A Behavioral Approach to Knowledge Management

by William Seidman and Michael McCauley

Why have so few knowledge management (KM) systems met or exceeded expectations?

Simply put, customers of KM systems are not getting what they want, need, or expect. In fact, the idea of having a formal customer for a KM system is pretty rare in KM/IT circles. Yet, as with all products, services, and systems, effectiveness at meeting expectations is determined solely by the customer.

What do customers expect from KM? Most KM customers expect a KM system to enable them to adopt more productive and efficient behaviors, which in turn should improve an organization's financial performance. In the customer's view, better knowledge drives better behaviors, which drive better results. It is an obvious cause-and-effect relationship. Management of the knowledge is only important to the degree that the knowledge being managed contributes to a performance improvement.

Unfortunately, most KM systems focus more on the managing component than on behavioral change. As a result, customers of KM systems only occasionally change behavior, and thus KM systems only occasionally produce the expected results.

This article examines the role of KM systems in behavioral change. More specifically, it presents an analysis of the underlying "warehouse model" of most KM systems, contrasts the warehouse model with a customer-focused model of KM, and presents guidelines for how to make a KM system drive new and more productive behaviors. Companies using this behavioral approach have shown significant financial results, including:

- A $2 million per week per facility savings for a semiconductor manufacturing company
- A $2,000 per week per restaurant increase in sales at a fast food company
- A 66% reduction in training time in a federal agency

These results certainly exceed most customer expectations for a KM system!

WAREHOUSE MODELS OF KM

Where have KM systems gone wrong?

Most KM systems are well designed, implemented, and supported. However, most KM systems are also based on a deeply flawed "warehouse" model of knowledge management (see Figure 1). By reexamining this underlying premise, we can directly and significantly enhance the overall effectiveness of KM.

In a warehouse model of knowledge management, there are a set of knowledge inputs, a storage and transportation capability, and a set of knowledge outputs. Based on this underlying model, the overwhelming emphasis of knowledge management has been on the storage and transportation portion (in the form of databases, portals, and search engines), with relatively

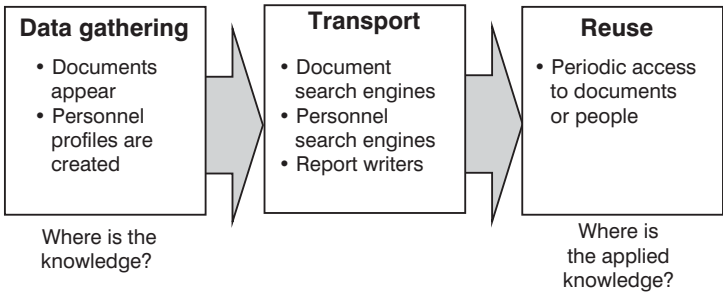

Figure 1 — The warehouse model of knowledge management.

little attention paid to either the inputs or the outputs. As a result, great KM warehouses have been developed.

Unfortunately, they suffer from many of the same problems as older, industrial warehouses. For example, both types of warehouses have difficulty with quality assurance of the inputs. In most KM systems, there is little or no significant quality review of the content posted to a database or added to a community of practice (CoP) bulletin board. Thus, the customer has no way of knowing if the content is actually correct or useful.

Similarly, both types of warehouses have problems finding the desired item. This is in part because both types of warehouses try to keep *all* products or knowledge for *any* possible need, which produces a huge, essentially unmanageable volume of products or knowledge. In industrial warehouses, this problem was solved with "pick systems" that direct a worker to the exact location of an item. In knowledge warehouses, the equivalent of a pick system is the search engine. However, in both cases the sheer volume of items to be searched hinders the searching process.

In a lecture at *KMWorld 2001*, Dave Snowden, a distinguished researcher with IBM's Knowledge Management Institute, stated that a user of a typical KM search engine can only find the correct document if he already knows which document he is looking for well enough to narrow the search to that document [5]. So why bother with the search engine? Even if the content is good, the customer of a KM system has a hard time finding it.

