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PROGRAM MANAGER



ALDRIDGE WELCOMES AT&L WORKFORCE TO PENTAGON FOR "ALL HANDS"

Achieving Defense Transformation Through Total Life Cycle Systems Management



Louis A. Kratz

Assistant Deputy Under Secretary of Defense (Logistics Plans & Programs)

The Future Logistics Enterprise (FLE) is DoD's near-term blueprint to improve military effectiveness and logistics support through end-to-end customer service and enterprise integration.

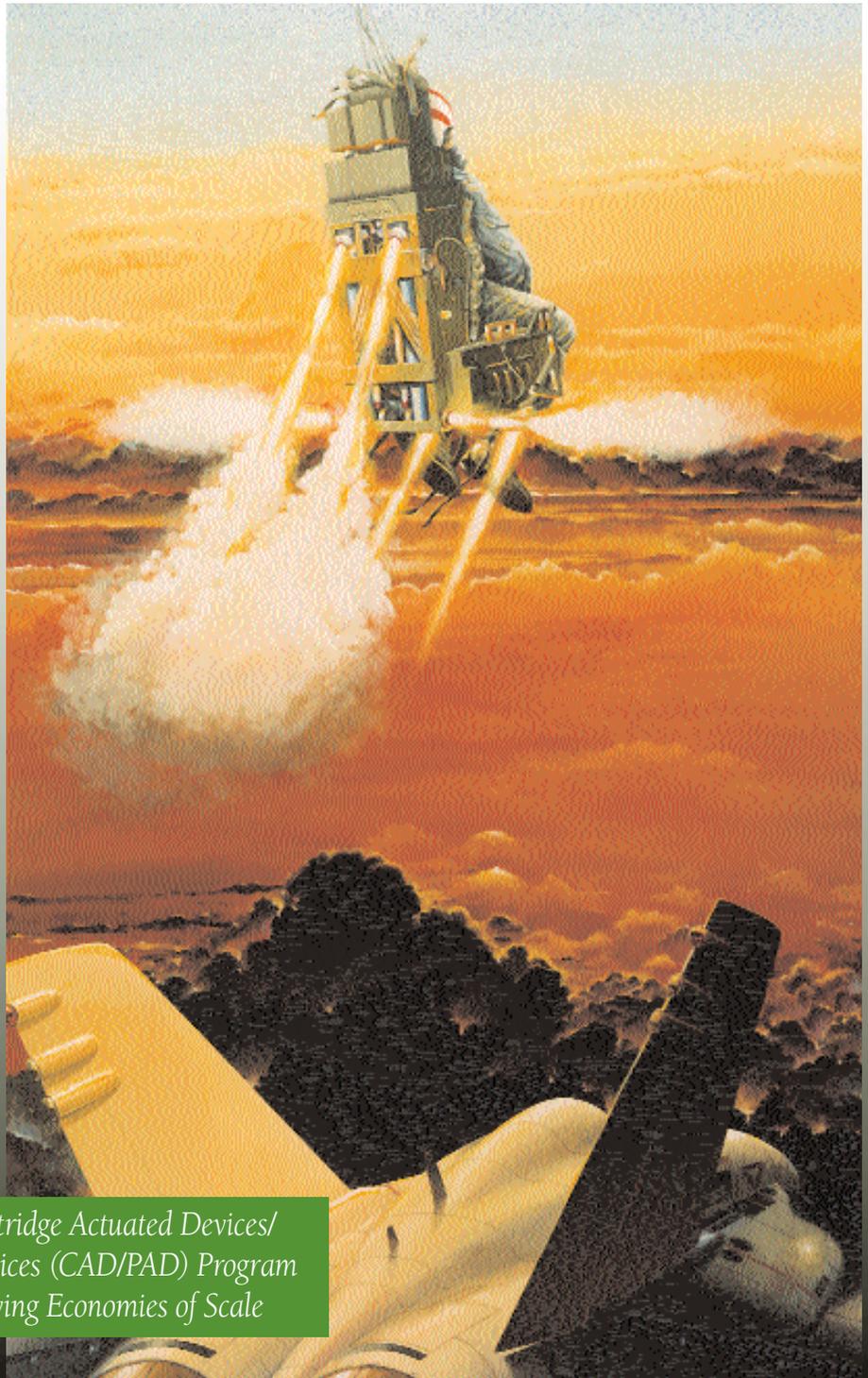
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DAU Hosts 9/11 First Responder

Sustainable Development on Federal Facilities

DoD Chancellor's Conference

Transition to Joint Cartridge Actuated Devices/
Propellant Actuated Devices (CAD/PAD) Program
Building Trust, Achieving Economies of Scale



PROGRAM MANAGER

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Some photos appearing in this publication may be digitally enhanced.



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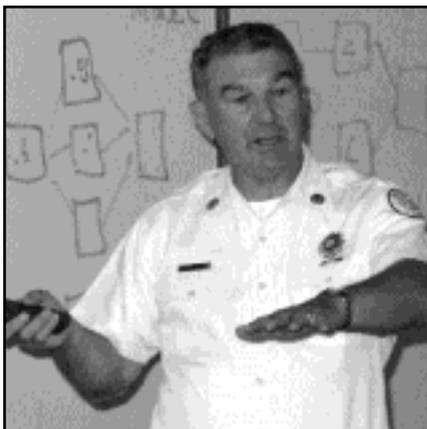


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Cover: Artist's concept of the next-generation ejection seat for the F-18 aircraft.

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The Future Logistics Enterprise (FLE) is DoD's near-term blueprint to improve military effectiveness and logistics support.

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The Joint CAD/PAD Program

Transition to Joint Program Building Trust, Achieving Economies of Scale

DENNIS CHAPPELL • TONY TAYLOR

In a previous edition of this publication (May-June 1999), the authors described a unique management experiment—a Joint Program to manage the sustainment of Cartridge Actuated Devices (CADs) and Propellant Actuated Devices (PADs). The purpose of this article is to answer the question, “How has the Joint Program worked out since stand-up in April 1998?”

In the four years since stand-up, the Joint CAD/PAD Program has moved steadily toward merging Air Force and Navy/Marine Corps management practices.

What are CADs/PADs?

Cartridge Actuated Devices (CADs) and Propellant Actuated Devices (PADs) are commodity items that function as a system component. In operation, they release precise explosive or propellant energy to perform controlled work



Composite photo of Next Generation Ejection Seat sled test demonstrating controllable propulsion. Photo by Craig Wheeler

functions in a variety of applications, including aircrew escape, fire suppression, and stores/emergency release systems.

They generally contain an energetic material along with a mechanical or electronic actuating component. About

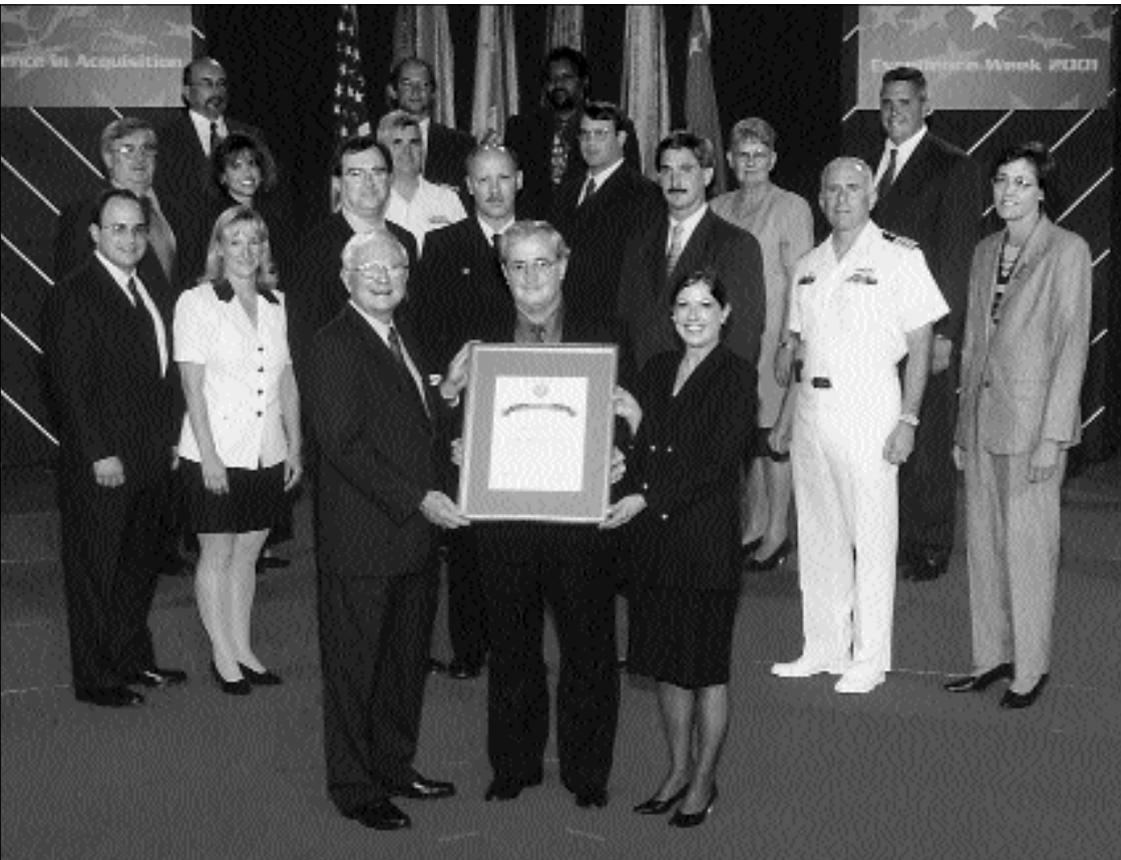
3,100 different configurations are now in use by all Services. Many of these are man-rated, requiring a high degree of reliability.

Some CADs and PADs are expended in normal operations, such as those used for stores release; others are used only

Chappell is the Director of the Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) Joint Program Office located at Indian Head Division, Naval Sea Systems Command. Graduating from Michigan State University as a chemical engineer, he has worked at Indian Head his entire career and has been involved with all aspects of the CAD/PAD Program since 1973. Taylor is consultant to the Joint Program. He is a retired Air Force Reserve colonel and former director of the U.S. House Science and Technology Subcommittee on Transportation, Aviation and Materials.

Navy CAD/PAD Program Team Receives Packard Award, Sept. 10, 2001. The Navy's CAD/PAD (Cartridge Actuated Devices/Propellant Actuated Devices) Supply Reengineering Team reinvented the process for ordering and receiving aircraft emergency system explosives (Hazard Class 1.3 and 1.4) at U.S. Navy and Marine Corps activities worldwide. Using the Business Process Reengineering and Systems Thinking methodologies, the team created a process that uses existing aircraft maintenance and technical data to automate requisitioning, enabling telephone, e-mail or fax orders, while eliminating burdensome paper transactions. The team also instituted bundling, transitioned to small package carriers, streamlined redundant receipt inspections, and incorporated other support processes (e.g., deficiency report tracking) to reduce Fleet workload. The reengineered process averages less than eight days' cycle time within the continental United States (reduced from up to four months), while avoiding over 45 unnecessary work years annually required under the historic process.

Photo by Richard Mattox



201), which reports to the Program Executive Officer for Tactical Aircraft Programs. Execution of the Navy's sustainment program is accomplished by the Indian Head Division, Naval Surface Warfare Center. The size of the Navy program is about \$40 million annually.

Air Force

Responsibility for sustainment of Air Force CADs and PADs was formerly delegated to a unit under the Air-to-Surface Product Group Manager (PGM) at the Ogden Air Logistics Center (ALC), who reports programmatically to the Armament Product Group Manager (APGM) at Eglin Air Force Base, Fla. The size of the Air Force program is about \$45 million annually.

Army

Responsibility for Army CAD/PAD has been consolidated within the Navy for many years.

Building the Trust

The program was born when visionary managers in the Air Force and Navy saw the greater value of consolidating their previously separate activities and began building the trust needed to overcome the risks of doing business in a new way. The key organizing principles of the joint program are:

- operation as a joint integrated product team/competency aligned organization with the Service affiliation of team members transparent to users;
- assumption of responsibility by the Navy, as lead Service, for an important factor (the escape system) in the operational readiness of aircraft in all Services;
- employment of jointness in the sustainment phase of the life cycle, rather than the more traditional development phase;
- use of best practices and continuous improvement in consolidating sus-

in emergencies. All have a defined shelf/service life and must be replaced periodically. CADs and PADs that are needed for safety of flight can cause the grounding of aircraft if they are defective or past their defined shelf/service life.

Life Cycle Management Responsibilities

CADs and PADs are normally developed as a component of a weapon or life support system. Responsibility for initial development rests with the acquisition program manager. For example, the 112 CADs and PADs in the B-2 and the 222

CADs and PADs in the F-14 were developed along with other systems in the aircraft. In keeping with the cradle-to-grave concept, when a system is fielded overall responsibility for sustainment activities, including disposal when necessary, remains with the program manager. However, day-to-day responsibility for sustainment of CADs and PADs has been delegated within each Service to achieve economies of scale.

Navy

For CADs and PADs in Navy systems, the delegation is to the Conventional Strike Weapons Program Office (PMA-

DENNIS P. CHAPPELL

Director, CAD/PAD Joint Program Office
Indian Head Division, Naval Surface Warfare Center



On April 16, 1998, Dennis P. Chappell became the Director, Cartridge Actuated Device/Propellant Actuated Device (CAD/PAD) Joint Program Office. The CAD/PAD Joint Program Office is a \$140 million-per-year full life cycle commodity program providing energetic devices and support services to the Navy, Marine Corps, Air Force, Army, other DoD agencies, NASA, and over 70 foreign countries. These devices are used in Aircrew Escape Systems, Weapon Systems, Bomb and countermeasure ejector systems, emergency egress systems, and other systems requiring high-energy density in a small volume.

Chappell's career in Energetics began in 1964 as a project engineer in the Cast Products Production area working on propulsion components for the Polaris Missile System. He was then assigned as a Project Manager for the design and installation of a new propellant manufacturing capability at Indian Head. He followed this with assignments designing and qualifying a new Chaff

launching rocket motor system and evaluating performance of the Navy's Surface Missile Systems. In 1973, he was assigned as one of the original three team members to consolidate the Navy's CAD/PAD program at Indian Head. This grew into the current Joint Service Program of over \$140 million per year and 350 direct work years. Chappell held numerous leadership roles in the growth of the CAD/PAD program, serving as Engineering Director and Program Manager, culminating in his current position as Director of the Joint Program Office.

Chappell's awards include commendations for serving on five Source Selection Evaluation Boards for major weapons systems. Recent individual and team awards include: David Packard Award for Acquisition Excellence, Assistant Secretary of the Navy Award for Supply Support Reengineering, Commander Naval Sea Systems Command (NAVSEA) Excellence Award for Reengineering, Indian Head Award for Quality Achievement, and the Navy Meritorious Civilian Service Award. He has been published in *Program Manager Magazine*, *Naval Forces Magazine*, and *National Defense Magazine*.

Chappell graduated from Michigan State University with a Bachelor of Science Degree in Chemical Engineering.

Chappell graduated from Michigan State University with a Bachelor of Science Degree in Chemical Engineering.

tainment activities while remaining responsive to customer needs;

- management of a commodity, rather than a weapon system; and
- creation as an initiative from the working level, rather than a directive from the top.

In the four years since stand-up, the Joint CAD/PAD Program has moved steadily toward merging Air Force and Navy/Marine Corps management practices. Along the way the program achieved several noteworthy successes.

Packard Award

In September 2001, the Joint Program received the David Packard Excellence

in Acquisition Award, given for great innovation and results in acquisition and logistics reform. The Award recognizes the Program's reengineering of the process for re-supplying CADs and PADs to Navy/Marine Corps users in the field. The old process was both labor- and paper-intensive, requiring up to four months from order to delivery. Making matters worse, requisitions often simply got lost in the supply system. CADs and PADs were perceived as hard to get and squadrons stockpiled the items as a hedge, leading to shortages elsewhere.

The reengineering team developed a 1-877 phone system that maintenance personnel use to order directly from the

stock point at Indian Head, Md.—a common practice in the commercial world. The telephone operator is able to validate need in real time using computerized maintenance records, and automatically create the supply requisitions. Shipments are accomplished, in most cases, by overnight commercial carrier, allowing automated tracking. Actions by intermediate personnel have been greatly reduced and the average cycle time is down to eight days. The team has since Web-enabled the process, eliminating the need for the phone call and making customer service available 24/7. The new system is under consideration for application in the Air Force.

Consolidation Gains

Minimizing duplication, optimizing joint resources, and applying the best practices of each Service have all resulted in numerous savings, estimated by the Program Management Office at \$825K per year. Included in this figure are the savings from combined procurements of items that are common to two or more Services, reducing the number of contract actions required and invoking economies of scale. Adoption of a Navy computer system for materiel planning will lead to more precise requirements determination and budget justification for Air Force needs.

Under this system, the Navy has been able to defend successfully its annual request for procurement funds by predicting very accurately the readiness impact on specific aircraft of any reductions. The transfer of several former Air Force civilian personnel to the Navy has helped preserve the technical and management capability to serve Air Force users. This has resulted in savings because Navy personnel in the Joint Program are industrially funded, with money for salaries included in the item unit price. Air Force personnel levels are subject to direct appropriations.

Virtual Fleet Support

Another innovation currently being deployed, initially for Navy/Marine Corps needs, is a Web-based Virtual Fleet Support (VFS) system. The idea is to use commercial, off-the-shelf

technology to allow input and updating of core technical, engineering, acquisition, and logistics/supply data directly from the source. Wherever possible, embedded programming will automate business processes, electronically completing tasks previously performed by sailors, Marines, and other support personnel.

VFS will change the way the Joint Program interacts with Fleet users by automating business practices, eliminating paperwork, providing access to a corporate real-time CAD/PAD database, and reducing Fleet workload. The previous focus was collecting data for use by the Program Office and its chain of command. VFS will concentrate on managing corporate data for the primary user, the Fleet. Each point of origin will be able to input directly to the central system. Validation and security routines will be built in to avoid corruption. The Internet will be the means to make the data a corporate resource.

The system will ultimately consist of 17 modules. One of these facilitates the service life extension process. As noted, installed CADs and PADs are life-limited, requiring the Fleet to ground aircraft for maintenance when the life expires. The Fleet may request a waiver to the service life for reasons of operational tempo, deployments, or parts shortages. This happens about 400 times each year. The old process was paper-intensive, involving numerous steps, both in the field and at Indian Head where the waiver requests are reviewed and approved. The elapsed time was typically 10 working days.

VFS allows a requester to log onto the CAD/PAD Web site and select data for the item requiring a waiver. If the request falls within pre-established criteria, the waiver will be generated and entered into the aircraft logbook—all automatically in less than a minute. If the request falls outside the criteria, VFS will prepare an e-mail to the engineering group at Indian Head requesting an evaluation. Upon completion of the evaluation, an engineer responds via the Web. The requester is e-mailed auto-

The business plan that launched the CADS/PADS Joint Program calls for a “walk before run” approach so that the transition to joint operation will occur as the Services build trust and can assure that change will be transparent to the users.

matically and can check back at any time to determine the status of the request.

Another module allows Web-based tracking of installed CADs and PADs to support Web ordering, procurement, and maintenance planning. Previously such data was compiled at over 780 Navy maintenance activities and forwarded monthly via diskette, a burdensome process with centralized information that was always out of date. The new system produces accurate and timely tracking data with substantially reduced workload on maintenance personnel.

Reverse Auction

In 2000 the Joint Program sponsored the first ever DoD online reverse auction. Pre-qualified suppliers competed in real-time via the Web for a contract to produce 756 replacement Electronic Recovery Sequencers for the escape systems in B-1 bombers and F-15, F-16,

and F-117 fighters. A private company, Freemarkets.com, conducted the auction. Under the rules, bidders were able to view the progress of bidding but did not know the names of the other bidders, a bid had to be lower than the previous bid by at least \$500, and there was a time limit of 30 minutes for the entire process. The result of the auction was a 28 percent (\$933K) savings from the Program Management Office's estimated cost.

Future Plans

The business plan that launched the Joint Program calls for a “walk before run” approach so that the transition to joint operation will occur as the Services build trust and can assure that change will be transparent to the users. Continuing in this vein, the Joint Program is currently working on consolidating the Air Force and Navy/Marine Corps programs for Foreign Military Sales of CADs and PADs. Further in the future may be joint programming and budgeting, and joint stock and inventory control.

A recent thrust is the application of “lean manufacturing” principles to the production of CADs and PADs. The Joint Program Office began a joint venture with the University of Maryland to improve efficiency and reduce costs. The results will be applied first to government production activities, which amount to about 10 percent of the total, and later may be extended to the industrial base.

Another venture with Maryland will employ its Computer Aided Virtual Environment (CAVE) to simulate possible designs for a planned automated warehouse and to assist in “hands-on” training of personnel, especially for infrequently performed tasks where the corporate memory may have been lost.

Editor's Note: The authors welcome questions or comments on this article. Contact Chappell at ChappellDP@ih.navy.mil.

ARMY NAMES PROJECT/PRODUCT MANAGERS AND ACQUISITION COMMANDERS OF THE YEAR

Claude M. Bolton Jr., the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA [AL&T]) and Army Acquisition Executive (AAE), hosted the 2002 Army Acquisition Workshop held in Norfolk, Va., Aug. 5-7. Attended by ASA (AL&T) Headquarters Staff, Army Program Executive Officers (PEOs), Major Command Commanding Generals, Command Select Project/Product Managers, and Acquisition Commanders, the Workshop focused on the Army Transformation; Objective Force Task Force; Future Combat Systems; Logistics Transformation; G-4, G-6, and G-8 Updates; a Program Objective Memorandum Update; and a Stryker Brigade Combat Team Update.

Held annually, the workshops allow the AAE to meet at one location with the Army PEOs, Command Select PMs, and Acquisition Commanders to provide the latest guidance and initiatives. Retired Army Gen. Gordon R. Sullivan, President and Chief Operating Officer of the Association of the United States Army, served as the Guest Speaker. Sullivan delivered an informative and motivational presentation and expressed his appreciation for the work of the Army Acquisition Corps in his presentation, which supported the Workshop theme, "Army Acquisition—Supporting the Warfighter."

Recognizing their work, board-selected members of the Army Acquisition workforce were presented with the Army Project/Product Managers and Acquisition Commanders of the Year awards.



Claude M. Bolton Jr., ASA(AL&T)



Photos by Richard Mattox

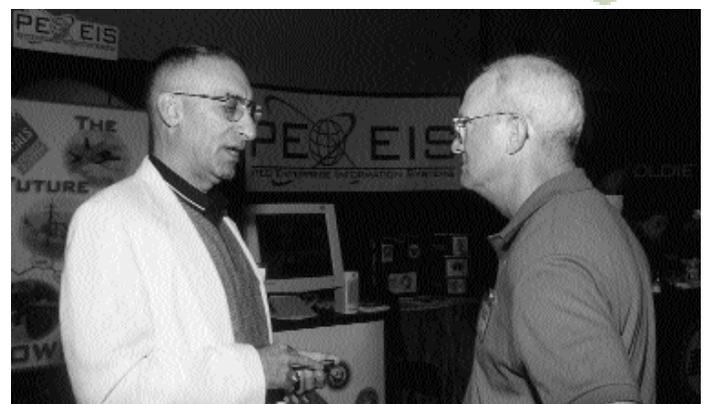
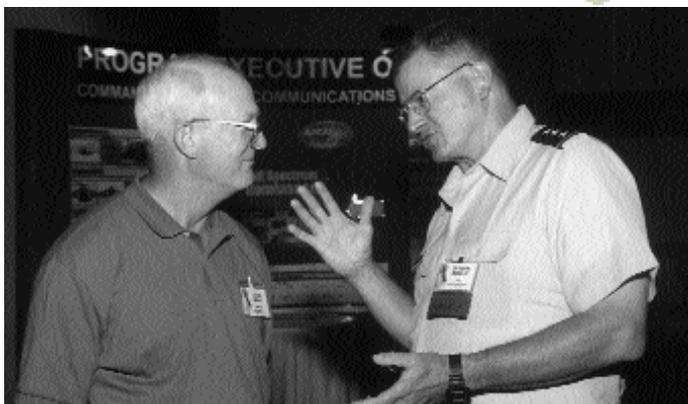
From left: Retired Army Gen. Gordon R. Sullivan, President and Chief Operating Officer, Association of the United States Army; Claude M. Bolton Jr., Assistant Secretary of the Army (Acquisition, Logistics and Technology); and Army Col. Ronald Flom, Commandant, Defense Acquisition University.

From left: Army Lt. Gen. John S. Caldwell Jr., Military Deputy to the Assistant Secretary of the Army (Acquisition, Logistics and Technology); and Army Lt. Gen. Charles S. Mahan, Jr., Deputy Chief of Staff, Army G-4.



From left: Army Maj. Gen. William Bond, Deputy Secretary for Systems Management and Horizontal Technology Integration, Office of the ASA(AL&T); and Army Brig. Gen. Michael R. Mazzucchi, Program Executive Officer, Command, Control, and Communications (Tactical).

From left: Army Lt. Gen. Peter M. Cuiello, Chief, Information Officer/Army G-6, Office of the Secretary of the Army; and Caldwell.



SITATION WORKSHOP

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From left: Caldwell; Army Lt. Col. William W. Stevenson, Prophet and Technical Unmanned Aerial Vehicle (TUAV) Signal Intelligence (SIGINT) Program Executive Office (PEO) Intelligence Electronic Warfare and Sensors (IEW&S)—awarded the Product Manager of the Year; Stanley R. Tylecki, Communications Electronics Command (CECOM), Rapid Response to Critical Systems Requirements (R2CSR)—awarded the Defense Acquisition Executive Certificate of Achievement; Army Col. David W. Coker, Dugway Proving Ground West Desert Test Center—awarded the Acquisition Commander of the Year; Army Col. Robert Brown, DCMA, Baltimore—awarded the Acquisition Commander of the Year; Army Col. James C. Naudain, Precision Fires Rockets and Missile Systems, Program Executive Office (PEO) Tactical Missiles—awarded the Project Manager of the Year; and Bolton.



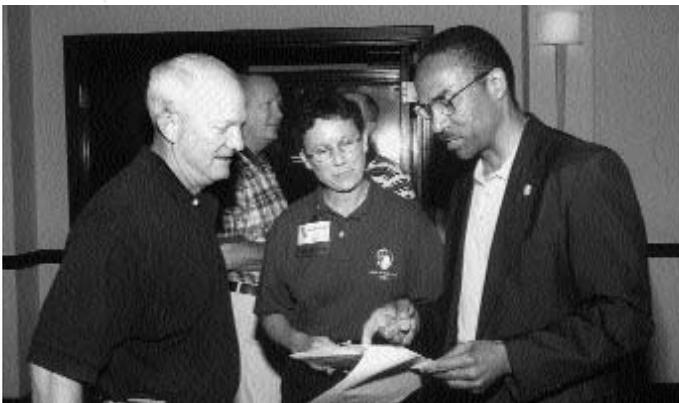
Sullivan

From left: Larry Robinson, DAU Exhibitor, Norfolk campus; Bolton; Flom; and Mark Kent, DAU Exhibitor, Norfolk campus.



From left: Caldwell; Army Col. Mary Fuller, Director, Acquisition Support Center; and Bolton.

Current and Former DAU/DSMC Commandants. From left: Flom; Bolton; and Army Col. (P) James Moran, PEO Soldier.



Program Analysis, Evaluation Office Implements New Approach

LINDA D. KOZARYN

WASHINGTON, July 19, 2002—The Defense Department's Office of Program Analysis and Evaluation will implement a new capabilities-based approach to the program and budget process.

Stephen A. Cambone, the new Director of the office, said the mission of the organization is to advise the defense leadership on the relationship of defense programs and budgets to U.S. defense objectives, projected threats, allied contributions, estimated costs, and resource constraints.

At an afternoon news briefing at the Pentagon, Cambone gave an overview of the office's roles and responsibilities. He said Defense Secretary Donald H. Rumsfeld had asked him to "create the connective tissue between what we have done over the last year in defining strategy guidance, for the Service components and the Department as a whole, and connect that to programs. Programs then get translated into budget."

The Comptroller develops the budget, Cambone said, but the Program Analysis and Evaluation Office will provide advice, along with the comptroller, to the Secretary and other senior defense officials. They will also provide "a range of choices that they could make in trying to provide the capabilities that we are going to need for the coming decades," he added. Cambone said he's been given the clear mission to ensure there are close ties between the Office of the Secretary of Defense, the Joint Staff, and the Services.



Stephen A. Cambone
Director
Office of Program Analysis and Evaluation
DoD Photo

The close ties will allow everyone involved in making budgetary decisions the opportunity to give their views on the strategic implications of the choices and lend their advice to the Secretary. The Secretary, in turn, can give the best advice to the President.

The office will focus on three areas. The first is capabilities. "The Quadrennial Defense Review (QDR) and the Defense Planning Guidance has stressed again and again, and again the need for a capabilities-based approach to our force capabilities," Cambone said.

Second, is jointness. "We are looking to focus first and foremost on the contribution

that any given program or platform is going to make to joint operations," he said.

Third, is strategic choices. Cambone said he hopes to "avoid the typical approach which is a decision made program by program, platform by platform, without any relationship made between those choices or between what we need to meet our near-term needs, particularly the ongoing war, and what we need to do to prepare for the future."

In preparing for the future, he said, defense officials are thinking through the question, "What would you like to have in 2015?" "Are the capabilities designed in the early '80s or the early '90s the systems that you're going to want to have moving into the next 20 or 30 years?" he asked. "Do we need to think about another way to go?"

"What we decide to build over the next few years," Cambone said, "is going to be with us probably for as many as 50 years."

The office will use the goals outlined in the QDR as measurements in their evaluation of various programs "as they relate to joint operations and to the capabilities they'll provide to meet the kind of environment we're moving into," he said.

Over the next month, he noted, the office will sketch a framework for the relationships within the strategic, joint, and capabilities contexts. In September, they'll discuss the range of choices and how many different ways one can approach acquiring the capabilities needed. In October, senior defense officials will begin to decide on their choices, which will then roll into the development of the budget.

The budget is to be completed in December to go to the Office of Management and Budget as the Secretary's recommendation to the President.

Defense officials announced earlier in the day that the Defense Secretary has appointed Navy Rear Adm. Stanley R. Szemborski to serve as Deputy Director of the office. He left his position as Deputy Director for resources and requirements on the Joint Staff. His broad experience will help evaluate programs in a strategic context and from a joint perspective, defense officials said.

Editor's Note: This information is in the public domain at <http://www.defenselink.mil/news>.

DAU Conducts Last APMC Graduation

APMC—Serving the University Well, In Its Time

SYLWIA GASIOREK-NELSON

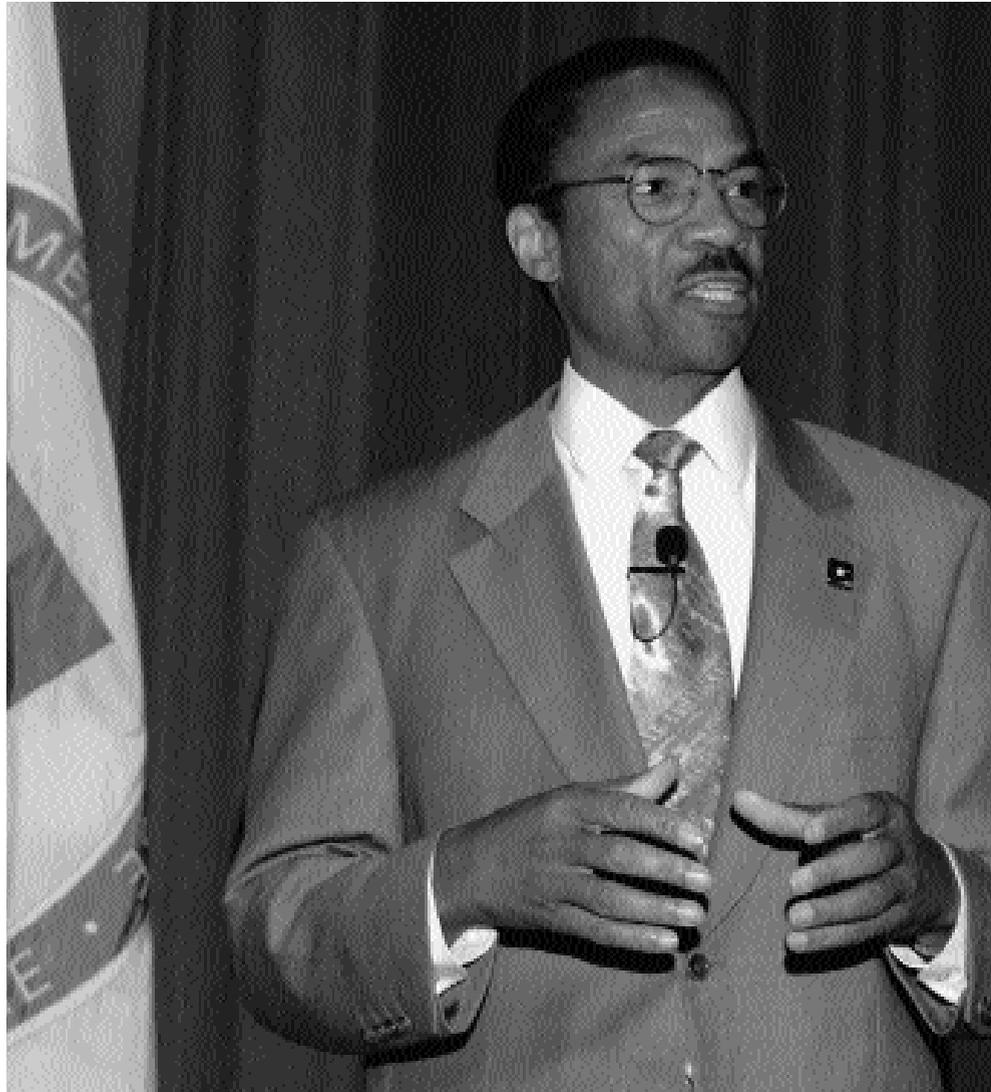
On Aug. 16, 2002, the Defense Acquisition University graduated the last class of students from its 14-week premier course offering—the Advanced Program Management Course (APMC 02-2). The last ceremony was held in Howell Auditorium, Fort Belvoir, Va.

Welcoming Remarks

DAU Commandant Army Col. Ronald Flom welcomed the graduates, family members, and friends in attendance. Distinguished guests included: Claude M. Bolton Jr., Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA [AL&T]); Donna Richbourg, Principal Deputy Director, Defense Procurement and Acquisition Policy, Office of the Secretary of Defense (OSD); Dr. James McMichael, DoD Director, Acquisition Education, Training, and Career Development; retired Navy Adm. William Hauenstein, Director, Acquisition Career Management, Office of the Assistant Secretary of the Navy (Research, Development and Acquisition); Army Col. Mary Fuller, Director, Acquisition Support Center, ASA(AL&T); Alan Shaffer, Director, Plans and Programs, Office of the Director, Defense Research and Engineering; and Louis Kratz, Principal Deputy Under Secretary of Defense for Logistics and Readiness.

“This is a great day for you—the course members—graduating after a long 14 weeks; but it is also a milestone for DAU and the School of Program Management, in that this is the last 14-week Advanced Program Management Course,” Flom said.

Gasiorek is a full-time contract editor for Program Manager Magazine.



Claude M. Bolton Jr., Assistant Secretary of the Army (Acquisition, Logistics and Technology) and former Commandant of the Defense Systems Management College, addressing the last graduates of the Advanced Program Management Course (APMC 02-2). The last APMC graduation was held in Howell Auditorium, DAU main campus, Fort Belvoir, Va., on Aug. 16, 2002.

On a personal note, Flom said that having been through the course a number of years ago, he knows how very focused the program management curriculum is, and he certainly appreciates their

focus on learning throughout the last 14-week offering of APMC.

“For those of you who went through the course,” Flom said, “you leave with the

insight and the best practices that you gained from each other and the sharing experiences that you had over those 14 weeks.”

He asked the graduates, who will be going back to the field and back into the acquisition workforce, to carry back the experiences and the enthusiasm gained during the course, and to con-

**“CONGRATULATIONS!
YOU'RE ON TOP OF
THE HILL.
ENJOY THE VIEW—
THERE ARE
TREMENDOUS
CHALLENGES
AWAITING YOU.”**

**—CLAUDE M. BOLTON JR.
ASSISTANT SECRETARY
OF THE ARMY
(ACQUISITION, LOGISTICS
AND TECHNOLOGY)**

tinue to improve their personal efforts on behalf of the Program Management Offices for which they work. He also told them to act as “agents of change” in the Department as DoD's Transformation continues.

Thanking those assembled, Flom emphasized the professionalism and tremendous efforts of the faculty and staff in maintaining the high quality of

the APMC up to the final day. He also recognized George Merchant, the APMC Course Director, who has been a part of APMC since its transition from the 20-week Program Management Course (PMC). Merchant has been involved with APMC and the former PMC in some capacity since 1983.

Introducing Bolton as the graduation guest speaker, Flom told the audience that it was very appropriate for the Assistant Secretary to participate in the ceremony that morning as he was Commandant of the Defense Systems Management College when the 14-week APMC was developed in 1995. “It's a privilege to have him [the Assistant Secretary] here to help us close up this phase of Program Management training, essentially marking the end of an era,” he concluded.

On Top of the Hill

Welcoming the APMC graduates, Bolton said he was delighted to be there to have the opportunity to spend time with the leaders in whom we entrust our future.

