Knowledge Retention Enhances Performance-Based Management

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Workforce demographics at the Defense Contract Management Agency (DCMA) show that 53 percent of employees are eligible to retire within five years. With the imminent loss of so many subject-matter experts, it is imperative that the Agency take steps to capture the knowledge of critical knowledge workers as soon as possible. Consequently, the Knowledge Management (KM) Center is planning to begin the Knowledge Retention Project in fiscal year 2006 with a pilot group.

What is Knowledge Retention?

Knowledge retention is defined as the capture of knowledge/expertise from employees before they leave an organization. For example, if there is a DCMA expert ready to retire who has extensive knowledge on a specific customer, knowledge retention will be used to develop appropriate approaches for capturing the employee's expertise and retaining it as "organizational knowledge." Whether there is a gap of three months or three days between the incumbent and successor, the captured "organizational knowledge" will be ready to be utilized, and the successor's time to competence will be shortened.

Cost of Losing Critical Knowledge

Between 1959 and 1973, NASA spent $23.6 billion on human spaceflight, exclusive of infrastructure and support, of which nearly $20 billion was for Apollo, in an effort to land astronauts on the moon.[1] At its peak, 400,000 people were working on the Apollo project. On July 20, 1969, Astronaut Neil Armstrong stepped onto the moon. … Now, after 36 years, NASA has lost the knowledge it had developed to send astronauts to the moon. One NASA manager confessed, "If we want to go to the moon again, we'll be starting from scratch because all of that knowledge has disappeared. It would take at least as long and cost at least as much to go back."[2] Realizing the cost of losing critical knowledge, NASA started Knowledge Continuity efforts in 1999 with the Knowledge Sharing Initiative and Academy of Program and Project Leadership (APPL). One of APPL's primary products is *ASK* (Academy of Sharing Knowledge) magazine. *ASK* was created

(Right) Astronaut David R. Scott, commander, as photographed by Astronaut James B. Irwin, Lunar Module pilot, gives a military salute while standing beside the U.S. flag during the Apollo 15 lunar surface extravehicular activity. Now, after 36 years, NASA has lost the knowledge it had developed to send astronauts to the moon. (NASA photo by Retired Air Force Col. James B. Irwin)

[1] *Project Apollo: A Retrospective Analysis,* 2004, National Aeronautics and Space Administration, 20 Oct. 2005, <http://www.hq.nasa.gov/office/pao/History/Apollomon/Apollo.html>.

[2] David W. DeLong, *Lost Knowledge — Confronting the Threat of an Aging Workforce* (New York: Oxford University Press, 2005)

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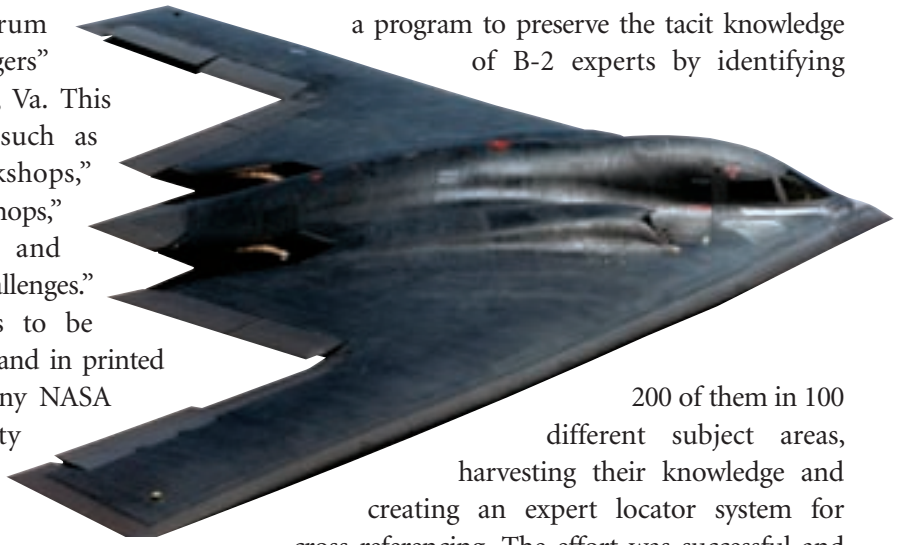
following the first "Forum of Master Project Managers" in July 1999 in Leesburg, Va. This forum included topics such as "wisdom transfer workshops," "knowledge sharing workshops," "teachers and mentors" and "project management challenges." *ASK* magazine continues to be published on the Internet and in printed copy, and it provides many NASA scientists the opportunity to learn quickly about experts' experiences in various scientific fields.



