

CHOOSING YOUR SPOTS FOR KNOWLEDGE MANAGEMENT

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If you think the decisions that make or break a company are those made by strategists at the top, go back and re-read your Tolstoy. Whether in war or in commerce, it's the sum total of countless decisions made every day on the front lines that determine the course of future events. Their amassed weight can create a momentum—or a chaos—far beyond the power of senior leaders to redirect.

Success, in business or other large-scale endeavors, depends on good individual, daily decisions outweighing bad ones over time. And the most important thing top management can do to ensure success is to empower people throughout the organization to make good decisions. Partly, this is a question of simply granting the authority for decision-making—and establishing accountability for decisions made. But much more importantly, it's a question of equipping people with the *knowledge* required to make decisions well.

We see companies of all kinds coming to this same realization, and also recognizing its implication: that they must manage their organizational knowledge in a much more deliberate, explicit fashion. When bad decisions are made, after all, it is rarely because the knowledge did not exist in the organization to make them well. It's because that knowledge wasn't brought to bear on the decision, because it was buried in a corner of the organization where it could not be found in time—or because it was never

A Blueprint
for Change

The purpose of knowledge management is to ensure that every decision-maker has the benefit of the whole organization's experience and intellect. But managers often start down the wrong path in trying to facilitate knowledge transfer because they categorize knowledge according to domains (what it is about). In considering what knowledge to manage and how, it is more useful to consider its applicability and transferability.

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sought in the first place. Applying the fullness of an organization's knowledge to its decisions means working hard to represent it, transfer it, make it accessible, and encourage its use. None of this happens automatically.

Unfortunately, while many companies are seeing the need for better knowledge management, we see most of them leading the charge by heading directly and forcefully down *the wrong path*. The major problem seems to be the model they adopt for organizational knowledge and learning—which is based too simplistically on how people learn as individuals—and the false priorities that model points them toward.

Thinking About Knowledge In a New Way

It's understandable that, as managers start to think about making organizations knowledgeable, they look for guidance to the only model they know: making individuals knowledgeable. They make an immediate assumption that organizational knowledge is simply individual knowledge writ large, and that the analogy will hold up through any level of expansion. It's not true.

The first problem that this false start leads to is a tendency to categorize the knowledge that is important to the business into *domains*. If organizational knowledge management is basically the challenge of sharing knowledge broadly that used to be trapped in pockets, then the first questions to arise are: what knowledge are we hoping to share, and with whom?

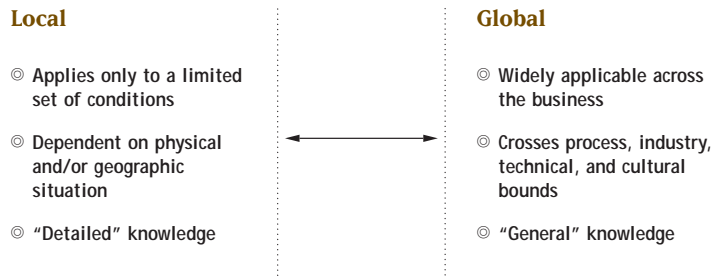
When individuals think about the "what" of knowledge, they think in terms of domains, or what it is they are knowledgeable about. A person may be knowledgeable about political history, fly-fishing, or accounting. Asked to categorize their knowledge, they would organize it into buckets like sixties trivia, seventeenth century poetry, and current affairs. Our bookstores are set up in this way; so are our newspapers. In fact, our entire educational system encourages us to think in terms of domains of knowledge, and the mastery of them over time.

It's hardly surprising, then, that when aspiring knowledge managers in organizations begin thinking about the question "what knowledge?", they think in terms of domains. "We need to manage our knowledge about the Japanese market," they might say—or chemical engineering, or new product introduction. Recognizing that there are various means by which and levels to which knowledge can be managed, they will then set priorities amongst these domains.