Ask people who have used a KM system about their search experiences. They almost always have a story about entering a common word or phrase into a KM search engine and being "rewarded" with thousands or even tens of thousands of search results. From a technical perspective, finding so much related information shows the "power" of the KM system. From the user's perspective, however, the overwhelming volume of the information renders that information almost useless.

The volume problem is made worse by difficulties with content that becomes obsolete. Naïve users will naturally assume that a document in the KM system is correct, even if in reality the content is out of date. After all, how are they to know the difference? In industrial warehouses, many of the stored products are no longer in use, but they still take up valuable shelf space and capital. In this situation, most companies have sales or marketing promotions intended to close out items and get rid of excess warehouse stock. In knowledge warehouses, however, obsolete material just clutters searches and is rarely removed. How much of the content of a typical KM system is obsolete? How often is it purged? What criteria are used to purge the content? Organizations will need to find the right answers to these questions or run the risk of undermining user confidence in the quality of the content.

Knowledge warehouses also have problems with outputs. Most items retrieved through a knowledge management system have minimal context associated with them. "When should a document or piece of data be used?" and "How should it be used?" are questions that the user must answer for herself with, at best, minimal support from the KM system. This means the customer has to figure out what the retrieved content actually means. For example, a professional services firm had a huge store of sample project proposals and reports. Unfortunately, they were virtually useless because whenever the staff tried to use one of them, they had to make significant modifications to it so that it would apply to their particular situation. The content lacked sufficient context to make it useful.

In summary, the very model underlying most KM systems is fundamentally flawed and is therefore unlikely to meet customer expectations, let alone exceed them.

CUSTOMER-FOCUSED KM

Fortunately, many of the problems with traditional warehouses were eventually resolved with the advent of "just-in-time" manufacturing. By applying similar just-in-time principles to KM, it too can become significantly more productive.

How can the just-in-time concept be applied to KM? To answer that question, let's first look at how manufacturing environments apply it. Just-in-time manufacturing begins with a thorough analysis of a specific station on the production line. All of the work processes and flows are identified for optimal performance. This analysis includes specification of exactly which part is needed from the warehouse, when it is needed, in what form it is needed, and how it is delivered. The warehouse is then modified to meet those specific requirements by emphasizing efficient delivery of the more frequently utilized and/or critical items. As a result, the number of items kept in the warehouse drops significantly because the warehouse isn't expected to cover all contingencies. Instead, the warehouse's operations can be streamlined and focused on meeting the key manufacturing priorities.

A similar model can be applied to KM using the customer as the equivalent of the manufacturing workstation. This customer-focused KM (see Figure 2) begins with a complete understanding of the customer's function, including how he uses knowledge, when he uses it, and what form optimizes behavioral change. Once this is known, the leadership and KM teams, working together, can identify and qualify the best sources of the knowledge. The required knowledge is then gathered from these highly qualified sources in a way that promotes realism and credibility, thereby creating customer confidence in the content.

Once known, the knowledge is stored and transported to the user in a form that is consistent with substantial behavior change.

As with the application of just-in-time to the traditional warehouse, customer-focused knowledge management significantly reduces the volume of content required and substantially increases its utility. The KM system is no longer trying to provide everything to everybody. Instead, it is focused on the most frequently utilized and/or critical knowledge. By delivering focused, trustworthy knowledge in a timely and efficient way, the KM system optimizes behavioral change.

Defining the Customer's Knowledge Requirements

Is all knowledge of equal importance to an organization? The assumptions behind typical KM systems seem to say that the answer is "yes." The real answer is that some knowledge is far more important to an organization than other knowledge. In order to have customer-focused KM, the organization must identify which knowledge is most important to the system's customers.

The following process has been very successful in identifying the knowledge that most requires management:

Some knowledge is far more important to an organization than other knowledge.

