Knowledge management (KM) is ill defined in the marketplace. Therefore, companies mistakenly segregate critical IT infrastructure needs such as e-learning, performance support, process improvement, reengineering, change management, and KM. They fence off efforts in these areas from each other, even setting them up as competitive initiatives, each with its own champion. Initiative leaders strive to increase performance, but they often compete for precious few resources in a vacuum of knowledge about other strategic efforts.

In particular, most employees and managers lack knowledge about KM. KM can only enhance organizational performance when understood and intelligently applied, which includes integration with other improvement initiatives. You can begin to understand KM by understanding basic knowledge processes.

**Basic Knowledge Processes**

Knowledge can be defined as understanding gained from experience. It is helpful to describe knowledge as the only active force in an activity, although the inputs to the activity can be data, information, or knowledge. In other words, data or information simply cannot be the active force because it takes knowledge to perform the activity. In such a model, the knowledge (activity) can process data or information to make a decision or solve a problem.

Or knowledge can also be an input, and then the activity is to validate it, structure it into another form (such as a lesson or a procedure manual), or to enrich it with new insights—the creation of new knowledge that we call innovation.

Most personal knowledge resides in the head of an experienced person as tacit knowledge. As a knowledge manager, can I claim to get inside your head and manage the neuron links that represent your knowledge? Of course I can’t. So knowledge management is a misnomer; I can’t manage knowledge. What I can manage are the organizational knowledge processes that continuously involve employees. Figure 1 shows my rendition of a knowledge life cycle model. To begin to harness organizational knowledge, you must understand the processes that develop it.

**Knowledge Acquisition**

As Figure 1 shows, employees can acquire information and knowledge from the world outside the organization. Employees attend classes; perform research of various sorts, including piloting real-world applications; browse the Web for relevant, electronically available information; and read hard-copy resources—such as reports and patents—for information. The acquisition process provides raw material (information and unvali-
dated knowledge) for the next core knowledge process, knowledge production. Other terms used for acquire in this context include search, gather, find, capture, and validate.

**Knowledge production**

The knowledge production process operates on the raw materials provided by the acquisition process. An individual acting alone can produce knowledge or he can work as part of a collaborative team or community. There are at least two aspects of knowledge production:

- validation of information considered by others to be knowledge, and
- innovation, the creation of new knowledge.

Simply put, new knowledge derives from the skillful, sometimes fortuitous, combination of externally gathered information or knowledge, personal past experience, and deep reflection on both of these resources. On occasion, such reflection can lead to new knowledge (innovation). Otherwise, a deeper understanding of existing knowledge emerges. In either case, validation is an important ingredient. One person’s knowledge can be another person’s information, unless some means exists to validate it. The validation process becomes even more important when we consider the final core knowledge process, knowledge integration.

Other terms used for produce include collaborate, refine, innovate, and validate.

**Knowledge integration**

Many people who write about KM consider knowledge transfer to be a knowledge process. I prefer the stronger connotation of knowledge integration. If I transfer knowledge to you and do not convince you of its validity and efficacy, it can sit collecting dust on your desk (if it is written or explicit knowledge), or you could soon forget it (if it is merely spoken to you and intended to become part of your tacit knowledge).

If I have only transferred the knowledge to you—not instructing you in its worth, not allowing others whom you trust to share such knowledge with you, not exposed you to the improved practices that such knowledge enables—our organization will not reach its desired outcome: improved performance and value through organizational learning. This is the difference between transfer and integration.

Other terms for integrate include store, instruct, present, share, and expose (to best practices or lessons learned).

**Deeply embedded processes**

The knowledge processes just described underscore all that people in an organization do. As an example, consider an organizational process such as strategic planning. Whether you have personally participated in strategic planning or not, you will find that it—as with all other organizational processes—consists of embedded knowledge.