There are other ways, however, of classifying knowledge that have little to do with content. Rather than slotting a piece of knowledge based on whether it is about this or that, for example, we might slot it according to where it could be found: does it come from a single source or from multiple sources? This would be a focus on origin as opposed to domain. Some other characteristics that might guide knowledge classification include:

Figure 1

Knowledge Can Be More or Less Universally Applicable



Recipient: who is likely to need to use it?

Applicability: How broadly does the knowledge apply? Is it local or global in nature?

Transferability: How easy is it to impart the knowledge to others, and how difficult for them to apply correctly?

Richness: How much is the knowledge dependent on its context, and how much meaning would be lost through simplification?

Currency: How old is the knowledge? How timeless?

Trustworthiness: Is it easy to test? Does it come from a reliable source?

The list could go on and on. The point is that, in considering the question of what knowledge to share, the answer need not be expressed as "knowledge about x" or "knowledge about y." In fact, our work indicates that thinking about knowledge in terms of domains is not very useful at all in guiding knowledge management. Instead, the real insight comes when we look at relative levels of *applicability* and *transferability*.

Categorizing Knowledge for Management

Any given piece of knowledge that may be important to a business decision falls somewhere along a continuum of *applicability*. (See Figure 1.) At one extreme, a thing that is known might be purely local in nature. That is, it applies only to its immediate set of conditions, and is dependent on a given physical or geographic situation. At the other extreme, the knowledge might be global in nature, applying widely across the business, and across process, industry, technical, and cultural bounds. One way to think of this range is as detailed versus general knowledge. It seems clear that a given piece of knowledge should be managed differently according to how broadly applicable it is.

Figure 2

Knowledge Can Be More or Less Easily Transferred

Programmable

- ⊙ Rule-based knowledge
- ⊙ Can be applied multiple times
- ⊙ "Learning from history" to avoid repeating mistakes

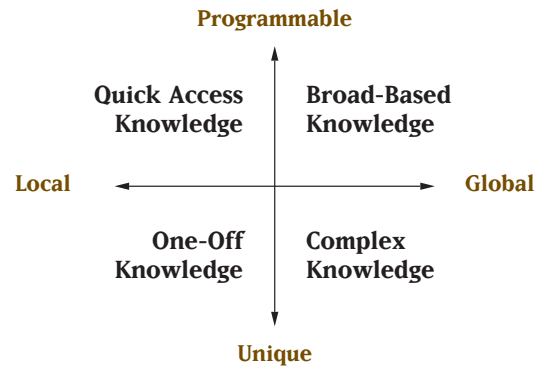


Unique

- ⊙ Context sensitive to specific situation
- ⊙ Judgment-based
- ⊙ "Just-in-case" knowledge
- ⊙ Projecting into possible future problems

Figure 3

For Useful Categories of Knowledge to Manage



Equally important is the level of *transferability* exhibited by a given piece of knowledge. (See Figure 2.) Knowledge that is rule-based is highly transferable, because it can be stated simply and definitively ("if x condition is present, then the best approach is y"). It can be transferred multiple times without losing its validity. At the other extreme, transferability is low when knowledge is judgment-based and/or very context-sensitive. While it may be highly applicable in future situations, it is hard to capture in such a way that it can be accessed "just in time." The continuum of transferability can be seen as ranging from the programmable to the unique.

If we think along both of these dimensions simultaneously, then we begin to have an answer to the question of "what types of knowledge are we dealing with?" Figure 3 shows a matrix of four possible categories of knowledge. Their labels point to key differences in how they should be managed, as discussed below.

“Quick Access” knowledge is well served by placement in a database where it can be sought when needed. “Broad-Based” knowledge, on the other hand, should be distributed proactively to large groups of people. “Complex” knowledge deserves the most management attention, and can’t be transferred purely through technology. “One-Off” knowledge rarely justifies management investment beyond creating informal communities of interest.

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Quick Access Knowledge

A piece of knowledge may be easily transferable (even programmable) but not very broadly applicable. For example, a reservations clerk in the Ritz-Carlton Hotel may learn that when Mr. Smith books a room, he wants a non-smoking one. This is a piece of knowledge easily transferred to others throughout the chain, but not very broadly applicable. (We cannot infer, for example, that all people from Smith’s hometown are non-smokers.) The term “quick access” makes sense for this kind of knowledge because it is best managed by placing it in an accessible spot—most likely a sophisticated database—for use if and when needed. It would be a mistake to distribute this knowledge proactively to all personnel, just in case they might someday need it.

