-\*" factor (what, when, and so forth) deserves deep consideration in terms of how to represent and deliver specific types of knowledge relevant for that factor.

**Figure 1.** Typical knowledge management approach.



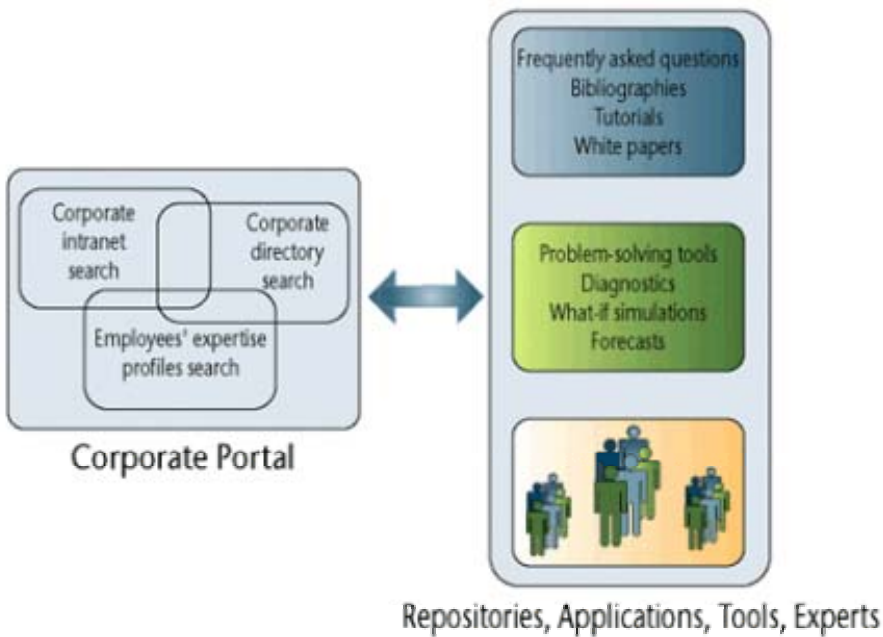
Four generic phases of KM are: gathering, structuring, refining, and delivering. Gathering involves the process of data and information collection. Structuring indexes, categorizes, and classifies material into suitable data and information sets. The refining phase will aggregate these sets into more valuable items through the processes of abstraction, discovery, and synthesis. Delivery will pack newly created items into suitable forms and structures.

Knowledge management technology is not one single, coherent technology, but a bundle of several technologies from various fields, ranging from information retrieval to artificial intelligence. Choosing the right technology is a critical KM success factor, while human psychology remains the most difficult problem to resolve. KM professionals seek to create incentives for people to share know-\* factors. Incentives run the psychological gamut — workers may share knowledge because they see it as a key differentiator for their career, for job protection, or for an even more valuable personal asset. It seems today that nobody has yet found a KM incentive scheme that works.

### Enterprise KM Architecture

Enterprise intranets commonly offer three enterprise services through enterprise portals: intranet search, employee directory, and a repository of employees' skills and expertise. These are typically discrete, non-interconnected enterprise services, while generic EKM architecture requires their integration (see Figure 2). For example, a particular subject search on the enterprise intranet might indicate subject-matter experts, their profiles, their positions within the organization, and the easiest way to reach them. Similarly, a search for an individual will retrieve his or her profile and a list of all publications and references involving him or her. Although simple, this approach has an obvious advantage — to know more is to know better.

**Figure 2.** Generic enterprise knowledge management architecture.



It is important to note that this stratified, three-layer architecture delivers repository, application, and human source solutions as the quality and price of deliverables goes up. Therefore, in the first layer, questions may be answered and more information indicators, pointers, and references may be given. The second layer addresses more intricate, practical problems by providing application suites in which professional problems can be solved, professional-level advice given, and estimates or forecasts created. Finally, the third layer copes with extremely complex problems requiring the competency of a human expert or group of

experts.

## **Seven Enterprise KM Insights**

Keeping in mind the aforementioned arguments, this article has focused on different KM aspects in large corporations. Focusing on the IT KM as the most beneficial and well-understood domain is the right choice. Insights gained from several internal deployments within Hewlett-Packard (refer to my paper in the Resources list for more details) indicate that:

1. Only large enterprises have the resources and monetary motivation to deploy large-scale, long-duration KM programs. For example, IBM's Lotus Notes product reached 60 million seats from 1989-2000, however when Notes 1.0 finally shipped in 1989 it had already been in development for five years (see discussions in my paper and Lotus' history document in the Resources list).
2. Don't expect quick returns or an immediate acceptance of the KM program.
3. Initial investments are usually high (10s-100s of person-year efforts), and you must have senior management sponsorship and persistence (for several years).
4. The choice of technology or technologies will make the difference — choose tools, processes, and infrastructure cost-effectively.
5. A successful EKM is characterized by a typical cost spread: 80 percent on the design and implementation, and 20 percent on operation and maintenance. Failed EKM projects have exactly the opposite cost structure.
6. The choice of a deployment domain and knowledge-representation paradigm is critical for success.
7. An understanding of user needs, behaviors, and psychology is a precondition for choosing technologies, KM architectures, and designs.

Not only does knowledge management work well in IT service industries, it also represents the key ingredient for the successful service business. Still, critical decisions on application domain, technology, and how to address real users' needs should be considered carefully.

Another way to look at KM (people, processes, and technologies) is to consider it the core ingredient for transforming your business. It may well transform current corporations into "intelligent enterprises" during the next 15 to 25 years.

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