12

KM at the Army's Communications-Electronics Command

Susan L. Nappi, Knowledge Manager,
U.S. Army Communications-Electronics
Life Cycle Management Command

Early in April 2002, my career as a U.S. Army management analyst took a sudden turn down a path I had never envisioned. I was sitting at my desk at Fort Monmouth, New Jersey, doing the quarterly review and analysis for the command—the U.S. Army Communications-Electronics Life Cycle Management Command (C-E LCMC). Next thing I knew, my director at the time, Rich Kelly, was standing by my desk telling me that our two-star general, Major General William Russ, wanted to do knowledge management. Not only was it a game of "tag I'm it," but we were going "live" on May 13! I had a little over a month and I hadn't a clue what knowledge management was. In my twenty-plus-year career with the army I've faced several assignments that required me to pave new ground. I've learned that these assignments are the most difficult but also the most rewarding—it was clear from the get-go that this was going to be another one of those "opportunities."

As soon as Rich walked away from my desk, I immediately tapped into my local library's online journals and periodicals (God bless the Internet!) and searched for every recent knowledge management article. From those articles I gleaned who were the major theorists/players and the books I needed to read. I read Nancy Dixon, Larry Prusak, and Etienne Wenger, among others.

I don't want you to think that I had no help at all—I did have three aces in the hole: an existing Web portal, local knowledge management expertise to tap into, and the assignment of an intern to assist me.

I didn't need to develop a new Web portal—the decision had already been made by Raoul Cordeaux (one of our information technology folks) to leverage a product that a co-located army entity at Fort Monmouth, led by Emerson

Keslar, had already developed. As a result, my true focus was to be knowledge management, not information technology. I had the luxury of developing a program for an audience of 8,000 users that focused on ensuring they had the right information and knowledge at the right time to do their mission—providing key command and control, communications, computers, intelligence, surveillance, and reconnaissance systems for the warfighter (a member of the armed forces who engages in combat). Information technology was just the enabler—just as the textbooks said it should be.

Second, there were existing knowledge managers in two of the business centers within C-E LCMC. Ken MacFarlane from acquisition, and Grace Keslar and Rosemary Matura from research and development, had been doing knowledge management for well over a year using Emerson's portal. I immediately tapped into MacFarlane, Keslar, and Matura's expertise. They freely shared insights on what had worked for them and what didn't and why. What they had learned was immensely helpful (my first "peer assist"). However, we now had a two-star general behind the effort and the situation wasn't exactly the same—we were moving from sharing information and knowledge at a business-center level to sharing it at a command or enterprise level. The needs for information and knowledge within each business center had similarities but they also had vast differences. My plan had to accommodate their differences, but also had to define, plan for, and accommodate what information and knowledge needed to be shared across the enterprise.

Last, I was assigned one of my organization's best interns, Claudia DeCarlo. She was sharp and as enthusiastic about the project as I was. The stage was set.

Developing the New Knowledge Center

After reading everything I could, and talking to Emerson, MacFarlane, Keslar, and Matura, it was readily apparent that there was much more to the job than ensuring that documents were posted to the Web portal, known as our knowledge center. I learned that I needed to capture tacit knowledge and make it available to others. Tacit knowledge is the result of years of experience and education. This knowledge isn't easily codified—this knowledge resides within the heads of subject matter experts (SMEs), those senior leaders who seem to have the right guidance/answers to the hard questions. I didn't have a clue how I was going to capture tacit knowledge and make it available for reuse. I wrote my plan (which included capturing tacit knowledge) and briefed it to General Russ. He fully endorsed the effort and was instrumental in getting the command to use the Web portal. But I wondered, just how was I going to pull off capturing tacit knowledge?

DeCarlo and I spent the next few months getting the right content on the

knowledge center and training users. We worked extremely hard and many long hours. Since very few were familiar with the Web portal, we wound up loading much of the original content ourselves. I needed more help and realized that I needed points of contact within each C-E LCMC business center who could oversee the content within their organization. The concept of organization leads for knowledge management was born! Over time, these individuals became key to the implementation of the command knowledge management program—but back to my story on capturing tacit knowledge.