Broad-Based Knowledge

Other pieces of knowledge in the organization may be both easily transferable and broadly applicable. An example might be the organization’s personnel policies, such as the knowledge of how to fill out a timesheet. With such “broad-based” knowledge types, it does make sense to broadcast to the organization by packaging the knowledge and distributing it proactively. Unfortunately, there is a tendency in firms to think more knowledge is broad-based than actually is; this is the source of the “information overload” felt by so many employees. One antidote is to broadcast information about how to access commonly needed knowledge, rather than broadcasting the knowledge itself.

Complex Knowledge

When a piece of knowledge is broadly applicable but not easily transferable, it is best transferred through structured training efforts. An example of such complex knowledge might be, in a consulting firm for example, the knowledge of how to manage a large-scale project. Many people in the organization need this knowledge, but the vicissitudes of good project management are largely resistant to hard-and-fast rules. In other industries, the approach to managing complex knowledge transfer is often apprenticeship. In both cases, there is a recognition that the learner must develop a feel for the area that can only be gained through proximity or attention to someone already knowledgeable about it.

One-Off Knowledge

Finally, there is knowledge in organizations that is neither easy to transfer nor broadly applicable. A network manager in one office may know a great deal about configuring Macintosh systems, but if most of the organization uses Windows, the knowledge is not worth sharing broadly—and would be difficult to transfer in any case. Because the payoff of managing this category of knowledge is very low, it makes little sense to focus knowledge management efforts here. It is sufficient to support the establishment of informal, special-interest networks of people who might benefit from interacting occasionally with each other.

Traditionally, we think of knowledge being transferred from a knowledgeable individual to another individual or, in a classroom setting, to a group. The larger opportunity for knowledge management is in transferring the knowledge of the many bright and experienced people in an organization to the individual decision-maker—or better still, to many decision-makers. Going from one-to-one knowledge transfer to many-to-many requires a shift in mindset. It takes people out of the comfort zone that has been established through a lifetime of traditional learning.

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These brief notes already make it clear that thinking about knowledge in terms of applicability and transferability yields much clearer guidance for management than thinking of it in terms of domain. In all four cases, as in most areas of business, the best form of management is a careful balance of influencing people's behavior, introducing effective processes, and putting in place supporting technology. The mix differs, however, with the category. Quick Access knowledge, for example, is highly amenable to computerization, and management here should be at its most IT-intensive. Complex knowledge, on the other hand, demands the highest level of people management. The four categories have clear management implications, too, for levels of investment and effort. One-Off knowledge yields little return on high management effort. Complex knowledge management may represent the single greatest source of competitive advantage.

Getting Knowledge to the Right People

Earlier, we said that the challenge of knowledge management starts with a key question: what knowledge are we hoping to share, and with whom? Many companies have started down the wrong path in the first part of the question, by looking at knowledge in terms of content domains rather than in terms of applicability and transferability. The mistake follows naturally from the fact that the only model most managers have for knowledge management is that of the individual. The same bias gets companies into trouble on the second part of the question: among whom does knowledge need to be shared?

Individuals are most comfortable with knowledge sharing that originates with individuals. A single knower envisions himself imparting knowledge to one other person, or imparting knowledge to many other people. Similarly, when it comes to gaining new knowledge, he is apt to think of that knowledge being imparted to him by some one other person, who is addressing either him alone or him as part of a group. Figure 4 shows that this mindset of one-to-one or one-to-many knowledge transfer is only half the universe of possibilities. Our own experience would indicate further that it is the poorer half. The real opportunity lies in the realm where individuals and companies are least comfortable—knowledge transfer from many to many.