- Identify a group of key executives and managers across various functions.
- Ask them, "Which of the processes of the organization as a whole are most critical to your success?" They will typically mention only two to three core processes, even if the executives are in different functions. If the cumulative list has more than two or three processes, ask them to prioritize the list until you have two or three that everyone agrees are the most important.
- Suppose there were a new, improved method available for each identified process. Ask these executives and managers whether it would it be important enough for them, under these circumstances, to allocate two hours of *everyone's* time to learn and apply the new knowledge and improve the organization's

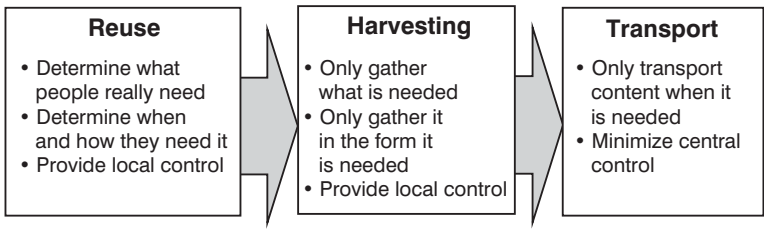

Figure 2 — Customer-focused knowledge management.

performance in that process. If they say "yes," continue to the next step. If they say "no," there is no point in going further. If the executives and management team don't think using the knowledge is important enough to spend two hours learning it, then it isn't important enough to manage!

- If they pass the "two-hour test," drill down by next asking them, "Within this key process, what are the two or three most critical subprocesses?"
- Repeat the two-hour test with the other key processes and drill down until they say an identified process or subprocess isn't worth two hours of time.

In order to perform a core function well, one only has to master a few underlying principles.

You have now identified the management areas where knowledge management is most critical. The idea is to rigorously prioritize the knowledge to be managed according to the customer's priorities and not try to manage all available knowledge. This prioritization is the foundation for ensuring both that knowledge focuses on only core functions and that the knowledge will be used.

Management processes that pass the two-hour test may seem so large that they will encompass the entire spectrum of possible knowledge, thereby contradicting the idea of focus. In reality, the knowledge required to perform core functions is always very limited, focused, and tightly organized. In order to perform a core function well, one only has to master a few underlying principles. The knowledge in the system needs to include only these core principles and specific supporting content that is directly relevant to the principles.

For example, when a manufacturing company's personnel focused on how to fix a particular type of machine (a goal that failed the two-hour test), they loaded more than 100 reports the machine produced into their database. However, when they reconceptualized the process into "how to optimize throughput in a section of the manufacturing line," they realized that only three of the reports were relevant to their real goal: improved efficiency. They went so far as to explicitly exclude the 97 other reports from the system so they wouldn't clutter the most important content. Processes that are too small tend to generate tremendous amounts of extraneous content because the organization loses sight of what really matters. Conversely, by becoming extremely clear about what really matters, the organization reduces the knowledge requirement.

Of course, this means that a tremendous amount of what KM professionals typically think of as an organization's knowledge is not going to be included in the KM system — a fact that makes many KM professionals uncomfortable. But there is a true 80-20 rule here. By concentrating on the knowledge that really determines long-term organizational success, you ensure that the core functionality is superior, which actually reduces the occurrence of low-probability events. By doing the core processes correctly, many of the exceptions that disrupt a system are preempted. Therefore, the KM system doesn't need to be designed to handle them.

Furthermore, the top performers (see below) tend to include low-probability exception handling as part of their expert knowledge. They do this by specifying an exception-handling process (e.g., "If you have this situation, call Bob…"), rather than trying to provide all of the information required for every situation. At the manufacturing company discussed above, the top performers put it this way: "If you can't improve the efficiency of the manufacturing line using the three reports, you have a serious problem and need to contact your technical specialist immediately." No effort is made to include the specific knowledge in the KM system because it is so rarely used and so specialized. Instead, a process is defined for handling the exception. Thus, the KM system only has to cover the 20% of the content that makes up 80% of the performance of a function plus exception-handling processes for anything else. The KM system does *not* have to include all the knowledge for every situation, which can't be done anyway.