“During the last 14 weeks, you have again imparted knowledge, skill, values, hopes, and expectations. You have a remarkable record of success. You can be proud of your continuing contributions to the warfighting needs of our soldiers, sailors, airmen, and Marines,” he said.

“Congratulations! You're on top of the hill. Enjoy the view—there are tremendous challenges awaiting you,” Bolton emphasized. He also thanked and congratulated the faculty, administrators, and staff of the APMC for their contributions over the years.

Challenges of Future Leaders

Bolton told the APMC students that they will soon join a long, illustrious list of graduates—some at the top of the acquisition world—in government and in industry. More than 10,000 students have completed the program management course, he said, and more than 6,000 students are graduates of the Advanced Program Management Course. “I am a graduate, and I am a firm be-

liever that training and education are the key to the successful accomplishment of our goals,” he emphasized.

Bolton stressed that the Army is in the midst of a great transformation to the objective force—a force that is dominant across the full spectrum of military operations. “Our vision is to deploy a brigade combat team anywhere in the world in 96 hours after liftoff; a division on the ground in 120 hours; and five divisions on the ground in theater, in 30 days. That requires a massive change in what we're doing,” he said.

“Fortunately,” he added, “we have good leaders who understand that we need to change. It's up to us to make that happen. Your challenge as tomorrow's leaders will be to understand and make change possible.”

To help the graduates recognize and confront the changes surely to come under DoD's Force Transformation, Bolton spoke of some guidelines from John P. Kotter's book, *Leading Change*, particularly Kotter's eight-stage process for creating major change:

- **Establishing a sense of urgency.** Without urgency there will be complacency. With complacency, transformations usually go nowhere because few people will be interested in working to bring about a change.
- **Creating a guiding coalition.** Major transformations are often associated with one highly visible leader, but it would be a mistake to assume that one charismatic leader alone, can bring about change. In order to guide an organization through a transformation, a leader must first gain the support of many influential and visible members of the organization.
- **Developing a vision and strategy.** Kotter defines vision as, “a picture of the future with some implicit or explicit commentary on why people should strive to create that future.” The vision does not call for blind obedience, nor does it identify every step along the path to change. The vision does provide a clear end state and a general direction of movement.

ADVANCED PROGRAM GRADUATES



Four section leaders from the last Advanced Program Management Course receive the "Final Diploma." From left: Section Leader, Mike Brown, Air Force civilian; Section Leader, Army Lt. Col. (P) Vic Eilenfield; Claude Bolton, Assistant Secretary of the Army (Acquisition, Logistics and Technology) and former Commandant of the Defense Systems Management College; Section Leader, Navy Capt Tom VandenBerg; Army Col. Ronald Flom, DAU Commandant; Section Leader, Navy Capt. Alan Moser; and APMC Course Manager George Merchant.

PROGRAM MANAGEMENT OFFICE COURSE
REPLACES APMC AS
LEVEL III CERTIFICATION COURSE IN
PROGRAM MANAGEMENT

After almost eight years and 6,157 students, the Defense Acquisition University has conducted the final offering of the 14-week Advanced Program Management Course. APMC has now transitioned to the Program Management Office Course. The new course is designated PMT-352 and replaces APMC as the Level III course for certification in the Program Management career field. PMT-352 incorporates more of the newer distance learning and case-based educational tools.



Norm Augustine, former Chairman and Chief Executive Officer of Lockheed Martin Corporation, is recognized as a DAU "Honorary Professor" for his exceptional support of the university over the past 30 years.



APMC Course Manager George Merchant welcomes students to the last offering of the 14-week course.



Students enjoy the last Sports Day and Picnic for APMC, held in August 2002.



Each section of APMC spent at least one day on Capitol Hill gaining a better understanding of the Congress.

MANAGEMENT COURSE FINAL CLASS



Dress-up time as Class 02-2 celebrates the final week of APMC at the Graduation Dinner.



The Advanced Unmanned Ground Vehicle (AUGV) gave students an opportunity to experience the frustrations and satisfaction of designing and building a real product for the government.



Student "actors" liven up the Program Management and Leadership Assessment, demonstrating how to develop (or hinder) effective learning.

APMC Industry Graduates aboard the USS *Nimitz* during the Industry Managers' Field Trip.



Claude Bolton, Assistant Secretary of the Army (Acquisition, Logistics and Technology) and former Commandant of the Defense Systems Management College, graduated the last APMC. The Eagle is the APMC 02-2 Class Gift to the Defense Acquisition University. The inscription on the plate reads:

"Dedicated to the men and women engaged in Operations Enduring Freedom and Noble Eagle. The Last Class—APMC 02-02."



- **Communicating the change vision.** To effectively communicate a vision, one must keep it simple. The message is understood best if it is communicated with simple elegance.
- **Empowering broad-based action.** Major change can rarely be successful unless many people assist. Members of the changing organization cannot, or will not help if they feel powerless to do so. Therefore, if change is to take place, leadership must empower a broad base of people to take action. Never underestimate the power of a trained and supportive workforce.
- **Generating short-term wins.** A good vision is the key to the long-term success of change, but without short-term successes, even the best vision can be blinded.
- **Consolidating gains and producing more change.** Irrational and political resistance to change never fully dissipates—even after early progress is made toward the vision. This leads to one of Kotter's cardinal rules: "Whenever you let up before the job is done, critical momentum can be lost and regression may follow." For this reason, a coalition must use the credibility afforded by short-term wins to tackle additional and bigger change projects.
- **Anchor new approaches in the culture.** The challenge here is to graft the new changes onto the old roots of the organization while killing off the inconsistent pieces. It is important to remember that a cultural shift does not precede change, but instead follows it. Changes will only sink in after it is made clear that the new way of doing business is far superior to the old.

"I hope these guidelines will help each of you become the type of leader who can deal effectively with change—you must either learn to make change work for you and your organization or be left behind."

In closing, Bolton said, "what will never change is the need for having the best trained, best led, and best equipped armed forces on the planet—deployed rapidly at precisely the right time, the right place, and with the right support structure."

"We face the future together, he told the graduates, and *you* will make it happen."

AUG 6, 2002 ALDRIDGE REPORTS TO SECRETARY OF DEFENSE ON TOP 5 PRIORITIES FOR AT&L

Priority 1

Continue Progress on the 5 Goals I Set for Myself in May 2001. Goal 1: Improve the credibility and effectiveness of the acquisition and logistics support process; Goal 2: Revitalize the quality and morale of the DoD AT&L workforce; Goal 3: Improve the health of the defense industrial base; Goal 4: Rationalize the weapon systems and infrastructure with the defense strategy; Goal 5: Initiate high leverage technologies to create the warfighting capabilities and strategies of the future.

Priority 2

"Re-engineer" the AT&L Organization. Eliminate marginal activities, transfer functions that can be better accomplished elsewhere, enhance those higher priority activities, and improve the responsiveness and efficiency of the organization. Emphasize policy and oversight versus management.

Priority 3

Develop an "Acquisition Excellence" Plan for All Major Weapon Systems. Apply the new acquisition rules to all new major weapon systems to reduce acquisition cycle time, minimize program risks, and maintain stability. Keep the Joint Strike Fighter (JSF) on-track; implement a deployment plan for missile defense; decide the architecture for the Army's Future Combat System (FCS); establish a development plan for the Navy's DD-X program;

develop a balanced program for "information dominance"; rationalize the next generation of platforms for a new "strategic forces posture"; complete the road map for Unmanned Aerial Vehicles (UAVs) and Unmanned Combat Air Vehicles (UCAVs), and complete the plan for the development and production of precision munitions.

Priority 4

Complete the Plan for the "Future Logistics Enterprise." Develop and implement the approach for "end-to-end distribution" of supplies, parts and equipment, through a shared data environment and a new "demand management system," to reduce customer wait time, maximize customer satisfaction, reduce costs, and minimize inventories of supplies. Determine the proper organizational structure to implement the new logistics enterprise.

Priority 5

Accelerate the Flow of Technology to the Warfighter. As the AT&L contribution to winning the war on terrorism, expand the use of Advanced Concept Technology Demonstrations, revitalize the Technology Transition Office, increase the budget for Science and Technology, restore the Defense Advanced Research Projects Agency (DARPA) to high-risk/high-payoff focus, continue to identify counterterrorism technologies, and support expanded joint experimentation.



Army Announces Business Initiatives to Support Transformation

The Secretary of the Army has approved eight new Army business initiatives as part of a formal DoD process designed to identify and implement business reform actions that create greater efficiencies and cost saving.

The approved initiatives, which were worked through the Army's Business Initiatives Council (BIC), include restructuring the funding of military training Service support, examining the privatization of Army lodging, outsourcing the management of household goods storage and shipment in the National Capital Region, using electronic signatures rather than hard copy documents to approve personnel actions, developing a Web-based system for preparation and approval of civilian timecards, and establishing a public-private partnership for renovations at Walter Reed Army Medical Center.

Six initiatives were approved for immediate Army implementation, and two were approved for submission to the Department of Defense's BIC, as these two initiatives may have benefits that could be extended across all the military services. With the approval of these initiatives, the Secretary of the Army has now approved a total of 23 BIC initiatives. A complete list of the Army

approved initiatives can be found at <http://www.asafm.army.mil/bic.asp>.

A key BIC philosophy is that savings will be retained by the organization that executes the initiative, thus encouraging organizations to be innovative in their proposals. "The anticipated results of Army BIC initiatives are efficiencies that will free manpower and funding resources to be reallocated to Army Transformation," said Dr. Craig College, the Executive Director of the Army BIC.

Secretary of Defense Donald H. Rumsfeld created the BIC process in June 2001. Both the Army and the DoD councils focus on finding ways to streamline stringent legislative requirements, cumbersome directives, and lengthy staffing processes. Anticipated savings for DoD initiatives are over \$100 million per year.

The Army will continue to complete succeeding rounds of BIC efforts quarterly, in an effort to facilitate improvement of its business operations and processes.

Editor's Note: This information is in the public domain at <http://www.dtic.mil/armylink/news>.

Sustainable Development on Federal Facilities

ARMS Model Proves an Alternative to Base Closure

RAND H. FISHBEIN, PH.D.

The United States has long regarded its domestic military installations as more than just compounds in which to house, equip, and train its soldiers. For over two centuries they have served as model cities—foundries of excellence, where the best of American industry, manpower, and technology have organized for war.

All of this began to change in the last quarter of the 20th Century with the advent of high-mobility warfare, forward pre-positioning, and stand-off munitions. Overnight, Pentagon planners began to question the utility of many of the Department's approximately 519 domestic installations, preferring to see them as costly relics of a bygone age rather than as pearls woven into the fabric of our national defense. With every cut in force structure, and every improvement in strategic air and sealift, their purpose seemed to diminish.

Strategic Inflection Point

Then came the events of September 11, 2001. As America mobilizes for what could be a protracted war against terrorism, the need for superior military infrastructure is once again becoming evident. Many in Congress now see the nation's defense installations as key components of homeland security and as vital elements in sustained power projection. This new attitude was most clearly reflected in the FY 2002 National

Defense Authorization Act, which postponed any decision on future base closures until 2005.

Even so, there are those Pentagon planners who persist in the belief that continued DoD control over vast swathes of real estate represents little more than an expensive exercise in nostalgia. At a cost of billions of dollars annually in operations and maintenance funding, just the upkeep of this infrastructure, extending over some 25 million acres, represents a huge drain on the cash-strapped DoD. Even with an increase in defense spending in 2003, the cost of infrastructure maintenance and modernization is skyrocketing.

In pressing for another round of base closures, Pentagon planners argue that at least a quarter of the nation's remaining military installations are redundant. Retain them, they say, and the Department will be unable to muster the funding necessary to pay for everything from equipment modernization and spare parts to much-needed quality-of-life improvements for the nation's 1.4 million active duty servicemembers.

Assets, Not Liabilities

While DoD's budget concerns are well-founded, the reality surrounding base closures is something quite different. In-

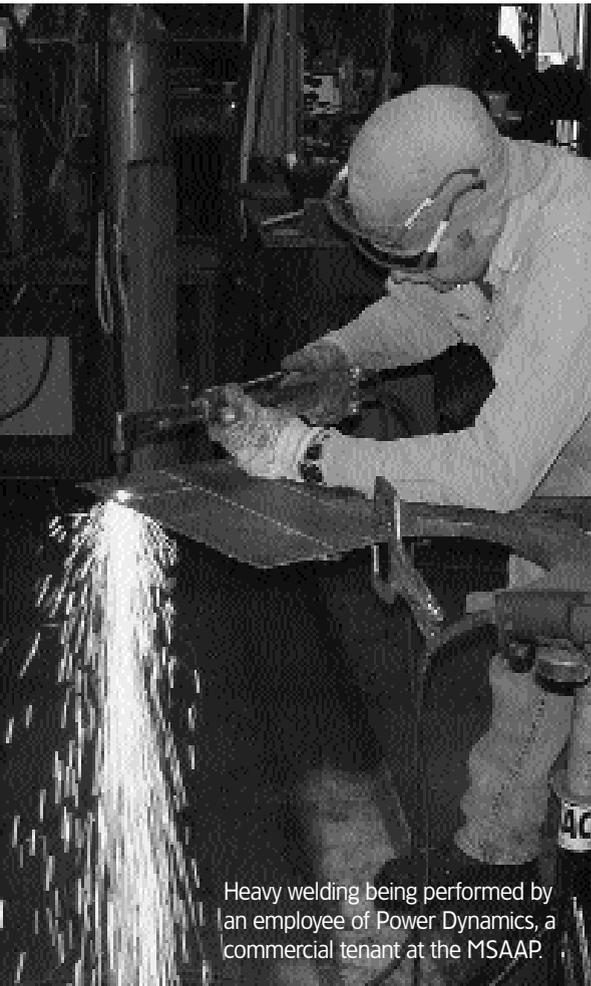


Commercial welding operation conducted by Entech, a commercial tenant at the Mississippi Army Ammunition Plan (MSAAP).

Photos courtesy MSAAP

stead of being liabilities, America's vast collage of military installations are, in actuality, assets. If carefully nurtured, prudently funded, and creatively managed, many can be transformed into revenue centers for a cash-starved military or serve as host sites for other federal,

Fishbein is President of Fishbein Associates, Inc., a public-policy consulting firm based in Potomac, Md. He is a former Professional Staff Member (Majority) of the Senate Defense Appropriations Subcommittee, where he conceived of and authored the Armament Retooling and Manufacturing Support (ARMS) Act along with numerous other programs that benefit military readiness. Fishbein also served as a Professional Staff Member (Majority) of the U.S. Senate Foreign Operations Appropriations Subcommittee and as Special Assistant for National Security Affairs to Senator Daniel K. Inouye (D-Hawaii). He holds a Ph.D., with distinction, from The Johns Hopkins University Paul H. Nitze School of Advanced International Studies, and was the recipient of two Fulbright fellowships to Oxford University and the University of London.



Heavy welding being performed by an employee of Power Dynamics, a commercial tenant at the MSAAP.

downments and manpower, is central to developing a reuse plan that allows commercial business to co-exist, side-by-side, with the military mission.

Creative solutions are already being implemented throughout the DoD. Many, like facility use contracting, consideration-for-use, enhanced lease authority, Cooperative Research and Development Agreements (CRADA), the rehabilitation tax credit, and the Residential Communities Initiative (RCI), have shown great promise in tests run by installation commanders across the nation.

What is needed now is for the Department of Defense to embrace the full range of public-private partnership strategies to make military infrastructure not just affordable, but profitable as well.

The ARMS Alternative

Perhaps the most successful of these public-private partnership strategies is the Army's Armament Re-tooling and Manufacturing Support

The program is run by an eight-person ARMS Team belonging to the Army's Operations Support Command (OSC), in Rock Island, Ill. A 16-member ARMS Public-Private Task Force (PPTF), Executive Advisory Committee (EAC), appointed by the Army to represent each of the primary stakeholder interests, is chartered to oversee the operation of the program. The EAC reports directly to the Secretary of the Army on how the operational efficiency of the initiative might be improved.

Understanding the potential of military installations, including their native endowments and manpower, is central to developing a reuse plan that allows commercial business to co-exist, side-by-side, with the military mission.



Aerial view of Mississippi Army Ammunition Plant (MSAAP)

U.S. Army photo

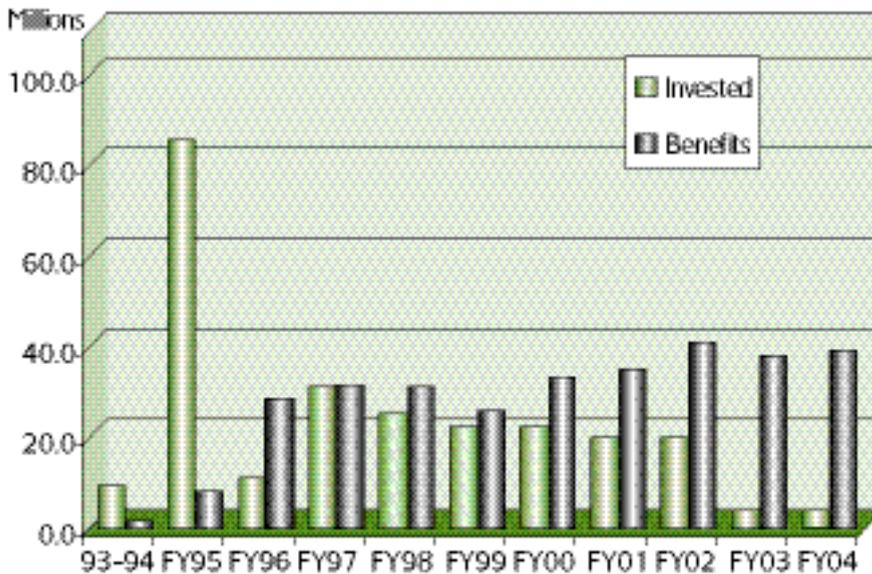
state, or local governments' activities. The key is sustainable development. The goal is recapitalization.

Understanding the potential of military installations, including their native en-

(ARMS) initiative. Enacted into law in 1992, ARMS is spearheading a revolution in facility reuse by demonstrating how active, inactive, and even excess installations can be made largely self-financing.

The ARMS mission is to evolve off-budget methods for funding all, or part of, the cost centers at a given installation. Principal among these cost centers are: maintenance and repair, environmental compliance and remediation, facility modernization, historic preservation, and in some instances, pension and personnel benefits. A flexible, innovative, market-driven orientation is to guide all activities overseen by the installation commander.

ARMS Annual Financial Benefits



In a remarkable turn of fortune, ARMS has taken declining Army installations and transformed them into engines of economic opportunity.

ARMS was established by Congress in 1992 as a way of saving the Government-owned, Contractor-operated (GOCO) ammunition base from complete collapse. By 1992, ammunition appropriations had fallen by well over 70 percent in just eight years, triggering widespread layoffs and sparking a series of plant closures.

As the single manager for conventional ammunition, the Army suddenly found itself short of not only procurement dollars, but of the funds needed to maintain its vast network of in-house explosives; metal parts; and Load, Assembly

and Packing (LAP) plants. Most of these plants dated to World War II and were in dire need of modernization in both production as well as Occupational Safety and Health Administration (OSHA) compliance.

In creating ARMS, Congress intended that the program serve as a model for the reuse of federal facilities across the Federal Government. Within a few years of its establishment, ARMS was being adapted across a wide range of mission areas, including Army aviation, arsenals, and depot maintenance facilities. Much of what the Air Force is doing in its City Base initiative at Brooks Air Force Base, and the Department of Energy (DoE) in its development of the Site Transition and Reuse (STAR) initiative, takes its inspiration from the pioneering efforts of ARMS.

Innovative Asset Management Techniques

What makes the ARMS program unique is that it utilizes a range of financial and real estate tools to catalyze sustainable development on Army facilities. This means not only a reduced reliance on appropriated funds, but the employment of enlightened management practices that provide for renewable sources of off-budget income.

ARMS has accomplished this by encouraging commercial companies to set

up operations on Army installations where they can take advantage of their industrial infrastructure, vast covered areas, a trained workforce, secure warehousing, equipment availability, and location to create jobs and generate revenue that can supplement, or in some cases replace, congressional appropriations for Base Operation Support (BOS).

Key to ARMS' success is the active involvement of the operating contractor in marketing, developing, and administering each plant site. A facility use contract makes this possible.

A facility use agreement is not a production contract. Instead, it functions as a no-cost services contract that permits a contractor to utilize the assets at an Army ammunition plant to maximize its commercial potential, but within parameters established by the Army for readiness and safety.

A series of incentives built into the contract help to ensure that the contractor will work to maximize the revenue-generating potential of the facility and thereby help to offset the cost of government ownership. Contractors are entitled to annual performance incentives if they reach certain economic targets.

Typically, facility contractors make use of a variety of methods to meet their revenue targets: tenant lease payments, asset sales, the marketing of services, access fees, equity partnerships, income derived from a percent of tenant product sales, or the more intensive use of the site by the facility contractor. Marketing of the site is the responsibility of the operating contractor.

Under a facility use agreement, none of the funds paid to the plant contractor are transferred to the Army. Instead, the Army receives its consideration in the form of "in-kind" credits against which an installation commander can direct that work be performed by the facility contractor. At the start of each year, the facility contractor and the commander negotiate a work plan based upon projected commercial revenue, less any fees

or profit to which the facility contractor is entitled.

This process boasts several advantages. First, expenditures by the base commander do not count against the Army's budget authority ceiling. Second, work orders can be executed quickly and according to the priority needs of the base commander. And third, all revenue earned at an installation remains available to that installation and is not automatically turned over to the Miscellaneous Receipts account in the Department of the Treasury.

Typically, Army work orders would cover the general maintenance and improvement of the facility, but they also could include job training as well as environmental compliance and remediation activities.

Generally, the cost to the Army of administering the ARMS program is minimal, running at less than 1 percent of its funded amount since its establishment.

Supporting Commercial Diversity

Today, the 10 ARMS plants support a wide variety of tenant activities, from fish farming and rocket motor assembly to the manufacture of marine winches, transporters for the Space Shuttle external fuel tanks, and tool joints for the off-shore oil industry.

With over 141,000 acres of land, 600 miles of rail, and 10,000 buildings comprising over 31 million feet of covered space, the GOCO ammunition base is a formidable industrial complex. Its diverse infrastructure supports an array of production equipment for hoisting, forging, heat treating, calibrating, materials testing, pollution control and disposal, repair and maintenance, computation, and administrative support.

Today, due in large part to ARMS, Army installations are home to a wide assortment of business enterprises. These include one of the nation's largest fireworks producers, a food caterer, a wood waste recycler, a furniture refinisher, and

a building materials distributor. There are companies engaged in rail car and RV storage and food dehydration. At various times, ARMS plants have hosted mushroom farmers, textile processors, and even pickle packers.

Other tenants are involved in the manufacture of pollution control and nut processing equipment, the production of moldings and fiberboard products, and the operation of a propane tank farm. One plant even plans to welcome artisans crafting specialty glass products.

Under the ARMS Act, small and minority-owned businesses are encouraged to set up operations alongside large anchor tenants. There now are approximately 191 business tenants operating at GOCO ammunition plants of which about 125 are small businesses.

All of these non-government business activities are carried out symbiotically with their plant's military mission.

Reducing The Cost Of Ownership

So efficient is the ARMS process that the program has been able to reduce the cost to the Army of certain types of ammunition and explosives by upwards of 18 percent, due entirely to the absorption of overhead costs by on-site commercial business.

ARMS has led to other efficiencies as well. It has brought about a streamlining in Army contracting procedure, resulting in faster processing times for contract approvals. The ARMS Team has pledged a 3- to 5-day turnaround for initial proposal inquiries. Under ARMS, numerous waivers and deviations from Federal Acquisition Regulation (FAR) restrictions have been obtained, as well as statutory amendments that have granted even greater authority to program managers.

For instance, the delegation of authority under 10 U.S.C. 2692 from the Secretary of the Army to the Major Command (MACOMs) has lessened significantly the time needed to decide whether non-government hazardous waste may be transported onto a gov-

ernment installation for reprocessing. This is a growing business niche for the companies wishing to use DoD facilities, since the Department has some of the most advanced environmental treatment facilities in the country.

In just seven years (1993-2000), ARMS generated \$3 billion in economic output and created over 3,400 jobs. The program has generated \$160 million in savings to the Army resulting in \$134

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million in savings to the government according to a recent study by Pricewaterhouse Coopers (PwC).

In its analyses of the ARMS program, PwC defines the term, "Savings to the Army" as "(Rent shared with Army/Government) plus (Overhead absorbed by ARMS investments and incentives) plus (Overhead absorbed by ARMS tenants) plus (Services performed by ARMS ten-

ants in lieu of rent).” PwC defines the term, “Savings to the Government” as “(Rent shared with Army/Government) plus (Overhead absorbed by ARMS tenants) plus (Services performed by ARMS tenants in lieu of rent).”

Since its inception, ARMS has made investments or provided targeted incentives totaling \$206 million. Yet unlike many other government defense conversion or community transition initiatives, ARMS has been able to recoup all of its expenditures within just six years. All funds outlayed by ARMS are fully and completely repaid to the taxpayer.

In a remarkable turn of fortune, ARMS has taken declining Army installations and transformed them into engines of economic opportunity. Since its inception, ARMS has been responsible for an increase in tenant employment of 23 percent per year. This translates into a growth rate of 15 percent per annum in the rent paid by ARMS tenants back to the program.

PwC concluded in May, 2000:

“The business case shows that the Armament Retooling and Manufacturing Support (ARMS) Program is an economically sound program that reduces the overall ownership costs of the government facilities.”

Best Practices

In developing ARMS, its proponents have incorporated many of the best business practices recommended by the National Performance Review (NPR), the Defense Reform Initiative (DRI), the 1997 National Defense Panel (NDP), the General Services Administration (GSA), the Defense Science Board (DSB), the directives promulgated by Dr. Jacques S. Gansler, former Under Secretary of Defense (Acquisition, Technology and Logistics), and others. Examples of ARMS best business practices abound:

Planning. All commercial reuse activities are based upon a strategic plan drawn up for each facility. Business plans, feasibility, engineering, and mar-

keting plans help to ensure the highest and best use for both plant and equipment.

Marketing. An ARMS national marketing program uniformly promotes the reuse opportunities at each of the Army plants through the program Web site (www.OpEnterprise.com), newsletter, brochures, trade show representation, and national workshops.

Incentive Funding. ARMS may extend to tenants immediate use funding, bridge funding, funding for environmental baseline studies, equipment relocation, space reconfiguration, pre-contract costs, and other incentive funding to promote on-site business activity.

Contract Length. Long-term occupancy contracts of up to 25 years may be used by tenants as collateral in securing private sector business loans.

Pricing. Rates for the use of a facility or its assets are set at the prevailing market rate. To remain competitive with commercial industrial parks, facility contractors are free to negotiate terms favorable to both parties.

Equipment. Tenants may have access to both excess government equipment and equipment with a designated replenishment mission under conditions that ensure its availability in the event of mobilization.

Asset/Service Sales. ARMS empowers the facility contractor to raise revenue through the sale of the plant’s renewable assets, including water and electricity, or plant services such as fire, security, clerical, grounds, equipment maintenance, laboratory, etc.

Deregulation. In keeping with Presidential Order EO12861, the Army is moving to waive or repeal regulations that pose an unnecessary impediment to timely and efficient commercialization.

Inter-Servicing. The Army hosts other federal agencies, both DoD and non-DoD, at its ARMS sites on a reimbursable basis.

Accountability. ARMS works closely with the Army Audit Agency (AAA), the U.S. General Accounting Office (GAO), and private accounting firms to ensure full program transparency.

Metrics. The ARMS Public-Private Task Force provides regular assessments of the program’s performance against both independent and baseline measures.

Partnering. ARMS contractors are encouraged to work with local communities, local reuse authorities (LRAs), and state economic development agencies to leverage federal business incentives and coordinate redevelopment efforts.

A Win-Win Situation

Today, ARMS is leading the way in the transformation of the U.S. Army. It also is providing new hope for local communities that have suffered from the retrenchment of the U.S. military following the end of the Cold War. For those that had been solely dependent upon ammunition production for jobs and the tax revenue they generated, ARMS has quite literally given them a new lease on life.

Indeed, there is no reason why other communities, with military installations having nothing to do with ammunition, could not also enjoy a similar renaissance using the techniques pioneered by ARMS.

In contrast to the Base Realignment and Closure (BRAC) process that looks to disposing of military properties that are either under-utilized or too costly to retain, the ARMS model provides an avenue for sustainable development. Instead of discarding valuable federal land, ARMS makes it possible to preserve it for future generations of Americans.

This is important because military land, and the facilities it supports, is a diminishing national resource. In an age of rapidly changing defense doctrine, technologies, and manufacturing processes, it is impossible to predict what needs might arise in the future.

Many of the ammunition sites, for instance, possess valuable environmen-

tal permits that would be unobtainable if sought today. As the Navy has learned from its experience on Vieques, Puerto Rico; Kahoolawe, Hawaii; the Air Force in the Philippines and Okinawa; and the Army at the National Training Center, Calif., military land is a precious commodity that is not easily replaced. The nation's security could well depend on its timely availability in peace and war.

What is often overlooked is that the value of military land can be significantly enhanced through the preservation of a skilled workforce, the establishment of business development centers and extension services, the creation of foreign export processing zones, the operation of high-technology incubators, and partnering with local academic institutions to provide opportunities for continuing education.

Moreover, the ARMS model can be supplemented by a host of arrangements, already authorized in law, to boost commercial opportunity and command flexibility. These include such mechanisms as: CRADAs, leases authorized under 10 U.S.C. 2667, enhanced leases, and joint ventures.

The success of ARMS rests largely on its ability to stimulate private sector investment on the government facilities

where it operates. Banks are willing to extend financing to companies based upon their overall credit worthiness, promised access to government plant and capital equipment, and in some cases, the backing of an ARMS loan guarantee, which can run to 85 percent of the borrowed amount.

So far, the ARMS model has been extensively tested at 10 Army ammunition plants. Of these, six have achieved full self-sufficiency, operating at no cost to the Federal Government and generating revenue in excess of their overhead expenses. This is the first time in modern U.S. history that Department of Defense facilities have operated effectively off-budget.

In addition to six reviews conducted by PwC, the results of the ARMS program have been amply documented in numerous independent evaluations by the Army Audit Agency (AAA), the U.S. General Accounting Office (GAO), Pacific National Northwest Laboratory (PNNL), the U.S. Army Cost and Economic Analysis Center, and the defense committees of Congress.

What ARMS continues to demonstrate is that with a little imagination and a clear commitment from the Pentagon leadership to realize the full commercial potential of its installations, many

can serve once again as bastions of military readiness while providing local communities and the nation with new opportunities for economic growth and renewal. Stated another PwC ARMS evaluation:

What is needed now is for the Department of Defense to embrace the full range of public-private partnership strategies to make military infrastructure not just affordable, but profitable as well.

Our analysis concludes that the ARMS Initiative, if applied correctly on a long-term basis, could reduce the excessive costs of defense downsizing faced by the government in the wake of a reduced threat to national security. Remediation expenditures could be planned and budgeted to achieve a far less negative impact on the DoD's annual budget. Streams of tenant revenue could be more effectively managed if ARMS continued operation ... At a minimum, renewal of the program's mandate and increased funding will guarantee nothing less than a continuance of the remarkable momentum established by ARMS in its historic infancy, with confidence in its ability to deliver future benefits to all of its stakeholders.

Editor's Note: The author welcomes questions or comments on this article. Contact him at fishnet@pipeline.com.

WYNNE ANNOUNCES AT&L ORGANIZATIONAL CHANGES

In a Sept. 18 memorandum to OUSD(AT&L) Principal Staff Assistants and the Director, Defense Threat Reduction Agency, Michael Wynne, Principal Deputy Under Secretary of Defense (AT&L) announced the following senior leadership changes:

- Deidre Lee, formerly the Director, Defense Procurement, is now assigned as the Director, Defense Procurement and Acquisition Policy.
- Donna Richbourg, formerly the Director, Acquisition Initiatives, is now assigned as Principal Deputy to the Director, Defense Procurement and Acquisition Policy. She is also dual-hatted as the Director for Acquisition Workforce Management and Training.



Rumsfeld Submits Annual Report to Congress

LINDA D. KOZARYN

WASHINGTON, Aug. 15, 2002—New threats call for a new approach to defense and highlight the need to transform the nation's armed forces "now," Defense Secretary Donald H. Rumsfeld told the President and Congress in his annual report.

The United States is in a new, dangerous period, Rumsfeld said in the report, posted on Aug. 15, 2002, at www.defenselink.mil/execsec/adr2002/index.htm. "The historical insularity of the United States has given way to an era of new vulnerabilities," he said.

"Current and future enemies will seek to strike the United States and U.S. forces in novel and surprising ways," the Secretary said. "As a result, the United States faces a new imperative: It must both win the present war against terrorism and prepare now for future wars—wars notably different from those of the past century and even from the current conflict.

"America will inevitably be surprised again by new adversaries striking in unexpected ways," he said.

"Surprise and uncertainty" define the Defense Department's challenge to defend the nation against "the unknown, the unseen, and the unexpected," he said. Now is precisely the time to make changes," he said. "The attacks on Sept. 11 lent urgency to this endeavor."

Prior to the terrorist attack, Rumsfeld noted, defense officials had already completed the Quadrennial Defense Review and were fash-

ioning a new approach to defense. That included a new defense strategy, replacing the two-major-theater war construct, and revitalizing the missile defense program free of the constraints of the Anti-Ballistic Missile Treaty.

Defense officials had also reorganized the Department to focus on space capabilities and fashioned a new Unified Command Plan to enhance homeland defense and to speed up transformation. Defense officials had also adopted a new approach to strategic deterrence to increase security while reducing the number of strategic nuclear weapons.

Much has been achieved, the Secretary said, even in the midst of fighting a war on terrorism. "Not a bad start for a Department that historically has had a reputation for resisting change," he noted.

Rumsfeld said the military now has six operational goals:

- Protect the U.S. homeland and defeat weapons of mass destruction and their means of delivery.
- Project and sustain power in distant anti-access and area-denial environments.
- Deny enemy sanctuary by developing capabilities for persistent surveillance, tracking, and rapid engagement.
- Leverage information technologies and innovative network-centric concepts to link joint forces.
- Protect information systems from attack.
- Maintain unhindered access to space and protect U.S. space capabilities from enemy attack.

These six goals represent the operational focus for our efforts to transform the U.S. armed forces,” Rumsfeld said. Over the next decade, he continued, defense officials will transform some forces to “serve as a vanguard and signal of the changes to come.”

Ground forces will be lighter and more lethal than today; they'll be highly mobile and capable of being inserted far from traditional ports and air bases; and they will be networked with long-range, precision-strike systems, he said.

Naval and amphibious forces will be able to operate close to an enemy's shores and project power deep inland, he said. Air forces will be able to locate and track mobile enemy targets and strike rapidly at long ranges without warning, he added.

“The joint force,” Rumsfeld noted, “will be networked in order to conduct highly complex and distributed operations over vast distances and in space.”

Over the past decade, he said, the Department invested too little in its people, equipment and infrastructure. The new defense approach defines and calls for balancing four risk areas:

- Force management risk—results from issues affecting the ability to recruit, retain, train, and equip sufficient numbers of quality personnel and to sustain readiness of the force while it performs operational tasks.

- Operational risk—stems from factors shaping the ability to achieve military objectives in a near-term conflict or other contingency.
- Future challenges risk—derives from issues affecting the ability to invest in new capabilities and to develop new operational concepts needed to dissuade or defeat mid- to long-term military challenges.
- Institutional risk—results from factors affecting the ability to develop management practices, processes, standards, and controls that use resources efficiently and promote the effective operation of the defense establishment.

Focusing on these four areas will help the Department set priorities and allocate resources, Rumsfeld said. “The Department of Defense must wisely allocate resources and structure programs to create a portfolio of capabilities that is balanced appropriately for the variety of challenges we face,” he said.

The Department's immediate task, he said, is to stop erosion in capabilities caused by underinvestment during the past decade. “The current budget request focuses on this task while seeking additional investments to put the armed forces on a path to reducing and managing all four categories of risk,” he concluded.

Editor's Note: This information is in the public domain at <http://www.defenselink.mil/news>.

DAU Exports PMT-352 to South Region

Huntsville First Region to Test Exportability Features of DAU's New Level III Certification Course

COLLIE J. JOHNSON

For the first time since 1971, DAU's Advanced Program Management Course, now renamed the Program Management Office Course (PMOC), is no longer offered solely at Fort Belvoir, Va. On Aug. 19, 24 students at the DAU South Region in Huntsville, Ala., became the first DAU students to attend the course in their own back yard. The South Region numbers about 27,000 people who are part of the DoD Acquisition, Technology and Logistics (AT&L) workforce that DAU is responsible for training.

Jim McCullough, Dean of the DAU South Region, has been on the job since October of 2001. McCullough, along with other DAU leaders, opened the South Region campus for business only last February. He anticipates a steady stream of students eager to attend PMT-352 at the South Region.

"The current DAU transformation is the most comprehensive re-engineering of DoD Acquisition, Technology, and Logistics [AT&L] training since the Defense Systems Management College was established in 1971," McCullough said. "PMT-352 represents a major culture shift of one of the pillars of this training. We are now delivering to the regions training once reserved to Fort Belvoir, in a centralized facility with instructor-led discussion and lecture curricula."

Students now get all of the preliminary training that was lecture-oriented in on-line courses, McCullough noted. When they come to the resident portion, they



For the first time since 1971, DAU's Advanced Program Management Course, now renamed the Program Management Office Course (PMT-352), is no longer offered solely at Fort Belvoir, Va. Pictured are the 24 students comprising the first class at the DAU South Region in Huntsville, Ala. The class began on Aug. 21 and will be six weeks in duration.