While DeCarlo and I were still buried in content in August of 2002, I received a phone call. A group from the Office of the Secretary of Defense's Change Management Center was coming for a visit. The purpose of the visit wasn't clear to me. All I was told was that they wanted an hour-long briefing from me on the command's knowledge management program. Mary Margaret Evans, a member of the senior executive staff, headed the party, which included a vice president of Science Applications International Corporation (SAIC), a government consulting science and engineering organization.

On the day of their visit, Evans and a host of others huddled in my conference room, stared at a blurry monitor (now long since replaced), and listened to my spiel on how C-E LCMC was implementing knowledge management. They seemed very impressed and even "pleased" with the breadth and depth of our program and the maturity of our Web portal. When I got to the chart that stated the command's goal to capture tacit knowledge they looked at each other and asked me what I had done to date. I was embarrassed, as everything else on which I had briefed them had a significant amount of substance behind it and I could easily point to examples of what we had accomplished. Honesty is the only way to go: I told them that I had no idea how to accomplish it; I only knew that it had to be done. My embarrassment quickly faded—it was clear that was the answer they had come to Fort Monmouth to hear.

Back at the Beginning

Flashback to earlier that same month: Evans had met Cordeaux (I introduced him earlier in my story as one of our information technology folks, but he probably prefers to be known as our chief information officer) at a recent army information technology conference. Evans learned from Cordeaux that we were doing some "neat" stuff with knowledge management. Evans had a burning issue that needed to be addressed—the aging of the acquisition workforce in the Department of Defense. She was concerned that within five years there could be a mass exodus of experienced acquisition professionals, professionals who would be eligible for retirement.

Evans estimated that over 40 percent of these individuals would be eligible for retirement in five years. These acquisition professionals possess tacit knowledge key to negotiating the complex process of procuring products and services in support of the warfighter. Evans saw this as an area ripe for applying a tacit knowledge capture model. She wanted to do a tacit knowledge capture pilot project and, based on its success, promulgate the concept throughout the Department of Defense. She had hired SAIC to run the pilot project, as they had had success in capturing tacit knowledge in the private sector. Based on her conversation with Cordeaux, Evans decided to visit Fort Monmouth and test the waters.

So unbeknownst to me, as I was sitting in my conference room, I was being delivered the solution to my dilemma of how to capture tacit knowledge on the proverbial silver platter. Based on my briefing and a larger meeting that day with C-E LCMC's senior leadership, Evans selected C-E LCMC as her pilot site. My adventure began!

The Pilot Project

The philosophy behind the pilot was not for SAIC to do the project, but to work with us onsite to teach us, coach us, and then leave us; their plan was to work themselves out of a job. When they left, we had the skills to continue to capture tacit knowledge, and SAIC had succeeded. The SAIC team was led by Rick Wallace and included Kevin Roth and Page Miller. Wallace, Roth, and Miller taught us their technique and the resulting product was a "knowledge asset"—the Web-based video clip repository for the tacit knowledge captured. After their departure, the exact model they taught us evolved, responding to our organizational culture and needs. The model we are using, however, is well rooted in the basic principles and resulting product we learned from SAIC.

Before I go into the specifics of the model we are using to capture tacit knowledge, let me be clear on this—the aging of the workforce is not the only reason or even the most important reason to capture tacit knowledge. There are a host of reasons to capture tacit knowledge, including the following:

1. *Globalization.* We no longer have the luxury of dealing face-to-face with others in our business processes. We are far flung around the globe—information technology tools have made this all possible. C-E LCMC has experienced globalization pains firsthand. In the early 1990s, C-E LCMC was primarily located in one large leased-office building near Fort Monmouth, New Jersey. To seek out knowledge, we rode an elevator up and down the six floors and walked the four color-coded building wings. In 1993, a Base Re-

alignment and Closure Action (BRAC) directed that C-E LCMC move from the leased building into a dozen government buildings on the main post, Fort Monmouth.

Other business decisions followed that added elements to C-E LCMC, permanently changing its complexion. The vast majority of C-E LCMC no longer resides at Fort Monmouth. Sharing became difficult once the command was no longer within one building; sharing became more difficult when we were no longer at one locale. With distance, we no longer saw the faces of the experts. Then e-mail arrived and we now no longer even heard the voices of the experts.