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**Figure 1. Knowledge life cycle model.**

Basic knowledge processes—acquisition, production, and integration of knowledge—occur throughout the organization to foster organizational learning.
KNOWLEDGE MANAGEMENT

How KM Works in Strategic Planning

Congratulations; consider yourself the newly appointed director of strategic planning. You might be rightfully proud of your position and the impact you can have on your organization’s direction. You might even be so proud that you haughtily reject your organizational knowledge manager’s offer to assist you. After all, what does a knowledge manager know about the intricacies of environmental analysis, visioning, and scenario planning, just to mention a few complex strategic planning tasks? The knowledge manager contends that strategic planning is merely a unique combination and focus of the three basic knowledge processes—acquisition, production, and integration—a topic in which the knowledge manager is expert. Let’s shed a new KM-inspired light on the director of strategic planning’s role.

One of the strategic planner’s initial tasks, as might be defined in the company’s documented planning process, is to understand the market by performing market research. In the military, on the other hand, such research is less concerned with a market and more focused on, say, the world order, but the parallel is clear. Either way, this sort of activity is one of information acquisition.

After accumulating sufficient information, the strategic planning team convenes or collaborates to validate the collected information. Careful analysis of the implications of all such information and prior experience results in the creation of a strategic plan—the creation of new knowledge in the form of strategic insights and resultant strategies and tactics.

Finally, the team could publish the strategic plan so that it transfers the actionable knowledge it contains to the rest of the organization. But unless the strategic planning team can weave such strategies and tactics into the very fabric of the organization—in other words, integrate this information—improved mission success is questionable.

Further, consider the actual hiring process for the director; is this not a knowledge acquisition process? Don’t other key executives validate your planning and industry knowledge during the interviewing process? Also, consider the planning process methodology itself; continuous improvement of the strategic planning process by the team is a knowledge production process.

So, is the director of strategic planning a planner or a careful steward of the three knowledge processes? As the careful steward of the three knowledge processes, the planner can benefit from a KM perspective and should welcome the assistance of the knowledge manager.

MANAGING THE PROCESSES, NOT THE KNOWLEDGE

If you can’t manage the knowledge, how do you manage the core knowledge processes—acquisition, production, and integration?

Part of managing these processes calls for the design and implementation of a system that integrates two all-important KM concepts:

- **Connect.** This concept involves promoting collaboration, usually in the form of building and sustaining collaborative communities of practice. CoPs are for the cultivation—care and intellectual feeding—of potential knowledge contributors, especially those that create new knowledge.

- **Collect.** This concept involves building and enriching knowledge repositories or bases. Knowledge bases are the grain bins of harvested knowledge, stored for ready access and future use or reuse.

Connect

Humankind has dealt with knowledge since before recorded history. The roots of today’s collaborative, knowledge-sharing communities and networks date to ancient tribal elders who shared traditions and culture, often while seated around the campfire. These traditions have their present counterpart in social nets of friends and trusted associates. These knowledge-sharing, informal networks or communities evolve and exist in every organization, regardless of formal organizational structure.

Many modern KM systems capitalize on these natural human instincts; they use storytelling and enable connections among trusted individuals to form communities. But the level and complexity of knowledge—and the approaches to acquiring, creating, and sharing it—have changed considerably over the millennia. Although storytelling and dialogue between trusted associates remains effective, such knowledge methods don’t fully meet the need when the level and complexity of the needed knowledge doubles with each generation. When processes are developmental and complex, such as the evolving KM methodology, for instance, knowledge sharing only partially satisfies the need.

CoPs are a modern manifestation of the need to connect. Because many KM practitioners have writ-
Cultural knowledge-leveraging activities took a great leap forward when Gutenberg invented the printing press in the 15th century. This invention, possibly the one with the greatest impact on humankind in the past millennium, enabled previously unarticulated knowledge to be made explicit by documentation in books. Printers could manufacture books by the millions and distribute them to knowledge seekers well beyond the campfire’s reach. Because of this new capability for explicit knowledge articulation (codification) and transfer (publishing), the great scientists and inventors of the 16th through 20th centuries could integrate the knowledge of others into their own work. They could “stand on the shoulders of giants,” according to Isaac Newton.

These two knowledge lessons of history—collaboration and codification—provide the principles for the basic infrastructure assumptions of today’s comprehensive KM systems: to leverage existing knowledge (both tacit and explicit) and to foster innovation (the creation of new knowledge). Developing knowledge bases is key to these efforts.