"dive into" an intensive, short (six weeks vs. 14 weeks), case-based learning environment. Students, he said, can get the same or better education and not be away from their jobs as long.

"Generally, students will be local or within driving distance, and costs will be lower," McCullough emphasized. "This means we will teach more classes for the same money—better for AT&L, the student, their organization, and less impact on the student's family."

First South Region DGL

Tom Harrison was the first Distinguished Guest Lecturer for Huntsville's initial offering of PMT-352. Currently, Harrison is the General Dynamics Decision Systems Huntsville Business Unit Manager. His business unit is the prime contractor for the U.S. Army's First Digitized Division Tactical Operations Centers (TOCs) as well as the Army's Tactical Airspace Integration System (TAIS). These systems are managed by the Army's PM TOCs and Product Manager, Air Traffic Control, PM Aviation Systems, respectively. A retired Army

Johnson is Managing Editor, Program Manager Magazine, DAU Press, Fort Belvoir, Va.



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colonel, Harrison is well qualified to speak from both the industry and government perspectives on DoD's acquisition process (see p. 26).



Speaking to the Huntsville class on Aug. 26, he divided his remarks into several areas to address his perspectives on contractor and government program management views and to provide topics that would generate discussion. Harrison began his comments by talking about contractor activity and motivation.



Professor of Acquisition Management Christopher "Chris" Fry is a newcomer to the Huntsville area. Prior to joining the South Region faculty, Fry was an active duty military instructor at DAU's main campus at Fort Belvoir, where he taught the Advanced Program Management Course, ACQ-201, and was course manager for the Defense Systems Acquisition Management course.

Fry (right) presents Harrison a memento in appreciation for his presentation as the South Region's first Distinguished Guest Lecturer.

What Contractors Do and Why

Harrison spoke candidly to the class of 24 students from what he termed "The Harrison Perspective," best described as "some of the things I wish I had known about industry when I was in your shoes." He offered practical, relevant, timely advice to the students, four of whom were on their way to product/project manager positions immediately following completion of PMT-352. Harrison initially focused on what motivates contractors, beginning with an overview of cost, schedule, performance, and financials.

COST, SCHEDULE, PERFORMANCE, AND FINANCIALS

Harrison described cost, schedule, and performance from government and contractor perspectives. All three are important to the government, he said, from an execution perspective. But performance, Harrison maintained, is by far the most important. For the most part,



Harrison speaks to students of PMT-352 at the DAU South Region on Aug. 26, 2002. He sought out the distinction of being the South Region's first Distinguished Guest Lecturer.

TOM HARRISON

C2 SYSTEMS BUSINESS UNIT MANAGER GENERAL DYNAMICS DECISION SYSTEMS

*First Distinguished Guest Lecturer
PMT-352 (DAU South Region)*



Tom Harrison was born in Anderson, S.C., in 1952, and attended the public schools there. He graduated from the U.S. Military Academy, West Point, in 1974 and was commissioned as an infantry second lieutenant in the U.S. Army. He served in infantry, cavalry, aviation, and acquisition assignments both in the United States and overseas before retiring as a colonel in 2000. Harrison's career includes key military acquisition assignments at Redstone Arsenal in the TOW and Close Combat Anti-Armor Weapons Systems Project Offices as Product Manager, Improved Target Acquisition System (ITAS) for TOW; an assignment in the Army Plant Representative's Office/Defense Plant Representative's Office at [then] McDonnell Douglas helicopters in Mesa, Ariz., in association with the Apache Helicopter Program; and a culminating assignment as Project Manager for Utility Helicopters. During this final military assignment, Harrison transitioned the office from St. Louis, Mo., to Redstone Arsenal as part of the Base Realignment and Closure (BRAC) effort in 1997. The assignment was highlighted by continued execution of Black Hawk multi-year procurements, operational testing of a MEDEVAC upgrade, initiation of a standardized Black Hawk modification program, the drawdown of the UH-1 fleet, and the requirements definition and program planning for Black Hawk modernization.

Following retirement from active military service, Harrison accepted employment with Motorola's Integrated Systems Division, Integrated Information Systems Group in Huntsville. Initially, he was assigned as Motorola's Program Manager for Tactical Opera-

tions Centers (TOCs) for the Army's First Digitized Division at Fort Hood, Texas, under contract to the Army's Program Manager for TOCs, PEO C3T, Fort Monmouth, N.J. Harrison was named Motorola's Huntsville Business Unit Manager in May 2001, assuming execution and fiscal responsibility for both the TOC and Tactical Airspace Integration System (TAIS) programs. At Motorola/General Dynamics, Harrison's involvement in the TOC program was capped by the highly visible successful performance of TOCs at the 2001 Division Capstone Exercise (DCX I) at Fort Irwin, Calif. Motorola's Integrated Information Systems Group was sold to General Dynamics in September 2001 and renamed General Dynamics Decision Systems. Harrison continues as the General Dynamics Huntsville Business Unit Manager.

In addition to his undergraduate degree, Harrison holds an M.S. in Personnel Management from Troy State University. His military education included the Infantry Basic and Advanced Courses, the Airborne Course, Initial Entry Rotary Wing Aviation training, the U.S. Air Force Air Command and Staff College, the Defense Systems Management College's Program Management and Executive Program Management Courses, and the U.S. Army War College Corresponding Studies Program.

Professionally, Harrison is a member of the Association of the United States Army (AUSA) and the Army Aviation Association of America (AAAA). He received the order of St. Michael (Silver Award) from the AAAA in 2000.

he believes in the truism that if you get performance right, the vast majority of the time you won't have a cost problem, and you won't have a schedule problem.

Harrison said that cost, schedule, and performance are also critically important to industry. "I've got to get those three right. As a contractor, I am very, very, interested in cost, schedule, and performance," he emphasized, "but to stay in business I must also focus on financials." Industry, he said, is extremely focused internally on financials. Harrison sees his role as having a contract with the government for cost, schedule, and performance, and a contract with General Dynamics, his employer, for financials.

EARNED VALUE MANAGEMENT

Harrison spoke to the use of Earned Value Management by contractors, not just in response to government requirements, but as a management tool for industry. He explained the importance of Earned Value Management to contractors as a performance metric.

MATRIXED ORGANIZATION

Industry is heavily matrixed, according to Harrison. For those working in a government program or project office, Harrison recommended awareness that the work that's going to be done on a government program is going to be done primarily by a specific group of people who are charging directly to the program.

A CLOSER LOOK AT FINANCIALS

Bookings, sales, and margin are very important to industry, he said. Bookings are the key to establishing a backlog of work that will allow the contractor to remain in business over the course of time, he explained. And contractors work off backlog via sales to make margin.

Cash flow is the product of astute financial management and is very important to industry. Financial data generated at the lowest contractor levels feeds reporting requirements that drive formal financial statements, meaning that accuracy and timeliness are paramount. Har-

erson recommended that government project management personnel familiarize themselves with their contractors' systems as a way to become attuned to what motivates the contractor.

GROWING NEW BUSINESS

Contractors continually look to the future to develop their businesses and create value for customers, shareholders, and employees. Business development includes business intelligence, and Harrison discussed his contractor view of requirements definition, independent research and development, and technology demonstrations and how they interrelate during the business intelligence process. He reminded the group that any discussions with contractors "count" and may influence contractor decisions.

RELATING EXECUTION TO FINANCIALS TO GROWTH

"There is a very tight relationship between execution; the cost, schedule, and performance piece; the financial piece—bookings, sales, margin, and cash flow; and the growing of new business," Harrison said. "Most of the folks you would deal with on the contractor's side are looking for a sweet spot where those things come together—the ability to execute the program, to meet the financial numbers, and to grow the business for the future."

TOPICS TO EXCITE/INCITE

As a prelude to questions and discussion, Harrison selected four topics that were described as "exciters" or "inciters" for discussion. Based on the interchange that followed, they were good choices. His format first defined the topic for consensus purposes, and then he provided his views of the subject.

Harrison began by describing general and administrative (G&A) costs and bid and proposal (B&P) costs, and highlighting items that he had seen cause confusion in the past, including annualization of rates.

Second, he talked about Evolutionary Acquisition (consensus definition—"an acquisition strategy that defines, devel-

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ops, produces, or acquires and fields an initial hardware or software increment or block of operational capability"), acknowledging it as a "smart way to do business in a cost-constrained environment."

The third topic was Spiral Development (consensus definition—"an iterative process for developing a defined set of capabilities within one build, while acknowledging that the ultimate user need may not be fully defined at the beginning of development"). Harrison cautioned the students to "be careful what you ask for" with respect to spiral development, emphasizing that the spiral approach should fit the program.

The fourth topic was the use of support contractors. Harrison asked the PMT-352 class to focus on the product provided by the support contractor, just as they would on the prime contractor's deliverables. "Weigh the benefit [of the support contractor] versus the cost," was Harrison's recommendation.

Discussion

Using the "exciter/inciter" topics as a springboard, several questions on contractor perspective were asked and discussed in interchange between Harrison and the class. Several "real world" examples were cited by the group during this part of the forum. Harrison said that he was pleased to be Huntsville's first guest lecturer and had, in fact, sought out the distinction. In closing, he thanked the class collectively for their efforts as DoD acquisition professionals.

Team Effort

McCullough had the benefit of a cohesive, seasoned team—both at Fort Belvoir and Huntsville—to transition PMT-352 to Huntsville. In fact, four members of the team—professors at the Capital and Northeast Region, who were already associated with developing the new PMT-352—opted to make the permanent move to Huntsville.

Bill Bahnmaier

Professor of Acquisition Management Bill Bahnmaier at the DAU Capital and Northeast Region campus at Fort Belvoir, Va., led the PMT-352 development and delivery effort.

PMT-352, Bahnmaier explains, was designed from the "bottom up" to be exported to all DAU campuses. "It is on the cutting edge of learning technology and relies a great deal on Internet connectivity—both in the distance learning part and in the classroom part; however, there are backup systems in place," he added, "to ensure the course does not miss a beat if the Internet goes down."

Bahnmaier said that DAU has invested in this new approach to facilitated, student-directed learning, and the results so far have been increased learning within tighter time constraints. While PMT-352 is designed for export, he noted, it is not business as usual.

"It requires each student to receive information, instructions, and problems via a computer. Within the integrated product team framework, the students

CLASS COMPOSITION

First PMT-352 Offering, DAU South Region

Civilian	16
Military	8
Total Students	24

weave their solutions from a study of reference material and by application of their previous “real-life” experiences.”

Jack Coyne

Jack Coyne is a Professor of Contract Management at the South Region who came to Huntsville from the Belvoir area. A retired Navy commander, Coyne taught the Advanced Program Management Course at the DAU Fort Belvoir campus for three years prior to transferring to Huntsville in July. During his tenure at Belvoir, he was one of the subject matter experts who helped develop the new PMT-352, and in June attended the faculty pilot for the new course prior to his move to Huntsville. Coyne is one of a team of three faculty members who are teaching the first offering.

“The Advanced Program Management Course (PMT-302) served its purpose in its time; it was a great course for what it was designed to do,” said Coyne. “PMT-352, however, is a completely new approach to providing education and training to the acquisition workforce.”

The course is completely integrated across functional areas, Coyne emphasized. Students must interact and lead. And because they are playing roles across all functional areas of a program management office, they can see how their actions and decisions affect the program and the members of their team.

“After one week into the course,” he said, “the students have reacted positively to

the framework of the course. They are staying actively involved in role playing the different scenarios set out in the course.”

Coyne believes the new PMT-352 will be every bit as successful as its predecessor, the Advanced Program Management Course. Much care has gone into course delivery and content, he noted. “The fact that the South Region is close to large concentrations of the acquisition workforce at Eglin, Orlando, and Georgia, only broadens its appeal.”

Jack Dwyer

Dr. Jack Dwyer, who previously served as a Professor of Systems Acquisition Management in DAU’s Program Management Leadership Department at the Fort Belvoir campus, is now the PMT-352 coordinator at Huntsville. Dwyer made the move to Huntsville in early July, and is working to make the PMT-352 transition as seamless as possible. Dwyer is part of the three-member faculty team teaching the first course offering; and he is also part of the faculty team for the second offering, which began Sept. 30.

“Being the first Region outside the Fort Belvoir area to offer the new PMT-352 class was not something we anticipated. The South Region stood up rapidly because four experienced Capital and Northeast Region professors, who were already working on facilitating the new course at Fort Belvoir, opted to make the permanent move to Huntsville. Had we not had that breadth of experience and knowledge, it probably would have taken longer.

“The students,” Dwyer said, “work in both a self-directed capacity and together in a team relationship to address problems and issues using critical thinking skills to recommend possible resolutions and alternatives to solve them.”

Chris Fry

Professor of Acquisition Management Christopher “Chris” Fry is also a newcomer to the Huntsville area. Prior to joining the South Region faculty, Fry was an active duty military instructor at

DAU’s main campus at Fort Belvoir, where he taught the Advanced Program Management Course, ACQ-201, and was course manager for the Defense Systems Acquisition Management course. Arriving at Huntsville in July 2002, Fry was assigned to work on transitioning PMT-352 to the South Region. He, along with Jack Coyne and Jack Dwyer, comprise the three-member faculty team for the first offering.

“The toughest part of getting the South Region ready for PMT-352,” he said, “was the logistics and administrative details of taking a course run at Belvoir, and making sure all the networking and technical aspects of distance learning and the classroom environment worked properly here at Huntsville.

“The general sense we’re getting into our second week of the PMT-352 is that students like the hybrid nature of the course. They come here having already completed the Distance Learning portion of the course and have already absorbed much of the policy and lecture that previously they would have had to sit through in a classroom environment.”

Commenting on course strengths, Fry said students take what they’ve learned in the Distance Learning portion of PMT-352 as well as the PMT-250, plus their own experiences, and combine them with the experiences and learning of other students who bring their own unique backgrounds into the course. In an Integrated Product Team setting, he explained, students apply critical thinking to solving a series of problems that are very common in a program management office. Students get to play roles with which they’re not familiar. It increases their understanding of what other members of a Program Management Office are doing, Fry noted, and leads to a multi-functional capability that DoD wants in its acquisition workforce.

Tom McMannes

Tom McMannes is a Professor of Systems Engineering at the DAU South Region in Huntsville. He moved from DAU at Fort Belvoir to DAU South as part of

PROGRAM MANAGEMENT OFFICE COURSE PMT-352, DAU SOUTH REGION

New Course Represents Profound Changes in Course Delivery

The new Program Management Office Course, DAU's premier flagship course offering in program management, has evolved over the years from the 20-week Program Management Course (1971-1995), to the 14-week Advanced Program Management Course (1995-2002), to today's redesigned and repackaged Program Management Office Course. The new course number is Program Management Training (PMT-352), which is now DAU's Level III certification course for over 90 percent of acquisition personnel in the Program Management career field.

The new and revamped course is radically different. When the old 20-week Program Management Course was reduced to 14 weeks in 1995 and renamed the Advanced Program Management Course, students moved from building the old mousetrap vehicles to building a prototype of an Unmanned Ground Vehicle (UGV) using Lego Mindstorms™. The course required students to design, build, and program the software for the Lego vehicle so that it could successfully negotiate through a difficult obstacle course. Beginning in 2002, students in the new Program Management Office Course use an advanced version of Lego Mindstorms to design the UGV online, build it, and then test it on a simulated battlefield. Computer-aided design technology, simulation-based trade-off software, and risk analysis programs are also part of the redesign package. DAU, assisted by Accenture, is working to incorporate these features into the Lego Mindstorms software.

The Joint Reconnaissance and Autonomous Targeting System (JRATS), which is a system of systems used throughout the course, emphasizes interoperability and information superiority. JRATS involves UGV alternatives, an Unmanned Aerial Vehicle (UAV) called "Firebird," and a Joint Command and Control System (JCCS). But the virtual battlefield is only one aspect of this newly structured course. DAU has taken great care to design PMT-352 with today's tech-savvy students in mind.

Web-based Training

The course begins with 50 hours of Web-based Distance Learning (DL) that students complete over a 60-day period. The 60-day period allows maximum flexibility for students to complete the material at their own pace, wherever and whenever they wish. Ten modules of work are completed during this 60-day period.

Each module is stand-alone, requiring students to critically think and assess the details of each scenario for the appropriate answers. An additional benefit of stand-alone module design is that students can complete the modules in any order.

DAU also benefits from stand-alone modular design because the material may be easily moved to other courses or to DAU's online Continuous Learning Center (<http://clc.dau.mil>).

Classroom Training

Upon successful completion of all 10 DL modules, students attend six weeks of team-based exercises in the classroom. This classroom portion of the course is designed to be exportable so that students can take the course at any of the five DAU campuses: DAU Capital and Northeast Region, Fort Belvoir, Va.; DAU Midwest Region, Wright-Patterson Air Force Base, Ohio; DAU South Region, Huntsville, Ala.; DAU West Region, San Diego, Calif.; and DAU Mid-Atlantic Region, Patuxent River Naval Air Station, Md. Huntsville is the first DAU Region to take advantage of the exportability of PMT-352.

The target audience for PMT-352 is civilian (GS 13-14) and military (04-05). Successful completion of the course meets the training requirements for DAWIA Level III certification in Program Management. Throughout DAU, over 700 students are expected to complete PMT-352 each year. Huntsville estimates about 180 students will complete PMT-352 at the DAU South Region.

The course requires students to apply critical thinking, problem solving, leadership, and management skills throughout the course. The online simulation and interactive DL, with real-time feedback, improves student engagement. The hands-on prototype building and goal-based scenario in the classroom increase both comprehension and retention.

PMT-352 introduces a new level of Program Management training that is both comprehensive and fun. For those interested in learning more about the course, browse the DAU Web site at <http://www.dau.mil/> and learn how DAU acquisition training can enhance an acquisition professional's career. Plan now to register, and then simply enjoy what DAU believes is a truly unique learning experience.

DAU's expansion efforts, which will provide core professional development to students located in the Southern Region of the United States.

McMannes was an active duty military instructor at DAU's main campus at Fort Belvoir, where he was the Course Manager for the Software Acquisition Management online course and taught the Advanced Program Management Course and the Intermediate Software Acquisition Course. The new PMT-352 course, McMannes emphasized, will enhance the students' ability to work as members of an Integrated Product Team to reduce complex Program Management issues. Another benefit of the new structure, he added, is that using regional offices will reduce TDY costs for both the DAU faculty and the local commands.

John Bennett

Professor of Systems Acquisition Management John S. Bennett teaches in the Program Management and Leadership Department, at the DAU Capital and Northeast Region, Fort Belvoir. Bennett is the "go-to" guy for issues concerning DAU's Operating Support System (OSS), for both distance learning and classroom instruction.

"OSS," Bennett explained, "is the operating system for the DAU virtual campus servers currently based in Springfield, Va. The OSS enables students to take our online courses and instructors to manage those courses. It also provides security by requiring a username and password for access."

Huntsville, as with the other four DAU Regions, relies on Bennett to keep the virtual campus online and operating smoothly. Besides upkeep on the OSS, Bennett also organized the lesson review videoteleconference for Huntsville's first offering of PMT-352.

Other Key Players

Other key players were Air Force Maj. Jim Ashworth from the DAU main campus; Meta Thomas, a training technician from the Fort Belvoir campus who provided administrative support; and

If you get performance right, the vast majority of the time you won't have a cost problem, and you won't have a schedule problem.

Army Lt. Col. Jeff Patten from the DAU South Region.

Ashworth is the Program Director, Center for Program Management, DAU Curricula Development and Support Center, which includes managing the curricula for the ACQ-101 and -201 courses. For the PMT-352 development team, Ashworth is the Deputy Course Manager for delivery to Huntsville and all other campuses. His job is to order the computers, put in place the Information Technology (IT) infrastructure, ensure the technical delivery issues are taken care of, and build the computer software images used in the classroom portion of PMT-352. He is also responsible for DAU faculty certification training for PMT-352.

"To date, it looks as though PMT-352 at Huntsville has been very successful," said Ashworth. "They've had a hiccup or two, mostly in computer image IT issues. But problems, for the most part, have been minimal, and the Huntsville faculty and staff have been very effective in minimizing any negative impacts."

Patten, who is Head of the Acquisition Management Department for the DAU South Region, handled the online portion of the class (PMT 352-A), making sure that the computers and the class-

room were all ready to go before the new instructors came in. He also worked with Fort Belvoir to ensure all the support materials were in place, such as Lego kits, batteries, and cameras.

Students

Army Lt. Col. Mike Chandler has been selected as a PM for Theater Targets for next summer. "I need it [PMT-352] for my Level III certification. It benefits me because I can stay in Huntsville, I don't have to travel. The other thing is I like the format of the course. It's not lecture; it's more hands-on, working in teams, and actually role playing in a product office. That lends itself to close-to-real-world as you can get actual experience in developing programs."

Joel Vignali ended up attending the Huntsville course because the course in the Northeast Region was already full. "I'm working in the Virginia Class Program Office at the Naval Sea Systems Command in Washington, D.C. I think the new PMT-352 course format is great. Setting up the IPTs was a good idea that is working well. I think the Huntsville South Region is a great facility. The course is intensive; we're teaching each other. And being the only Navy representative down here, my fellow students are getting a whole different perspective of where I'm coming from as part of a Navy Program Office. Likewise, I'm getting a whole different perspective on their program offices, which are mostly Army and Air Force."

Vignali said that under the old Advanced Program Management Course, 14 weeks was a long time to be away from the office. "Six weeks makes my boss happier, and also fulfills my training requirements for Level III certification in program management. First week has been great," he added. "We've gone through a couple of scenarios and we've briefed out the first one. That seems to be working very well. As I said, it's going to be an intensive course."

Diane Scharein is a Contract Change Manager, Ground Based Midcourse Defense, at the Missile Defense Agency in Huntsville. "I am taking PMT-352 as the

final course toward Level III certification in Program Management, required for my position. The position required certification within 18 months, which meant I had to finish by this summer. I have a daughter who is a senior in high school. When I was initially told I'd have to attend the 14-week Advanced Program Management Course at Fort Belvoir, I was in a panic not knowing how I could leave her for that long.

"Early last year it was announced the course would become a hybrid with six weeks at Fort Belvoir. Even six weeks away posed a huge problem for my family. I was ecstatic when I learned the course would also be taught in Huntsville. Roughly two-thirds of our class is local, so there is definitely a need here, given all the DoD acquisition ac-

tivities in Huntsville. There should be a steady stream of local attendees."

DGLs to Continue

The Distinguished Guest Lecturer series continues throughout the PMT-352 course. On Sept. 5, 2002, Section 701 students enjoyed a "brown bag" lunch lecture with Thomas Keenan, CEO Integrated Defense Technologies, Inc. IDT's principal business area is defense and commercial electronics, with 1,800 employees and annual sales approaching \$500 million. Keenan's background includes a 20-year career in DoD acquisition as a contracting officer. He moved to industry in 1982 and has held senior management positions with PEI Electronics, Wyle Labs, General Dynamics, Teledyne, and Lycoming.

The central theme of Keenan's discussion was source selection. He related his experience as a DoD Procurement Contracting Officer with the S-3 Viking, F-14 Tomcat, Blackhawk, and Comanche aircraft competitions along with his years of industry experience.

Future scheduled DGLs in Huntsville include Army Maj. Gen. John M. Urias, PEO, Air and Missile Defense; and Army Brig. Gen. (P) John W. Holly, Program Director, Ground Based Midcourse Defense, Missile Defense Agency.

Editor's Note: The DAU South Region has six PMT-352 classes scheduled for FY 03, with 30 students per course. For more information, contact your Defense Acquisition Career Manager.

ARMY SGT. SANDRA MORSE Named DAU's Enlisted Person of the Year

On Aug. 20, 2002, Army Col. Ronald Hayne, Director, Defense Acquisition University Operations Group, presented Army Sgt. Sandra Morse the Enlisted Person of the Year (EPOY) Award for 2001, during a ceremony held at DAU Headquarters, Fort Belvoir, Va. Morse was chosen from a field of top rated nominees competing in the EPOY program. The EPOY program recognizes personnel for outstanding performance, leadership, support of command mission, and community involvement during the selection year.

In addition to the Joint Service Commendation Medal, Morse received an engraved plaque; a \$100 savings bond; a \$100 gift certificate to the Post Exchange; a \$ 50 gift certificate to the Army and Air Force Exchange Service; a 96-hour pass; a \$25 check from the Non-commissioned Officers Association, Chapter 276; and a reserved EPOY parking space. A popular friend and colleague around the DAU Fort Belvoir campus, Morse is a talented Audiovisual Presentation Specialist in the DAU Video Services Department. (Morse was also awarded Enlisted Person of the 4th Quarter for 2001.)



Army Col. Ronald Hayne (left), Director, DAU Operations Group presents Army Sgt. Sandra Morse the Enlisted Person of the Year (EPOY) Award for 2001.

Photo by Army Sgt. Kevin Moses

Reflections on T&E, Part II

Development of Test Technologies • International Cooperative Test and Evaluation

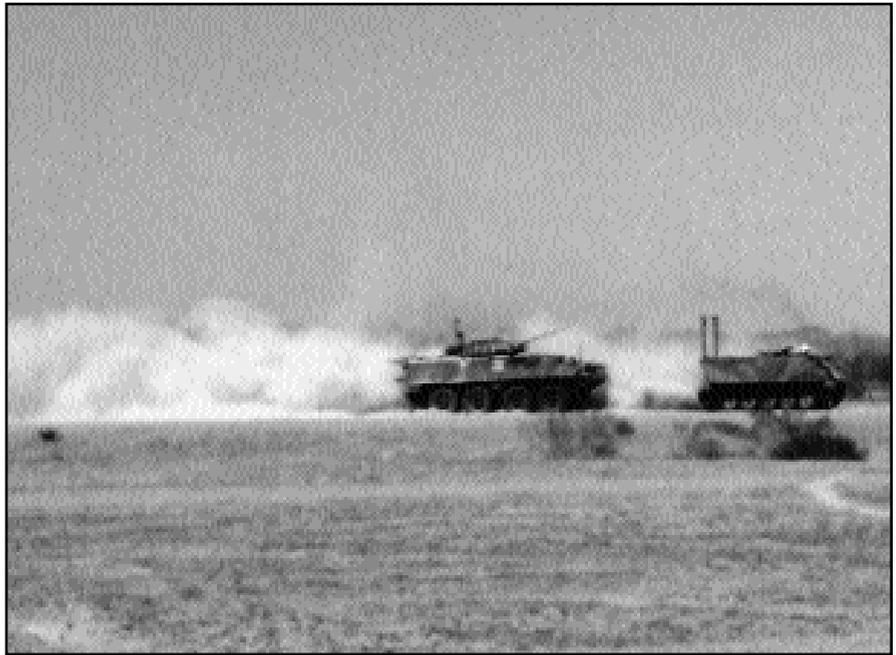
JOHN F. GEHRIG • FREDERICK D. MABANTA

This article is Part II of an article appearing in the July-August 2002 issue of *Program Manager* (pp. 56-62). That article, "Reflections on Test and Evaluation," presented the views of authors John F. Gehrig, Gary Holloway, and George Schroeter on three important aspects of Test and Evaluation: State of the T&E Infrastructure, Lessons Learned in Reengineering Army T&E, and Critical Attributes for a Viable Test Range Complex.

We could not emerge from the experiences and opportunities afforded by our lifelong careers as testers, engineers, and evaluators, without formulating several strong opinions concerning the direction of DoD Test and Evaluation (T&E). In an effort to document several of these opinions and experiences, this article—the second of two entitled "Reflections on Test and Evaluation"—covers two themes we co-authored: Development of Test Technologies and International Cooperative Test and Evaluation.

Development of Test Technologies—Yesterday, Today and Tomorrow

Test technology has become very high-tech, complex, and expensive. No longer can it be developed by individual dedicated test engineers in the "back room,"



The Canada–United States Test and Evaluation Program agreement expands each country's option to utilize unique facilities not available at home. Pictured is a dust test being conducted by Canada at Yuma Proving Ground, Ariz. DoD photo

but must be pursued in a systematic way under a structured program that encourages such development and provides the necessary resources. A Test Technology Base Program for the Test and Evaluation community is essential to fulfill future test requirements.

Welcome to Yesterday's Museum of Testing

If there were a Museum of Testing, one could visit that museum and trace the evolution of what we now call Test Tech-

nology. It wasn't long ago that we were still using strip charts and the term "photogrammetrics"; that is, taking measurements from photographic images was the "biggie" of its time.

Remember cinetheodolites and ballistic cameras? How many remember (or ever knew) the early—really early—days of testing when we started testing some new weapon systems called rockets? We lined up a bunch of soldiers and sailors in a trench, equipped them with a clip-

Gehrig is Deputy Director, Operational Test and Evaluation (DOT&E) for Resources and Ranges, OSD. He is charged with the responsibility for ensuring that DoD has the T&E infrastructure required to test and evaluate the warfighting systems needed to prevail in increasingly complex battlefield environments. Mabanta was Chief of the Test Technology Division of the U.S. Army Test and Evaluation Command, responsible for the development of advanced testing concepts, as well as the corresponding implementing test technologies and test methodologies. After his retirement from government service in January 1996, he joined Science Applications International Corp., as a Senior Analyst and Engineer and is now involved in matters related to International Test and Evaluation.

board and pencil, and instructed them to observe a missile firing and record their observations about the flight path and performance.

We quickly got beyond that approach and started using movie cameras, shooting through a wire grid with a clock hung on a corner of the grid within the camera's field of view. The grids were calibrated to provide angular references and the clock provided a time tag so that images from several similar set-ups could be time-correlated to provide position in space data referred to as Time-Space Position Information.

Another museum item might be the pieces of cardboard called Yaw Cards that were placed in the trajectory of a projectile to get some idea of a projectile's stability—was it yawing or tumbling? A clean, round hole indicated that the projectile was flying true (at that point). An elongated hole indicated that the projectile was pitching and/or yawing. What does it mean when one gets an "L" shaped hole? Yes, there were holes like that.

Photographic techniques were also used extensively in ballistic work. The "Streak" or "Smear" camera could capture the image of a projectile in flight to determine if it was flying true—at least at that particular point—if it had shed its sabot, and if it was intact. Two such cameras placed strategically along the trajectory of the projectile could give a measurement of spin. Streak or Smear Cameras ran (streaked) a length of motion picture film along a slit at the focal plane. The speed of the film was regulated (synchronized) to correspond in scale to the velocity of the projectile.

Thus the image of the projectile was "painted" (or "smeared") on the film. One can see how the fond names of Streak or Smear cameras were derived. The "techies" of the day however, officially called them "Syncho-Ballistic Cameras." Improper synchronization of the speed of the film across the slit with the velocity of the projectile yielded an elongated or compressed image. Photogrammetry was used so much in the

The Test and Evaluation Community sorely needs a Test Technology Base Program to develop the test technologies and instruments that will be needed for the new millennium weapon systems.

"yester-years" of testing, that silver recovery from the silver halides of photographic film was a serious consideration.

To be sure, some vestige of photogrammetry and other yester-year test technologies still remains, but much of these [then] very capable but inefficient (by today's standards) technologies, have mostly been replaced. If photo-optics was the mainstay of testing past, then the microprocessor might be considered the mainstay of testing present and future.

The Evolution Continues

The evolution of test technology grew to a large extent, from the innovations of dedicated individuals faced with the need to make some measurement or make it better. Who else for example would think of using Yaw Cards, or of firing a magnetized projectile through two coils of wire spaced a given distance apart to detect time of passage from magnetically induced currents, and thus a measure of projectile velocity.

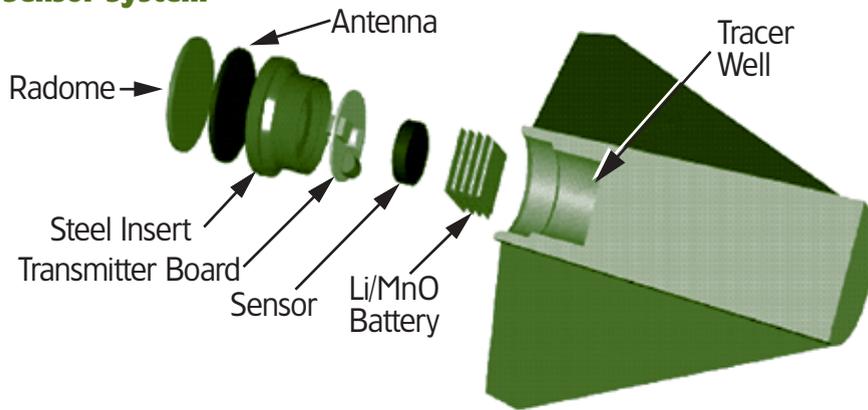
Or who would think of placing a copper sphere in a cylinder, capping the cylinder with a plunger, and inserting this device in the chamber of a gun to measure peak pressure from the deformation of the copper sphere (an old approach, but this "Copper-Crusher Gage" is still in use today throughout NATO countries). Test technology innovations were also adaptations of technologies developed for other applications. This is now the more common approach since the tester no longer has the time and the tools (such as access to machine shops) to experiment and "tinker."

The evolution continues. The dedicated individuals are still there, but the challenge has changed dramatically. No longer can test technologies be fashioned from wood, or in a machine shop, or assembled from basic electronic components. Today's test technology innovations revolve around such approaches as microchip technology, advanced sensors, and high-powered processors. These go beyond the backroom experimenter.

An example of this is the Hardened Sub-miniature Telemetry and Sensor System currently under development within the T&E community. Today's projectiles can no longer be adequately tested with streak cameras, pieces of cardboard (Yaw Cards), and coils of wire wrapped around a wooden frame (Velocity Coils). No longer is it adequate to simply have indications of performance at four or five points along the trajectory for today's advanced developmental projectiles. As we have been doing with missiles for decades, we now need to collect information about the behavior of an advanced projectile throughout its flight.

The Hardened Sub-miniature Telemetry and Sensor System (Figure 1) will be a complete multi-sensor and telemetry transmitter package that will be rugged enough and small enough to fit into the tracer well—about $\frac{3}{4}$ cubic inches—of a direct-fire tank ammunition round, and yet powerful enough to transmit data while in flight. This project is developing a new family of miniature sensors, transmitters, and power supplies, all ruggedized to withstand the

FIGURE 1. Hardened Sub-miniature Telemetry and Sensor System



pressure, temperature, and shock of the launch environment—the breach chamber of a large caliber cannon. When completed and placed into service, the hardened system will dramatically change the way we test projectiles.

But not only will it give us the information we need, it will expand our knowledge of in-flight behavior—which will greatly enhance our ability to model this behavior for simulation applications in development, testing, and training. And like many new technology developments aimed at a specific requirement, Hardened Sub-miniature Telemetry and Sensor System technologies are spawning ideas for many other applications.

This all sounds good—and it is. But it is happening only because a few dedicated individuals in the research and testing communities are working together and putting out that “extra effort,” and a few far-sighted leaders who believe in them and are willing to provide financial support to make it all happen. This is a success story. Unfortunately, many more such opportunities have not garnered the combination of talent, cooperation, support, and resources for their own success stories.

Testing is Becoming Increasingly Complex

Testing has become very technologically complex and challenging. New test technologies must be pursued in the same manner that advanced systems are pursued. That is, they must be based on a

detailed analysis of need, weighed against various technical and economic alternatives, from dismissing the requirement altogether to pursuing a full-blown development program. And most importantly, they must be institutionalized and adequately supported.

But isn't all of this already being done? Yes, somewhat, but there's a very important piece missing—the piece that assures the best technical and cost-effective approach. The T&E community sorely needs a Test Technology Base Program to develop the test technologies and instruments that will be needed for the new millennium weapon systems. For example, how will we measure miss distance on a space-based, high-energy laser that does not illuminate the target? How will we collect the debris from space intercepts?

The United States is placing a lot of emphasis on new and innovative technologies for tomorrow's weapon systems to make them more effective, less costly, and to amplify the power of a shrinking military force. The technologies needed to test the new wave of weapon system technologies must be equally advanced. There was a time when the rule of thumb was that a test instrument had to be 10 times more accurate than the item being tested. That was when all we were interested in was the accuracy of the measurement. Today, things are a little more complex, but the same fundamental message applies: test instruments must be adequate for their assigned task.

For years—up until about the late '70s, early '80s—we could fairly easily predict where we in the test business needed to be technologically, because changes came in traditional evolutionary steps. In many cases, our talented technical test force—of which we had much more than we have today—was able to get the job done on the spot, even if they had to hustle at the tail end of the acquisition process, because they had the basic tools and the knowledge to “wing it.”

Testers are often their own worst enemies when it comes to justifying the need for new testing tools, by somehow managing to always get the job done with what they have. The question often asked by high-level management when reviewing requests for funds is: “If you don't get these funds, what are you not doing that you need to do?” This is very difficult to answer because the truth is, the tester always found a way to do “something,” but that something was not always enough or necessarily adequate.

The problem is that “enough” is not well defined. There have in fact been several conferences of T&E leaders devoted to trying to answer that very question. “Enough” must never be confused with the quantity of testing, but rather with the depth and breadth of testing. One could argue that “enough” is that which just meets the requirement—and the “requirement” in turn is that which is needed for evaluation. This doesn't always work.

In promoting advanced thinking such as the Revolution in Military Affairs, Vision 2010, and others like these, one of the primary emphases has been to try and get people to rise above paralyzing paradigms, which tend to lock people into the same old way of thinking. The same is true in the test and evaluation business. The evaluator will tend not to ask for information if, in their paradigm, they don't believe it can be obtained.