2. *Information Overload.* The information age has really meant information overload. There is too much information available—how can you weed through all the information residing on the Internet and within databases and glean knowledge? Try this exercise on the Internet using any of the search engines: Search for information on army transformation. In June of 2005. the Alta Vista search engine provided 133,405 results. How can you determine what information is relevant to what you may need and how can you tell if it is current? And who are the experts in transformation to whom you can reach out?

3. *Quickened Pace of Activity.* The availability of information technology tools has resulted in increased pressures to work faster and more efficiently. An action/task that used to take a month now needs to be completed within a day. How do you tap into the knowledge needed to get the job done? There is just too much information to sort through; the experts we need to connect with are not located in the next office; they may even be in another time zone—and we probably don't even know who the experts are!

4. *Anticipated Loss of Knowledge.* Purposefully, I've kept this as the last reason to capture tacit knowledge. The primary reasons to capture tacit knowledge are outlined above in reasons one to three. You shouldn't be waiting for your experts to announce retirement to get concerned about capturing tacit knowledge. Rather, you should have been doing it all along. Sitting down with an expert thirty days before their retirement is too late. You will never be able to capture more than a sliver of what they know. They may not even want to share it at that point—especially if they can "sell" their knowledge to a government contractor.

The Big Question

Here comes the million-dollar question. If you only capture a sliver of what your experts know, then why should you even undertake the effort to try to capture their tacit knowledge? I've found that the real benefit comes from

how we present the results of our knowledge capture: the video clips. Watching a video clip, a novice is influenced by the expert's body language and speech patterns. From what they watch, the novices learn the range of knowledge the experts possess. It is rare that the exact knowledge a novice will need will be already captured. However, a novice can determine which expert has the experiences and resulting insights that will be of benefit. Watching the videos, novices begin to feel like they know the experts and feel comfortable in reaching out for advice for their unique situations. The best resulting scenario is for a mentoring relationship to develop between the novice and the expert and for knowledge transfer to continue over a span of time. To allow time for true knowledge transfer, the optimum time to capture an expert's knowledge is at least five years before their anticipated departure.

Watching a video really does make you feel like you know the SME. Renee Ullman, one of my team members, was helping me to put together a training session. As part of the preparation she had watched several video clips of Rick Riccelli, one of our acquisition SMEs. Weeks later, she was driving in her hometown (around thirty minutes away from Fort Monmouth) and was stopped at a light. She looked to her left and saw a familiar face; she immediately felt as if she knew him, and knew him well. She wanted to beep and wave a greeting. However, she was having a little trouble placing who exactly he was, when it hit her: He was Rick Riccelli. She really didn't know him at all other than through the video clips. A few months later she saw him at a work social event and introduced herself and told him this story. Ullman felt completely at ease in approaching him; his video made her that comfortable with him. We now teasingly call this the "Rick Riccelli effect."

Video: The Perfect Medium

Video is the perfect medium for knowledge capture. Consider this statistic: When people process information, only 7 percent is based on what was actually said, 38 percent is based on how it was said (for example what words were emphasized), and a whopping 55 percent is based on body language. You learn much more from watching and hearing a person than from reading the text transcription. When I demonstrate our knowledge asset I usually show a video clip of Victor Ferlise, one of the three deputies to our commanding general. He speaks very persuasively about the importance of C-E LCMC's mission. He states that if we don't do our mission, "somebody will die." After showing this stirring video clip, I show my audience the text for the clip. The same emotion simply can't be captured in the text; the difference between text and video is startling.

Continuing the Program

Since the departure of SAIC, our knowledge capture activities have continued. The C-E LCMC knowledge asset is the place to go on our Internet-based Knowledge Center to tap into tacit knowledge. Our knowledge asset comprises the following key elements:

- *Basic Employment Information/Knowledge.* In four years, C-E LCMC hired over 2,000 new employees, many of whom had never worked for the federal government. This area of the asset is an electronic employees' handbook that includes instructions for basic employment processes and procedures and links to key forms, samples, and Web sites. For example, new employees can find instructions on how to fill out and submit a request for leave, and even link to the form needed.
- *Workplace Expectations.* When your organization is as large and spread out across the globe as ours, with over 8,000 civilians, military personnel, and contractors worldwide, you need a means to communicate the organizational culture and values. In this part of the asset, senior leaders are captured on video in one- to three-minute clips talking about what an employee needs to know to succeed. The video clips are organized into eight major themes that emerged through the interview and distillation process (these processes will be discussed later).
- *Mission Knowledge.* Again, with our organization so large and dispersed, many employees have never seen or heard the commanding general speak. In this part of the asset, employees can learn about the mission of the command and their business center directly from the leaders themselves via video clips. All of this increases their organizational knowledge and value to C-E LCMC.
- *Key Processes.* This is the part of the asset in which we provide knowledge on key business processes via video clips from SMEs. Within each process, video clips are organized into themes that emerged through the interview and distillation process. We also included links to resources such as information or explicit knowledge (guidebooks) residing in the larger document repository on our knowledge center.
- *Expert Locators/Question and Answer Forums.* In this part of the asset we provide access to a database of management-approved SMEs. Click on their name and you have access to their phone number and e-mail address, and if they are online, you can instant message them. In situations in which you can't figure out under which subject matter area your situation falls, we provide the capability to pose a question and our support center determines who should answer the question. The center

uses the database of experts and also reaches out to the organizational leads for knowledge management to help route the question.

- *Links to Communities of Practice (CoPs).* Rather than develop C-E LCMC-level communities of practice, we link to army-wide and Department of Defense–wide CoPs. We discovered early in building our asset that CoPs larger than our organization provided the best opportunities for cross-fertilization of knowledge and ideas.

Steps in Capturing Knowledge

Capturing knowledge occurs through a distinctive sequence of procedural steps. C-E LCMC followed this five-step process in developing each key process in our knowledge asset:

Step 1. Identify a Key Process

When you select a process, you need to ensure there will be some expected gain in doing knowledge capture. The gain can be efficiencies/savings, improved effectiveness, better decisions, or more innovation. Capturing knowledge is resource intensive, so you need to focus on areas that will result in a quantifiable or perceived improvement. It is very hard to measure the outcome of knowledge capture. We have been tracking our standard business metrics—if they continue to improve, part of the reason may well be our knowledge capture efforts, but it could also be other reasons (changes in policy or procedures, etc.). We have also been relying upon anecdotal stories as indicators of success.

Be careful how you size your efforts—too big an effort will be undoable. For example, when we were working with SAIC we decided to capture knowledge about creating effective source selection evaluation criteria. When we contract for a product or service we don't go with the lowest bidder; we go for "best value." There are times when we want to pay a higher cost to get a better technical solution. Best value allows us to evaluate the bidders against evaluation criteria, differentiate among the bidders, and pick the contractor that will provide the best product within the amount we want to spend. The entire source selection process is too huge—focusing just on developing the criteria seemed to be about the right size. Being able to size your capture efforts will come through experience. We had the benefit of SAIC's expertise in helping us to size our initial effort.

This next thought seems obvious, but I need to state it anyway—before you start an effort make sure there is tacit knowledge to capture. The key process should have both a "science" (the explicit knowledge and informa-

tion) and an "art" (the tacit knowledge). Don't waste your limited resources on something that has already been codified.

Finally, don't even try to capture tacit knowledge unless you have the sponsorship of the senior process owner. No one is going to support your efforts if the senior leader isn't supporting it. SMEs are busy people—there was many a time when we relied upon the senior process owner to "prod" a participant to "play" with us.

Step 2. Identify Knowledge Harvesters and the SMEs

Based on the process chosen, the next step is to identify who will capture the knowledge. These individuals are the "knowledge harvesters." Use junior employees (interns for example) as knowledge harvesters since they are the employees who will be inheriting the process. For the source selection evaluation criteria, we used acquisition interns. If they get their questions answered, then we know we are on the right track.

Knowledge management practitioners make excellent knowledge harvesters. We trained the KM practitioners in the knowledge capture process (to include the interview and distillation process) so that they can lead and train the other knowledge harvesters in the process and techniques. The KM practitioners become knowledgeable about the subject matter by reading and organizing the existing resources that will be linked to the knowledge asset. My KM practitioners were members of the team supporting the entire command's knowledge management efforts: In addition to DeCarlo and Ullman I was supported by Mary Buchwald, Cyndia Halsey, Susan Jackson, Anthony Paskvan, and Kathleen Reilly. Additional support came from my organizational leads for knowledge management. One of these leads, Ilene Mulhern, was affectionately called our "grammar queen," and we relied upon her to ensure the grammar was correct in everything we produced.