Determining and Gathering Specific Knowledge

Once the organization has identified its most important management processes, it can begin to gather the specific knowledge required to perform the function. (A detailed description of the knowledge-gathering process can be found in "Harvesting the Expert's Secret Sauce" [2].) In brief, use the following process:

- Ask the management team to identify the six to eight people who are most *respected* for their expertise in performing the top process. Notice we said "respected." Respect means that everyone accepts these experts' guidance on how to perform the function without second-guessing. If they say, "Do it this way," you believe them!
- Use "naïve new person questions" to prompt the experts to tell what we call the "real stories" (as opposed to "official" stories) of their function. Official stories are the ones you find in procedure manuals and training binders. Real stories always contain the tacit knowledge most critical to success. They include the top performers' mental models or vision of the function, their organizing principles with detailed supporting information, specific roles and responsibilities, milestone and detailed schedules, comprehensive risk management plans, and identification and use of supporting resources such as training programs and process manuals. In other words, real stories contain all of the information needed to completely and effectively perform the function, including the handling of occasional and low-probability events.

Using digital coaching technology (DCT) [1], a single KM professional can gather this type of knowledge from just six to eight top performers in as little as three days, even for extraordinarily complex processes. For example, it took only three days to gather the key expert knowledge on how to design a microprocessor. It is a very efficient process.

Knowledge Storage and Transport

Of course, before a customer can use knowledge to change behaviors, she must be able to find and access it. This is the primary focus of current KM systems. But as we have said, these systems often deliver poor search results because of the huge volume of information they contain. The customer-focused approach to KM reduces the search requirement because knowledge is stored for only a limited number of processes and the content is well defined by the experts. It is rare for even a very large organization to have more than 10-12 key management processes. Consequently the databases are much smaller and the searching capability can be much less sophisticated.

Knowledge Drives Immediate Behavioral Change

Unlike storage and search capabilities, which are fairly simple to implement, getting people to quickly absorb knowledge and immediately change their behaviors is extremely difficult. We are bombarded every day by such a variety of stimuli that people have become experts at resisting new knowledge.

Getting people to quickly absorb knowledge and immediately change their behaviors is extremely difficult.

How can KM overcome this barrier and bring about the expected behavior changes? To achieve this, the KM system must contain the key process knowledge identified by the organization in a form that can be readily applied to new situations. The two things to remember here are *just the key knowledge* and *immediate application*. Experience has shown that when the knowledge is recognized as coming from a respected source and it can easily be applied to new situations, behavioral change is possible.

There are at least three key elements required for converting knowledge into behavior change (see Figure 3):

1. **Clear expectations.** The executives must set a clear expectation that performance of the identified function is important enough that all personnel performing the function will take at least two hours to learn the knowledge and develop a plan for actively applying it to their personal situation (thus the importance of selecting a

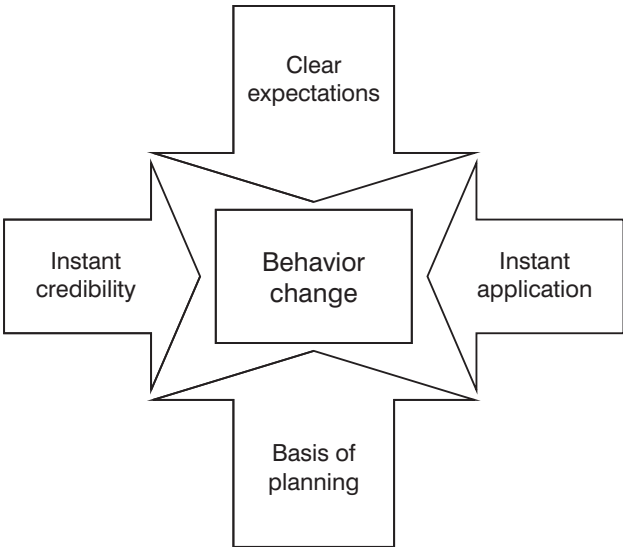

Figure 3 — Converting knowledge into behavior change.

process that the executives think is critical for the organization's success).

2. **Instant credibility.** The content must have "instant credibility," such that the customer can recognize the realism immediately. This comes from the linguistic properties of the real stories and the list of respected personnel who created them. Studies have shown that when presented with new information, the recipient resists it reflexively for about 90 seconds. In our experience, instant credibility overcomes the 90-second skepticism barrier, leading to intense engagement in four to eight minutes.
3. **Instant application.** The content must have "instant application," such that the customer can immediately see how this applies to his situation and how use of the knowledge will make him more successful. This too comes from the realism of the experts' "secret sauce," but also from its comprehensiveness. The mental models, organizing principles, and risk management elements are particularly powerful for creating instant credibility. Together, these components lead to intense use of the content and its integration into a behavior pattern in about two hours.