The Hardened Sub-miniature Telemetry and Sensor System mentioned earlier, is a good example. Who “in their

right mind” would think of asking for information about a direct fire projectile that can only be obtained by on-board instrumentation? After all, this can't be done, can it? But now that it has been shown to be possible, new thinking of all kinds is emerging. And isn't that what a technology base program is supposed to do, with “better” being the ultimate end result?

But there are other reasons as well for a test technology base program, and this can be summed up in one word—*change*. Change is a much-used word these days, but it is still appropriate and very much required by the T&E community. Let's go back to our museum and see what has changed.

CHANGING DEFINITIONS

The tester once had only to test “hardware”—and it was just that—“hard stuff” typically made of metal inside and out, and involving physical forces. Over the years the term hardware has evolved from “hard stuff” to electrical and electronic things like relays and vacuum tubes. These things manipulated low- and medium-frequency electrons to move and control equipment. Then “hard stuff” came to mean solid state devices that manipulated high-frequency and ultra high-frequency emissions that helped the warfighter see and think, and sometimes even to see and think on their own to do what they've been told (programmed) to do.

CHANGING TEST STAGE INVOLVEMENT

The tester could no longer wait for a prototype to become available for testing, but had to get involved at an early stage of development to: (1) assist the developer in defining critical testing issues and in building-in testability, and (2) to gain an understanding of the emerging system and its technologies. Only by early involvement and understanding of the new system and its inherent technologies could the tester be in a position to react in a responsive and technologically adequate manner. Testers came to recognize that they needed appropriate and equally advanced testing tools, including the possible develop-

“Enough” must never be confused with the quantity of testing, but rather with the depth and breadth of testing.

ment of built-in test modules when appropriate.

CHANGE IN PASS-OR-FAIL MINDSET

Unfortunately, testing sometimes has the connotation of just being a “test” in a pass-or-fail context, rather than as an aid to the development process to produce the best possible system for the warfighter. As an analogy, going to a doctor to find out what's wrong (after you have failed the wellness test) as opposed to going to a doctor for preventative medicine (when you want to be sure nothing goes wrong). Finding errors during a test program should be viewed as a *good* thing. The earlier they are found the less expensive they are to fix. Whenever found, they need to be fixed to field the best possible weapon for the warfighter.

Testing as “Preventative Medicine”

The development of new weapon systems is an expensive business, but the alternative is to try to fight with obsolete and inadequate weapons. There are all kinds of risks associated with the development process: cost risks, technological risks, schedule risks, and performance risks. Testing is the “preventative medicine” that lessens that risk. We can no longer repeat the experience of the M247 Sergeant York DIVAD (Division Air Defense Gun). This was not a case of inadequacy in development. We got pretty much what we asked for in the acquisition process. The problem was that we didn't quite know what we had until we got it. Once we got it, test-

ing determined that it was not really adequate to meet our needs.

The Right Testing Tools

We can't wait until a system is almost complete before we start testing it and the concepts embodied in it. You've heard it all before: “get in early” and stay involved during the entire development process. But we must have the right testing tools to be a real help to the developer; or otherwise, we may just be a hindrance. Imagine tracking a Global Positioning System-equipped aircraft with a vintage radar and trying to convince the developer of the aircraft that the navigation system was inadequate! Who of us would seek preventative medicine from a doctor who still used witches' brew and other weird concoctions instead of advanced radiographic equipment, CAT scans, and ultrasonics?

The Soldier's Warranty

The question is asked, “Can we afford it?” A more important question is, “Can we afford *not* to do it?” In reality, on a major weapon system development, testing represents only 2 to 3 percent of the total cost of acquisition. When put in that perspective, 2 or 3 percent is not much to ensure that we field “weapons that work.” The Army likes to refer to testing as “The Soldier's Warranty,” and that's not a bad concept when you think about it. Test technology is a “force multiplier” if it helps us field weapons that work and complete the intended mission every time they are used.

In a military sense, force multiplication is the coordinated application of effective weapon systems to create a combined effect that is far greater than the sum of its parts. There is a synergy in fighting a war, where each coordinated weapons application acts to multiply the force of the others. In a test and test technology sense, every technical weakness and vulnerability discovered and corrected through testing improves combat capability and effectiveness and denies the enemy exploitation opportunities.

Likewise, every reliability improvement and maintenance repair time reduction

achieved through testing creates a ripple effect in the entire logistics tail. Improved reliability equates to fewer parts in the supply system, less down time for repair, fewer supply and maintenance personnel, and more combat effectiveness from each weapon system. Improved weapon design and performance derived as a result of testing mean fewer munitions expended to achieve the desired effect, fewer munitions purchased, reduced munitions storage requirements, and fewer transport sorties.

Testing does not just find out if something does or does not work, or even just how well it works. Testing also focuses on improving reliability and maintainability, reducing vulnerabilities, assuring man-machine interface compatibility and so on. It's no secret that today our defense forces are heavily dependent upon advanced technologies for success. We do not have, nor do we care to commit, the number of people required to fight a low-tech war. Trench warfare is unthinkable in today's high-tech society. Technology across the acquisition process—including test technology—provides that critical edge in technological superiority for our fighting forces.

What Can a Test Technology Base Program Do?

It can allow the art and science of testing to catch up to and advance in step with the weapon systems, which have

been making technological leaps right along. It will also allow the tester to be a smarter buyer of testing tools—to get the most for the very limited funding available to the tester. But most importantly, it will help us to help the acquisition community get the best possible equipment in the hands of our military, and thus give them the best chance of success and survival.

Research, Development, Test and Evaluation (RDT&E) is a process that has been designed to systematically phase and manage various elements to achieve the desired result with minimum risk and best technical and economic approach. Funding allocations for development are structured to make this happen, and generally follow the pattern: RDT&E account 6.1 for Basic Research; 6.2 for Applied Research; 6.3 for Advanced Technology Development; and 6.4 for Full Scale Engineering Development. Today, however, test technology developments typically plunge directly into the 6.4 category for full-scale development, and hence do not enjoy the benefits of the advances that could be achieved from the other funding lines.

This was acceptable in the past, when we could rely on industry for the development of say a metric tracking radar. Companies were available that could build radars of various kinds. They had the “in-house” technology to build a particular type of radar for testing (within

the state-of-the-art) at that time. But in developing a new technology system like the Hardened Sub-miniature Telemetry and Sensor System today, one cannot find builders of devices that are useful in such a new and hostile environment. The Hardened Sub-miniature Telemetry and Sensor System (Figure 1) required a leap-ahead test technology, which required the systematic progression of 6.2, 6.3, and 6.4 efforts.

How could we have, for example, acquired a wide dynamic range pressure sensor—let's say one that could measure from a few psi to 100,000 or more psi? That requires coverage over five decades of pressure differences! Does such a sensor exist? Is there a Commercial Off-the-Shelf product? Could it be developed? Could we cascade a series of existing pressure sensors, each with a more limited dynamic range, so that collectively they can measure pressures over this wide dynamic range? Or, must we develop a new family of pressure sensors, each of which can cover a more limited range?

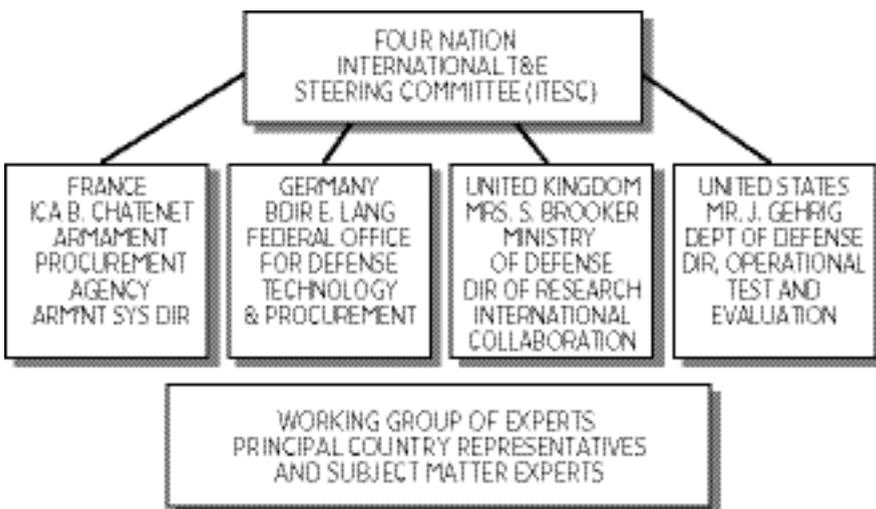
This same line of questions also applies for acceleration measurements and other sensor parameters. Still other similar lines of questions apply to the transmitter, signal conditioner, and power supply. Having answered these questions, what then is the best design configuration? These types of questions were in fact addressed for the Hardened Sub-miniature Telemetry and Sensor System.

The test community needs and has funded a preliminary Test Technology Base Program that provides funding and structure for advanced test technology acquisitions. The program will add coverage in the T&E accounts for 6.3 Advanced Technology Development-type efforts.

The Test and Evaluation/Science and Technology (T&E/S&T) Program

The T&E/S&T program was initiated in fiscal FY02 by the Director of Operational Test and Evaluation, in close coordination with the Director, Defense Research and Engineering. This program will examine emerging test requirements

FIGURE 2. ITOP Management Structure



derived from transformation initiatives and identify needed test technology areas. It will also leverage and employ applicable 6.2 applied research from the highly developed technology base in the DoD Service Laboratories and Test Centers, industry, and academia to accelerate the development of new test capabilities. Essentially, it will ask the questions: "How are we going to test that future system?" and then, "How can we use that technology to develop our test capability?"

The T&E/S&T program is geared to maturing test technologies and providing "feeder" technologies to test capability developers. Follow-on development of working prototypes and additional procurements would then be borne by existing T&E investment accounts. The acquisition of advanced, high-tech, complex, and costly test technologies should follow the same technical acquisition strategies followed by any weapon system. It only makes sense to do so since the process is well proven for the weapon system and could easily map over to cover the T&E systems.

Modeling and Simulation

It is also appropriate to address Modeling and Simulation whenever considering the T&E process. One could reasonably ask why we should go through all this when Modeling and Simulation can be used instead of testing. To be sure, Modeling and Simulation is a very valuable tool for the acquisition community, but it is not something to be used instead of testing. Modeling and Simulation is in fact a valid tool *for* testing, not *instead* of testing. It can reduce the amount of physical testing of a weapon in an open-air range environment. It can also result in the better and more focused testing that can be achieved in a controlled environment in the laboratory. For these reasons, the T&E community is vigorously pursuing Modeling and Simulation.

The Boeing 777 aircraft and the Dodge Intrepid automobile are notable examples where Modeling and Simulation

In a test and test technology sense, every technical weakness and vulnerability discovered and corrected through testing improves combat capability and effectiveness and denies the enemy exploitation opportunities.

was used extensively and to great benefit in development. The depth and breadth of testing, however, actually increased in these cases, although a smaller number of prototypes were needed. This in turn reduced the overall amount of testing.

Testers should not focus, however, only on reducing the amount and cost of testing; rather, they should focus on reducing the overall cost of acquisition! A good marriage between Modeling and Simulation and testing certainly has the potential for reducing the cost of testing and can reduce the cost of the development process and at the same time field a superior system. If you think much about Modeling and Simulation, this result is not surprising.

Fundamentally, a model is a rendition or abstraction of the real thing, and a

simulation is the exercise of that model. A model is developed from the physics and architecture of the real thing, and some of that knowledge is often the product of the testing itself. But the benefits of synergy between testing and Modeling and Simulation don't stop there. The result of exercising the model through simulation needs to be validated by physical testing to be believable. For otherwise how can we know that the simulation is realistic over the domain of interest?

Furthermore, the new information gained from the validation tests on the simulation feeds back into the model, and maybe even the system itself. Finally, the sequence repeats itself with each iteration, further expanding our knowledge and improving our model, our knowledge of the system, and the system itself. We refer to this process as model, test, fix, and model!

Since little is known about new systems, like the Hardened Sub-miniature Telemetry and Sensor System described earlier, a model of a new system is necessarily imperfect. The model is then reiteratively refined and perfected through testing until it is realistic over the domain of interest. Testing does not go away with Modeling and Simulation; in fact, a necessary link exists between physical testing and Modeling and Simulation. Testing now has the expanded role of providing the basis for the credibility of the models, and the validation of the results of simulations. Test technologies may now have to consider a broader range of test data and higher accuracies for greater model fidelity.

Testing continues to be a critical element of the acquisition process. The drivers for test technologies are advanced weapon system technologies, more complex and demanding test scenarios, and the demands for more cost-effective and credible testing. Modeling and simulation, the need for earlier involvement in weapons development, and limited available funding all plead for an aggressive test technology development program that will allow the tester to give

adequate and effective support to the weapons system developer. That development program mandates a strong and structured Test Technology Base Program.

T&E Museum of the Future

What an exciting visit it will be to the T&E Museum of the Future! Once 6.2 and 6.3 funds have been applied to the T&E community for some time, a visit to the museum should be exciting indeed. What one would see is likely beyond our wildest imagination today. Just like we could not have seen what an impact the personal computer and the Internet have made on our lives, so we cannot imagine the impact today's Research and Development (R&D) would have on the T&E community.

We can only imagine seeing the advanced, low-cost, lightweight Global Positioning System equipment, with phenomenal accuracies that will be found in the museum. We can only just imagine seeing a robust data link that could support downlink of telemetry, digital video, digital audio, miss-distance measurement, target data, Time-Space Position Information data, and avionics bus data.

- Imagine sitting in the museum just such a robust data link, which could also support the uplink of commands, target control, synthetic targets, and synthetic backgrounds.
- Imagine such a robust data link that does not even operate in today's radio frequency environment, but has moved up to an uncluttered portion of the spectrum where others do not have adequate capabilities to operate and interfere.

Imagine seeing a miss-distance measurement system that provides vector information on missile and target, uses the robust data link, and computes kill probability and damage assessment in real time. Or imagine seeing the instrumentation that could support one-on-one to many-on-many tests!

We would also surely find the instrumentation for a global range in the mu-

seum. This instrumentation would have freed the developers and testers from the constraints of today's geographically constrained ranges.

Space test technologies would be available, and the means to support the test and training missions with some common instrumentation would surely be "available for viewing."

Commonality and interoperability would be assumed and visitors would be hard pressed to conceive of how anyone could have tried to "go it alone!"

Such a museum would only be our legacy if we can commit the resources to make it happen through an aggressive program of funding R&D *today* for tomorrow's Test and Evaluation!

International Cooperative Test and Evaluation

International cooperation in test and evaluation is relatively new. Several ongoing programs are demonstrating the value of a global approach and paving the way for this largely untapped area of opportunity.

Mutual Benefit

International Cooperative Test and Evaluation is the collective effort aimed at partnering, sharing, exchanging, and jointly pursuing test and evaluation areas of common interest and benefit with our

foreign allies. The DOT&E manages several international cooperative test and evaluation programs aimed at resource and expertise sharing, achieving improved T&E methods and processes, and improvement in test technologies to achieve mutual benefits in cost, time, and quality. These programs have been very successful although there remains untapped potential that has yet to be fully exploited.

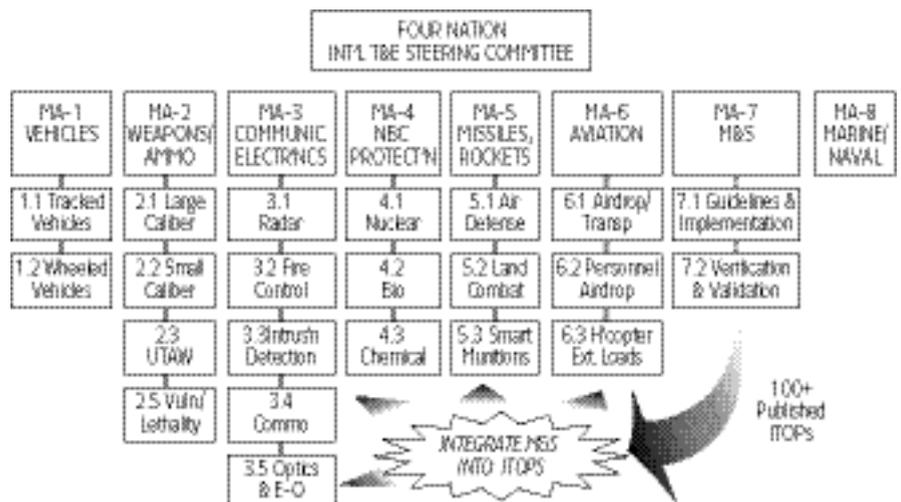
The Secretary of Defense, in a March 1997 memorandum, stated: "We already do a good job of international cooperation at the technology end of the spectrum; we need to extend this track record of success across the remainder of the spectrum...." T&E is an area that is rich in international cooperative opportunities.

Many reasons support the argument for more international cooperation, which can generally be synopsized into four categories.

No. 1—ECONOMIC

Perhaps the most obvious reason for cultivating international cooperation is to reduce cost. Cost sharing through joint effort is a clear example of economic benefit. Perhaps not so clear is where investments can be reduced or negated because of information obtained from an international partner in which case such investments do not have to be bud-

FIGURE 3. ITOP Program Management Structure



geted anew. A classic example is when technical research information is transferred from one country to another.

No. 2—TECHNOLOGICAL

As technology advances rapidly across the globe, it is increasingly difficult and economically impractical for any country to develop all technologies to the highest levels. Thus, countries have developed pre-eminence in particular technological fields, based on longstanding experience or country priorities. Each country has unique technologies or technical expertise to contribute to the world community where the sharing and integration of these technologies benefits everyone, resulting in a “win-win” situation.

No. 3—OPERATIONAL

Operational compatibility is an issue that is also important to test and evaluation. The current trend toward coalition operations has heightened the emphasis on inter-operability and other operational issues. When people and countries work together, helpful and sometimes imperative is that they share a common understanding and do things in a common, interoperable way. One of DOT&E's international T&E programs is based on commonality, and has resulted in significant cost and time savings as well as improved test quality for all countries involved.

No. 4—DIPLOMACY

In a world that draws ever closer together, diplomacy or international relationships becomes increasingly important. It strengthens alliances and forms the foundation for coalition operations and other cooperative efforts. While this might appear to be above the interest of the T&E community, it does in fact have a direct bearing on test and evaluation. Cultivating good and trusting relationships is an acknowledged sound business practice. Relationships are very important when dealing internationally and can be the difference between success and failure. Perspective and cultures must be understood and appreciated to progress together effectively and grow as partners.

ITOPs [International Test Operations Procedures] are managed and directed by the International Test & Evaluation Steering Committee, composed of principal representatives from France, Germany, the United Kingdom, and the United States.

DOT&E International T&E cooperative programs align with the reasons for international cooperation just described. They are founded on sound relationships and win-win objectives. These are essential for productive and lasting success.

International Test Operations Procedures (ITOP)

The first formal international test and evaluation cooperative program is the ITOP program initiated in the early '80s. This program operates under a Memorandum of Understanding among the countries of France, Germany, the United Kingdom, and the United States relating to “Mutual Acceptance of Test and Evaluation for the Reciprocal Pro-

urement of Defense Equipment.” ITOPs document common test procedures developed by subject matter experts from the four signatory countries.

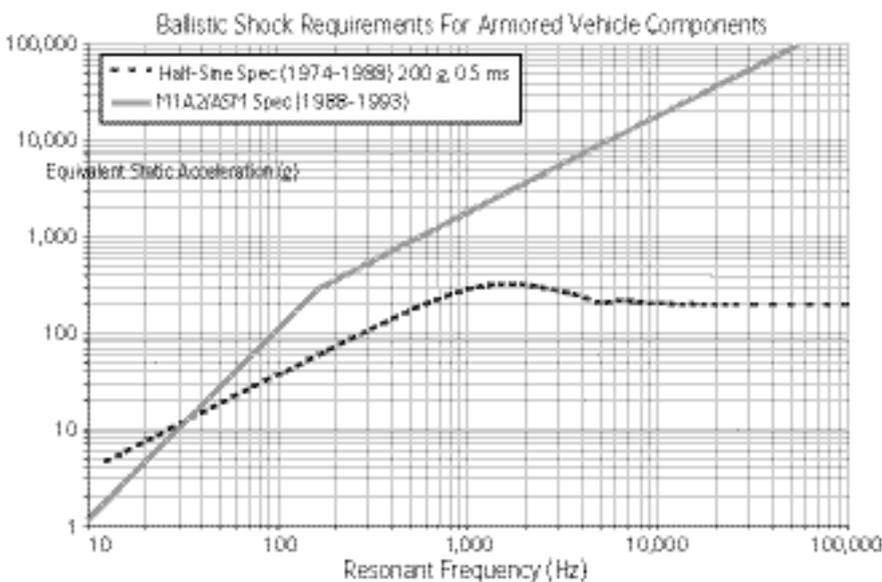
The combined efforts of these experts result in quality procedures, instilling confidence in test data produced from the application of ITOPs. Because of this confidence, each signatory country has agreed to accept ITOP-produced test data from other signatory countries, and thus minimize or negate the need for retesting when procuring military equipment from each other. Although only the four signatory nations have agreed to mutual acceptance of test data, other countries also use ITOPs and have likewise enjoyed the benefit of mutual acceptance.

ITOPs are managed and directed by the International Test & Evaluation Steering Committee composed of principal representatives from each of the four signatory countries (Figure 2). The committee meets annually and meetings are hosted rotationally by each of the four countries. Chairmanship also rotates among the four countries for a two-year tenure. In addition, the committee sets policies and governs the operation of the efforts undertaken by Working Groups of Experts.

Twenty-two Working Groups of Experts operate under eight Program Management Areas (Figure 3): Vehicles; Weapons and Ammunition; Communications-Electronics; Nuclear, Biological and Chemical Protection; Missiles and Rockets; Aviation Systems; Modeling and Simulation; and Marine/Naval Systems. Management areas continue to expand.

Over 100 ITOPs have been published to date with an additional 50 to 75 in various stages of development. Some ITOPs have transitioned into NATO “Standardization Agreements.” In addition, many countries outside the four signatory countries have requested and now use ITOPs. Use of ITOPs over the years has resulted in quality testing and significant cost savings when evaluating and/or procuring foreign equipment.

FIGURE 4. **Ballistic Shock Data**



Canada-United States Test & Evaluation Program

Since the early '90s, Canada and the United States have enjoyed special arrangements for reciprocal use of each other's test facilities. Each year, Canada and the United States exchange 30-month forecasts of planned testing under the Canada-United States Test and Evaluation Program. These forecasts are reviewed by the proposed test facility or range and if testing can be accommodated, are given "Approval in Principle." This is followed by negotiations with the test facility or range and documented in a detailed "Project Arrangement."

The Canada-United States Test and Evaluation Program agreement expands each country's option to utilize unique facilities not available at home or where testing cannot be accommodated for reasons such as fully scheduled home facilities or where home facilities may be down for extended repair or maintenance. Canada has made use of unique desert test capabilities at Yuma Proving Ground, Ariz., where many deserts of the world are replicated.

Data Exchange Agreements

Data Exchange Agreements with several countries provide for the exchange of information on proving ground techniques. These Data Exchange Agreements have resulted in improvements in test processes and test technologies.

Information exchanged on test technologies has saved considerable costs by avoiding the need to perform design and development work that has already been done by another country.

When the United States wanted to explore alternatives for downhill brake testing, for example, information provided by France and Germany saved considerable time and money. Downhill brake testing in the United States is typically performed on a public highway with the required downhill characteristics. Because this presented safety considerations, the question arose as to whether downhill braking could be simulated on level ground and thus performed within the confines of a proving ground.

French and German level ground test techniques for downhill braking provided the baseline for a U.S. level ground test facility and methodology, saving considerable time and money had it been necessary to undertake exploratory research and experimentation to reach this point in knowledge.

In another example, armored vehicles such as tanks were designed for many years using ballistic shock criteria developed several years ago (Figure 4). Unexpected shock damage, however, continued to occur and the solution was to over-design at the expense of higher

weight (and thus reduced performance) and cost. It appeared obvious that there might be something wrong with the criteria used. The United States and Germany, through the Data Exchange Agreement, decided to examine the problem and exchanged experimental data on ballistic shock. This led to additional experiments and exchanges and ultimately resulted in the development of new ballistic shock criteria.

The work showed that the old criteria resulted in an over-design at the lower shock frequencies and an under design at the higher frequencies (Figure 4). The approach of beefing up the design to compensate for the high frequency shortfall resulted in a large over-design at the lower frequencies with the resultant increase in weight and reduced performance. This cooperative effort with Germany resulted in an estimated savings of \$1 million for the United States in test technology research, and considerable savings to program managers who can now more accurately design their systems.

The Way Ahead

While the foregoing represents successes, much can and still should be done to fully exploit the potential of cooperative test and evaluation. Cooperative test and evaluation is largely still an untapped resource rich in possibilities. The R&D community has been involved in cooperative R&D for a long time to the point where it has become a natural thing to do. This is where DoD's T&E community needs to be.

The Army initiated the ITOP program as a pilot program in 1983. Most of the ITOPs therefore relate to ground systems. Air Force and Navy participation is beginning to take place but this must be accelerated and expanded. There are many areas of potential international commonality where ITOPs could provide benefits of the type already experienced with the areas currently covered by the program. Test procedures related to the release of stores from aircraft and underwater shock, for example, might be candidates for ITOPs. There are of course many more areas unique to Air

Force and Navy testing that are potential candidates for ITOP development.

With the trend toward coalition operations, safety testing could emerge as a particularly critical area where common test procedures, through an ITOP, could be a significant factor. An example is air transport by one country of munitions developed by another country. It would certainly facilitate operations if the munitions were safety tested and certified for air transport in the same way and to the same criteria used by the country providing the air transport.

Currently planned is expansion of the concept of reciprocal use of test facilities to other countries. As military equipment becomes more complex, so does the need for more advanced, complex, and costly test and evaluation capabilities. It is increasingly difficult and expensive for one nation to fulfill all of its legitimate test and evaluation requirements at ranges and facilities under its control.

One way to reduce the cost of developing the next generation of weapons—both in the United States and in allied countries—is to take full advantage of the unique test capabilities of each country. Reciprocal use of test and evaluation ranges and facilities will expand longstanding international partnerships the United States has enjoyed in the equipment acquisition process.

Reciprocal use of test and evaluation ranges and facilities will also foster interoperability. Interoperability issues of equipment from different countries that are tested at the same test and evaluation range or facility and with the same test methods and measurement standards will be easier to identify.

Experience with T&E Data Exchange Agreements has demonstrated their value. DoD and its allies can cite many examples of improvements in T&E in terms of quality, efficiency, and cost savings derived through exploitation of these agreements. That experience, however, has also shown that there still re-

Relationships are very important when dealing internationally and can be the difference between success and failure. Perspective and cultures must be understood and appreciated to progress together effectively and grow as partners.

mains a large untapped potential that should be more aggressively exploited.

Regular and focused dialogue between Data Exchange Agreement Technical Project Officers to foster cross-familiarity and identify potential areas of exchange would benefit both sides of a Data Exchange Agreement. Knowledge of testing facilities used in other countries has resulted in adoption of new test technologies that would otherwise not have been used. Technical consultation between test and evaluation personnel of different countries has also been beneficial. With modern communications facilities, it is now possible to confer with an overseas colleague as easily as with a colleague in the next office. Of course, such dialogue is more effective if the parties know each other personally.

Relationships are extremely important in any kind of business dealings but perhaps even more so in international dealings because of cultural differences,

which must first be known and appreciated.

Joint efforts in T&E such as joint development of test technology have been little exploited by the T&E community. This too is an area rich in potential. This type of international cooperative effort has long been practiced by the R&D community with good results and should be pursued by the T&E community as well. One notable example of cooperative development of test technology is the Hardened Sub-miniature Telemetry and Sensor System mentioned earlier. One of the challenges of the system is development of a family of sensors for pressure, temperature, and acceleration. The United Kingdom has offered to develop pressure sensors for the hardened system.

Operating in the T&E Global Environment—Burning Issues

Lack of Will. There are some issues that hinder operating globally in T&E. Perhaps the single most significant issue is simply the lack of will—the will to *just do it*. Some of the reasons for this lack of will are:

- International cooperation and foreign travel are discouraged because of:
 - the perception that it is too costly;
 - the argument of being too busy and unable to spare the time;
 - the perception that there is little to be gained, that we have all the answers; and
 - the perception that it takes too long to get anything done.
- The notion that international travel is just a boondoggle.
- Lack of knowledge of other countries and their capabilities.
- Lack of familiarity with international programs (don't know how to go about implementing them).
- Legal and procedural obstacles.

Training. The T&E community needs to become more familiar with international cooperation, including its benefits and procedures. Many of the courses in our military colleges already teach these concepts. This is good—but awareness and training on international

cooperation needs to reach a wider range of individuals at all levels.

Knowledge of Other Countries. If we are to pursue test and evaluation in a global environment, we must first gain an understanding of the organizations, capabilities, and procedures, as well as the cultural character of other countries. As one step in this direction, DOT&E publishes an *International Test Facilities and Ranges Capability Summary*.

The latest issue of this summary is a two-volume, 800-page document detailing T&E capabilities in nine countries: Australia, Canada, France, Germany, Israel, Norway, Sweden, the United Kingdom, and the United States. This summary continues to grow with participation of additional countries. While this document has proven to be very useful, it is important to also build relationships through personal contacts and to understand cultural differences.

Common Ways of Doing Things.

Working in the global environment is much easier if we have common ways of doing things—if we use the same standards and procedures and share the same sense of what's important and what's not. We already use some common standards in T&E. Military Standard 810 on Environmental Testing is a notable example. Many countries have adopted this standard in their test processes. Of course, much of what is contained in this standard is founded on international work done in NATO and other international organizations and societies. The ITOP program mentioned earlier is another contributor to common ways of doing things.

Legal and Procedural Mechanisms.

International Cooperation needs appropriate structures by which we can work together. In some cases, we may need to start from the top with new legislation. This is rare but it has happened.

In most cases, all we need is an international agreement of some kind such as a Memorandum of Understanding or a Data Exchange Agreement. Some tend to be scared away by the prospect of developing a formal international agreement and the perception that it is a difficult and lengthy process. It is difficult only because it is unfamiliar and the prospect of facing something unfamiliar always looms larger and more difficult than it is.

The challenge for the test and evaluation community is to pursue opportunities in the global environment that are waiting to be exploited.

Editor's Note: Gehrig and Mabanta welcome questions or comments on this article. Contact them at johngehrig@comcast.net or mabantaf@saic.com.

Defense Acquisition University and George Mason University Sign Memorandum of Understanding

In an effort to extend DAU's educational strategic partnerships and leverage learning opportunities, DAU Commandant, Army Col. Ronald C. Flom, and Dee Ann Holisky, Dean, College of Arts and Sciences, George Mason University (GMU), signed a Memorandum of Understanding (MOU) during a ceremony held at DAU Headquarters, Fort Belvoir, Va., on Aug. 8.

The signing of the MOU establishes a strategic partnership leading to a Master of Public Administration (MPA) degree. The MPA program will be available to any member of the DoD Acquisition, Technology and Logistics (AT&L) workforce who meets graduate admissions requirements. A maximum of 12 credits from DAU may be transferred to GMU and applied toward the MPA degree. All transferred DAU courses will be applied toward MPA electives. Students who have not completed the equivalent of 12 credits of graduate-level coursework through DAU will complete the remaining elective credits through GMU coursework.

This strategic partnership provides an important opportunity to meet DoD acquisition education goals and increase the skills, knowledge, and abilities of the DoD AT&L workforce.

For more information about this partnership, contact Wayne Glass, DAU Director for Strategic Partnerships, at Wayne.Glass@dau.mil.



Dee Ann Holisky, Dean, College of Arts and Sciences, George Mason University (left), and Army Col. Ronald C. Flom, Commandant, Defense Acquisition University, sign a Memorandum of Understanding on Aug. 8, 2002, formalizing a strategic partnership to pursue educational opportunities.

Photo by Army Sgt. Kevin Moses

Defense Acquisition University and International Society of Logistics Sign Memorandum of Understanding

A Good Day for Logisticians

DR. RUSSELL A. VACANTE

During a ceremony held at “SOLE 2002”—the International Society of Logistics 37th Annual International Conference and Exposition—the Society entered into a strategic partnership with the Defense Acquisition University (DAU) by signing a Memorandum of Understanding (MOU). The MOU, signed in Phoenix, Ariz., on Aug. 12, 2002, establishes the framework for SOLE and DAU to pursue educational opportunities that are mutually beneficial. Signatories of the MOU were Frank Anderson Jr., President, DAU; Anthony E. Trovato, President, SOLE; Sarah R. James, SOLE's Executive Director; and Dr. Russell Vacante, Curricula Development and Support Center, DAU. The MOU institutionalizes a relationship between DAU, the premier DoD acquisition training institution, and SOLE, a leading professional society in the field of logistics.

Among other endeavors, SOLE will establish the following two DAU awards:

- An annual field award recognizing a practitioner in the Acquisition Logistics certification track in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA), Level II or III requirements.
- A field award recognizing a Level II or III practitioner in the Systems Sustainment certification track.

Vacante is a member of the Curricula Development and Support Center, Defense Acquisition University, Fort Belvoir, Va.



Signing of the DAU-SOLE Memorandum of Understanding, Aug. 12, 2002, at the SOLE 37th Annual International Conference and Exposition, in Phoenix, Ariz. From left: Sarah R. James, SOLE's Executive Director; Frank Anderson Jr., President, DAU; Anthony E. Trovato, President, SOLE; and Dr. Russell Vacante, Curricula Development and Support Center, DAU.

From a curriculum development perspective, SOLE will structure existing and future offerings of training in accordance with DAU-proscribed standards of curricula development. Accordingly, SOLE can seek and offer equivalencies or credit for Acquisition, Training and Logistics programs offered at DAU.

DAU, in turn, agreed to be a corporate member of SOLE; to work with the So-

ciety in building a liaison relationship between the two organizations; and to participate on SOLE's Educational Committee. Further, the DAU President will serve on SOLE's Board of Advisors (BOA).

SOLE's Board of Advisors

The SOLE's BOA embraces senior experts in the logistics field, including international representatives from DoD, the defense industry, academia, and commercial logistics entities. The BOA's

responsibility is to advise SOLE's Board of Directors on strategic direction in the field of logistics. During this year's annual SOLE conference, Anderson attended and participated in his first BOA meeting. During this session he had the opportunity to emphasize the benefits that may evolve for the participants of the MOU as well as the defense logistics workforce and community.

Educational Panel

Anderson also participated in the educational panel on Educational Initiatives in Defense Logistics, focusing on further professionalism of logistics practitioners by means of a standardized certification process. Anderson, as a leader of corporate training in DoD, provided a strategic overview of DAU training activities, emphasizing DAU as a corporate university for DoD acquisition training. He also discussed the near- and long-term goals and objectives of DAU's current logistics curricula development endeavors.

Other panel presentations included Dr. Martha C. Cooper, Fisher College of Business, Ohio State University; and Dr. John V. Farr, Professor and Founding Director, Department of Systems Engineering and Engineering Management, Stevens Institute. Panelists discussed their institution's educational contributions to the field of logistics; their contributions to DoD; how their efforts complement each other; and how they can benefit the Society by working collectively together. The focus of discussion pertained to changes taking place in the field of logistics, and how educational institutions are meeting this challenge. The audience engaged in a robust discussion regarding these topics during and after the one and one-half hour session.

A Good Day for Logisticians

As the keynote speaker at SOLE's Annual Awards Banquet, Anderson spoke of the positive learning experience and better understanding of the important role of logisticians in both defense and industry. Emphasizing that there is no substitute for good leadership in any field to ensure mission success, he

promised to provide training opportunities for those who have the task of sustaining the warfighter in times of conflict and non-conflict. As a proud member of SOLE, Anderson said he would help provide the type of leadership necessary to ensure that logisticians would receive the training and education they need to effectively and properly perform their jobs and grow in their chosen career field.

The leadership within DAU and SOLE are both eager to work together as part-

ners to begin implementing the terms of the MOU. The strategic alliance between these two organizations is a major step toward providing needed training and education for the logistician in a rapidly changing and challenging competitive world environment.

Editor's Note: For more information on this strategic partnership, contact Russ Vacante, Curricula Development and Support Center, DAU, at Russ.Vacante@dau.mil.

Defense Acquisition University and the Catholic University of America Form Strategic Partnership

Continuing its goal of advancing educational opportunities for the DoD Acquisition, Technology and Logistics (AT&L) workforce by leveraging other educational opportunities, on July 31 the Defense Acquisition University (DAU) and Catholic University of America (CUA) School of Engineering entered into a strategic partnership by signing a Memorandum of Understanding (MOU) at the DAU Headquarters, Fort Belvoir, Va. Signatories of the MOU were DAU President Frank Anderson Jr., and Dr. Charles C. Nguyen, Dean, School of Engineering, CUA.

Signing of the MOU lays the foundation for DAU and CUA to pursue educational opportunities and facilitate the transfer of American Council on Education credit recommendations, or other credit-bearing transcribed courses earned by the DoD AT&L workforce, toward a Master of Science in Engineering Management or Certificate of Engineering Management.

For further information on this partnership, contact Wayne Glass, DAU Director for Strategic Partnerships, at Wayne.Glass@dau.mil.



Dr. Charles C. Nguyen, Dean, School of Engineering, Catholic University of America (left), and DAU President Frank Anderson Jr.

Photo by Army Sgt. Kevin Moses

Defense Acquisition University and The Georgetown University Form Strategic Partnership

Continuing its goal of advancing educational opportunities for the DoD Acquisition, Technology and Logistics (DoD AT&L) workforce, the Defense Acquisition University (DAU) and Georgetown University (GU) established a strategic partnership by signing a Memorandum of Understanding (MOU) at the DAU Headquarters, Fort Belvoir, Va, Aug. 27, 2002. Signatories of the MOU were Frank Anderson Jr., President, DAU, and Dr. James J. O'Donnell, Provost, GU.