Examples of Knowledge Retention Projects

One example of a knowledge retention project is the Tennessee Valley Authority's (TVA's), which began in 1999 when TVA management realized 40 percent of its workforce could retire in the next five years. They first identified which positions posed the greatest threat of critical knowledge loss, interviewed employees identified as having critical knowledge and documented captured knowledge so that others could use it. Current statistics at TVA show that even though 35 percent of the workforce has left, organizational performance metrics remain at the same level and customer services still have a satisfactory rating.

Another knowledge retention project was managed at Northrop Grumman. At the end of the Cold War, Northrop Grumman was in a difficult situation with its B-2 stealth bombers. The B-2s were nearing the end of their production cycle, but Northrop Grumman had to retain support and maintenance capabilities for the remaining decades of the bombers' useful service. Northrop Grumman instituted a program to preserve the tacit knowledge of B-2 experts by identifying 200 of them in 100 different subject areas, harvesting their knowledge and creating an expert locator system for cross referencing. The effort was successful and provided a useful organizational knowledge base.

U.S. Army Communications-Electronics Command (CECOM) also has a thriving knowledge retention project. CECOM was selected as a pilot site for Office of the Secretary of Defense-funded "Project Exodus," named for the expected exodus of Department of Defense employees in five years, which has been undertaken to prove that tacit knowledge collection efforts that work in private industry can be successfully applied within the federal government. CECOM took this opportunity to develop a KM strategy and implementation plan, and the program is being executed incrementally. They started with the vision, "CECOM is a knowledge organization, harnessing and exploiting intellectual capital, delivering the right content to the right knowledge worker, at the right time." CECOM then created an online portal for content management efforts, developing a process of adding, reviewing and approving its content. To capture tacit knowledge to the maximum extent possible, CECOM identified and leveraged subject-matter experts through interviews and videotapes. They developed three useful processes to capture

(Above) A B-2 Spirit bomber. The B-2 Spirit represents a dramatic leap forward in technology and a major milestone in the U.S. bomber modernization program. The B-2's advancements wouldn't be possible without the knowledge base built by B-2 experts over decades. (U.S. Air Force photo)

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and share knowledge:"Peer Assists," "Action Reviews" and "Retrospects." CECOM also made specific efforts to develop and sustain KM by documenting and marketing the importance of KM and the successes achieved. CECOM has won a series of awards for its innovative KM practices, including an E-Gov Knowledge Management Recognition in 2004 and an Army Knowledge Award in 2003.

Knowledge Retention Will Enhance PBM at DCMA

Everyone at DCMA is learning how to conduct Performance-Based Management (PBM) at both individual and organizational levels. To provide products and services according to a customer's voice, PBM methodology mandates that planning, organizing, staffing, directing and controlling be accomplished using some definition of organizational performance as the criteria by which decisions are made. PBM will enable us to define, achieve and improve upon the performance measures that are most important to our customers. There must be a clear understanding and agreement between DCMA and the customer and support for and from everyone at DCMA to deliver the right item, at the right time and at the right price [e.g., 37 flight tested X-73 aircraft (right item), delivered no later than Jan. 17, 2009, (right time) and at a unit cost not to exceed $39.3 million (right price)] in order to meet the intent of the performance requirement. Operationally, customers have outcomes and DCMA has performance results in support of those outcomes. When DCMA is providing excellent performance results in support of customers' outcomes, there are numerous DCMA employees contributing to this level of performance.

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For example, numerous people at DCMA are assigned to the Future Combat Systems (FCS) program in various roles and divisions. Since the beginning of the program in 2002, different people have accumulated relevant knowledge and expertise in the specific areas of the FCS program over time. The majority of workers on this program are knowledge employees who process relevant information to add value to the process and products, and all make a contribution to the success of the program. If one or two experts who worked on the program for the last three years retire or transfer to another job, there will be a great impact on program execution. Sometimes a successor is not available for a couple of months or weeks, and this makes knowledge transfer very difficult. A knowledge retention project can help with this kind of situation by identifying critical positions for the FCS program and possible changes to personnel in these critical positions. DCMA can then begin to build a "DCMA Expert Knowledge Base" by collecting their insights and expertise in the forms of documents, lists of contacts established over three years, hot buttons for different customers and any other useful information. This collected information/knowledge can be made available either in the DCMA portal or across the FCS Community of Practice space, accessible to anyone working for the program. Thus, knowledge retention will enhance the performance of the FCS and other programs by preventing the loss of critical knowledge that a worker had when he/she left and helping the program keep the same level of performance without interruptions due to the separation.