We also used acknowledged experts to harvest knowledge because they know the process and as a result can help us to frame interview questions to elicit higher levels of knowledge. Acknowledged experts also add validity to the effort. If they become involved, SMEs are more likely to participate. For source selection evaluation criteria, Tom Carroll from the legal office, an acknowledged leader (not just at C-E LCMC, but in the army), became heavily involved in our efforts. This was especially helpful since it was our first effort and we had no track record to show how well we could accomplish the capture of tacit knowledge. Knowing that Carroll was involved in the effort was a key element that helped to convince the SMEs to participate.

You also need to identify who possesses the tacit knowledge—the SMEs to be interviewed. Be sure to validate them with management. The one time

we didn't validate and relied upon a peer referral we wound up wasting valuable time interviewing a disgruntled employee.

Step 3. Interview the SMEs

First, prepare for the interview by developing the questions. Run them by the experts. You're looking for the secrets of their success and what has been learned from mistakes. Don't ask closed questions like "Was it a success?" Rather, ask "What made it a success?"

After the questions are developed and approved by the experts, the interviewer needs to set up the date and time for the interview. Believe it or not, this was one of the most difficult elements to accomplish. We had to work to coordinate four schedules: the SME's, the interviewer's, the videographer's, and the room availability. It's important that you have a "quiet" room where you are unlikely to be disturbed during the filming.

After a date and time has been selected, an interviewer must conduct a preinterview with the person. People only share with those they know. If the interviewer meets the SME for the first time at the interview, there's a good chance that the SME won't share failures and the resulting knowledge gained from those failures. Even if the interviewer does know the SME, an appointment should be made to meet with the SME and explain face-to-face the purpose of the project, the interview, and what the SME should expect. Also, before the interview, e-mail the SME and give that expert a general outline of what will be asked, but don't give them the verbatim questions to avoid scripting. The SME requires time to reflect on their past experiences so that they will be ready to effectively answer your questions.

In addition to the primary interviewer, always have a secondary interviewer. The purpose of the secondary interviewer is to pose follow-on questions that the primary interviewer may have missed. For example, if the SME states "Oral proposals didn't work," and the primary interviewer doesn't ask why, the secondary interviewer can ask that question after the primary interviewer is finished asking all of their questions. The secondary interviewer waits until the end to not interrupt the flow between the interviewer and the SME.

The interview is not a Steven Spielberg production, nor is it a home movie. Don't overwhelm the interviewee with too much equipment. We use a digital camera on a stand, one light, a microphone clipped to the SME, and one mike on a table stand shared by the interviewers. Sit the SME in a chair without wheels (so they don't move in and out of the frame), face them to the interviewer, and have the camera at a forty-five-degree angle. You want to tape a personal discussion between the SME and the interviewer, not a "deer caught in headlights."

Most important, before and after the interview, be sure to tell the SME that nothing will be used on the asset without the SME's approval. The SME most have complete confidence that you will not ruin their credibility or embarrass them. In some cases, we had to wait months to get final approval for posting videos to the knowledge asset. We had a situation in which a sponsor wanted to post an SME's video without approval because it was taking so long, but I stood fast. If I break my word, and something is remiss, it will be impossible to regain trust. In our interviews we talk about times in which the SME failed and what they learned from it; the SMEs need to be secure in knowing that we will treat their disclosures properly.

Step 4. Prepare Key Learnings Documents

Following the interview, the video is transcribed into a Word document with time codes. The time codes will allow the knowledge harvesters to identify the start and end times needed to make the video clips. The interview transcript is given to four knowledge harvesters (we found four to be the magic number) to read through, much as they would school homework. The homework includes the identification of key learnings. Key learnings are not the same thing as best practices. Best practices are applicable to every situation within a standard business process. They are a proven tactic that everyone should follow. Best practices are used for the "science" part of the knowledge asset development process. Key learnings refers to the "art" part of the process. You need to know the context from which that key learning emerged. When you read a key learning it contains an "insight." Key learnings are expressed as a one- to two-line summary sentence focusing on a specific action and the resulting benefit, for example, "In order to succeed, you need to be technically competent, hone your soft skills, develop your leadership competencies, and mix in a dose of creativity."