The establishment of the strategic partnership is to offer the DoD AT&L workforce the opportunity to earn GU's Executive Master's Degree in Policy Management (EMPM) and participate in graduate-level certificate programs, including Organizational Development, Leadership Coaching, Training, Negotiation and Influence, Professional Manager, Transformational Leadership, Measurement and Evaluations in Organizations, Web Design Online, Web Developer, Marketing, Leading New Product and Service Development, New Venture Development, and Business Administration.

The EMPM agreement encompasses the following terms and conditions:

- Any member of the DoD AT&L workforce who possesses a bachelor's degree from a regionally accredited university, has at least five years of substantial public management experience, and has at least Level I certification in at least one of the Defense Acquisition Workforce Improvement Act (DAWIA) career fields is eligible to apply to the EMPM program.
- DoD AT&L workforce members who possess a Level II DAWIA certification are eligible to receive up to six course hours of credit toward the EMPM program.
- DoD AT&L workforce members who possess a Level III DAWIA certification are eligible to receive up to nine course hours of credit toward the EMPM degree.
- DoD AT&L workforce members who possess a Level I DAWIA certification are eligible to receive up to three course hours of credit toward the EMPM program.

For more information about the DAU-GU partnership contact Wayne Glass, Director for Strategic Partnerships, Strategic Planning Action Group, at Wayne.Glass@dau.mil.



Frank Anderson Jr., President, Defense Acquisition University (left), and Dr. James J. O'Donnell, Provost, Georgetown University, sign a Memorandum of Understanding on Aug. 27, 2002, formalizing a strategic partnership to pursue educational opportunities.

Photo by Army Sgt. Kevin Moses



Department of Defense Releases Selected Acquisition Reports

The Department of Defense has released details on major defense acquisition program cost and schedule changes since the December 2001 reporting period. This information is based on the Selected Acquisition Reports (SARs) submitted to the Congress for the June 30, 2002 reporting period.

SARs summarize the latest estimates of cost, schedule, and technical status. These reports are prepared annually in conjunction with the President's budget. Subsequent quarterly exception reports are required only for those programs experiencing unit cost increases of at least 15 percent or schedule delays of at least six months. Quarterly SARs are also submitted for initial reports, final reports, and for programs that are re-baselined at major milestone decisions.

The total program cost estimates provided in the SARs include research and development, procurement, military construction, and acquisition-related operation and maintenance (except for pre-Milestone B programs which are limited to development costs pursuant to 10 USC §2432). Total program costs reflect actual costs to

date as well as future anticipated costs. All estimates include anticipated inflation allowances.

The current estimate of program acquisition costs for programs covered by SARs for the prior reporting period (December 2001) was \$1,065,044.4 million. After subtracting the costs for three final reports [Common Ground Station (CGS), Sense and Destroy Armor (SADARM), and Titan IV] and one cancelled program [Crusader], and adding the costs for four new programs [Black Hawk Upgrade, C-5 Reliability and Reengineering Program (RERP), C-130 Avionics Modernization Program (AMP), and Ballistic Missile Defense System] in December 2001, the adjusted current estimate of program acquisition costs was \$1,116,983.8 million. There was a net cost increase of \$1,685.4 million or 0.2 percent during the current reporting period (June 2002). This increase was due primarily to the higher cost estimates for the Air Force's SBIRS (Space Based Infrared System) High program. The cost changes between December 2001 and June 2002 are summarized below:

	Current Estimate (\$ in Millions)
December 2001 (70 programs)	\$ 1,065,044.4
Less final report on completed programs (CGS, SADARM and TITAN IV)	-19,021.6
Less cancelled program (Crusader)	-4,286.3
Plus four new programs (Black Hawk Upgrade, C-5 RERP, C-130 AMP, and BMDS)	+75,247.3
December 2001 Adjusted (70 programs)	\$ 1,116,983.8
Changes Since Last Report:	
Economic	\$ 0.0
Quantity	0.0
Schedule	+9.4
Engineering	-167.7
Estimating	+1,747.0
Other	0.0
Support	+96.7
Net Cost Change	\$ +1,685.4
Less correction to JAVELIN costs previously reported in the December 2001 SAR Summary Tables	-0.5
June 2002 (70 programs)	\$ 1,118,668.7

For the June 2002 reporting period, there were quarterly exception reports submitted for five programs: Joint Simulation System (JSIMS), B-1B Conventional Mission Upgrade Program (CMUP), and Global Broadcast Service (GBS) reported schedule delays of six months or more; Space Based Infrared System (SBIRS) High reported a Nunn-McCurdy unit cost increase of at least 15 percent that was certified to the Congress in May 2002, but was not reported in the December 2001 SAR; and Cooperative Engagement Capability (CEC) was rebaselined to reflect a successful full rate production decision (Milestone III). Details of the changes for these five programs are as follows:

Army

JSIMS (Joint Simulation System)—The SAR was submitted to report schedule slips of up to 19 months due to unanticipated technical complexities in the software development of Version Release Milestone (VRM) 1.0. This led to a Joint Warfighting Center decision not to utilize JSIMS for the Unified Endeavor training exercise in March 2003, which was planned for use as a multi-service operational test & evaluation (MOT&E)/initial operational capability (IOC) training event. The extended integration resulted in a slip to the delivery of VRM 1.0 to December 2002, and a slip in MOT&E/IOC and VRM 2.0 to September 2004. The program is undergoing a restructure due to these delays. The cost impact of these delays is under review and will be updated in the next annual SAR submission. No cost changes were reported.

Navy

CEC (Cooperative Engagement Capability)—The SAR was submitted to rebaseline the program from a development to a production estimate following a successful full rate production (Milestone III) decision. On April 3, 2002, the Undersecretary of Defense for Acquisition, Technology and Logistics approved full rate production of the shipboard systems (AN/USG-2) and authorized continued low rate initial production of airborne systems (AN/USG-3) in fiscal 2002 and fiscal 2003. Program costs decreased \$9.5 million (-0.2 percent) from \$4,238.4 million to \$4,228.9 million, to correct the costs reported in the December 2001 SAR that did not accurately reflect the fiscal 2003 President's Budget Submission.

Air Force

B-1 CMUP (Conventional Mission Upgrade Program)—The SAR was submitted to report schedule slips of up to 20 months to the Defensive System Upgrade Program (DSUP). These schedule delays are anticipated due to a lack of maturity of the Fiber Optic Towed Decoy (FOTD), provided as government furnished equipment to DSUP from the Navy. The fourth and fifth flight test sorties on March 27, 2002, and April

10, 2002, were unsuccessful. The sixth flight test sortie on June 25, 2002, demonstrated the best performance to date with the FOTD maintaining continuous signal continuity. A program restructure is proposed because of the test failures. It includes the development of an alternative FOTD as a risk reduction effort. The cost impact of these delays is under review and will be updated in the next SAR submission. Program costs increased \$+17.5 million (+1.1 percent) from \$1,563.9 million to \$1,581.4 million, due primarily to a refinement in the program office cost estimate.

GBS (Global Broadcast Service)—The SAR was submitted to report schedule slips of up to 13 months or more to the Initial Operational Capability 1 (IOC 1) and system available for operational use milestones. IOC 1 slipped from March 2002 to October 2002, because not all of the IOC 1 requirements had been verified by Development Test/Operational Test (DT/OT) #3. The ability of the Satellite Broadcast Manager (SBM) to provide continuous control of the steerable satellite antennas still remains to be verified. This capability requires that an Extremely High Frequency (EHF) terminal be installed at one of the SBM locations, and the first EHF terminal is not scheduled to be installed until the first quarter of fiscal 2003. System available for operational use slipped from March 2002 to April 2003 due to increased focus on stabilizing and maturing the fielded software builds to ensure greater reliability to ongoing operations. No cost changes were reported.

SBIRS (Space Based Infrared System) High—The SAR was submitted to report a Nunn-McCurdy breach of the Average Procurement Unit Cost (APUC). This breach was identified when the Office of the Secretary of Defense (OSD) Cost Analysis Improvement Group (CAIG) developed an independent cost estimate of the program, in conjunction with the Nunn-McCurdy program acquisition unit cost (PAUC) breach that was reported in the December 2001 SAR. The Secretary of the Air Force notified Congress of the APUC breach on April 26, 2002. The Under Secretary of Defense for Acquisition, Technology, and Logistics certification letter to Congress, dated May 2, 2002, addressed both the PAUC breach and the APUC breach. Program costs increased \$1,677.4 million (+24.9 percent) from \$6,743.5 million to \$8,420.9 million, due primarily to the more realistic OSD CAIG cost estimate, which was the basis for the certification.

More information on SARs included in the June 30, 2002 reporting period can be found at www.defenselink.mil/news/Aug2002/d20020820sar.pdf.

Editor's Note: This information is in the public domain at www.defenselink.mil/news.

Achieving Defense Transformation

Through Total Life Cycle Systems Management

LOUIS A. KRATZ • RANDY T. FOWLER • JERRY D. COTHRAN

The 2001 Quadrennial Defense Review (QDR) charts the course for the Department of Defense to transform to a capability-based force to deter and defeat threats from our nation's adversaries well into the 21st Century. That transformation necessarily includes dramatic improvements in our sustainment capability to achieve rapidly deployable and employable forces with significant reductions in logistics footprint. Projecting and sustaining power in distant theaters is one of six top DoD transformation goals.



Joint Logistics Board

To achieve the required sustainment capabilities envisioned in the QDR, the Deputy Under Secretary of Defense for Logistics and Materiel Readiness (DUSD-L&MR) assembled senior logisticians from the Services, Defense Logistics Agency, Joint Staff, and U.S. Transportation Command into the Joint Logistics Board (JLB) and launched the Future Logistics Enterprise (FLE). FLE is DoD's near-term blueprint to improve military effectiveness and logistics support through end-to-end customer service and enterprise integration. As such, it is the critical enabler to achieving objectives of the QDR in the near term.

DoD is migrating to a performance-based weapon system sustainment model that focuses on weapon system performance, integrated across all functional support organizations. This "new" model was tested for three years on 30 pilot programs such as the C-17. Pictured is the C-17 Globemaster III.

Photo courtesy Boeing Media

FLE includes six specific, interrelated initiatives to achieve end-to-end customer service.

- Total Life Cycle Systems Management (TLCSM)
- Depot Maintenance Partnering
- Condition-Based Maintenance + (CBM+)

- Executive Agents
- End-to-End Distribution
- Enterprise Integration

Three of the initiatives—TLCSM, Depot Maintenance Partnering, and CBM+—will enable end-to-end weapon system support. Executive Agents and End-to-End Distribution will provide end-to-

Kratz is the Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs), within the Office of the Deputy Under Secretary of Defense (Logistics and Materiel Readiness), The Pentagon, Washington, D.C. A short biography of his career appears on p. 52. Fowler is the Director of the Center for Logistics and Sustainment, Curricula Development and Support Center, Defense Acquisition University, Fort Belvoir, Va. A graduate of the Industrial College of the Armed Forces, Fowler holds a B.S. in Economics from the University of North Texas, an M.B.A. from Jacksonville State University, and an M.S. in National Resource Strategy from the National Defense University. Cothran is a Senior Staff Analyst in the Office of the Assistant Deputy Under Secretary of Defense, Logistics Plans and Programs, The Pentagon, Washington, D.C. A graduate of the Air War College, Cothran holds a B.A. in Business Administration and Management from Southwest Texas State University, and an M.P.A. from Auburn University.



The F/A-18 E/F is the first naval aviation platform to be deployed to the Fleet under a Performance Based Logistics (PBL) strategy. Pictured is an F/A-18F1 on the deck of the USS *Harry S. Truman* (CVN 75). F1 is one of two Super Hornets used during sea trials.

Photo courtesy Boeing Media

end service for combat commodities and services; and Enterprise Integration will provide the real-time, actionable data required to deploy and sustain combat power rapidly with minimal footprint. This article focuses on recent DoD efforts to implement TLCSM and its inherent relationship to the other FLE initiatives.

Total Life Cycle Systems Management

Weapon system sustainment consumes 80 percent of our logistics resources, or

approximately \$64 billion per year. Currently, weapon system sustainment is provided by functionally focused organizations that optimize within their own business structures. Our immediate challenge is that we fight with capabilities and systems, not functions. To maximize our military effectiveness, the DoD is migrating to a performance-based weapon system sustainment model that focuses on weapon system performance, integrated across all functional support organizations.

This “new” model was tested for three years on 30 pilot programs such as the C-17 and the F-117. With a clear charter to apply innovative approaches to their sustainment strategies, the pilot programs demonstrated the benefits of the new model through increased performance at an affordable cost. For example, the C-17 and F-117 both exceeded operational requirements in Kosovo and Operation Enduring Freedom.

Along with their successes, the pilot programs also identified critical obstacles to life cycle management. Initial obstacles were addressed, and new systems are adopting this model based upon existing DoD guidance. The QDR directed that the performance-based focus be applied to all new and all appropriate fielded systems to achieve near-term improvements in end-to-end sustainment and materiel readiness.

The foundation of the new sustainment model is the designation of the Program Manager (PM) as Life Cycle Systems Manager, responsible for the development, production, and sustainment of



One recent example of emphasizing sustainment as a requirement is the Joint Strike Fighter. The Joint Strike Fighter Program is the first to place as much emphasis on affordably sustaining the air system as “up and away” performance.

Photo courtesy Lockheed Martin

the system to meet warfighter requirements. Combined with evolutionary acquisition, DoD envisions the new life cycle management process will be a closed-loop system, as shown in Figure 1.

PMs will develop and execute sustainment strategies based upon warfighter performance requirements. These strategies will build upon public-private partnerships, combining the best capabilities and inherent efficiencies of the industrial and organic support bases in an integrated support framework. Field results will be collected automatically through prognostics and embedded instrumentation to provide real-time system status. These results will be fed back to guide future system upgrades and block designs.

Clearly, this dramatic shift impacts our entire acquisition and sustainment structure. To ensure an orderly migration to the new model, the Joint Logistics Board, in conjunction with the acquisition community leadership in OSD and the Services, initiated the following actions:

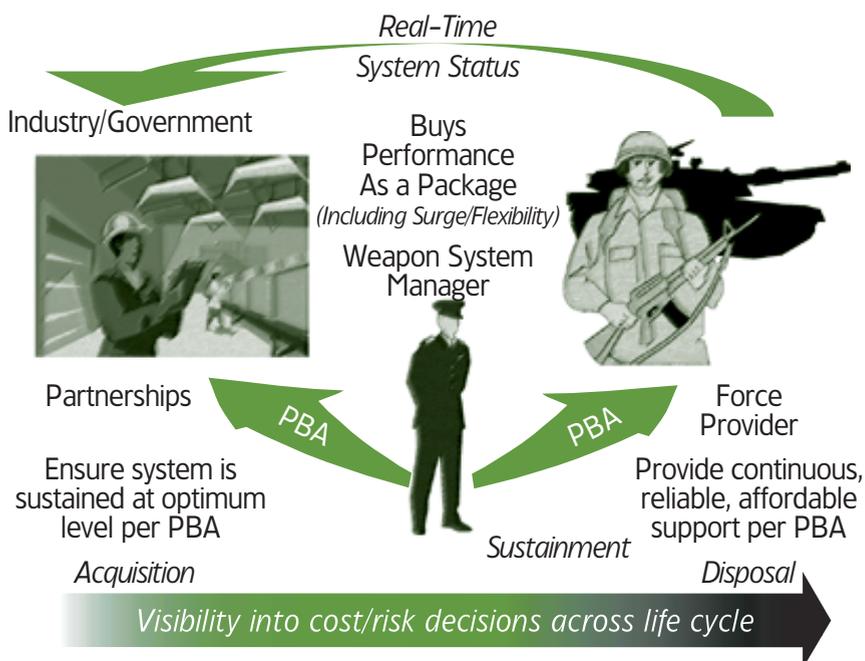
- Advocated greater consideration of sustainment in the requirements process.
- Engaged with the Comptroller to develop an enabling financial mechanism.
- Prepared necessary adjustments to existing acquisition policy.
- Reengineered the Defense Acquisition University curriculum for life cycle support.
- Developed comprehensive schedules to transition fielded systems to a performance-based environment.

The following discussion briefly describes each of these five actions.

Sustainment Requirements

The most powerful weapon in the world is useless if we can't deploy and use it effectively in the fight. This simple truth is well known in DoD, yet is only sporadically recognized. For years, we built ultra-reliability and redundancy into our strategic and space forces because of their national importance. For tactical

FIGURE 1. Total Life Cycle Systems Management



systems, we accepted trade-offs between reliability and technical performance because we were compelled to pursue technological superiority over the Soviet Union during the Cold War. We won that war in large measure because of the innovations and technical developments in our labs, our program offices, and industry.

As we move forward to rapidly employable and perhaps preemptive capabilities, we must view our conventional capabilities the same way we view our strategic forces. When called upon, they must work reliably! At this juncture, we need to apply that same innovation we applied to strategic systems to ensure our conventional equipment is ultra-reliable and sustainable with minimum footprint.

To lead that transition, the JLB is actively engaged with the Joint Staff to increase consideration of sustainment characteristics during the Joint Requirements Oversight Council (JROC). The emerging revision of Chairman Joint Chiefs of Staff Instruction (CJCSI) 3170, *Requirements Generation System*, will include significantly increased emphasis on supportability and sustainment as operational requirements. The revision is currently proceeding through final staffing with publication expected this fall.

One recent example of emphasizing sustainment as a requirement is the Joint Strike Fighter. The Joint Strike Fighter Program is the first to place as much emphasis on affordably sustaining the air system as “up and away” performance. Of the six Key Performance Parameters (KPP) assigned to all variants of the JSF, three are supportability-related: Sortie Generation Rate, Logistics Footprint, and Mission Reliability. To satisfy these KPPs, the Lockheed Martin team must design an air vehicle that is highly reliable, easier to maintain, and requires fewer resources (people, parts, and support equipment) to sustain.

In addition to these KPPs, the JSF Operational Requirements Document contains a number of other performance-based requirements that address Life Cycle Costs. The end result will be a JSF logistics system (known as Autonomic Logistics) that integrates all elements of logistics throughout the design and developmental and operational test activities, achieving an air system that meets operational requirements while reducing footprint and the cost of ownership.

Enabling Financial Mechanisms

The PM, as life cycle manager, requires financial authority, visibility, and enabling mechanisms with which to execute this responsibility. The early pilot

programs clearly demonstrated that our fundamental shift in business structure must be accompanied by a fundamental shift in our financial structures. Full and effective implementation of TLCSM will require revisions to the weapon system financial funding and DoD financial systems.

The DoD financial process is designed to consolidate funds into broad functional categories to support the budget and appropriation process. These broad categories—such as procurement; Research, Development, Test and Evaluation (RDT&E); operations and support; military personnel; and others—are built up from, and executed upon, DoD weapon systems; yet, our financial systems lack the visibility to accurately portray the costs to operate and support individual weapon systems. It is ironic that the very foundation upon which our force capabilities are based—the weapon systems—are neither financially auditable nor accountable in terms of their ultimate cost effectiveness. Clearly, a critical review of our financial processes vis-à-vis weapon system life cycle management is necessary.

That effort is underway, with an intense focus on developing a strategic “to be” financial process aligned with the characteristics of performance-based weapon system support managed by the PM. One of the fundamental tenets of Performance Based Logistics (PBL) is the acquiring of weapon system support as an integrated package based on objective outcomes, such as system availability. The objective outcomes—or operational performance requirements of the customer—will be documented in a formal performance agreement document, negotiated across all stakeholders, consistent with the Services’ corporate structures. The performance agreement defines system performance expectations (and corresponding support required), resources required to provide that level of performance, commitment to provide those resources, and signature by appropriate stakeholders. Consistent with the agreement, the PM has assurance that the necessary funds will be avail-

The PM, as life cycle manager, requires financial authority, visibility, and enabling mechanisms with which to execute this responsibility. The early pilot programs clearly demonstrated that our fundamental shift in business structure must be accompanied by a fundamental shift in our financial structures.

able to manage the established support arrangements.

In this strategic “to be” financial process, appropriated funds will continue to flow to the warfighter, but there will be assurance that weapon system negotiated performance agreement funds will be available to the PM to manage the support program. Should warfighter priorities change, performance agreements and resource commitments will be revised accordingly. This financial discipline is critical to the success of PBL support.

Revised Acquisition Policy

The pilot programs demonstrated the benefits of program office innovation in

improving sustainment; however, they also indicated the need to ensure that innovative sustainment strategies fit within an overall framework to deliver combat capability. These findings are incorporated into the emerging revisions of DoDD 5000.1, *Defense Acquisition*, and DoDI 5000.2, *Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs*, and include:

- The PM is the Total Life Cycle Systems Manager, responsible for the development and execution of a customer-focused sustainment strategy.
- PBL is the preferred weapon system sustainment strategy.
- PMs will integrate the sustainment chain via public-private partnerships, consistent with statutory requirements.
- PMs will design in and employ appropriate health monitoring and prognostics to enable Fleet management.
- Service Logistics Commands are the sustainment process owners responsible for developing and improving sustainment processes, ensuring a single face to the user, and enabling the delivery of combat capability.

These key policy tenets were developed, based upon the pilot programs and recent new programs, to provide PMs sufficient flexibility for innovation, while ensuring that we don’t replace functional stovepipes with weapon system stovepipes. These tenets reflect the current practice within DoD for new systems, such as the F/A-18 E/F.

The F/A-18 E/F is the first naval aviation platform to be deployed to the Fleet under a PBL strategy. That strategy was developed by the program office in conjunction with the Fleet, Naval Air Command (NAVAIR), and Naval Inventory Control Point (NAVICP). As shown in Figure 2, it features a government/industry partnership that draws upon the best practices of NAVAIR, NAVICP, and Boeing, the system developer.

Boeing, under a performance-based contract, is responsible for material man-



LOUIS A. KRATZ

Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs)

Louis A. "Lou" Kratz is the Assistant Deputy Under Secretary of Defense (Logistics Plans and Programs), within the Office of the Deputy Under Secretary of Defense (Logistics and Materiel Readiness). As such, he is responsible for guiding the DoD's logistics process improvement efforts to meet the operational requirements of the 21st century. Kratz oversees the implementation of DoD's Future Logistics Enterprise and the development of DoD's long-range logistics planning to meet the requirements of the Quadrennial Defense Review and Joint Vision 2020. He also leads DoD's implementation of Total Life Cycle Systems Management and Performance-Based Logistics, including acquisition logistics policy development, career development, and oversight of major weapon systems. Kratz is the Defense Standardization Executive.

Prior to joining DoD, Kratz was the Director of Life Cycle Integration at TASC, with 18 years of experience in weapon system acquisition, acquisition reform, and information resource management. He was an initial contributor to the Contractor Integrated Technical Information System (CITIS) specification and cost/benefit guidelines. Kratz also directed TASC's support to the OSD Acquisition Reform Office and the FAA Acquisition Policy Office, including policy development, metrics, cost/benefit analyses, and best practices assessments.

During his career, Kratz has directed detailed acquisition strategy analyses for several programs: the Advanced Cruise Missile (ACM), Sensor Fuzed Weapon (SFW), Range Application Joint Program Office (RAJPO), V-22, D-5, Stinger PMS, Fiber Optic Guided Missile (FOGM), and Aquila. These efforts involved cost/benefit analyses of alternative strategies, tooling indemnification, subcontract management, and breakout.

From 1983 to 1984, Kratz worked as an associate at Sears World Trade, where he was the principal author of *Establishing Competitive Production Sources: A Handbook for Program Managers*, prepared for the Defense Systems Management College. He also prepared an integrated logistic support plan for the Canadian Low Level Air Defense System.

From 1980-1983, Kratz served as an acquisition analyst, conducting cost/benefit analyses of alternative acquisition strategies for the Advanced Medium-Range Air-to-Air Missile (AMRAAM) and the Global Positioning System (GPS). He also provided analytic support to the Air Force Affordable Acquisition Approach (A3) Study and the Air Force Contract Management Review.

Kratz holds a B.A. and an M.A. in Economics from Georgetown University. His professional affiliations include the National Defense Industrial Association, Aerospace Industries Association, and the International Society of Logistics.

Reengineered Professional Development

Continued professional development of our workforce is one of the top five goals expressed by E.C. "Pete" Aldridge, Under Secretary of Defense for Acquisition, Technology and Logistics (USD-AT&L); and the professional development of program management and

logistics management staffs is critical to develop life cycle managers. Our greatest challenge today is we have no true life cycle managers; in essence, we must develop them.

Successful implementation of life cycle management and PBL requires a fundamental change in training and career development. This training must address the different ways to do business and provide the workforce the skills needed to migrate to these different business methods. Such training changes are underway at the Defense Acquisition University (DAU), with fiscal 2003 designated as the year of "Logistics Reengineering" at DAU.

The program management curricula already benefits from increased sustainment emphasis in key courses such as the new Program Management Office Course (PMT-352). Broadened learning objectives addressing total life cycle management and PBL are planned for incorporation in other Program Management career track courses, particularly the executive refresher and capstone courses. Evolving critical logistics issues are most appropriately addressed in case studies such as those in the Program Manager's Course (PMT-401) curriculum and other case-based teaching.

Reengineering the logistics curriculum at DAU is along two fronts: 1) re-energizing Acquisition Logistics training, and 2) increasing Systems Sustainment Management training. Figure 3 reflects these two Logistics training tracks and identifies the life cycle management skill sets of each. Existing acquisition logisticians' training will be transformed toward an engineering perspective to: 1) convey the tools to more effectively advocate essential logistics requirements such as readiness objectives, 2) drive down the logistics footprint, and 3) press to reduce operations and support costs.

The new Systems Sustainment Management initiative will develop business managers skilled in supporting the PM in oversight of critical life cycle management responsibilities such as supply chain management, enterprise integra-

agement, sustaining engineering, and overall system availability. Under subcontract to Boeing, depot support is provided by the Naval Aviation Depot (Jacksonville). NAVICP manages the Boeing contract in support of the Program Office at NAVAIR. Customer requisitions and maintenance actions are processed through existing Navy systems.

tion, partnering implementation, and PBL oversight. Both logistics training initiatives include a heavy dosage of PBL training.

In addition to the Program Management and Logistics training changes, DAU plans to interconnect total life cycle systems management themes with contracting, business and financial management, and engineering and technology curricula. Thus is the power of DAU—teaching PMs, acquisition staff, and logistics managers in an inter-curricula context promoting life cycle management skills and perspectives.

Service Transition Plans

The fiscal 2003 Defense Planning Guidance required the Military Departments to develop and submit integrated schedules to transition Category I and II fielded systems to PBL strategies. The schedules included:

- Strategic Service actions to develop enabling policy and guidance.
- Program Milestones for assessing the costs and benefits of PBL strategies.
- Identification of barriers to PBL implementation.

The Service plans were provided to the USD(AT&L) in the spring of 2002. The schedules included an orderly migration of programs to a performance-based environment, consistent with workforce

The professional development of program management and logistics management staffs is critical to develop life cycle managers. Our greatest challenge today is we have no true life cycle managers; in essence, we must develop them.

development, policy maturation, enabling financial mechanisms, and sound business case analyses. The plans also identified financial mechanisms and

statutory limitations as continuing barriers to full PBL implementation. The JLB, in conjunction with the Comptroller and the DUSD(L&MR), is assessing alternatives to overcome those barriers.

The Future Logistics Enterprise

The 2001 QDR clearly identified the immediate need for defense transformation to deter and defeat 21st Century threats. The primary purpose of DoD logistics is to support current and emerging force structure and capabilities. As the Department assesses required future capabilities and systems, we continue to defend our national interests with the systems we have now. In the near term, the only way to significantly improve deployment and sustainment capability is to transform the logistics practices that govern those capabilities.

The Future Logistics Enterprise is DoD's description of those transformed practices. It is our near-term end-state of transforming from a functional focus to an integrated enterprise, driven by customer operational requirements. Strategically, the FLE builds upon our existing comparative advantage in logistics to yield deployment and sustainment capabilities that enhance weapon system effectiveness.

As this article has outlined, the FLE includes six interrelated initiatives; however, none of the initiatives stands alone. Each initiative contributes to and draws from the others to yield an integrated logistics enterprise that is more capable than the sum of its parts. For example, the TLCSM initiative depends upon CBM+ and Enterprise Integration to provide the information systems and Fleet knowledge to effectively optimize customer support. TLCSM is inherently linked to enhanced partnering to achieve integrated weapon system sustainment chains.

Finally, the success of TLCSM is directly dependent upon the evolution of a global, integrated distribution system that consistently meets customer delivery times. Combined, these initiatives will enable DoD to continue to meet

FIGURE 2. F/A-18 E/F Navy/Industry Partnership



FIGURE 3. Life Cycle Logistics Workforce Training Tracks



customer requirements while providing a sustainment structure that fulfills the intent of the QDR.

Toward Logistics Excellence

Our acquisition community and our industrial partners designed, developed, and produced the technologically superior weapon systems that enabled the United States to defend our vital interests through the 20th Century. As we usher in the new millennium, the United States is faced with new, insidious threats that require rapid global response or, in some cases, preemptive, decisive action. Faced with those requirements, the na-

tion once again calls upon our acquisition community and industry to produce and sustain required capabilities.

The Future Logistics Enterprise, combined with our dedicated acquisition and logistics personnel across industry and government, will provide the logistics excellence that our warfighters need and deserve.

Editor's Note: The authors welcome questions or comments on this article. Contact them at lou.kratz@osd.mil, jerry.cothran@osd.mil, or randy.fowler

IN MEMORIAM

*Retired Navy Petty Officer
John Jenkins*

The Defense Acquisition University has received word of the death of Retired Navy Petty Officer John Theodore Jenkins on Sept. 16, 2002, in Alexandria, Va. A Vietnam veteran and career non-commissioned officer in the U.S. Navy, Jenkins was an Audio Visual Technician at the Defense Systems Management College (DSMC) from 1979-1982. He retired from the Navy in April of 1982 at the conclusion of his DSMC tour, after 22 years of military service. Following his military retirement, Jenkins worked as a contractor for Naval Sea Systems Command and the Federal Aviation Administration. He is survived by his wife of 39 years, Pearl, and two sons.

Philip Alan Bolt

The Defense Acquisition University has received word of the death of Phillip Alan Bolt on Sept. 21, 2002, in Camarillo, Calif. For the past 14 years, Bolt had shared his expertise in the Architect-Engineer (A-E) Contracting field with thousands of DoD personnel, first for the Naval Facilities Contract Training Center and then for the Defense Acquisition University at DAU West-Port Hueneme, Calif. He also served as the A-E expert for the DAU "Ask a Professor" program and was a pivotal member of the CON-101 and -202 writing teams in years past. A Vietnam veteran, Bolt was an exemplary contracting officer, most notably in Europe and Kings Bay, Ga. He is survived by his mother Mabel, as well as two brothers and two sisters.

Publications Update

Update to OTA Guide

The *Other Transaction Authority (OTA) for Prototype Projects Guide* has been updated. The updated version is posted to the Internet at: <http://www.acq.osd.mil/dp/dsps/ot/dspsot.htm>.

New Draft Guidebooks Posted for Comment

A draft *Manager's Guide to Technology Transfer*, dated August 2002, and a draft *Packaging Guidebook, Integrated DoD Guide to Performance-Based Packaging Practices*, dated Aug. 22, 2002, have been posted at: http://www.acq.osd.mil/ar/re_sources.htm. Comments on these two workforce resources can be provided to: gregory.redick@osd.mil for the Technology Transfer Guide and kathy.reid@osd.mil for the Packaging Guide.

Cambone: Budget Plan Will Shape the Force of the Future

WASHINGTON, Sept. 18, 2002—The fiscal year 2004-2009 DoD budget proposal will shape the force of the future, Program Analysis and Evaluation Director Stephen A. Cambone said here today.

After 18 months of preparation, the Services and Defense Agencies began submitting their fiscal year 2004 and fiscal year 2004-2009 budget proposals to DoD on Aug. 22, Cambone told Pentagon reporters in a noon briefing.

The fiscal year 2004 budget proposal, he noted, is the first to reflect Bush administration strategies and policies, while the fiscal year 2004-2009 plan will finance force transformation, meet homeland defense needs, and address near-term threats. He said the goal is budgetary balance: to fund the anti-terror war, to effect transformation, and to foster readiness and address the needs of the military's people. Cambone said his office is sorting through the Services' budget proposals to see how they compare with DoD guidance.

At the same time, he noted, the DoD Comptroller is performing a parallel comparison of the Service- and Agency-proposed budgets. This, he said, provides Comptroller Dov Zakheim an idea of how the Services and Defense Agencies measured the cost of their programs and whether they are internally consistent for budget purposes.

Toward the end of this month and into early October, Cambone said, he and Zakheim are to provide suggestions in response to what the Services and Agencies have done to assemble their proposed budgets.

Also in early October, Cambone noted, senior DoD leaders, including the Secretary, Deputy Secretary, the Chairman and Vice Chairman of the Joint Chiefs of Staff, and the Service Secretaries and Chiefs, will

be presented highlighted budget issues for deliberation.

Those senior leaders will be involved in each step of the budget deliberation process, he said. The process involves "give-and-take" as programs are evaluated against the whole budget and given higher or lower priorities. Another re-sorting, he added, will occur between late October into November.

Near Thanksgiving, Cambone said, senior DoD leaders should have a set of budget recommendations that the Defense Secretary can take to the president. Cambone noted DoD's fiscal year 2002 budget addressed military quality of life needs—pay, housing, missile defense, and science and technology investment. The fiscal year 2003 budget, still in congressional appropriations and authorization committees, would provide investments in command and control, communications, intelligence, surveillance, and reconnaissance capabilities, such as the Global Hawk unmanned aerial vehicle, he noted.

Regarding the stewardship of taxpayer dollars, Cambone noted that DoD is working hard to install an improved financial management system. He said Zakheim has dedicated money, people, and effort into putting that management system in place.

He called joint operational concepts a hot topic throughout DoD these days—including during budget discussions. Defense Secretary Donald Rumsfeld, Cambone pointed out, "continues to stress that we've got to move to a joint way of thinking about how we're going to fight."

Overall, the two budget proposals will illustrate DoD's fuller appreciation of how it wants to shape the forces over time, Cambone concluded.

Editor's Note: This information is in the public domain at <http://www.defenselink.mil>.

DAU Hosts Third Annual Business Managers' Conference

Issues Affecting the DoD Business and Financial Management (BFM) Workforce

JONI FORMAN

The Third Annual Business Managers' Conference (BMC) was held at Fort Belvoir, Va., on June 12-13. The Conference brought together more than 300 senior DoD acquisition and comptroller executives as well as Program Executive Officer/Program Manager/Systems Command (PEO/PM/SYSCOM) Business Managers/Program Control Chiefs and Service Headquarters business staff for wide-ranging discussions of acquisition and financial topics. To encourage broader discussions, this year's invitations were extended to a limited number of industry managers. Conference attendees were provided with information on the latest acquisition, financial management, personnel, and legislative initiatives.

Included among the conference presentations were appearances by two Under Secretaries of Defense, who described recent developments in financial management and personnel management. Many of the speakers also addressed how DoD's new emphasis on evolutionary acquisition will affect such discrete fields as cost estimating, financial management, and logistics support.

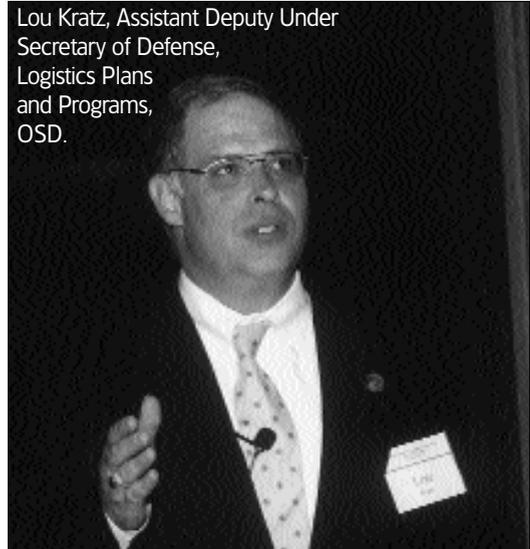
Conference Welcome

Defense Acquisition University Provost Rich Reed welcomed the conferees and spoke on "DAU Today." He noted that DAU has undergone a significant trans-

formation in the past few years. "It is important for you to know that we are trying to change as much as the atmosphere out there is changing," he said.

Particular changes he described included the recent emphasis on establishing Web-based Communities of Practice and the significant growth in development of Continuous Learning opportunities. This change in emphasis, he said, has resulted in a considerable expansion of Web-based training and a corresponding reduction of in-class training. The result is to reduce travel expenses and time away from the office and to allow more acquisition pro-

Lou Kratz, Assistant Deputy Under Secretary of Defense, Logistics Plans and Programs, OSD.

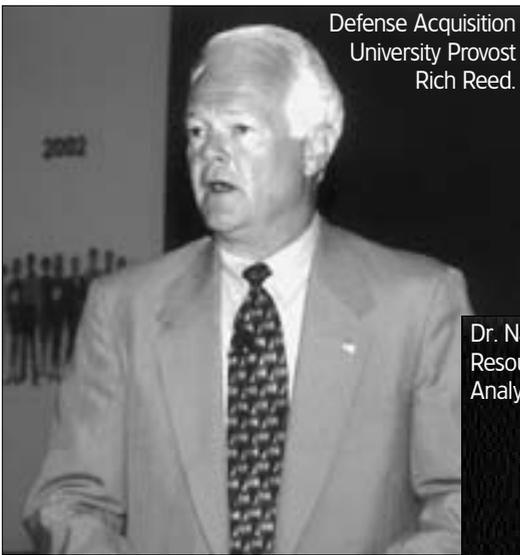


fessionals to receive training. "The availability of training," Reed said, "is now much greater to you, the workforce."