(These processes are described in detail in "8 Minutes to Performance Improvement" [3]).

When all three elements are present, it is possible to see the impact of knowledge on customer behavior. At the four- to eight-minute mark mentioned above, there is a pronounced physical change in the customers. They lean forward toward the system, squint their eyes into a tighter focus, breathe more rapidly, and change the language they use with anyone sharing the experience. When asked why they visibly changed, many customers have responded with some variation of: "This is great information. It will really help me be successful." A district manager of a large insurance company observed that with his agents' use of their new KM system, "You can actually see how people have organized their behavior around the expert content. It is very apparent." In this case, knowledge has driven behavior, and it is behavior that is based on the most consistently successful people in the organization.

Sustaining Use of Knowledge

While these immediate impacts are a tremendous step forward in creating value from KM, they are not sufficient to produce a long-term benefit from the knowledge. Several other processes are required to ensure that the initial use of the knowledge for behavioral change continues until it is fully internalized. (These monitoring and learning functions are described in detail in "The Performance Improvement Multiplier" [4].)

In brief, these key processes are as follows:

- The immediate supervisor must regularly and systematically monitor use of the knowledge while the function is being performed, and she must do it in a way that does not produce alienation. (In our method, she would ask four simple questions that interact with a set of natural self-monitoring processes used by the people she supervises.)

- The organization's executives must also monitor use of the knowledge within their respective functions. If they don't monitor the new process, no one else will, and the knowledge will rapidly fall into disuse. Again, if the process isn't important enough to monitor, why bother doing it?
- The organization must frequently refresh the expert content, adding new learnings from new real stories and rigorously purging obsolete material. Everyone must believe the content is absolutely the best available up to that minute.

A Closed-Loop Behavioral KM System

We now have a fully closed-loop, self-regenerating, behavioral KM system (Figure 4). We begin with the executive team defining the management processes of greatest importance, progress to gathering the expert knowledge needed to most effectively perform those functions, guide personnel into immediate then sustained application of this knowledge, monitor its use, and learn from the entire process.

This may sound as though it is quite hard to do, but it really isn't. Using DCT, an organization can go from initial definition to complete internalization of any key management process in as little as six weeks. For example, a fast food company introduced three new knowledge-based initiatives into 1,400 restaurants in just over six months, with almost 100% applying the knowledge more systematically and completely than expected. DCT causes knowledge to drive behavior change on a mass scale, enabling organizations to substantially improve performance even if the organization is large and geographically dispersed.

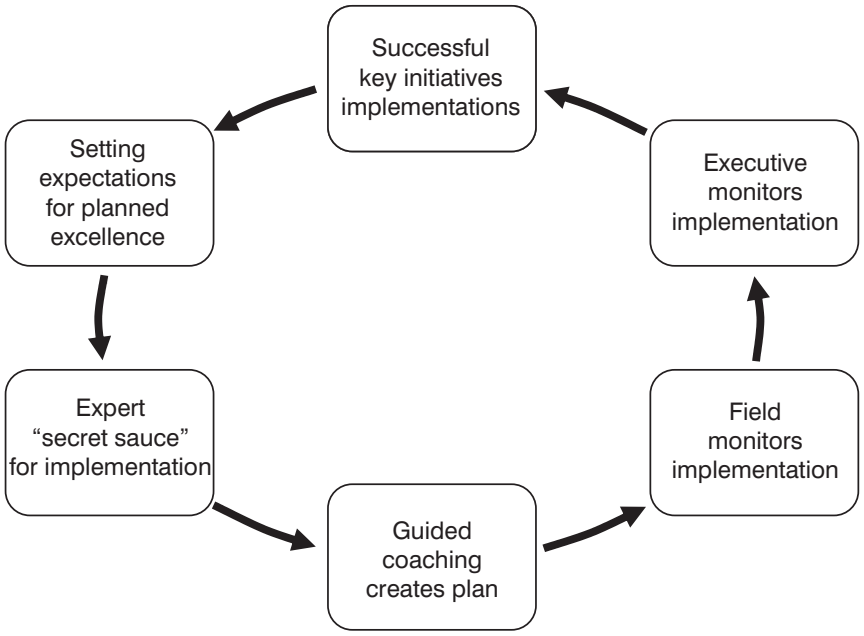

Figure 4 — A behavioral KM system.