Figure 4

Possible Levels of Knowledge Sharing

		Origin	
		One	Many
Recipient	One	<ul style="list-style-type: none"> ⦿ Apprenticeship ⦿ Coaching ⦿ Mentoring 	<ul style="list-style-type: none"> ⦿ Networks
	Many	<ul style="list-style-type: none"> ⦿ Presentations ⦿ Books ⦿ Articles 	<ul style="list-style-type: none"> ⦿ Leverage

A company learns more in a day than an individual learns in a career. It makes sense, then, that when it comes time for an individual to make a business decision, he or she will do better to draw on the knowledge of the total organization rather than the knowledge of a specific individual, however intelligent. When a decision-maker floats an inquiry with a group of advisers, he is inviting knowledge transfer from many to one. When a project team raises questions on a networked discussion database, the transfer taking place is many-to-many. Both hold the promise of applying greater amounts of useful knowledge to people at the point in time when a decision needs to be made.

Knowledge transfer from many to many will not become comfortable overnight. Managers will continue to tend toward their traditional means of acquiring knowledge individually and from trusted individuals. And as they begin to experiment with broader scopes, they will quickly run up against a disconcerting sense of loss of control. (Is too much knowledge being given away too broadly?) Nevertheless, the allure of many-to-many knowledge transfer is already undeniable; what else to account for the wild popularity of groupware—a technology that has yet to prove itself in many hard results. The recognition is growing that the real leverage to be gained from knowledge assets is in this kind of transfer, and that knowledge management efforts should focus here first.

A Case of Knowledge Management: Bechtel Corporation

One company that has focused its knowledge management efforts appropriately on what knowledge to share with whom is Bechtel Corporation. Given the company's recent competitive challenges, there is no question it needed to get more leverage out of its knowledge assets. But just as surely, its constrained operating budget meant that any knowledge management projects had to be targeted at the areas of greatest payback. As in many companies, the path forward was hardly obvious at the outset and Bechtel had a few false starts. (See sidebar, pg. 53.)

Very quickly, Bechtel's management came to understand that the real payback opportunity lay in learning how to leverage its complex knowledge.

Project teams working on multi-year engineering and construction jobs were inevitably generating huge amounts of new knowledge—but unfortunately, much of that knowledge was remaining hidden to the rest of the organization. Isolated in those teams, it was inaccessible and unleveraged. Wheels were being reinvented left and right.

The frameworks outlined in this article were developed in work at Bechtel, where they helped to focus knowledge management efforts on the areas that promised the greatest impact on quality and profitability. One tendency that had to be countered was individual project managers' assumptions that their challenges and experiences were unique. In fact, much of the learning taking place in Bechtel's hundreds of active projects is highly applicable to others.

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Determining what types of knowledge could and should be shared was an important—and sometimes contentious—discussion. There was a real bias on the part of individual project managers to believe that each of their projects was unique. If that were true, then the knowledge gathered for or generated by their teams would not be relevant to other teams, and any effort to capture and transfer it would be a waste of time. In fact, however, the level of applicability is surprisingly high. People had to have this demonstrated to them in a variety of cases before they could see how much of Bechtel's knowledge fell in the category of "complex knowledge" as opposed to being "one-off."

Today, Bechtel is busy creating the infrastructure that will support the rapid transfer of complex knowledge from many to many. The effort holds great promise for increasing the value Bechtel delivers to clients around the world. Happily, it also promises greater profitability on major projects.

Keeping Knowledge Management in Perspective

As an increasing number of success stories are publicized about benefits gained from more active knowledge management, we have only one fear: that the approach will begin to be pursued for its own sake. Knowledge management is *not* an end in itself. Businesses do not exist for the purpose of propagating and advancing knowledge—they exist to sell products and services. But to the extent that competitive advantage relies on informed decision-making within the business, knowledge management has a critical role to play.

Keeping knowledge management in perspective also means understanding that it may be possible to have too much of a good thing. As with process innovation, quality management, or any improvement program requiring resources, there are problems in businesses that simply aren't big enough, aren't important enough, aren't worth the effort of fixing. In the end, the success of knowledge management will hang on the thoughtfulness of managers in choosing their spots.