Conference Keynote

Dr. Nancy Spruill, Director, Acquisition Resources and Analysis, set the stage for the conference. She thanked the audience for their participation and gave an

Forman is the Deputy Executive Director, Curricula Development and Support Center, Defense Acquisition University, Fort Belvoir, Va.



Defense Acquisition University Provost Rich Reed.

overview of several key issues affecting the Business and Financial Management (BFM) workforce.

Increased Use of Evolutionary Acquisition/Spiral Development

Spruill noted that the Services are increasingly defining “block” pro-

Dr. Nancy Spruill, Director, Acquisition Resources and Analysis, OSD.



Deidre Lee, Director, Defense Procurement and Acquisition Policy.



Nancy Spruill, Director, Acquisition Resources and Analysis, OSD; Joni Forman, Deputy Executive Director, DAU Curricula Development and Support Center; and Dr. Richard Burke, Director, Operations Analysis and Procurement Planning Division, Program Analysis and Evaluation, OSD.

curements in their operational requirements documents and other acquisition plans.

Reducing Acquisition Documents

Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L]) E.C. “Pete” Aldridge and his Principal Deputy, Mike Wynne, have both directed a reduction in the number and complexity of acquisition requirements in order to allow more flexibility and innovation.

Realistic Funding

Spruill commented that “Mr. Aldridge is committed to basing programs on more realistic cost estimates. This is vital to restoring our credibility with Congress.” She observed that realistic funding “often means funding to the CAIG [Cost Accounting Improvement Group] estimate, but not always; Mr. Aldridge has the flexibility to take the most realistic estimate.”

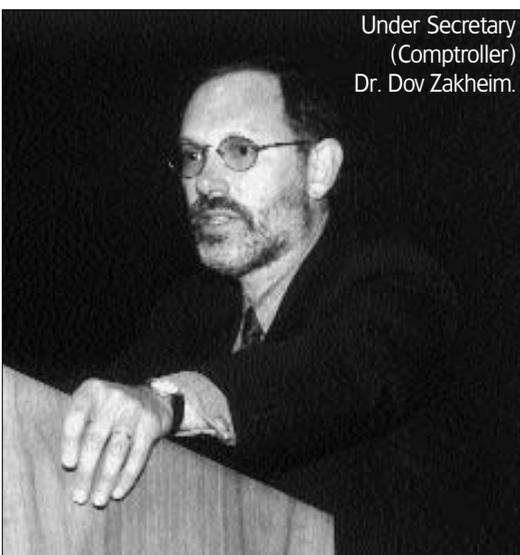
Nunn-McCurdy Breaches

For reporting to Congress, as of December 2001 six of the 74 programs had breaches of more than 25 percent. By law, DoD had to make the following four certifications for each of these programs or funding would be cut off:

- The system is essential to national security.

- No alternative that would provide equal or more military capability at less cost is available.
- Costs are under control.
- A management structure is in place that is adequate to control costs.

Spruill commented that of the four, she believed that the hardest to certify was the adequacy of the management structure. All six programs were examined in detail, including the program changes needed to give Aldridge the confidence



Under Secretary (Comptroller) Dr. Dov Zakheim.

Conference Exhibits

During breaks and before and after sessions, conference attendees were given the opportunity to view a number of exhibits sponsored by various government organizations.

- **Army Research, Development and Acquisition (RDA) Budget Update Computer System**—POC: Sheila Wyatt
- **American Society of Military Comptrollers (ASMC) Certification**—POC: John Raines
- **Cost as an Independent Variable (CAIV) Analysis Tool (CAT)**—POC: Terrell Matthews
- **Defense Acquisition University**—POC: Sharon Richardson
- **Enterprise Software Initiative**—POC: Jim Clausen
- **Naval Financial Management Career Center**—POC: Tom Steinberg

he needed to certify the programs. But in making these certifications, he stressed that if any fell short, he would not hesitate to cancel.

Acquisition of Services

Almost as much money now is spent to acquire services as to acquire products, and there is concern by the Congress that adequate policies and practices are not in place. Spruill stated, "I will be leading a team that looks at the processes being established and advise Mr. Aldridge whether they meet the Congressional requirements."

Financial Management Modernization

The leaders of DoD's acquisition and financial management communities are supporting new Federal Accounting Standards Advisory Board (FASAB) requirements. One new requirement is that DoD must capture the full costs of all new and existing systems. Costs must be capitalized on a balance sheet and depreciation must be taken. Spruill said that there were several key principles. "We want to minimize the impact [of

these changes] on warfighters and program managers. We want to keep changes as simple as possible. We want to avoid new data calls."

Financial Management

Under Secretary of Defense (Comptroller) Dr. Dov Zakheim discussed new developments in the Financial Management Modernization Program (FMMP); Ron Brooks, OUSD(C) [Office of the Under Secretary of Defense (Comptroller)] provided the details of DoD's FMMP initiative.

Zakheim noted that he had previously served in DoD nearly 20 years ago—at the height of the Cold War. When he returned, he found that "The mechanics and fundamentals of the process are remarkably unchanged, like PPBS [Planning, Programming and Budgeting System], the acquisition process, or the FM [Financial Management] process. When things don't change, you build up a culture—a way things are done that is passed on from generation to generation."

There are over 1,100 different systems in DoD's current financial management process, Zakheim stated. "It is miraculous that we can track our money at all. We have to fundamentally overhaul the way we do business" and get rid of the majority of these systems. "We need a management system," he emphasized, "that gets the right information to the right people at the right time."

Brooks stated that FMMP "is not about financial systems. What it is about is re-engineering business processes." Brooks spoke of Secretary of Defense Donald Rumsfeld's confirmation hearing, where the Secretary pledged that fixing DoD's FM systems would be among his highest priorities. In a July 2001 memorandum, the Secretary assigned responsibilities for this program to Zakheim. Since then, the initiative has received widespread support. "The highest levels of the Department are interested in this program," Brooks emphasized, "and there is also widespread support on Capitol Hill, the General Accounting Office, the Office of Management and

Budget, and the DoD Inspector General."

He observed that this effort is not limited to purely financial operations because "most of the financial information generated by the Department does not reside in the Comptroller's systems; it's in personnel and logistics and healthcare and other systems." But he assured the audience that "the Comptroller is not interested in taking over other systems; we want to work with those non-financial systems owners to make sure they provide the information we need."

Workforce Management and Development

Under Secretary (Personnel and Readiness) Dr. David Chu and Geri Manning, OUSD(C), addressed workforce management and development issues. Chu noted that DoD must develop more flexible personnel management systems, integrating pay and personnel management into the same system.

DoD faces unique challenges due to the worldwide nature of its responsibilities. "When a soldier deploys, the CINC [Commander in Chief] can't manage four separate personnel systems. Now, it's difficult to know even basic information like where the person is, or whether he or she was exposed to toxic materials." The Defense Integrated Human Resources System, which will integrate pay and personnel management worldwide, is a unique challenge, Chu said. Extensive benchmarking of major corporations showed that there is nothing comparable in the private sector, "not even a single worldwide pay system, or a single worldwide personnel management system, let alone one that combines both."

Chu also asserted that DoD's managers need increased flexibility to identify vacancies and make job offers. "It is inexcusable in this day and age to take as long to make a job offer as we do," he said. He invited the audience to submit horror stories of examples where personnel system inflexibility had caused them to lose a "must hire," and pledged

to do everything he could to upgrade DoD's systems.

Manning provided an overview of the draft DoD Financial Management Civilian Workforce Development Strategic Plan. She noted that Human Capital issues are at the top of the national agenda. The President has made this a major area of emphasis and the GAO has identified it as a high-risk area. In November 2001 a work group was established by the OUSD(C), with the support of the Under Secretary of Defense (Personnel and Readiness), to conduct a review of the financial management workforce. The work group focused on workforce planning, performance metrics, technical competencies, recruitment, retention, education and training, professional certifications, and advanced degrees.

Manning commented that the current financial management personnel management processes are fragmented and not fully integrated. Most of the FM personnel management functions are at various stages of development. One of the interim objectives is to employ a life cycle approach for FM personnel development that promotes balance between management priorities and employee needs and expectations. The Strategic Plan proposes using an integrated approach to ensure that the DoD FM community is ready to meet the challenges it will face over the next decade. Some of the interim objectives in the Strategic Plan include the following:

- Develop an FM workforce baseline (number of personnel, education, professional certification, advanced degree, experience, etc.), and implement a system for keeping data current.
- Adapt industry best practices on workforce development performance metrics.
- Develop clear, concise career paths for FM occupational codes.
- Move toward multi-skilled positions to replace current, narrow, and stovepiped specialties.
- Develop and implement an innovative, aggressive DoD FM recruitment strategy.

“If you’re under-funding programs in the out-years, you’re setting yourself up to fail. There is no way good program management can make up for inadequate resources.”

—Dr. Richard Burke
Director, Operations Analysis and
Procurement Planning Division
Program Analysis and
Evaluation, OSD

- Recruit employees with professional certifications and advanced degrees.
- Facilitate formal education and training leading to professional certifications and advanced degrees.

Other Issues

Dr. Richard Burke, Director, Operations Analysis and Procurement Planning Division; Lou Kratz, Assistant Deputy Under Secretary of Defense, Logistics Plans and Programs; and Deidre Lee, Director, Defense Procurement and Acquisition Policy, discussed related policy initiatives in areas such as cost estimating, life cycle management, and procurement.

Cost Estimating

Burke cited three major purposes for cost estimates. “We use them to compare alternative solutions. We compare life cycle cost in the Analysis of Alternatives to comparative costs of alternate reasonable solutions to a problem. We have cost estimates at the major milestones to inform decision makers how to proceed, or whether to proceed, with a program. Finally, we use them to inform preparers of the President’s budget.”

A principal purpose of the cost estimate is to determine whether adequate resources are available for the program. In the past, he noted, “we had a period where there was a lot of emphasis on low cost estimates. The current set of decision makers is not focused on low cost estimates; they’re focused on executable programs.” As a result, “we have had to deal with significant under-funding of programs—by the CAIG’s estimate a \$30 billion shortfall in the FYDP [Future Years Development Plan]. If you’re under-funding programs in the out-years, you’re setting yourself up to fail. There is no way good program management can make up for inadequate resources.”

Burke commented on DoD’s new emphasis on evolutionary acquisition. “This will be a challenge to cost estimators as well as planners.” Program definitions and plans are not static, he said. Often, DoD planners cannot see four to five years out. Systems bought in an evolutionary manner, Burke noted, are also more likely to have concurrent development and production, and multiple configurations will be in the field.

“You don’t have a long production run of exactly the same item,” he said. “This makes O&S [Operations and Support] plans more complex and is likely to increase the risk of obsolescence. This will require both the acquisition community and the cost estimators to be more nimble.”

Burke addressed a number of other issues related to cost estimating, including Nunn-McCurdy. There is considerable focus on the Nunn-McCurdy requirements because “the senior leadership is really focused on trying to restore DoD’s credibility on Capitol Hill. This means when we submit a cost estimate up there, it has greater credibility.”

The process of certifying Nunn-McCurdy programs, he explained, begins with a review of actual costs. The key question is “What caused the cost growth? Is it contractor performance? Is it a problem with the cost estimate?”

Is it due to changes in the program? And what can we do to fix it?"

Burke also noted that DoD has combined the program and budget review process. "The major emphasis is to ensure that the FY04 President's budget and the FY04-9 FYDP reflect Administration transformation priorities." The timelines for budget preparation and review will be challenging, he added, as will the guidance requiring full funding and realistic cost estimates.

Burke reminded the audience of DoD's instructions to the Services, which stated that "In order to achieve program stability and avoid costly stretch-out, [the Services shall] properly price programs at not less than levels estimated by the Cost Analysis Improvement Group." Where there are large variations between the CAIG estimate and the Service estimate, Burke stressed, "the onus will be on the Services to explain."

Life Cycle Management

Kratz discussed the new Total Life Cycle Systems Management concept that has been developed within the logistics community. "We want to make sure sustainability and maintainability is integrated up front in the acquisition process," he said. Currently, the requirements process emphasizes weapon system performance, he noted, but gives limited attention to life cycle sustainment. Kratz said the estimated weapon system sustainment cost is \$62 billion, but it is currently impossible to link these costs with performance.

Achieving a Total Life Cycle focus will require a lot of changes in the system. Kratz observed that "When I go to a program office, I never find a PM who can't tell me exactly where they are in the test process, exactly where they are according to the schedule, or exactly the status of the various appropriations accounts we ask them to manage. I don't get the same when I ask about sustainment."

He noted that PMs nominally are responsible for life cycle management, but they generally do not control sustain-

ment funds, have limited training in sustainment, and have few mechanisms to maintain control of the system.

Kratz explained that financial tracking is difficult under the current system. Sustainment funds are dispersed among multiple entities, including warfighters, product centers, and program managers. The process tracks transactions rather than capabilities, he noted, with an increased accounting burden for the customer and increased transaction costs.

Under the proposed Performance Based Logistics (PBL) process, Kratz said the force provider would define requirements and an acceptable range of performance, which would be purchased as a package. The program manager would be responsible for delivering performance as a package, he added, and would negotiate performance agreements with logistics support providers.

According to Kratz, the concept has been successfully tried with a number of Pilot Programs under DoD's Reduction of Total Ownership Cost (R-TOC) program, and the Joint Logistics Board has approved a number of actions to support this concept, including development of Performance Based Logistics implementation schedules, working with the Comptroller to develop financing mechanisms, appropriate revisions to DoD acquisition regulations, and improvements in the Defense Acquisition University curriculum to include total life cycle management concepts.

Kratz stressed that the concept he described is "a desired end state. Nobody is suggesting that we will flip a switch and arrive at this state immediately. This is a very complex problem."

Procurement

Lee discussed some key issues affecting DoD procurement, notably issues involving use of government credit cards and General Services Administration (GSA) schedules. Congress gave DoD increased latitude in a number of areas in recent years, Lee said, but more recently has focused on perceived abuses

of new procedures. Defense committees on Capitol Hill have developed new legislation and pressured DoD to make changes in procurement practices, she said. Some of these new requirements may make it somewhat more difficult for DoD acquisition managers to do business in the future. She stressed that while her office will continue to work with Congress to correct misunderstandings, it is important for acquisition executives to abide by Congressional mandates.

Conference Conclusion

As the Conference concluded, Conference Chair Dr. Nancy Spruill, Director, Acquisition Resources and Analysis, thanked the audience for their participation and their comments, which will be used to plan next year's Business Managers Conference. She said her preliminary conclusion was that next year's Conference should have more discussion of evolutionary acquisition, more information on the Business Initiative Council, and increased participation by financial management, logistics, and personnel specialists.

Questionnaire Responses Help Plan Future Conferences

Conference organizers distributed a detailed questionnaire along with registration materials, and received responses from more than half of the people who attended the Third Annual BMC. Insights gained from these questionnaires will help plan future conferences.

Eighty-six percent of those responding gave the conference a favorable rating. Attendees rated the conference highest for providing "insights into acquisition policy thrusts," "learning things useful in my job," and "important cross-communication with peers." Eighty-five percent or more of the people responding to the survey favored continuing to hold the conference once a year and favored the current two-day format.

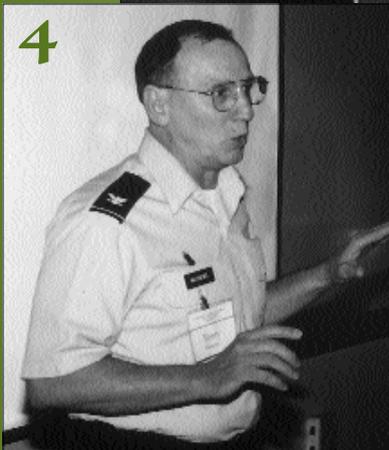
There was general agreement that the right amount of time was provided for Q&A with the speakers. The respondents agreed that the number and level of attendees was about right and that

Breakout Groups



Conference attendees also had the opportunity to attend three separate breakout sessions (a total of 18 subject areas) during the course of the Conference. The breakout groups addressed significant new programs and policy initiatives in the areas of program control, business management, cost and budget analysis, and related areas. Many of these breakout groups were directly supportive of the major conference themes.

- Activity Based Costing, Andrew Wallen
- Business Management Integration Analysis, Roberta Tomasini
- Contractor Cost Data and Software Metrics Requirement, Mike Augustus, OSD Cost Analysis Improvement Group
- Contract Incentives/Business Case, Chip Summers
- Cost as an Independent Variable (CAIV) Analysis Tool (CAT), Army Col. Terrell Mathews
- Defense Contract Management Agency (DCMA) Insight and Perspectives on Achieving Programmatic Outcomes, Steve Krivokopich, William Hill, and Army Col. Steven Perry
- Defense Acquisition Executive Summary (DAES)/Selected Acquisition Report (SAR)/Acquisition Program Baseline (APB)/Nunn-McCurdy Unit Cost Reporting, Bob Leach
- Earned Value Management Basics, Bob Carlson
- Enterprise Resource Planning Update, Alisandra Snyder
- Fundamentals of Scheduling, Dave Bachman
- Integrated Baseline Review, Randy Smith
- Integrated Master Plan/Integrated Master Schedule, Peg Johnson
- Integrated Program Management, Dave Bachman
- An Introduction to the Business Initiative Council (BIC), Philip Rodgers
- OSD Budget Review, John Roth
- Requirements Generation System Initiatives, Navy Capt. Kevin Peppe
- Schedule Analysis and Assessment, Peg Johnson
- A Theoretical Consideration of Acquisition Reform, Deb Frank



- 1** Peg Johnson, Breakout Group on Schedule Analysis and Assessment
- 2** Philip Rodgers, Breakout Group on Introduction to the Business Initiative Council
- 3** Bob Leach, Breakout Group on Defense Acquisition Executive Summary (DAES)/ Selected Acquisition Report (SAR)/ Acquisition Program Baseline (APB)/Nunn-McCurdy Unit Cost Reporting
- 4** Army Col. Terrell Mathews, Breakout Group on Cost as an Independent Variable (CAIV) Analysis Tool (CAT)
- 5** Dave Bachman, Breakout Group on Fundamentals of Scheduling

industry participants should continue to be invited. Most participants favored individual speakers rather than panels (which were more prevalent at last year's BMC).

There was widespread support for the Breakout Groups. Some participants suggested reducing the length of Breakout sessions and shortening breaks to allow time for another set of topics. Some of the additional Breakout Group topics suggested for next year included:

- Cost estimating for evolutionary acquisition
- "View from the Hill"; Congressional staffer view of FM/acquisition
- Earned value management, industry status and link to FM modernization
- Transformation, total ownership cost/life cycle issues; best practices; performance based acquisition/payments

- Career paths.

Conference participants also praised the exhibits and requested that similar exhibits should be included in future conferences.

The Fourth Business Managers' Conference will be held on May 14-15, 2003.

Editor's Note: Presentations from the conference, speaker biographies, and more information about the conference are posted to the conference Web site at <http://bmc.ida.org/2002/>.

The DAU Communities of Practice Web site is: <http://www.pmcop.dau.mil/pmcop/>.

The DAU Continuous Learning Center is found at: http://clc.dau.mil/kc/no_login/portal.asp.



Richard H. Reed, DAU Provost, retired effective Sept. 1, 2002, after 11 years' federal service. Reed had served as Provost of the Defense Acquisition University since Oct. 1, 1997. Previously, he served as the Defense Systems Management College (DSMC) Dean of Faculty, a position to which he was appointed in October 1994. Prior to becoming the DSMC Dean of Faculty, Reed held the position of Associate Dean from 1991 to 1994. He also served DSMC as Department Chair for the Systems Engineering Department from 1989 to 1991. Reed and his family will reside in North Carolina.



Fulfilling a lifelong dream, Cathy Pearson, Chief, Civilian Personnel Services Office, Human Resources Department, Operations Group, departed the University on August 20 to accept a position with the Peace Corps. Pearson was a mainstay and trusted advisor in the Human Resources Department where she had served since 1987. She was also the Acting Director of Human Resources from November 1998 to September 2000. Upon her departure, DAU President Frank Anderson Jr. presented her the Civilian Superior Service Award.

Attention Subscribers to Program Manager & Acquisition Review Quarterly

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Precision Strike Association Honors DAU for Outstanding Support



Former DAU Provost Richard Reed (left) and Dave Fitch, Dean, Defense Systems Management College-School of Program Managers, admire a gift from The Precision Strike Association to the Defense Systems Management College. The framed fine art print, "Pennsylvania Avenue" by G. Harvey, was presented to the College at the 2002 PSA Annual Program Review luncheon, held at the Fort Belvoir Officers Club, Fort Belvoir, Va., on April 16, 2002.

Photo courtesy Precision Strike Association

The Defense Acquisition University (DAU) is a long-time supporter of The Precision Strike Association (PSA) and the Precision Strike community. The DAU staff routinely provides top-notch support during the Precision Strike Annual Programs Review—support that has helped make the PSA Programs Review one of the premier "must attend" events in the defense industry. DAU and the PSA events committee have developed a truly close partnership over the years.

During the 2002 Annual Programs Review luncheon at the Fort Belvoir Officers Club on April 16, 2002, the PSA was honored to present a gift in appreciation of the partnership. Wayne Savage, PSA Chairman, presented a framed, fine art print of the painting, "Pennsylvania

Avenue" by G. Harvey, to former DAU Provost Richard Reed in gratitude for the many years of support and friendship. "PSA," said Savage, "looks forward to continued close working relationships with DAU and its superb staff."

The inscription on the plaque accompanying the print reads:

"In recognition of the many years and avenues we have walked together in the Washington Metropolitan Area on the Fort Belvoir Campus, The Precision Strike Association in grateful appreciation to the Defense Systems Management College, presents the painting 'Pennsylvania Avenue' by G. Harvey."

TERMINATION PAPERS FOR CRUSADER SIGNED

Under Secretary of Defense for Acquisition, Technology and Logistics Edward C. "Pete" Aldridge, Jr., has signed a memorandum directing the U.S. Army to take prudent and deliberate actions to bring about an orderly termination of the Crusader program. The memo was signed July 26. In the memo, the Army is directed to ensure that current technology development continues either as part of an indirect fire technology demonstration or as part of other transformational programs.

On the same day, Secretary Aldridge provided Congress with the Army's Indirect Fires Report and a reprogramming request to transfer \$32 million from Crusader to new variants of the Future Combat Systems (FCS). Congress has approved the reprogramming request.

Editor's Note: This information, released Aug. 6, 2002, is in the public domain at <http://www.defenselink/news>.



DoD Selects Foreign Comparative Testing Programs

The Department of Defense has selected 27 new start projects and 13 continuing projects to receive fiscal year 2003 funding under the Foreign Comparative Testing (FCT) Program.

Authorized by Congress since 1980, the FCT Program is administered by the Director, Strategic and Tactical Systems, Office of the Under Secretary of Defense (Acquisition, Technology and Logistics).

The FCT Program demonstrates the value of using nondevelopmental items to accelerate the acquisition process and cut rising development costs. The principal objective of the FCT Program is to support the U.S. warfighter by leveraging nondevelopmental items of allied and other friendly nations to satisfy U.S. defense requirements more quickly and economically.

Given a world-class foreign item, U.S. user interest in the item, a valid operational requirement, and good procurement potential, the FCT Program reduces the acquisition cycle for fielding needed systems and equipment not otherwise available. At the same time, by promoting competition and eliminating unnecessary research, development, test, and evaluation expenses, the FCT Program reduces total ownership costs of military systems while enhancing standardization and interoperability, and promoting international cooperation.

Each year the Military Services and U.S. Special Operations Command nominate candidate projects to the Office of the Secretary of Defense for FCT funding consideration. Each proposed project is screened to ensure the nondevelopmental item has addressed valid requirements, a thorough market survey has been conducted to identify all potential contenders, and the sponsor has developed a viable acquisition strategy to procure the foreign item if it tests successfully and offers best value.

Of the 27 new start projects for fiscal 2003, five are sponsored by the Army, 11 by the Navy and Marine Corps, four by the Air Force, and seven by the U.S. Special Operations Command. A list of these new projects, and the continuing projects to be funded follows. Additional FCT Program information is available on the FCT Home Page on the World Wide Web at <http://www.acq.osd.mil/sts/fct>.

Foreign Comparative Testing (FCT) Projects Selected for Fiscal Year 2003 Funding

ARMY NEW START PROJECTS

- 105mm Preformed Fragments**—Republic of South Africa
- 155mm Ammunition**—Republic of South Africa
- Ballistic Armor for Helicopters**—Australia, United Kingdom
- Fuel Cells for Dismounted Soldier Systems**—Canada, Germany, United Kingdom
- Small Bundle Resupply System**—Canada, Republic of Korea, Netherlands

ARMY CONTINUING PROJECTS

- 40mm Dud Reducing Ammunition**—Germany, Singapore
- Self-Destruct Fuze for Multiple Launch Rocket System (MLRS)**—Germany, Israel
- Silverized Kevlar**—Canada

NAVY AND MARINE CORPS NEW START PROJECTS

- Corona Monitoring System for High-Powered Naval Communications**—Israel, Republic of South Africa
- Deployable Instrumentation for MAGTF (Marine Air Ground Task Force) Training**—Sweden, Switzerland
- Eye-safe Laser Rangefinder for M1A1 Main Battle Tank**—Germany, United Kingdom

High Rate-of-Fire .50 Caliber Machine Gun (joint with Air Force)—Belgium

High-Temperature Protective Coating for Gas Turbine Engines—Canada, Russian Federation

Improved Specific Emitter Identification System—United Kingdom

Replacement Structures for Aircraft—France, Poland

Resilient Abrasive-Resistant Skirt for LCAC (Landing Craft-Air Cushion)—Italy, Sweden, United Kingdom

Shipboard Anti-Jam GPS (Global Positioning System) Antenna—United Kingdom

Special Effects Small Arms Marking System—Canada

Underwater Communications & Tracking System for Submarines—Australia

NAVY AND MARINE CORPS CONTINUING PROJECTS

Assault Breacher Vehicle Mine Plow & Lane Marking System—Israel, United Kingdom

Communications Distribution System—Canada

Digital Flight Control System for EA-6B—United Kingdom

Floating Smoke Pot System—Germany

High Frequency Adaptive Antenna Receive System Replacement—Canada

Infrared (IR) Decoy—Canada

NBC Multipurpose Protective Sock—France, Germany, United Kingdom

AIR FORCE NEW START PROJECTS

Cleaner-Burning Stores Release Cartridges—United Kingdom

Man-Portable Intrusion Detection System—United Kingdom

Missile Reserve Battery Replacement—France, Japan

Rayon for Heatshield and Motor Nozzles—Austria, France, Germany, United Kingdom

AIR FORCE CONTINUING PROJECT

Eagle Vision Satellite Imagery Receiving and Processing Station Sensor Upgrade—France

U.S. SPECIAL OPERATIONS

COMMAND NEW START PROJECTS

40mm Enhanced Grenade Launcher for M4 Carbine—Germany, United Kingdom

Body Armor Flotation Vest—Israel, United Kingdom

Body—Worn Radar Warning Receivers—United Kingdom

Global System for Mobile Threat Warning—Canada, Denmark, Russia, Sweden, United Kingdom

Man-Portable SATCOM (Satellite Communications) System—Sweden

Ultra Light Aero Diesel Engine—Germany, United Kingdom

Wireless LAN (Local Area Network) Monitoring—Finland

U.S. SPECIAL OPERATIONS

COMMAND CONTINUING PROJECTS

Advanced Demolition Weapons—Germany, Sweden

MAAWS (Multi-Role Anti-Armor, Anti-Personnel Weapon System) Infrared Illumination Round—Sweden

Editor's Note: This information is in the public domain at <http://www.defenselink.mil/news>.

DoD USD(AT&L) “All Hands”

Under Secretary Aldridge Asks, “What’s On Your Mind?”

Editor’s Note: In the first DoD AT&L “All Hands” held in many years, Under Secretary of Defense (Acquisition, Technology and Logistics) Edward C. “Pete” Aldridge Jr., invited all members of the DoD AT&L workforce to the Pentagon on July 1 for a “State of the Union”-type presentation followed by Q&A.

In a year filled with terror and uncertainty that forced the acquisition workforce—and the nation—to rethink defense policies, strategies, programs, and weapons needed to support global threats, Aldridge set aside time to simply say “Thank you.” He reminded the workforce of just how much they had accomplished since 9/11, tying his remarks to the five goals he first put forth for the DoD acquisition workforce in May 2001.

Good afternoon. Today is July 1, about one year and a month or so since I arrived in the building. What a roller coaster, from trying to get the fiscal year 2002 budget amendment over to the Hill; then, of course, about four months after I got here we were at war. As a result, we had to do the 2002 emergency supplemental. That was while we were simultaneously doing the fiscal year 2003 budget and defending what was in the fiscal year 2002 budget. And just a few months ago, we started the fiscal year 2004 budget. It’s just been a continuous cycle of things that are ongoing.

We’ve only been here just over a year, and I marvel at all the things we have done—which is a pretty impressive list

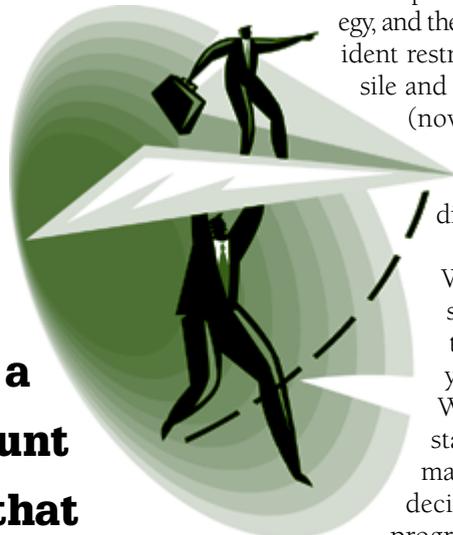
Aldridge is the Under Secretary of Defense (Acquisition, Technology and Logistics), The Pentagon, Washington, D.C.



I’ve only been here a little over a year. Many of you have been here less than that. But I think we can look back with a great amount of pride that we’ve made a lot of progress in this last year on top of having to fight the war on terrorism.

when you start writing them all down—the process of the QDR [Quadrennial Defense Review], all the hours and hours of meetings we had with the Secretary and the Service Secretaries, the Chiefs, and members of the OSD staff. Every once in a while the CINCs [Commanders in Chief] were brought in. The end result was changing the whole approach to defense planning, from threat-based strategies to capabilities-based strategies.

The idea of the 4-2-1 scenario means basically you defend four regions of the world. You may have to fight in two of them, and you may have to win decisively, and that means “going to the capital” in one of those. The President is to decide which one of those he wants to proceed with. When you think about the whole new capabilities-based strategy, and the fact that the President restructured the missile and defense program (now without the ABM Treaty), this is a completely different direction.



We started a whole series of acquisition initiatives that you all remember. We have actually started off with making some major decisions on some programs. We started with some of the bigger programs. In fact, we instituted the largest acquisition program in the history of the Department of Defense. We started a BRAC [Base Realignment and Closure], which is going to restructure the infrastructure for the Department. Anyway, when you start going through all those things we’ve done, it’s been a fairly impressive list of things.

I think we all could, no *should* look back upon this activity with a certain amount of pride. We have done all these things, while at the same time having to wage a war on terrorism and having to do the budget cycle. I look back at the first time I met with you in May of 2001, where I put together the five goals that I thought we ought to accomplish. I look back at those five goals and I know for a certainty we have made significant progress on all of them.

Credibility of the Acquisition Process

The first goal, improve the effectiveness and the credibility of the acquisition process. I was very impressed the other day when Congressman Jerry Lewis, who's a Chairman of the HAC [House Appropriations Committee], in a hearing (and in a personal discussion I had with him) expressed that he likes what we're doing. He is a very strong critic of the activities of the Department of Defense when he sees things that deserve criticism.

When you see him noticing that we're doing things right, our credibility is starting to build—and that's a good sign. He likes that we talk frequently about properly pricing programs. He likes it when I tell him that a program is not executable, but we're going to fix it. I think the idea of bringing some stability to the programs—which we are now doing in our acquisition and logistics process—is something that I think we're slowly building on, and in the process, improving our effectiveness and credibility.

I think there's really two key parts to this issue of program stability. One part is the spiral development—the evolutionary spiral development. We have a definition of that now, which is not easy to explain. We are now properly pricing programs, so that when we put together a program for ourselves and the ensuing Congressional review, it's a program I believe we are capable of delivering on a schedule that's real, with a risk that's real, and a cost that's real. When we start off with a fundamentally sound program, we're better off over the

long term. I believe we've done a lot in the acquisition and logistics excellence arena. In the area of legislation, we've been working to improve the Federal Acquisition Regulations. Mike Wynne [Principal Deputy Under Secretary of Defense (Acquisition, Technology and Logistics)] has taken on the challenge of getting that real thick document down to about five pages. That is a challenge, but I think it's doable and we can make it work.

Education of the AT&L Workforce

On the personnel side, I think we have made some progress and the Defense Acquisition University is now pointed out by the U.S. Distance Learning Association as being one of the "champions" of e-Learning. I think we've got a good start on an acquisition workforce strategic plan that fits into our acquisition workforce pilot projects. We've got a lot more work to do in this area, but I think we're heading down the right track.

Industry

I think the health of the industrial base is much improved. If you look at the Standards and Poor ratings in the industry and you look at the defense industry, you see a very positive trend. I think we've done some good things about helping industry be more profitable. It can attract other industry to come and work for us. I think we're doing a pretty good job and making sure all that happens.

We issued a directive right after I got here about not cost sharing research and development projects. We don't want to encourage our industry to cover our shortfalls. That's working. The cost sharing savings plan—we've got Federal Acquisition Regulations out now on that. We're going to work on some more. I think we're doing well in that area.

Infrastructure

The QDR and Defense Planning Guidance resulted in decisions on some major programs—not only decisions on the programs themselves, but also the decisions on the infrastructure. I think

our process of looking at our infrastructure and concluding that we have something in the range of 20 to 25 percent more infrastructure than we need to support the force structure, is about right. Unfortunately, another round of BRACs is now delayed a couple of years, but still we've got legislation to go make that happen.

Essentially, we'll be starting with a clean sheet of paper with our infrastructure, and we'll be able to build an infrastructure that's really right. It's going to be interesting because this next round of BRACs will be the equivalent of all the other three or four rounds, where we reduced infrastructure by about 21 percent. This next BRAC will be the equivalent of all the others combined. It's going to be quite a task. But we have a chance to do it right and take an overall look across the Services at things we need to do better.

Weapon System Decisions

Weapon system decisions—you're obviously aware of many of them: Joint Strike Fighter, DD21 to DD(X), and missile defense, which is of course a big program. We applied the Nunn-McCurdy Act for the first time in 21 years. (I saw Dave McCurdy at a dinner right after that. It was ironic because I didn't realize that he had passed that law back in 1981.) The Department of Defense had never applied that law in the direct way that we did. There's been a couple of things we bordered around the edges, for example, when we were going to cancel one program under Nunn-McCurdy, but we actually ended up restructuring and changing it. But I think our actions invoking Nunn-McCurdy represented a message—and I think that message went through the defense industry at the speed of light. They quickly figured out that performance was at the top of the list.

Science and Technology

In the area of S&T [Science and Technology], we did get the S&T budget up a little bit. I didn't get it all the way to 3 percent of the DoD budget, but we got to around 2.7 percent. We now have got it on a positive trend. We pulled the at-

tion of the Secretary of Defense to the S&T budget. He is fully supportive of it. Congress is fully supportive of our efforts to reach 3 percent for S&T, while at the same time balancing all of the things we had to do in this budget. We just couldn't quite get the S&T budget up to where we wanted it, but we got the ACTD [Advanced Concept Technology Demonstration] areas from \$150-159 million to \$200 million, restructuring ACTDs so we can incentivize the Services as best we can to come aboard. Essentially, we'll fund a little bit more up front if they'll fund some at the end.

Think About Innovation

So when you put all that together, I think you could safely say we are we making progress. I've only been here a little over a year. Many of you have been here less than that. But I think we can look back with a great amount of pride that we've made a lot of progress in this last year on top of having to fight the war on terrorism.

The Secretary has, in a briefing he gave to the senior staff the other day, talked about a sense of urgency. He's been here 18 months and is looking at what's going to happen over the next 18 months. As far as this Administration, we've got basically 18 months to go and probably only about six months to make a really big dent in getting a lot of things in place. So he is really encouraging all of us to think about innovation. Think about it in terms of urgency. He keeps complaining about how long it takes to coordinate things around this building. I swear it does take a long time, unfortunately. When I look at some of those congressional letters coming across my desk—and all the signature pages—I'm surprised we accomplish anything in the time that we have. But he really is going to urge all of us in the senior leadership to take on a sense of urgency and get a lot of these innovative things moving at a faster pace than perhaps we've been moving so far.

I keep telling him, however, as far as I can see, "the foot is on the accelerator." It's right on the floor and if he expects us to make any changes in direction, or

do something new, something's got to go. Just keep that in mind because you'll hear some more about it. He's going to start a series of meetings like the QDR session that we had last year as we built up our strategies, meeting after meeting, wrapping our minds around where we wanted to go. He's going to do the same thing for these new innovative ideas—a series of meetings with the senior leadership, probably even one layer down, getting all the Presidential appointees involved in looking at new and innovative ways to make this building [Pentagon] work better.