Upon completion of their homework, the four knowledge harvesters meet for a collaborative knowledge distillation. The purpose of the collaborative distillation is to reach a consensus on the key learnings and the supporting texts (which will become the video clips). We have found that it takes about four hours to distill a one-hour interview and that as lunchtime approaches, we can distill faster. Each of the knowledge harvesters comes to the collaborative distillation with a copy of the interview transcript marked up with their notes. One of the knowledge harvesters (the best typist) documents the consensus of the group by converting the interview transcript into the key learnings document while the rest of the group watches. A portable projector connected to a laptop aids this process; while the typist makes the changes, the rest of the group can view the Word document and guide the changes.

Upon completion of the collaborative distillation, it is not unusual for a few clean-up actions to remain for the typist. After those actions, the draft key learnings document is sent to the knowledge harvesters for a short review period to ensure that they got it "right." This is accomplished electronically via e-mail.

After the completion of this review, the key learnings document is provided to the SME for final approval. We ask the SME to make sure the key learnings summary sentence is accurate and they are comfortable with the supporting text. They can edit words in the text, but we made it clear that the audio/video will reflect the original words. Anything that the SME is not satisfied with, we do not use. Upon final approval by the SME, the key learnings document is provided to the videographers to create the video clips for the asset.

Step 5. Categorize by Major Themes

When several interviews have been completed, the key learnings are categorized by major themes (five to eight). The major themes are then presented in a graphic on the asset. When a viewer clicks on the graphic, he or she can drill down into the key learnings and supporting video clips.

Conclusion

This has been a short version of the knowledge capture process I've been involved with at the U.S. Army Communications-Electronics Life Cycle Management Command. We've codified the process in a guidebook that we make available to all of our knowledge harvesters. We've also interviewed ourselves (the knowledge management practitioners) and captured our key learnings about capturing tacit knowledge. The harvesters keep changing (based on the key process) so we are constantly in a training mode.

I feel you can capture tacit knowledge for reuse, as long as you fully understand that you will never capture it all, or even a majority of it. However, if you codify key learnings, organize them, and deliver the supporting text via video clips, something special happens. When you view multiple video clips, you walk away with an insight or knowledge that you didn't have before. Many times you can't point to one specific key learning that provided the insight—it was the summation of the pieces that resulted in the insight.

Most important about the asset is that you've allowed novices to identify and get to know the experts. The novices now know who to go to for help in solving their dilemmas. You've reintroduced the personal contact that has degraded within the organization due to the advent of globalization and e-mail.

The video clips and the delivery via the Internet also appeal to novices. Many of the novices are the younger members of the workforce who grew up watching videos and have spent much of their time on the computer searching for information and knowledge. What better way to capture their attention and interest than video clips on the knowledge asset? Reading long texts doesn't always cut it for these members of the workforce.

Since we began to capture tacit knowledge we've realized that it is not a one-shot deal. You have to keep going back and refreshing the asset. As we add more key processes, we have been relying upon leads we designate for each key process to assist us in identifying and updating the knowledge captured.

Beginning in 2001, we have had our ups and downs in the process; there are times we surge ahead and make great progress, while at other times we stall for weeks awaiting support from a sponsor or just trying to make time to conduct interviews and distillations. The other obstacle has been the constant turnover of the knowledge management practitioners I use to capture tacit knowledge. It turns out that knowledge management practitioners have skills and knowledge that are attractive to the rest of the organization. Through their participation in knowledge capture as well as in content management of the knowledge center, knowledge management practitioners gain a significant amount of organizational and networking knowledge that makes them "ripe for the picking." DeCarlo began the adventure with me, but later moved on for a promotion. My team has ebbed and flowed, consisting of between two and six individuals who support all aspects of knowledge management as well as the capture of tacit knowledge.

The adventure continues. The most recent news affecting our efforts is that Fort Monmouth was selected for closure in BRAC 2005. The majority of the workforce will be relocated to Aberdeen Proving Ground, Maryland, sometime around 2010. How BRAC will impact tacit knowledge capture is yet to be seen, but I expect our tacit knowledge capture activities to increase.

Afterthought

Here I am again, sitting at my desk at Fort Monmouth, New Jersey, making the final edits on my story. I can say honestly that this "adventure" was the best assignment I have had with the army. I've thoroughly enjoyed being able to provide employees with the information and knowledge they needed to accomplish their mission in support of America's warfighter.