Knowledge bases

Knowledge bases range from public ones hidden from the user behind a search engine to private, highly structured, company or organization repositories. Repositories can hold documents in the traditional file folder metaphor, organized around topics. You could also organize more robust knowledge bases (in terms of depth of material) around processes. Such an organization would, for instance, provide books of knowledge to support each specific activity’s knowledge requirements.

Let’s take a look at a knowledge base designed for the US Department of Defense in 1994 to house its business process reengineering methodology (Michael J. Marquardt and Greg Kearsley, Technology-Based Learning: Maximizing Human Performance and Corporate Success, CRC Press LLC, Boca Raton, Fla., 1998). This one will give you a glimpse of the evolving full life cycle KM methodology knowledge base, which my organization, the Knowledge Management Professional Society (KMPro), uses in its Certified Knowledge Manager (CKM) program. This knowledge base has two key components: a work breakdown structure, shown in Figure 2, and references—the books of knowledge—shown in Figure 3.

This knowledge base tool shows knowledge references metaphorically as books of knowledge. For instance, these books include bibliographies, formal documents (policies), informal documents (work products), lessons, and templates, as shown in the Figure 3’s list of references. Other
Lessons Learned in Integrating Connect and Collect

So how does a knowledge manager integrate both connect and collect? Here are a few general tips from my experience.

➤ Reinforce natural instincts to build trust and a culture of knowledge sharing. Reinforce these instincts by, for instance, fostering an environment that makes it OK to ask for advice, if it is not already documented in the knowledge base. Also, reward those who can provide wise counsel, whether to ongoing group discussions or directly to the knowledge base when the organization finds gaps in necessary knowledge.

➤ Provide appropriate technology-enhanced collaboration tools. These tools include simple ones for discussion groups to use, such as cellular phones, pagers, and e-mail servers capable of storing threaded messages. These tools can also include expert locators, which automatically uncover experts within the organization based on, for instance, e-mail content.

➤ Provide intuitive repositories for accumulating mission-critical knowledge. These repositories should cover lessons; best practices; keys to success; and recommended checklists, templates, and tools. An often-made mistake is to create document repositories. Though important, they alone do not provide the best knowledge to the right person at just the right time to solve the problem, make the decision, and so on. To be truly effective, knowledge bases must be much more granular with nuggets of knowledge in the context of the activity being performed. This last thought points to the convergence of e-learning, performance support, and KM, but that’s another topic.

➤ Enrich the technology with managerial practice and business process. Remember, it is not simply the infusion of collaborative technologies and knowledge bases, but cultural change management that will ultimately determine KM’s success. This brings this discussion full circle to a comprehensive KM methodology. Such a methodology instructs employees in how to create and execute strategic KM initiatives that optimize the embedded knowledge processes of acquisition, production, and integration to truly create a learning organization.

Making connect and collect work together

How you actually implement such an involved knowledge base—and the strategic KM initiative behind it—is beyond this article’s scope. Doing so involves a full life cycle methodology; something much different than the knowledge life cycle model. A KM methodology addresses the who, what, why, when, and how of KM, from planning to design, implementation, and continuous improvement.

The “Lessons Learned in Integrating Connect and Collect” sidebar offers some tips for helping organizations integrate these two concepts.

A DAY IN THE LIFE OF CONNECT AND COLLECT

Before you consider implementing a full KM methodology, I’d like you to understand how an organization functions when operating in connect-and-collect mode. Suppose a knowledge worker, shown in Figure 4, faces a problem. The problem could occur because he is new to the job and needs additional training. Or it could be that he has uncovered one of a myriad of unique situations outside his personal knowledge base (understanding gained from prior experience or training).

Here is the process that this knowledge worker could follow as he experiences the positive fruits of a typical day in the life of a connect-and-collect environment, along with some reflections and possible results. Let’s follow the connect-and-collect problem solution through Figure 4.

Step 1: Do we already know this?