Reengineering AT&L

You've heard a lot about reengineering AT&L. I find that we at AT&L have an enormous portfolio of things going on. I'm overwhelmed by it every day, and I have a sense that we're spending a lot of time on marginal issues. We need to really think through what those marginal issues are. I find everybody in AT&L is tremendously busy. We work entirely too long—at least I know I do. I don't like working Saturdays.

I know the Secretary of Defense is pleased with the results he sees from us [AT&L workforce]. We're constantly quoted as having the best information coming up through the staff—and it's thorough.

But I think if you started looking around at some of the things we are doing in AT&L, we could probably come up with some ideas on work that really is marginal—work that we should give up on and just quit doing it. If I tell the Secretary of Defense this or that is a marginal thing, however, of course the next day will bring a "snowflake" from the Secretary on that same topic. I think we can think about ways to put our time to better uses. Even things like moving missions or programs out of AT&L that can be done better by some other agency or Service. I am open to those kinds of things.

Lastly, I think that there are probably some things we're doing that we're not doing enough of—things that we probably need to put some more resources into. The resources we can save by moving things out or cutting things out, we can then put the effort on really important issues or programs. I think it is the right plan. Part of this reengineering activity that you've all heard about involves looking for these areas. That's the direction I'm trying to go. What can we in AT&L do over the next several years that can improve our ability to do the job we need to do much better. We're going to work on that.

That, I think, covers where we are. Again, we've done a terrific amount of work. We've made a terrific number of contributions. I know the Secretary is pleased with the signs he sees from us. We're constantly quoted as having the best information coming up through the staff—and it's thorough. I think the Secretary is pleased with our results.



So with that, I'm going to open it up for questions.

Q

What changes do you see in the future with respect to the role of PA&E [Program Analysis and Evaluation]?

A

Good question. As you know, the PA&E is going to be transferred effective today to report directly to the Secretary of Defense. Steve Cambone, former Principal Deputy Under Secretary [of Defense] for Policy, will take over that responsibility. It will be moved intact. That means the resource analysis will also be moved. I think you will see a significant change in the role.

When the Secretary was here the first time in 1975, I ran PA&E. Some people didn't know that. It wasn't called PA&E at the time. It was called Planning and Evaluation. He liked what we did for him at that time. We worked directly for him, which is very different than the past PA&Es or the most recent PA&E. He expected a kind of global picture of things rather than evaluating any given little piece of a program. He wanted to know about tactical air. He wanted to know about naval shipbuilding. He wanted to know about strategic forces. He wanted to know about infrastructure. He wanted to know about spare parts purchases across the Department, and things of that nature. We provided him that kind of analysis. He liked it.

I think you're going to see PA&E take on a much more global view of the world. For example, when the POMs [Program Objective Memorandums] come in from the Services, they will not be evaluated POM by POM as was the case last year, where the Army briefed, the Navy briefed, and the Air Force briefed. Nobody pulled them all together to say, "This is what the POMs tell you, Mr. Secretary, about all your pieces of your program." I think that's what you're going to see. The first indication of that's going to come with this POM review when PA&E takes on that role. They have changed over the years; I'll see

whether the talent still exists to make that happen, but over time that's what's going to happen.

Q

We have a lot of mature people in this room. Lots of experience. One of our challenges is to replace the scientists, the engineers, and business expertise that reside in this room and in other parts of the acquisition system. Do you anticipate working closer with your counterpart, Dr. [David] Chu [Under Secretary of Defense for Personnel and Readiness] in some of his personnel initiatives to bring the next generation of talent forward?

A

Absolutely. David is working on an Alternative Personnel System, or APS. Embodied in that system are a lot of good ideas. A lot of them come from our pilot programs that we've had in AT&L. Giving us more flexibility to hire the talent that we need to run this organization across the entire acquisition logistics support system is going to be absolutely essential, because we all know what the problem is—an aging workforce. We've reduced to the point where basically over the years, we've told people, "We don't care about you. You're not of interest because if we can cut 50 percent of you over the past six, seven, or eight years, you're obviously not wanted." I think all that's got to change.

Before I took this job, I was sitting out in the defense industry and running The Aerospace Corporation. In fact, I saw some of the direct results of our faulty approach to acquisition personnel in the sense that we were pushing more and more of the work to the contractor and getting the government more and more out of it. I saw some distinct failures from that policy, like \$5 billion worth of satellites put into the drink because we were getting out of the business of making the government a smart buyer. I think that is a terrible mistake. I think the government has to have the talent to be a smart buyer and have enough of the talent that can see when the contractors are making certain changes that

are not in the interest of the government. I think keeping this talent base is very valuable to the government. In fact, it's probably a cost-saving measure.

The area I was speaking of is the space launch business, where we've launched (lost) five satellites, mainly because of a focus away from mission success and a focus on cost savings because of a misguided notion that the space launch business was mature. It wasn't mature. It never will be mature. There was a time when we had to go back and build all that talent back up to get back into the [space launch] business so that [military space programs] would happen to the better. Guess what? Ever since the old process was put back into place, we've gone through a whole rash of space launches that were completely successful. It's kind of amazing. Old lessons keep coming back and we're re-learning them over and over again. So I think it's very important.

Q

One of the things we do is work a lot with the Comptroller, in particular with the PPBS [Planning, Programming, and Budgeting System] process and their new financial management modernization program. Can you talk a little bit of how we might work better with them on both of those things?

A

Well, I think you have to recognize they have a responsibility for financial management improvement, and the Secretary's given Dov Zakheim [Under Secretary of Defense (Comptroller)] quite a charter to go make that work. As you may recall, when the Secretary was actually going through confirmation, Senator [Robert C.] Byrd beat up on him for not being able to account for \$2.6 trillion. Of course Senator Byrd asked him what he was going to do about that and Dov said, "I may not take the job."

The Secretary has really got Dov working on that. I think that system has to play in with all the other things that we deal with as well. I think a marriage of the financial business improvement systems and all the other electronic resource management systems that we have has

to take place. I don't have any specific things on how we can work better, other than the fact that we have to. Maybe it's a shotgun marriage, but it still has to be carried out. I find that when I sit down with Dov, who is relatively new in the building, and talk to him about things we want to do that seem logical and reasonable, he is always completely agreeable with us. I think he wants to work with AT&L. I think we want to work with him.

Q As you know, with the weapon systems and traditional IT [information technology], the lines of demarcation are getting very fuzzy, and our program managers are out in the field dealing with this. They've got a lot of information technology onboard. We've got the 5000 series and we've been streamlining that within AT&L. Obviously, there is work ongoing on the CIO [Chief Information Officer] side of the house. They've got the 8000 series. Our program managers are now looking at both of these and they're wondering if it's up to them to implement. Could you share your perspective on how AT&L and the CIO side of the house are working to basically harmonize the 5000 and 8000 series?

A I would say we're probably not working very well. I find that in some instances the CIO function may be putting more and more regulations and burdensome things on the acquisition process. I don't know if the 5000 and the 8000 are in fact merged at all.

Q Yes sir, they are.

A OK. But I don't think it's working very well. That's my sense. In our process of trying to streamline it, I hope that we can work with them and try to get their process streamlined as well. As you know, obviously, the cycle times of the

IT area are 18-month cycles. We're on five-year cycles and the cycles don't jive too well. I think the idea of having an open architecture that can accommodate IT types of changes is good. Something else we ought to think about is that we have been working weapon system types of things and the command and control that goes with them. As we look to the future, things are getting a little more muddy and getting more like systems of systems.

A classic example of that is the Army's Future Combat System. We're going to be acquiring not a thing, but a series of

I find that we at AT&L have an enormous portfolio of things going on. I'm overwhelmed by it every day, and I have a sense that we're spending a lot of time on marginal issues. We need to really think through what those marginal issues are.

things. I know we're working on the acquisition system to try to think about how we go about acquiring a system of systems when it's not a given weapon system. We're starting the process and I'm not sure we're completely there yet. But we're going to have to get there because I think that's going to be the theme for the future. All these combat joint things are systems of systems, and we need to start working on that.

Q Sir, as you lead the reengineering of AT&L in response to transformation, what metrics will you use to measure success?

A That is a tough question, and I'm not sure I've got an answer to it. You know, I set out five goals for AT&L to try to say what we want to do, and yes, there are some metrics within the goals. We talk about cycle time and acquisition. Unfortunately, it takes four or five years before you realize whether or not you've accomplished the goal. We talk about customer wait time and logistics; we talk about the health of the industrial base price earnings ratio; and we talk about return on investment. In the goals we have metrics, and I think if we structure ourselves in AT&L—still keeping in mind the five goals—and we feel that we are achieving those goals, then I think I would be convinced that we have reengineered AT&L well.

Now if we can just do it without working quite as many hours and having a little free time to think! The greatest thing that happens to me is [to] have a meeting cancelled. So if you want to be my friend, schedule a meeting and then cancel it. All of a sudden I'm sitting with an hour. Absolutely wonderful—I can go to the in-box; I can think about something I want to do. I know we're working far too long and hard on things that are probably marginal. If we can find some way to get rid of some of these marginal things—I am for it, and that's probably about the best I can answer. Keep working toward the goals. If we achieve them without working harder, all the better. I think we can probably accomplish it.

Q

Sir, most of the programs in OSD are there because they benefit all three Services, and no one Service wants to support them alone. Have you considered a DoD-wide program management agency to manage DoD-wide programs?

A

No. The worst thing in the world is for OSD to manage programs. I don't think we do a very good job of it. I think you have to find somebody who has responsibility, whether it is an executive agent responsibility or something else. We don't have the staff. We don't have the overhead. We don't have the infrastructure to manage big programs well.

I recall back in the days of SDIO [Strategic Defense Initiative Organization] when it was being managed by OSD. In fact, the Secretary of Defense acted like he was the program manager. I don't think it was run very well that way. For senior executives to have line manager responsibilities I think is not the way to go. I think it's a tough problem, especially tough in programs that become joint. If you think about a joint command and control system, we have in the Services Title 10 responsibility for organized training-equippping. Each Service is clearly Service-unique when it comes to training-equippping, and they do a very good job at it.

When it comes to buying something that's joint, there's no one responsible for that organized training-equippping function; therefore, I think it's not done very well. In fact, it's probably not done at all. When we go to war, I know with Desert Storm we had to put together the command and control system to make it work, because it didn't exist before the war. If there was a Title 10 responsibility somewhere, somebody would have that responsibility to get it in place before we actually need it. There's simply no one around that does that. It's going to be very tough to decide how we organize this.

In fact, I had another snowflake from the Secretary of Defense on interoperability and connectivity. This is one of

the "Why don't we do this very well" topics. I think that's the reason. Maybe we have to put together some organization that does that. I don't think it's in OSD, but it might be in the Joint Forces Command. SOCOM [Special Operations Command], for example, has acquisition responsibility for their training-equippping, and maybe we could think about something like that. The solution is not obvious to me at this point in time, but creating a new DoD-wide program management agency in OSD is probably not the right answer.

Q

Sir, a two-part question on the civilian workforce. Do you see the rest of the civilian workforce at the Pentagon moving to pay banding? And then the second part is, how long will AT&L be the only pilot program for pay banding?

A

Well, I think this Alternative Personnel System that David Chu is working on is trying to address this issue. I personally like the pay banding idea. I don't know whether you guys like it or not, but I do. I think it pays for performance. I think that's what we should be doing. I think the logic and reason of that is so good that maybe it will transition to other civilians in the Pentagon. I think it's logical and reasonable and it seems to me to work. So if it does work, maybe it should move on to other agencies. But I think David Chu's idea here is that we want to pay for performance. We want to be able to acquire and retain quality people—and the personnel system should provide for that.

Q

With respect to a future BRAC [Base Realignment and Closure], do you envision potential growth in homeland defense missions that might require retaining some infrastructure margin above what you termed "right basing" for current missions?

A

I don't know, what do you think about that?

Q

You have less to protect.

A

Yes, you have less to protect, but I think in the process of going through the BRAC—which we are just thinking about getting started now because of the huge magnitude of this current problem—that homeland defense has got to be part of the equation that goes in there. Force protection certainly is part of it. I think the process clearly has to take that into account. I'm sure part of the criteria you put into the Base Realignment and Closure for the Secretary's review has to have homeland defense missions as part of the equation.

Q

The Secretary of Defense, in January 2002, put in place new guidelines and procedures for managing missile defense. How do you think that's working?

A

What it means is that the Secretary put into effect the guidelines for working missile defense new ways to streamline the missile defense decision process. How's it working? A little too early to tell I would say. I think what I see is that it's working well from an internal MDA [Missile Defense Agency] point of view. They've clearly got a very strong leader in [Lieutenant General] Ron Kadish [Director, MDA]. Clearly, he knows the direction he's going to take. He's got a good team pulled together, which has all the pieces put together in a technology program, with two umbrella national teams working the architecture and system integration; and one working with battle management command and control. All that seems to be put together in a very good package.

Congress has attacked it and Senator [Carl] Levin kind of beat up all around it. As far as how that's now working relative to the decision process in the building, we've got a missile defense support group working to bring the entities within OSD involved in missile defense together, rather than each one working separately and individually gathering data on the missile defense program. That still probably needs to be worked a little bit, particularly how we protect the rights of the individual OSD offices

relative to missile defense, and assure their access to data.

Making all that happen together is probably still being worked. We'll see how that turns out. It's got to work. We've now got now an organization where the bonds have been removed. Now missile defense can go do anything it wants to. There are no treaty constraints. It can do whatever testing it wants. They can bring in the allies now to be part of their programs if the allies want to participate.

We even talked about doing things like the Joint Strike Fighter and having varying levels of participation in missile defense; or, if they can't spend any money, they can provide a piece of ground to put a radar on, maybe very optimally located. So we've opened up that door; all that's now brewing. Fiscal year 2004, as it goes through this budget process, is going to be the first year that the missile defense program can just do what it wants to do. We can make those decisions that are in the best interest of missile defense rather than in 03. I think it's going to work out pretty well, but is still to be determined.

Q *Do you anticipate a further downsizing of the AT&L workforce or are we finally at a point where we can start to stabilize?*

A We know we have the Congressional directive criteria of a 15 percent reduction. It will not be taken 15 percent "peanut butter spread." That's part of the reengineering process. If we can look at this and see where we are and see we're at the 15 percent target and see what the reengineering's going to do, I would hope that we could stabilize. But we do have the 15 percent directive—a directive that applies to all the OSD offices as a matter of fact. But I think if we can do this job right, we can do it

I personally like the pay banding [AcqDemo] idea. I don't know whether you guys like it or not, but I do ... I think David Chu's idea here is that we want to pay for performance. We want to be able to acquire and retain quality people—and the personnel system should provide for that.

without having to go through all the painful RIFs [reductions in force] and other measures. We can do it by reengineering and moving things around rather than people.

Q *What is your perspective on the AT&L role for homeland defense as we stand up organizations like Northern Command?*

A I think there are different parts to our role. One is the homeland defense associated with more of the domestic side. I mean we still have homeland defense from the point of view of protecting military forces and things of that nature, as well as supporting the new homeland defense agency. I think a lot of our role has to do with weapons of mass destruction, where we have quite a bit of say so in in terms of the expertise that we can provide there.

We certainly know about a lot of the capabilities such as aircraft and AWACS [Airborne Warning and Control System] that we have to support the defense of the United States; and certain kinds of weapon systems and other technologies that might be applicable to homeland defense [and are]—from a civilian point of view—a derivative of our military.

Ron Sega [Director of Defense Research and Engineering] has put together a counter-terrorism technology task force that's working to look for ways that we can use our technology to counter terrorism. I think some of those ideas might be applicable to homeland defense from a civil point of view. I think there's a lot of areas like that around that we aren't directly involved in but [we] are indirectly involved in. For example, we went out with a broad-area announcement last year, with a suspense of December 2001, asking for ideas from individuals, from companies, from universities—ideas on how to counter terrorism. I think we got 13,500 inputs.

Those kinds of things are valuable from a civilian counter-terrorism point of view. I think those are the kind of things we can work on. I think there's a lot of areas that we do that are useful and can be applied. It doesn't have to mean that we send people over. Our input is good. I know several people in the audience participate with the homeland defense, Governor [Tom] Ridge's office now. I've given him advice on things to do.

Thank you very much for coming. Have a good next fiscal year.

Promoting Transformation with Ideas from the Acquisition Workforce

DoD Looking for Initiatives From the People Who Best Know the Acquisition Process

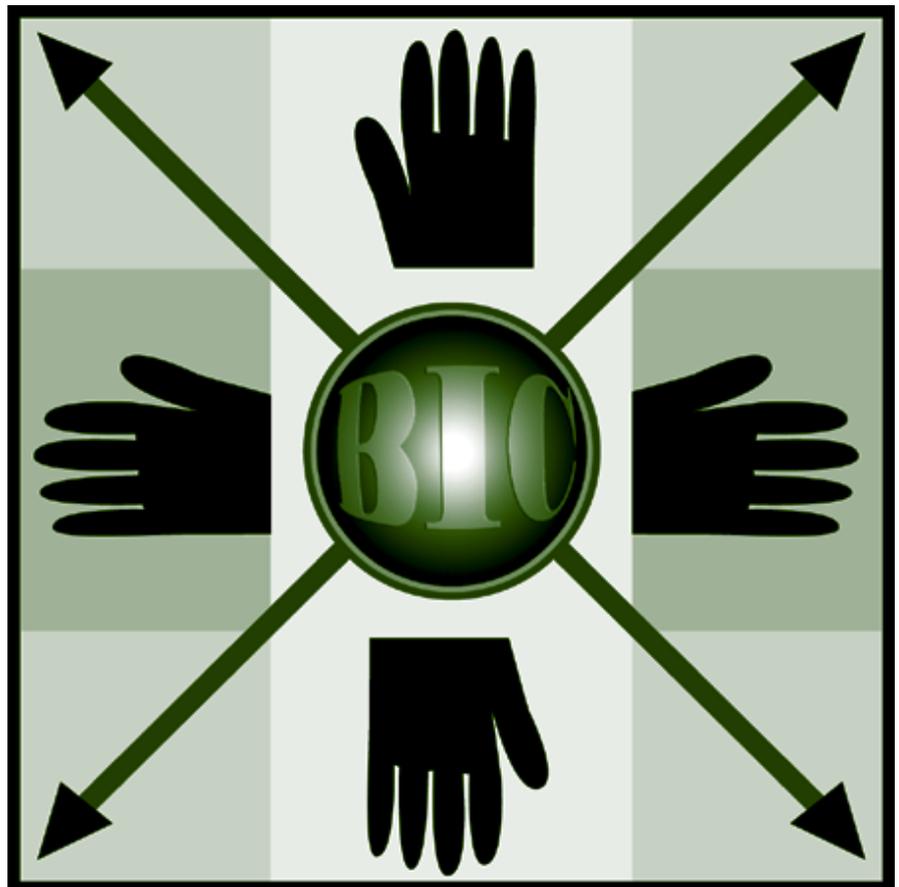
STEVEN J. MANCHESTER

Many in the acquisition community misunderstand the intended meaning of transformation, a word repeated endlessly throughout the Department of Defense over recent months. Some believe it is merely the “flavor-of-the-week” synonymous with acquisition and logistics excellence. Others have jumped solidly on the bandwagon, zealous new converts to the idea of transformation. However, their declarations are suspect because many are not aware of what has already changed within the DoD. Thus, the question arises; how is transformation being applied to the acquisition community? The answer is: *by establishment of the Business Initiative Council (BIC).*

The purpose of this article is to provide a quick snapshot of how the BIC works and to issue a call for new acquisition management initiatives.

Many Advocates

In July of last year Under Secretary of Defense (Acquisition, Technology, and Logistics) Edward C. “Pete” Aldridge Jr., formalized the establishment of the BIC. The mission of the BIC is: “... to improve the efficiency of Department of Defense business operations by identifying and implementing business initiatives that create savings to be reallocated to higher priority efforts (i.e., people, readiness, modernization, and transformation).” When a DoD com-



The major difference between the establishment of the BIC and previous acquisition improvement initiatives is that the BIC has advocates across the entire Department.

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ponent implements an initiative, and thereby generates savings, it will retain both the savings and the ability to reallocate their use.

The major difference between the establishment of the BIC and previous acquisition improvement initiatives is that the BIC has advocates across the entire Department. The Service Secretaries, the DoD Comptroller, the Under Secretary of Defense for Personnel and Readiness, and the Vice Chairman of the Joint Chiefs of Staff all staffed and signed the BIC Charter.

Structure of the BIC

The BIC has five tiers with membership ranging from Process/Functional Boards to the Senior Executive Council headed by the Secretary of Defense. (Figure 1).

The benefit of this structure is that it allows ideas on how to improve the DoD to flow quickly both up and down the tiers. No longer do good ideas have to go through arduous levels of staffing, often being lost in bureaucracy or rejected due to a lack of advocacy. The BIC now affords a platform for acceptance and advocacy of great ideas to go forward to transform the way business is conducted in the Department.

The Flow of Initiatives

Initiatives move into the BIC structure in two ways. They can start at the grass roots level, through submission to one of the seven Process/Functional boards (i.e., Acquisition Management). Alternatively, the top tiers can forward initiatives or ideas—often industry recommendations or practices—to the Process/Functional Boards for review and buy-in. All initiatives eventually start at the Process/Functional Board level because these entities are comprised of empowered representatives from each of the services, OSD, and the Joint Staff. A Service Chair heads each of the Process/Functional Boards. The chair responsibility rotates every six months to a different Service, thus enabling fairness and encouraging new perspectives on the initiatives under consideration.

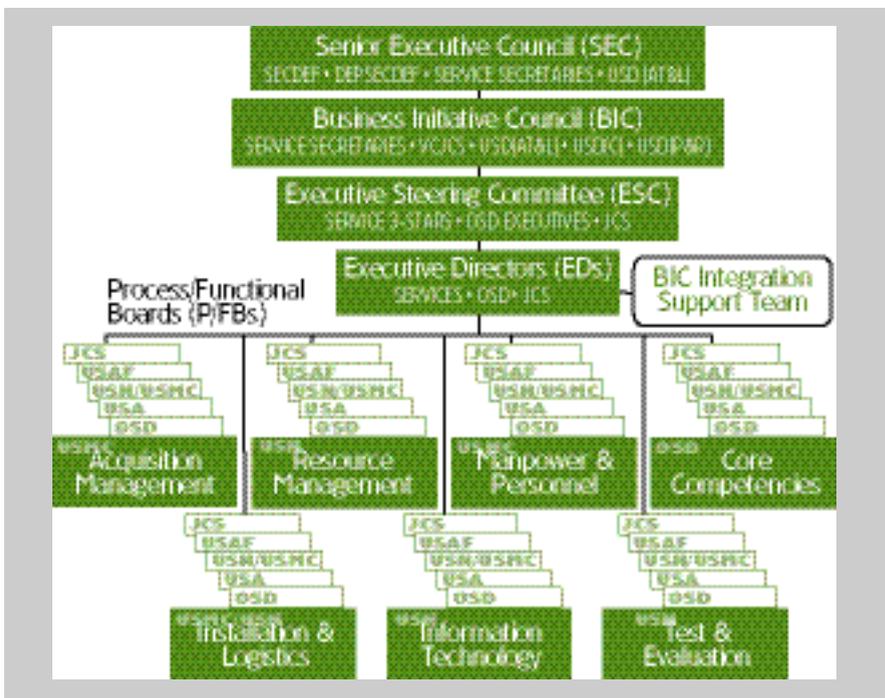
The flow of initiatives is more than simply a good idea going forward. An idea must meet basic criteria before it is forwarded up the respective tiers for final approval. Initiatives come into the Acquisition Management Process/Functional Board (AM PFB) in the form of a proposal. The proposal format is a four-page brief with the following elements:

- Proposal
- Process/Champion (Service/agency)
- History/Current Situation
- Estimate of Investments, Savings, or Benefits
- Metrics
- Pros (+) /Cons (-) /Risks (*)
- Required Policy/Congressional Actions
- Proposed Deployment/Action Approach
- Required BIC Actions

If the Acquisition Management Process/Functional Board accepts a proposal, it is then presented to the Executive Director (ED) for approval. The ED receives the proposal via briefing by the initiative champion and AM PFB chair. Once approved, the ED requests an initial implementation plan. This plan then moves forward to the Executive Steering Committee, and finally to the BIC. After BIC approval, the initiative is promulgated throughout the Department with direction that the champions develop the necessary implementation plans.

Since its inception, the BIC has been moving forward at a high rate of speed. As of Sept. 13, 2002, it has approved 48 initiatives (Figure 2).

FIGURE 1. BIC Senior Executive Council



Call for Initiatives

The BIC is now in its fourth phase. The Department of the Navy Team officially takes over the helm as the lead Service effective Oct. 1, 2002. The U.S. Marine Corps will chair the Acquisition Management Process/Functional Board. The focus for the next six months will be to continue to promulgate new initiatives and continue implementation of acquisition and logistics excellence. At this time, the AM PFB is soliciting new initiatives. As indicated earlier, it is simple to submit initiatives, and each of the Service representatives is responsible for forwarding proposals. Points of contact follow.

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FIGURE 2. **Approved BIC Initiatives**

Enterprise Software Initiative	Raising Below Threshold Reprogramming (BTR) Thresholds
Establish Funding Flexibility Within Funds	Increase Flexibility of Expired Year of a Program
Increase Expense/Investment Threshold	Cell Phone Pooling Minutes
Modified Waiver Procedure for Hiring Military Personnel	Manpower Mix Management Flexibility
Recovery Auditing	Common Flight Clearance Process
Common Range Scheduling Process	Eliminate Excise Tax on DoD Tactical Vehicles
Streamline Clinger-Cohen Implementation	Streamline Contract Closeout Process
Revise Davis-Bacon Act Thresholds	Improve Inter-Service Performance Quality Data Report (PQDR) Business Process
Allow for Contracting of Security Guards	Establish Process for Property Conveyance for Conservation Purposes
Streamline Administrative Coordination Process	Optimize Professional Continuing Education
Modify Joint Professional Military Education (JPME) II Requirements	Establish Operations & Maintenance (O&M) Closeout Flexibility
Streamline the GO/Flag Officer Nomination Process	Cell Phone Subsidy
Streamline IT Equipment Disposal Process	Streamline Independent Technology Readiness Assessments (ITRA)
Elimination of Value Engineering Reporting	Pioneer Projects
Buy to Budget	Simplify Physical Access Control at DoD Installations & Facilities by Using the Common Access Card (CAC)
Eliminate Unnecessary Reports	Embedded Instrumentation
Improve Visibility of Contract Services	Consolidate Defense Agency Overhead Functions
Reengineer Personnel Security Investigation	International Electronic Information Release Policy
Managing for Results	Guaranteed Fixed-Price Remediation
Reengineer Legislative Coordination Process	Cost-Effective Multi-Year Contracting Arrangement &/or Purchase of Military Sealift Command Ships
Working Capital Fund-Business Practices	e-Contract Enterprise Licensing
Provide Adequate Fitness Facilities	One-Time Clearance of Priority Placement Positions for Science and Technology
Web-Based Invoice/Receipt Processing	Commercialize Military-Developed Systems
Commercializing Acquisition: Raise Thresholds for the Truth in Negotiations Act (TINA)	Implement Virtual IT Marketplace

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Chair—Steven Manchester
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People often complain that their great ideas are never heard. For the first time, the BIC offers the acquisition workforce an opportunity to make a difference without confronting the layers of red tape that plagued the past. And the beauty of the BIC is its streamlined nature and straightforward procedures that require little explanation (the Official Charter is only five pages long).

What are you waiting on? Submit your ideas—*today*.

Editor's Note: Manchester welcomes questions or comments about the BIC. Contact him at Manchestersj@mcsc.usmc.mil.

DoD 5000 Series Update

Read the Latest at www.acq.osd.mil/ar/

DoD 5000.2-R Final Regulation
Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs, signed April 5, 2002.

DoDI 5000.2, Change One
Operation of the Defense Acquisition System, April 5, 2002.

DAU Hosts 9/11 First Responder

Challenges and Logistics of Responding to Pentagon Terrorist Attack

SYLWIA GASIOREK-NELSON

The Advanced Program Management Course (APMC), DAU's 14-week premier course offering for Level III certification in the Program Management career field, has now been replaced by the new six-week Program Management Office Course (PMT-352). However, two highly successful legacy programs from APMC are being carried over to the new PMT-352: the Distinguished Guest Lecturer (DGL) program and the Distinguished Visitor (DV) program. The DGL program features speakers who address the entire class, while the DV program features speakers who address individual sections in the classrooms.

As part of the DV program, DAU Professor Wayne Glass invited Thomas Hawkins Jr., Chief of the Alexandria Fire Department (located in Alexandria, Va.), to speak to Section D of the last APMC. Chief Hawkins talked to the students on the logistics of responding to the events of 9/11 at the Pentagon, tying it to the key elements of the APMC Logistics Management curricula taught by Glass. His observations and candid discussion surrounding the horrible events of that day proved to be of immense interest to the students, staff, and faculty who heard him speak on Aug. 12.

Everyday Operations

To provide the students a backdrop on how his department operates (Figure 1), Chief Hawkins began his remarks by describing the everyday operations of the Alexandria Fire Department. Currently, the department employs over 250 professional personnel, which include firefighters, paramedics, code enforce-



Pentagon during the 9/11 terrorist attack.

Photo courtesy of Alexandria Fire Department

ment, and administrative support. Among the department's specialized teams are the Northern Virginia Regional Hazardous Materials Team, Technical Rescue, Water Rescue, and Special Operations with the mission to:

- enhance quality of life through prevention, education, and community involvement;
- deliver responsive and caring emergency services;
- mitigate emergencies and disasters;
- prevent the loss of life and protect property; and
- enforce applicable codes and ordinances.

The department operates on a 24-hour system (from 8 a.m. to 8 a.m.); all the firefighters work a 56-hour week and maintain the same schedule, working the same shifts—which means that people working on the same shift are trained together, work together, and get to know each other better. Each division within the department has a different function. The truck companies do recovery and rescue; the engine companies provide water supply, sweep the fire, do the ladder work, and make sure everybody is fit for duty; and the medical units provide basic life support.

First Responder—Challenges and Primary Objective

After his overview of everyday operation, Hawkins talked about the chal-

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Thomas Hawkins Jr., Fire Chief, Alexandria Fire Department, talking to APMC students about the challenges and logistics of the response to 9/11. Photo by Army Sgt. Fahim Nassar



challenges and logistics of responding to the terrorist attack against the Pentagon, Sept. 11, 2001.

Total Chaos

“From the logistics point of view, [9/11] was a nightmare—all kinds of fire, police, federal, state agencies, military, relief agencies—plus every single congressman and senator coming down to see it.” From a firefighting standpoint, Hawkins said that because it was such an exterior operation, this attack was different and complex. It involved a major aircraft on fire; a five-story, stone type of structure that collapsed, resulting in a major fire; and thousands of gallons of jet fuel burning within the building.

“Moreover,” Hawkins said, “it was a crime scene; it was federal property; it was the nation's command center; it was the second biggest national disaster—the first having taken place only an hour before with the terrorist attacks against the twin towers of the World Trade Center.”

Hawkins emphasized that prior to the attacks the department often talked about and planned for the worst-case scenario, particularly how to integrate public works such as the health de-

partment, police, fire department, and personnel department. “But never did we ever come up with any scenario anywhere close to this in all our years of operation. So needless to say it was *big*, we knew that, and nothing like that had ever been measured,” he said.

According to Hawkins, gaining control was the primary objective. “There was total, total chaos,” he observed. “And I don't care how much you plan or what you do, this was a chaotic situation and from my observation and years of service in the Fire Department, the biggest and most difficult thing to do is to control the

chaos.”

Establishing and maintaining command and control of the response to the Pentagon attack, he acknowledged, was daunting. Thousands of people and hundreds of pieces of firefighting equipment apparatus from more than a dozen different jurisdictions challenged the department's leadership to the utmost. “The actual experience of coordinating

“[The Pentagon] was a crime scene; it was federal property; it was the nation's command center; it was the second biggest national disaster—the first having taken place only an hour before with the terrorist attacks against the twin towers of the World Trade Center.”

FIGURE 1: Alexandria Fire Department Organizational Chart

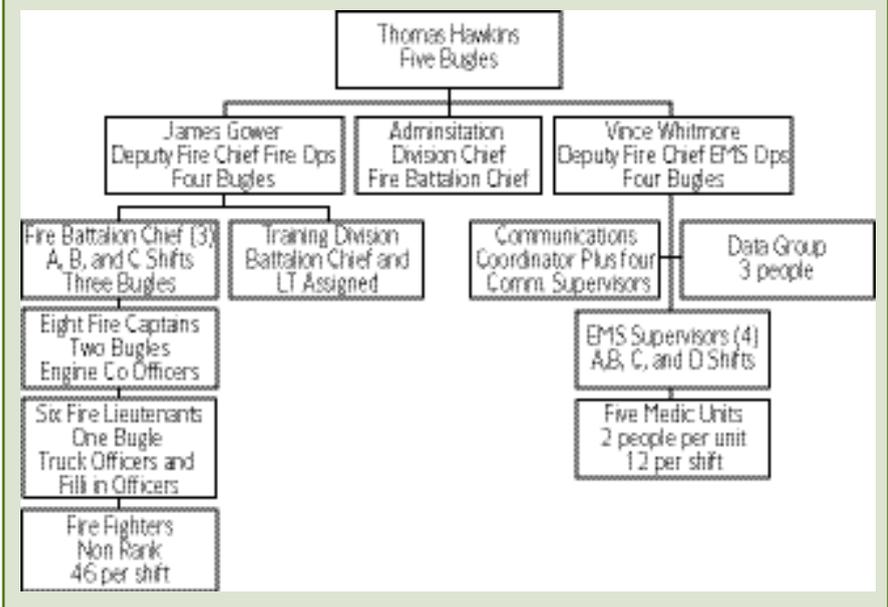


FIGURE 2: Fire Units Responding to the Pentagon Attack

Arlington, Va.
Ft. Meyer, Va.
Ft. Belvoir, Va.
Prince William Co., Va.
Fairfax Co., Va.
Loudon Co., Va.
Alexandria, Va.
Fairfax City, Va.
Montgomery Co., Md.
Prince George's Co., Md.
Frederick Co. Md.
Washington, D.C.
National Airport
Others

the multifaceted response—everyone with a legitimate right to be there—proved significantly more challenging than previously envisioned. It's hard to coordinate things in chaos," he said.

Hawkins emphasized that this kind of incident rescue involves a lot of practice and cooperation, and the Fire Department does not have the capabilities to practice this type of event. "We cannot go out and take our departments to do maneuvers like the military. We cannot go out and shoot for three days and have people camp out for a couple of days—it's just impossible. We just don't have the funding and the time. We do the best we can to get our people trained, and over the years we've been able to improve and get much more cooperation from our federal counterparts," he said.

Saving a National Treasure

Hawkins also stressed that the Pentagon, as a building, was a great challenge itself. The Pentagon is a highly visible and significant symbolic target, a structural fortress, populated by a large and highly disciplined workforce. The massive size of the Pentagon and the complexity of its various rings and floors compounded the challenge of the response force.

"It is true that the fire damage was contained to a relatively small area, but it was a relatively small area in one of the largest business complexes in the world," he said. Hawkins explained that the airliner struck a portion of the Pentagon undergoing renovation, which lowered the number of potential casualties since a portion of the impacted area had not yet been fully repopulated following recently completed upgrades. The sheer violence of the impact reduced chances for survival—those who were able to get out did so in the first few minutes.

The response, Hawkins added, was also challenged by the unique design and the sheer size of the Pentagon; therefore, a complete and accurate size-up of the incident site was not immediately performed. Teams of firefighters assigned suppression work on the Pentagon roof had difficulty finding access points from the fifth floor. Neither building engineers nor detailed structural drawings were available to assist them at that location.

Attacking the fire on the roof, he said, was particularly difficult. The thick wood-plank inner layer burned out of control, protected by a layer of concrete below and a thick slate roof above. The whole process involved a certain degree of guesswork to breach the roof ahead of a fire that could not be seen. "And with 27,000 people pouring out of the Pentagon, all I can tell you [is that] the Pentagon did not have a good evacuation plan, and it's the worst building in the world in which to fight a fire," he observed. "That is a lesson to be learned."

Lack of a Valid Dispatch System

Hawkins reported that another challenge was the lack of a valid dispatch system resulting in an overflow of self-dispatch. (Figure 2 lists the units, that responded to the Pentagon attack.) "There was never a dispatch—literally, people just responded. There was a fire truck from Bethesda, Md.; there were volunteer groups from Frederick, Md.; and many other units. How did they get there? It was the self-dispatch that created a lot of confusion," Hawkins noted. Calling it a lesson learned, Hawkins said

that it is critical that response units from other locations coordinate with the host jurisdiction dispatch center before deploying to an incident site.

Recall System Flawed

Accountability of people going in seemed to be yet another issue—people were just coming and going as they pleased, he said. No one really knew how many other shifts came to the site. In the context of initial response, the recall system appeared to be seriously flawed. Firefighters returned to work in a timely fashion, but mostly on their own initiative and without clear instructions. Moreover, neither recalled personnel nor reserve apparatus was equipped to sustain the simultaneous engagement of multiple-duty shifts.

A lot of firefighters, Hawkins said, called for instruction but never got through. "Communication turned out to be a big challenge," he added. "Emergency traffic jammed the radio channels; in some cases portable radios were not preprogrammed to allow interoperability; in other cases, ambient noise made it hard or impossible to talk; cellular phones were useless during the first hours; the paging system worked, but few firefighters have pagers. So communication at the scene, in the first hours of the attack, was challenging to the extent that foot messengers became the most reliable means of communicating."