EXCEEDING EXPECTATIONS

The value of any KM system is the impact it has on productivity and the profitability of the organization. Executives expect KM systems to clearly generate gains in these areas. Customer-focused KM systems consistently improve organizational performance. For example:

- A restaurant chain was able to achieve 100% utilization of a new KM system, which led to a 10% increase in sales.
- A federal agency reduced training time for new personnel from three years to six months.
- A women's apparel chain increased customer conversions 6% in six weeks.

Converting your warehouse KM system to a customer-focused one is easy. Just think from the customer's perspective.

REFERENCES

1. Seidman, W.H. "Humanistic Knowledge Technology." *Cutter IT Journal*, Vol. 15, No. 3, March 2002, pp. 25-31.

2. Seidman, W.H., and M. McCauley. "Harvesting the Experts' 'Secret Sauce' and Closing the Performance Gap." *Performance Improvement,* Vol. 42, No. 1, January 2003, pp. 32-37.

3. Seidman, W.H., and M. McCauley. "8 Minutes to Performance Improvement." *Performance Improvement*, Vol. 42, No. 6, July 2003, pp. 23-28.

4. Seidman, W.H., and M. McCauley. "The Performance Improvement Multiplier." *Performance Improvement*, Vol. 42, No. 9, October 2003, pp. 33-37.

5. Snowden, Dave. "Innovation, KM, and Corporate Success." Keynote address to *KMWorld 2001*, Santa Clara, CA, December 2001.

William Seidman is a recognized thought leader and expert on management decision making, intellectual capital management, and executive leadership. In particular, Dr. Seidman is renowned for understanding the processes required to harvest and use expert knowledge. His doctoral work at Stanford resulted in the development of ground-breaking techniques for analyzing management decision making that became the genesis of the Cerebyte Infinos System. Dr. Seidman is currently leading Cerebyte into a dominant position in the executive leadership software market. His particular interest is the use of technology to ensure the implementation of an organization's key strategic initiatives.

Dr. Seidman has more than 20 years' experience as a manager of profit and loss centers in high-technology companies, including Hewlett-Packard, Silicon Graphics, Mentor Graphics, and Integrated Project Systems, a Silicon Valley consulting company. He is an experienced consultant to and manager of fast-growth, high-technology environments and a frequent speaker and author on knowledge management topics.

Dr. Seidman can be reached at William.Seidman@Cerebyte.com.

Over the past 20 years, Michael McCauley has worked with some of the industry's best and brightest to significantly enhance the way organizations plan and manage their product development efforts. He has helped improve the development processes of numerous leading-edge companies, including Hewlett-Packard, Dell Computer, Novell, Motorola, Chevron, Alpha Therapeutic, DuPont, Pacific Gas & Electric, Ameriserv, Core Media, LSI Logic, Xerox, and Microsoft.

Mr. McCauley's background as an engineer and management consultant, along with his experience in a wide range of organizations and industries, has resulted in a unique ability to translate complex best practices into logical sequences of "guided" steps that can be systematically implemented in software. He also has a demonstrated ability to lead high-performance product development organizations. While vice president of product development at Integrated Product Systems, a Silicon Valley start-up, he led the development of the company's flagship products. Currently he heads product development for Cerebyte, Inc.

Mr. McCauley holds an undergraduate engineering degree from Cal Poly–San Luis Obispo and an MBA from Golden State University. He also maintains a Project Management Professional certification from the Project Management Institute.

Mr. McCauley can be reached at Michael.McCauley@Cerebyte.com.