The knowledge worker realizes that although he does not know how to solve the problem, people in his organization might know the answer. To find out if “we already know this,” the knowledge worker accesses the knowledge base related to the job at hand. Perhaps one of the books of knowledge associated with this activity could include barriers, guidelines, keys to success, checklists, techniques, tools, and so on. Although depicted in Figure 3, these potential books are not now populated for this particular activity in the KM methodology.

The key benefit to the knowledge worker is that he can tap into a vast resource of specific knowledge about the task without divulging that he does not know how to do something. Companies have found that this self-service feature is of considerable advantage in change management to encourage employees to accept new ways of doing business.
Step 2: Whom can I ask for help?

In this case the knowledge worker’s problem seems unique, and helpful knowledge is not available in existing knowledge bases. He must turn to others for help. The help could be in the form of a named individual who is expert at this activity and has volunteered to be on call to help others. Or help could take the form of a subset of the CoP that has always existed, but which management has identified and authorized to resolve issues in its area of expertise. In this example, the knowledge worker takes step 2 by posing his question to the community.

Steps 3 and 4: Sharing knowledge and enriching the knowledge base

The community discusses the problem to reach a resolution (step 3). As several discussion threads develop, three positive outcomes result.

- **The CoP discussion group solves the problem.** The process has stimulated the company’s best minds associated with this particular activity to collaborate on creative outcomes, which represents the critically important production of new knowledge (innovation).
- **The discussion group validates this new knowledge and harvests it.** One discussion partner volunteers to summarize the discussion outcome in terms of what the knowledge base needs. She will also post that new knowledge to the knowledge base manager for verification and filing in the knowledge base. This is step 4.
- **The addition of this new knowledge enriches the knowledge base.** The next worker with the same type of problem can find the answer in a self-serve mode. This mechanism eliminates the problem of needlessly expending the energies of those creative folks (in the discussion group) that thrive on facing new problems, not repetitiously answering frequently asked questions.

Connect-and-collect functionality built into an enterprise knowledge portal addresses many needs. It optimizes the possibility of getting the best knowledge to the right person at just the right time to solve the problem at hand. It simultaneously stimulates the organization’s brightest and most capable people to help solve tough issues, which produces new knowledge. This last outcome is the essential innovation that drives organizational success, the true KM endgame.
universities can also use and contribute to the knowledge base (step 7). Finally, the new KM knowledge and innovative ideas continuously feed the revision of instruction (step 8). Or, sometimes this knowledge leads to the incubation of a start-up (step 9). Instruction can take place in workshops for new candidates or in lesson modules for already certified knowledge managers as they pursue a life-long journey of continuous learning, another part of the real KM endgame.

I hope that this basic explanation of KM will begin to break down the barriers that separate KM from other disciplines. It is my strong contention and firm belief that an ability to leverage knowledge is so essential to performance that any improvement initiative—information management, quality, reengineering, organizational development, project management, you name it—that ignores the daily inroads being made in KM, does so at its own peril.

Also consider the typical lack of a diagnostic and prescriptive mentality in applying KM. Many KM initiatives resemble a solution in search of a problem. The present KM mantra—“let’s install a portal and say we have done KM”—is a classic example of a person with a hammer seeing every problem as a nail.

In contrast, the CKM community realizes that organizations should first use knowledge audits to analyze organizational problems and assess potential knowledge-building opportunities. Only then can an organization apply the proper prescription such as connect and collect—not just a generic tool, such as a portal—to all problems.

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CKMERS MUST PRACTICE WHAT THEY PREACH

So, if connect and collect are key to the KM endgame, who practices this approach? The problem with visions is that everyone is too engrossed in today’s problems to see the vision, much less implement it. Because certified knowledge managers should practice what they might be preaching to their organizations, KMPro’s CKM program is proving the connect-and-collect model as it uniquely applies to a KM professional learning program.

Figure 5 outlines how the CKM program works. Certification candidates draw knowledge from many sources, including workshop instruction (step 1); the knowledge base of KM methodology activities, lessons, guidelines, and so on (step 2); demonstration technologies in the Innovation Lab (step 3); and their community of fellow graduates (step 4). When the community is activated, it enables peer-reviewed discussions and contributes to the body of knowledge (steps 5 and 6). In this powerful learning community, participating