Adequacy of Logistical Support

"The success of a large-scale operation is often determined by adequacy of logistical support," Hawkins said. Logistics is a complex business of equipping, supplying, and sustaining the fire and rescue operations, he noted. As far as the firefighters, it includes providing the daily needs of engaged responders (clothing, food, health, rest and recuperation, shelter, and sanitation) as well as maintaining, repairing, replacing, and refueling the equipment. It involves acquisition, shipping, warehousing, inventory control, transportation, and many other functions.

Initially, Hawkins said, logistics support was not readily accessible. The main

concern at the scene of the Pentagon was maintaining and refueling all the firefighting and rescue apparatus arriving onsite and meeting the immediate needs of the firefighters. The refueling operation was enormous—at its peak, more than 500 items needed regular refueling (fire and rescue vehicles, generators, light towers, cooking stoves, heaters, etc.). Obtaining flashlights and batteries turned out to be a big issue. The firefighters relied on rechargeable flashlights with the battery power generally good for about six hours (it takes three hours to recharge them). “This works well under normal conditions,” said Hawkins, “but the Pentagon situation was anything but normal.” Stock levels of critical items, such as air bottles, breathing apparatus, radios, and radio batteries were inadequate.

However, Hawkins said logistics support and directions on feeding requirements, disaster relief, equipment supply, and other supply support were forthcoming from many sources. All the volunteers and organizations that participated in or supported the fire rescue operations needed logistical support. “No one was well prepared logistically for such a long-term operation as unfolded on 9/11. Supplies of emergency equipment, medical supplies, and critical high-demand items were insufficient.”

As the rescue operation developed, he continued, local retailers, building suppliers, and companies specializing in firefighting equipment showed up offering help, and other jurisdictions as well as volunteer and rescue organizations were able to fill the needs. “It was teamwork—organizing, staffing up, and managing long-haul logistics functions,” Hawkins emphasized.

Mitigators

Hawkins told the students that several factors conspired favorably to support the firefighters. First of all, the weather was clear and dry and, for the most part, remained so throughout the next 10 days. Rain and heavy winds would have severely complicated the circumstances.

Second, the Incident Command was established onsite within minutes of the attack, and its authority was never challenged. Additionally, because of an unrelated emergency 9-1-1 call—just one minute before the terrorist attack—significant numbers of units were already on the road near the Pentagon at the time of the attack.

Also, the fact that so many units from different divisions self-dispatched immediately to the scene enabled fire suppression to commence without hesitation. The rapid response also enabled the early provision of triage and treatment services for victims emerging from the Pentagon. “Also what helped was the fact that the firemen were working together on the same shifts,” Hawkins noted. “The training, discipline, and character of the military personnel working in the Pentagon also proved invaluable in many ways,” he emphasized.

Despite all the difficulties, the initial response to the Pentagon attack achieved a measure of success. All surviving seriously injured building occupants were rescued and hundreds of additional potential victims escaped safely. Fire suppression in the first 12 hours contained the damage without interrupting the critical worldwide military command and control activities of DoD during a major national security emergency. Despite the magnitude, complexity, and duration of operations, there were no fatalities or serious injuries among the fire and rescue personnel. This can be attributed, in large part, Hawkins said, to the skill level of the rescue personnel in core competencies, professionalism, training, and teamwork.

Important lessons were learned, he said, to better prepare for future events of similar scope.

Preparedness

Concluding his discussion on the Pentagon fire and rescue effort, Hawkins emphasized the following as areas for future improvement:

- Better coordination and adherence to current procedures

“Establishing and maintaining command and control of the response to the Pentagon attack was daunting. Thousands of people and hundreds of pieces of firefighting equipment apparatus from more than a dozen different jurisdictions challenged the department’s leadership to the utmost.”

- More training in the area of Chemical/Bio events
- Logistics support
- Resource allocation
- More coordination of on-scene command (Divisions/Groups)
- More training for technical rescue teams
- More training for hazardous materials teams
- Regional dispatch center.

“Many did an incredible job—many risked their lives; and many will never be the same,” he concluded.

DAU Hosts Fourth DoD Chancellor's Conference

Learning, Leading, Leveraging

CHRISTINA CAVOLI

The fourth Department of Defense (DoD) Conference on Civilian Education and Professional Development was held Aug. 6-7, 2002, co-hosted by the Office of the Chancellor for Education and Professional Development and the Defense Acquisition University (DAU) at Fort Belvoir, Va.

Three Learning Tracks

The theme of this year's conference was "L3—Learning, Leading, and Leveraging," which focused on the need to reinforce the skills of the DoD civilian workforce through continuous improvement in these three aspects of educational institutions, professional development programs, and courses of instruction. In keeping with the conference theme, this year's participants could choose a variety of conference sessions from three concurrent informational groupings:

- **Learning:** To build the DoD educational community to develop a quality workforce.
- **Leading:** To enhance DoD civilian leadership to maximize workforce performance.
- **Leveraging:** To exploit education, training, and professional development to transform the DoD civilian workforce to meet emerging requirements.

Participants were invited from all DoD post-secondary educational institu-

tions and professional development programs for DoD civilians. Professional Military Education (PME) institutions, other DoD components, and colleagues from higher education institutions and business/industry were

John L. "Jack" Schrader, Director of Staffing and Compensation, Office of the Deputy Assistant Secretary of Defense (Civilian Personnel Policy).



Keynote speaker Gail H. McGinn, Principal Deputy Assistant Secretary of Defense (Force Management Policy), Office of the Under Secretary of Defense (Personnel and Readiness). "Human Resources are one of the hottest topics in the DoD," said McGinn. "It may have been considered of secondary importance in the past, but now everyone wants to fix the problem."



Cavoli is a freelance writer for Program Manager Magazine. She also publishes OSD's online newsletter, AI Today.

also invited to attend. Over 400 professionals registered for the conference.

Organizing the conference into three concurrent informational groupings—Learning, Leading, and Leveraging—allowed participants to focus on the areas most relevant to their needs. The plenary and track sessions for each of these areas included speakers from government, business, industry, and higher education. Additionally, this year's conference heeded the call from previous years' participants to increase the opportunities for interactive events such as workshops, panels, and role-playing exercises.

Participants in the learning track could attend such interactive seminars as "Designing Instruction for Higher Levels of Learning" and "The Art of Teaching Online." Leading track seminars included "Managing Information Technology" and "Strategic Leadership in Education." For those interested in the leveraging aspects of education and training, seminars such as "Institutional Research Strategies" and "Institutional Measurement Workshops" were offered.

Keynote Address

The keynote address, "Vision and Need for Transforming the DoD Civilian Workforce," was presented by Gail H.

McGinn, Principal Deputy Assistant Secretary of Defense (Force Management Policy), Office of the Under Secretary of Defense for Personnel and Readiness. McGinn ex-

plained how training and development are helping to address DoD's human resources crisis. She also discussed the role of education, training, and professional development in deploying the *DoD Civilian Human Resources Strategic Plan for 2002-2008*.

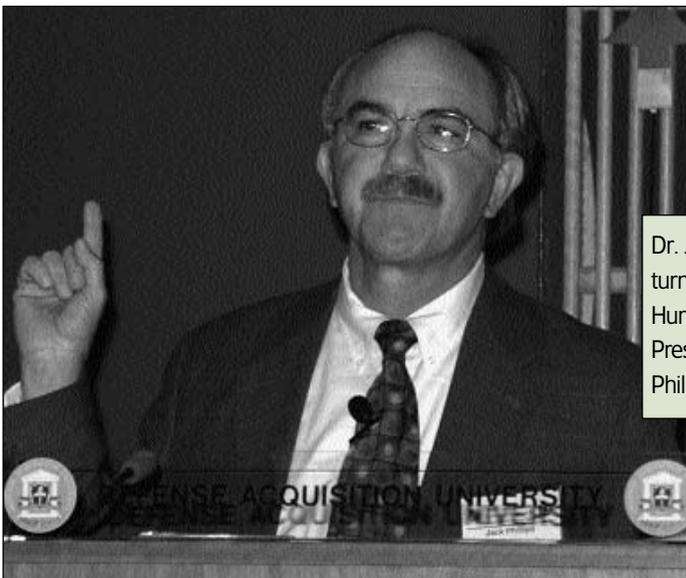
plian workforce. "Human Resources are one of the hottest topics in the DoD," said McGinn. "It may have been considered of secondary importance in the past," she noted, "but now, everyone wants to fix the problem." McGinn cited both the Quadrennial Defense Review and the President's Management Agenda as calling for skilled, motivated people to create a solid foundation for the DoD, and pointed out that improving the skills of both military and civilian workforces was considered a priority. The concept of "civilian training" is likely to become a specific issue, included as a line item in budgets and subject to review procedures.

The strategic management of human capital must consider the problematic effects created by the downsizing of the Department a decade ago, which include an aging workforce, increased layers of hierarchy that are too top heavy, and an imbalance of necessary skills. Additionally, many outdated policies still exist that were created to address a workforce that existed 50 years ago.

As an example of how the playing field has changed, McGinn noted that in the '50s, 70 percent of the DoD civilian workforce were at the pay grade GS-7 or lower, while today only 30 percent fall into that category.

Between 1989 and May 2001, the total strength of the DoD civilian workforce has fallen 36 percent—376,000 people. There has been a significant shift from clerical and blue collar to professional and technical job titles. The workforce has become more highly educated, but also older; nearly a third of all employees are over 51.

There are no easy solutions to tackling these issues. Challenges include the massive size of the DoD civilian workforce—over 800,000 employees worldwide—that makes it a difficult group to manage. The workforce is complex and decentralized, comprised of hundreds of different jobs and job skills. Such a large and complex workforce has created its own complicated bureaucracy,



Dr. Jack Phillips, an expert on Return on Investment (ROI) in Human Resource Initiatives and President and CEO of The Jack Phillips Center for Research.



DAU President Frank Anderson Jr.; McGinn; and Dr. Jerome Smith, DoD Chancellor for Education and Professional Development.

DOD CIVILIAN PROFESSIONAL DEVELOP

Fourth Annual Confer



Tory Failmezger, Global Initiatives, Inc., "Return on Investment Strategies."



Dr. Susan M. Gates, RAND, "Strategic Governance."



John Horn, DAU-DSMC, "Leadership 'Through the Experience of Others.'"



Lawrence M. Conley, Conley Consulting Group, "Corporate Workforce Investment."



Professor James Fredricks Volkwein, Pennsylvania State University, "Research/Decision Making."



Dr. James Belanich, Army Research Institute, "Identifying/Authenticating Online Learners."



Craig Runde, Chief Knowledge Officer of Learning Objects Network, Inc., "Developing Learning Objects."



Dr. James McMichael, Director, Acquisition Education, Training, and Career Development.



Patricia Phillips, Chairman and CEO of The Chelsea Group.

EDUCATION AND DEVELOPMENT CONFERENCE

ence, Aug. 6-7, 2002



Dr. John Ittelson, California State University at Monterey, "The READY Tool Decision Engine."



Dave Broadhurst, Director, National Geospatial Intelligence College, "Leadership in Transforming an Institution."



Dr. Karen W. Bauer, University of Delaware, "Institutional Research Strategies."



Dr. Kimberly Kelley, Center of Intellectual Property at the University of Maryland University College, "Copyright and Fair Use."



Dr. David Kaiser, Naval War College, "The 4th Turning: Reasoning from History."



Sabrina Christian, DAU, "Art of Teaching Online."



Dr. Steve Allen, Allen Academy of e-Learning.



John Roth, Deputy Comptroller for Program and Budget, DoD, "Surviving a Combined Program/Budget /Review."



Dr. Donald MacCuish, Air Command and Staff College, "Approaches to Instructional Development."

DOD CIVILIAN EDUCATION AND PROFESSIONAL DEVELOPMENT CONFERENCE

Patricia Israel, DAU, and Dr. Jerome Smith, DoD Chancellor for Education and Professional Development.



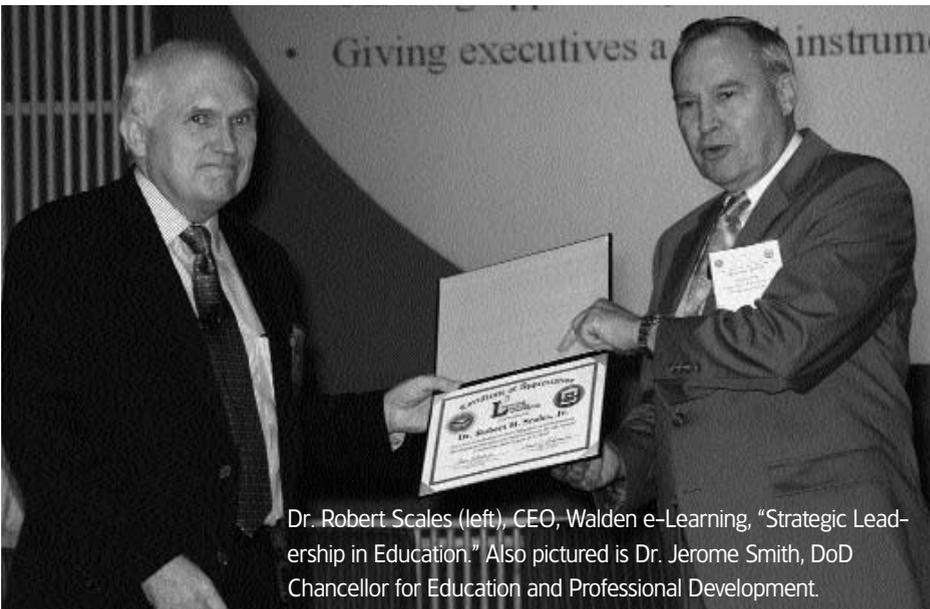
Dr. Stephen Zaccaro, George Mason University, "Distributed Authority: Lessons for the Classroom."



Dr. Carol A. Codori, Defense Finance and Accounting Service.



Dr. John R. Dill, Office of the DoD Chancellor for Education and Professional Development.



Dr. Robert Scales (left), CEO, Walden e-Learning, "Strategic Leadership in Education." Also pictured is Dr. Jerome Smith, DoD Chancellor for Education and Professional Development.



Dr. Robert Gest III, Deputy Director, Federal Executive Institute.

Brown Bag Forum on Education Opportunities through DAU Strategic Partnerships

A Strategic Partnership Panel and Brown Bag Forum on Education opportunities was held during the DoD Chancellor's Conference on Aug. 7, 2002, in Essayons Auditorium at the Defense Acquisition University (DAU) main campus, Fort Belvoir, Va.

The forum, chaired by Wayne Glass, Professor and Director for Strategic Partnerships at DAU, offered colleges and universities a chance to discuss how the Defense Systems Management College (DSMC) and DAU graduates may leverage DSMC and DAU courses toward degrees and certificates.

The partnerships that DAU creates with other academic institutions, corporate universities, and industry provide synergy and leverage capabilities that, with little or no capital investment, greatly increase the value of DAU courses. Other benefits of such partnerships include:

- motivating the acquisition workforce toward pursuit of more continuous learning activities;
- increasing the skills, knowledge, and abilities of the acquisition workforce;
- stimulating recognition of achievements by acquisition workforce members via commercial and academic certifications and degrees;
- leveraging creation of continuous learning opportunities by other institutions; and
- enabling more opportunities for members of the DoD AT&L workforce to earn

Wayne Glass, Professor and Director for Strategic Partnerships at DAU.



Continuous Education Units (CEU)—now required by acquisition policy.

For all these reasons, DAU has developed partnerships with institutions such as the University of Virginia, Johns Hopkins University, George Washington University, the Florida Institute of Technology, George Mason University, the University of Maryland, the University of Phoenix, American Graduate University, Mary Washington College, Catholic University of America, the University of Alabama at Huntsville, UCLA, Stevens Institute, Wilberforce College, Howard University, and the University of California at Irvine. Many new partnerships are currently being pursued at all of the DAU regional locations.

Ric Sylvester, Deputy Director, Office of Acquisition Initiatives, offered a view of how strategic partnerships tie in with the Under Secretary of Defense (Acquisition, Technology and Logistics) E.C. "Pete" Aldridge's goals for the DoD AT&L workforce. Creating a partnership with both academic and institutional entities allows the Department to accrue benefits for the workforce in a variety of ways: degrees and certifications that help careers, an opportunity to exchange insights and best practices with practitioners in the field, and extended opportunities for meaningful continuous learning.

Glass added to this perspective how strategic partnerships have helped DAU transform its learning environment to meet the needs of the workforce and provide increased training to a larger audience without increasing the training budget.

As one of Aldridge's fast-track initiatives, strategic partnerships are "green"—meaning the program is on-track and on schedule. The goal for the current fiscal year was to have 10 academic strategic partnerships firmly in place; as of July 2002, DAU has finalized 27 such partnerships, and there are almost 20 more in the pipeline.

Dr. Toni Ungaretti, Johns Hopkins University Professor and President of the Washington Area Corporate University Consortium (WACUC), spoke on how strategic partnerships can best fit into the corporate university environment. To create a successful partnership, Dr. Ungaretti empha-



Dr. Toni Ungaretti, Johns Hopkins University Professor and President of the Washington Area Corporate University Consortium (WACUC).

sized a need for collaboration on both sides from the inception of any program. While past partnerships have attained some success with cooperative efforts—offering classes at convenient times, attempting to meet corporate needs—meaningful strategic partnerships require that both institutions find a common area of interest and seek to address a common vision as a team. This type of partnership will create a process that is mission-centered, outcome-based, and change-oriented and accrue the benefits sought by the Department.

The panel also included several representatives from academic institutions, including Kim Scott from George Washington University/ESI International, the first academic partnership DAU formed; Dr. Joe Ferrara, Director of the Executive Masters Program for Georgetown University, a partnership that just began in August of 2002 and represents the first foray for Georgetown University into the arena of professional development and mid-career education; and Vince Grell, Associate Dean of Enrollment for the University of Phoenix, an academic partnership that offers over 100 campuses nationwide and many exclusively online programs.

When the panel concluded presentations, several schools were available to speak directly with students about what their programs had to offer.

How Can You Unclench a Fist?

According to Elliott Masie, internationally known futurist, author, consultant, and editor of *TechLearn Trends* Internet Newsletter, educators and professional developers must recognize that most people learn through formal and informal methods. A great deal of learning, Masie says, comes from informal methods such as interaction with peers and mentors, observation, or trial and error. Formal education has to be carefully and thoughtfully delivered to provide a meaningful training experience to the student.



To illustrate, Masie asked his audience at the 2002 DoD Chancellor's Conference to divide into pairs and have one individual from each pair make a fist. Then he asked the other person to try and open the fist in 20 seconds or less. After the time expired, Masie asked how many had been successful, and how they had succeeded. "Did anyone get the fist open by tickling the other person?" he asked. No one had tried

that method. "Did anyone offer a bribe to the other person?" he queried, holding up a dollar bill. No one admitted to that strategy. "OK—did anyone just ask the other person to open their fist?" he asked the crowd. Again, no one raised their hands.

"Are you saying," he asked incredulously, "that in a room full of education and development professionals, every single one of you went about this task in the most difficult manner—direct physical confrontation?" The exercise, he explained, showed how training could be ineffective and hinder rather than help the student leverage the learning in a meaningful way. By the way the scenario was set up, and by the language used by the speaker ("Try and open the fist! You only have 20 seconds! On your mark, get set, go!"), listeners were not set up to think or explore strategies but to fulfill the artificial classroom "goal" as quickly as possible.

such as 57 different pay plans. Congressional fixes will be necessary to create programs that address the needs of the entire workforce and simplify management. Finally, any solutions to the human capital crisis must also achieve the goals of the DoD Transformation.

Several strategies are in the works to draw new talent into the DoD civilian workforce. DoD is being marketed as the premier employer in the Federal Government, and recruiting strategies are being employed to target all levels, from interns to upper-level management. A "Recruit on Campus" program is being developed to send emissaries to college campuses to illustrate the opportunities DoD can offer.

To retain workforce members, the DoD is employing several tools, including: paying for college degrees, paying for professional credentials, college loan repayment, recruiting and relocation bonuses, and elimination of dual compensation restrictions. As an example of the final category, since Sept. 11, 2001, retirees can return to work without losing their retirement pay.

A *Washington Post* article in July of 2002 stated that college graduates don't want to work for the government. Such jobs

were perceived as boring, inflexible, and old-fashioned; yet, after Sept. 11, there has been a surge of interest in government service. A Brookings Institute survey of federal workers since Sept. 11 showed that while most report their jobs are more demanding now, they believe their work to be more rewarding.

Studies have shown the importance of training to workforce morale. Employees report that training opportunities are their key to understanding that they are valued and worth the organization's investment. It is in this area that McGinn issued her call for action to conference participants. She urged listeners to establish and improve institutional academic excellence, especially in the arena of accreditation. Predicting that "evaluation in the budget process may soon be based on training," McGinn encouraged educators in the audience to find ways to measure their own performance as an important part of the ongoing dialogue about attracting and retaining a quality DoD civilian workforce.

The Future of e-Learning

Elliott Masie, internationally known futurist, author, consultant, and editor of *TechLearn Trends* Internet Newsletter, delivered a plenary address on "The Future of e-Learning." Masie, who heads

the MASIE Center, a think tank focused on how organizations can absorb technology and create continuous learning and knowledge within the workforce, addressed how people and organizations leverage technology as a tool for learning, knowledge, and performance. Attention was also given to how people can change their approaches and attitudes toward technology.

"Don't begin by throwing out old wisdom," cautioned Masie. As an example, he mentioned printed pamphlets from the '40s—still relevant—about how to train inexperienced women to work at airplane factories. "We already know a lot about how to train and educate," he said. "Our desire now is to create a deeply compelling experience that is memorable for the individual, but that is going to build on existing learning."

The playing field for a learning environment, he notes, has changed. Educators planning curricula can no longer take for granted a traditional classroom environment. The capabilities of e-learning via computer and communications innovations have opened many doors but also create new challenges for administrators; for example, a recent survey showed that during a training video teleconference, 73 percent of learners

eat or drink during the conference, and 54 percent work on another task—email, instant messaging, etc.—simultaneously. Training must be created that capitalizes on technological advances but also recognizes the new realities that accompany it.

Technology also provides scenarios that were previously impossible. Masie recalled talking to a servicemember about his pilot training; the pilot said that the critical element of his training was the “ability to fail.” The simulated flying experiences allowed the pilot to practice to the point of failure so realistically, that in the real world he could pull back and fly with much greater confidence. The new models of education, Masie stated, will indeed build on existing knowledge but also support performance and training in a way that was never before possible.

Masie concluded his presentation by asking participants how they had learned their current job. Most stated that a combination of contact with management and peers and formal training had prepared them for their current work. The speaker urged the audience to keep in mind that if the goal is learning, it must be leveraged.

Feedback to Prove Successful Training Initiatives

Another plenary address providing a framework for yielding concrete measures of training success was delivered by Dr. Jack Phillips, an expert on Return on Investment (ROI) in Human Resource Initiatives and President and CEO of The Jack Phillips Center for Research, an independent, leading provider of measurement and evaluation services to the global business community. This presentation addressed how the ROI process is being utilized in the public sector to provide eval-

DoD Chancellor for Education and Professional Development

Office of the DoD Chancellor for Education and Professional Development

This is the fourth conference on professional development presented by the DoD Chancellor's Office. In October 1998, DoD established the Office of the Chancellor for Education and Professional Development with the mission to serve as the principal advocate for the academic quality and cost-effectiveness of all institutions, programs, and courses of instruction that serve DoD civilian workers.

The Chancellor's Office was created in recognition of the emerging need to focus on professional development and training among the civilian workforce. With a civilian workforce of about 800,000, the DoD is one of the largest employers of civilians in the nation. In an era of streamlining, demographic change, low unemployment, and rapid technological change, the areas of education, training, and development play a critical role in maintaining and improving the quality of the DoD workforce and the defense infrastructure.

Improving training and educational opportunities directly addresses one of Under Secretary of Defense for Acquisition, Technology and Logistics (USD[AT&L]) E.C. “Pete” Aldridge’s five goals: to improve the quality and morale of the acquisition, technology and logistics workforce, while addressing the large number of upcoming workforce retirements.

Dr. Jerome F. “Jerry” Smith has been the Chancellor for Education and Professional Development since the inception of the office in 1998.

Dr. Smith has been devoted to raising the quality of civilian education and professional development to world-class standards, fulfilling his mandate to ensure that the educational policies and requirements set by the functional areas are implemented at the highest possible level of quality, effectiveness, and efficiency.

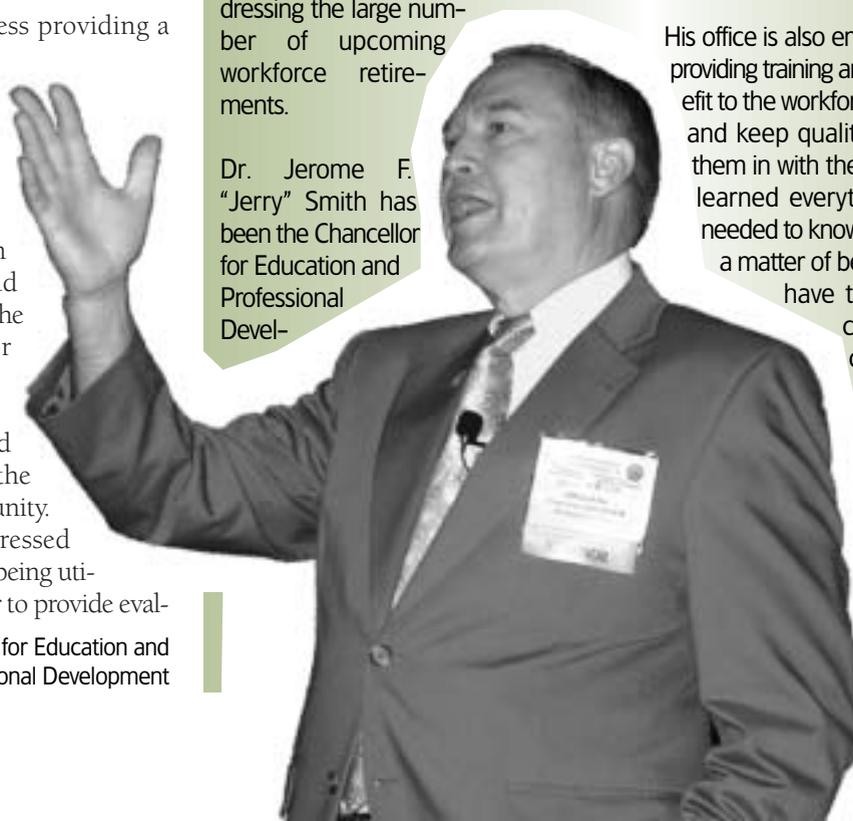
The position of Chancellor was established as a result of the November 1997 Defense Reform Initiative (DRI) report, which made specific recommendations for reducing DoD infrastructure and improving efficiency by adopting effective practices used in corporate businesses.

Upon accepting the position as Chancellor, Smith noted that military members and military dependents are very well educated by the Department, but civilian workforce education was not always equivalent. “My task,” stated Smith, “will be to ensure that the curricula, faculty, and academic operations of institutions meet quality standards to ensure that our civilian employees obtain the competencies they need.” Since then, Smith’s office has focused on ensuring that every DoD training institution is accredited or actively pursuing accreditation.

His office is also emphasizing the idea of providing training and education as a benefit to the workforce: “We cannot attract and keep quality people if we bring them in with the belief that they have learned everything they have ever needed to know, and from then on it’s a matter of being a practitioner. We have to engage in what is called continuing education.”

His approach to DoD civilian learning was and continues to be summed up in three words: “Never stop learning.”

—Dr. Jerome F. Smith



uation data, and took the audience through a step-by-step process of ROI, ending with some of the implementation issues facing public sector and non-profit groups.

Ten years ago, said Phillips, there was no pressure to show ROI on training investments, but as training and developing the DoD workforce becomes an increasingly hot issue, accountability becomes a concern. In other areas, the idea of ROI is often more tangible—shareholder value, profitability, bottom line contribution—but when applied to a non-traditional area such as education and training, it may seem more difficult to pull out the concrete contributions. Phillips offered a formal, balanced model to account for the impact of training and show its contribution.

An increased emphasis on measurement and evaluation is being driven by several factors, such as unclear training and development results, increasing training and development costs, and high-profile programs that create a need for proven results. Feedback from an ROI program can be very influential with decision makers who impact government programs.

The process proscribed by Phillips suggests that any measurement can be converted to a monetary value, be it as increased profit or in cost savings, as long as credibility is established. To that end, the ROI model carefully identifies and separates all intangible measures such as increased job satisfaction, improved teamwork, and reduced stress; and isolates any contributing outside influences

so that only the training impact alone is evaluated and measured. In non-revenue situations, Phillips reports, 85 percent of ROI studies show that there is a measurable return for every training dollar spent through output, quality, and cost savings.

As focus continues to increase on the training and professional development of the DoD civilian workforce, Phillips predicts a commensurate increase in the desire to measure and evaluate the success and profitability of these programs. ROI is a method of collecting and providing such feedback.

Editor's Note: More information about the DoD Chancellor's Office and programs is available at <http://www.chancellor.osd.mil>.

U.S. Army Activates Army Contracting Agency

Army Secretary Thomas E. White officially activated the Army Contracting Agency (ACA) today in a ceremony at the Pentagon.

The Agency, which has been provisional since May, centralizes much of the Army's installation contracting activities under a single headquarters, and is a part of the Army's overall effort to streamline its business and administrative processes.

According to its establishing document, the ACA will reshape Army contracting in order to eliminate redundancies, reduce management overhead and realign personnel to maximize efficiencies, improve quality of contracts, and ensure a small business emphasis.

The Agency will consist of two subordinate U.S. regions, five overseas contracting elements, an Information Technology and Electronic Commerce Commercial Contracting Center (ITEC4), and a headquarters located in Falls Church, Va. Contracting positions in the Army's major commands are being realigned under the ACA. No reductions in force or compulsory moves are planned.

A key benefit of the ACA is its ability to centralize large buys (over \$500,000), that are common Army wide, to save money and avoid duplication. For example, the ITEC4 will give the Army an enterprise-wide buying capability for common use information technology items and will provide consolidated customer support for IT.

As the ACA consolidates contracts to achieve savings, it will continue to provide maximum opportunities for small businesses to win Army contracts. The ACA implementation plan establishes a new Associate Director for Small and Disadvantaged Business Utilization and strengthens the network of small business specialists located at each level within the ACA.

The ACA concept plan maintains a chief of contracting at the installation level who serves as the principal business advisor to the garrison commander and the "single face" to installation customers for contracting support.

Full implementation of the ACA is scheduled to be complete by fiscal year 2006.

Editor's Note: This information is in the public domain at <http://www.dtic.mil/armylink/news>.

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Assessing the Transition-to-Production Risk

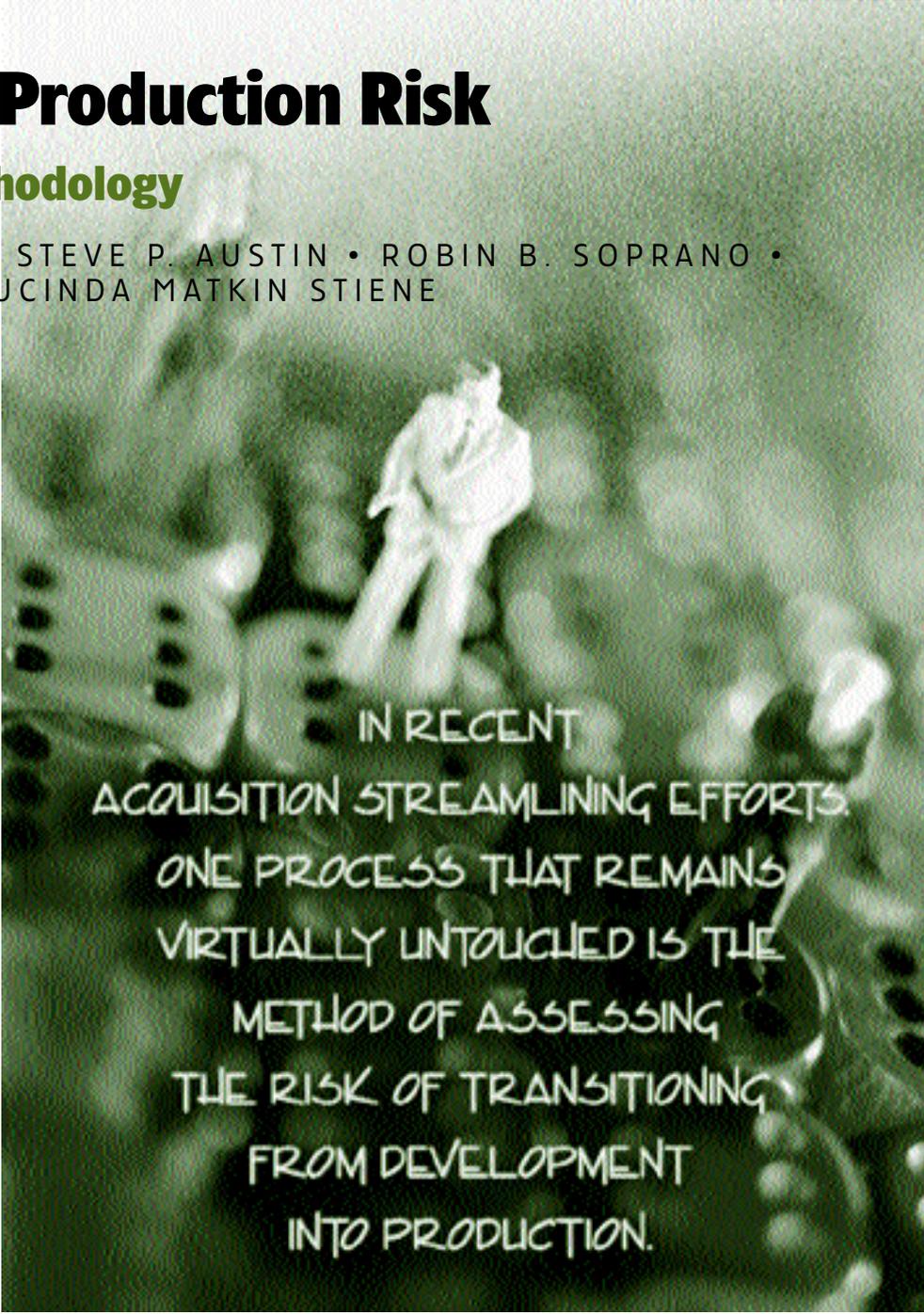
A New Methodology

TAMARA J. ADAMS • STEVE P. AUSTIN • ROBIN B. SOPRANO • LUCINDA MATKIN STIENE

In recent acquisition streamlining efforts, one process that remains virtually untouched is the method of assessing the risk of transitioning from development into production. Traditionally, a formal Production Readiness Review (PRR) is conducted in support of program production decision milestones such as Low Rate Initial Production or Full Rate Production. The PRR team is composed of “independent” subject matter experts covering the gamut of functional areas such as hardware/software design, test, logistics, producibility and production planning, safety, and quality assurance. This team generally spends two to three days in each prime and major subcontractor facility evaluating evidence of accomplishments, proper planning, and program stability. Areas of risk are documented and summarized in a PRR report.

A Better Way

In the fall of 1997, a team of engineers from the Production Engineering Division of the Research, Development and Engineering Center (RDEC) at the U.S. Army Aviation and Missile Command (AMCOM) in Huntsville, Ala., set out to streamline this process to better suit



IN RECENT ACQUISITION STREAMLINING EFFORTS, ONE PROCESS THAT REMAINS VIRTUALLY UNTOUCHED IS THE METHOD OF ASSESSING THE RISK OF TRANSITIONING FROM DEVELOPMENT INTO PRODUCTION.

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Stiene is a general engineer in the Production Engineering Division, Engineering Directorate, AMCOM. She holds a B.S.I.E. from the University of Alabama and is Level III-certified in Systems Planning, Research, Development and Engineering. She currently supports the Ground-Based Midcourse Defense Ground-Based Interceptor (GMD GBI) Project Office in Huntsville.

the programs they supported. To fulfill the requirement of assuring the decision maker that the risk of transitioning from Development into Production was acceptable, the team identified two programs to use the flagship methodology: Unmanned Ground Vehicle (UGV) and Enhanced Fiber Optic Guided Missile (EFOG-M). The National Missile Defense Ground-Based Interceptor program applied the methodology approximately a year later.

The Traditional Process

The traditional process was costly, both in terms of time and funding. While the ideal evaluation team would be completely independent, it was necessary for the team to have a general understanding of the program. Therefore, PRR team members were usually personnel providing functional support to, and being reimbursed from, the program under evaluation; they were not actually employees of the project/program office. However, in recent years, project office personnel have participated in the review in ever-increasing numbers. Depending on program size and complexity, the cost of conducting this formal examination of a program in the traditional manner might cost several hundred thousand dollars and could take several weeks or months to complete. The culmination of the process was a report that provided a one-time snapshot of the program in support of a milestone decision.

Using the traditional process is inconsistent with the dynamic Integrated Product Team (IPT) approach, where risk assessment and mitigation must be a continuous, real-time activity. In addition, programs are struggling for both government and contractor personnel as well as funding resources. Given the current environment, the need to revisit the way we conduct Production Risk Assessments (PRAs) is obvious. The review or assessment must be conducted in a more “seamless” fashion and provide a results- or performance-oriented view of program production readiness. The concept of using program personnel for the assessment goes hand-in-hand with the integrated relationships

of the IPT environment, provides a means to save time and money, and helps to provide insightful, timely information.

The traditional process was also very subjective. Typically, the subject matter expert formulated lists of relevant questions in advance for consistency at each facility. However, there was no concrete definition of what the expected outcome should be or what was required for success. The outcome of the review was very much dependent on the personnel selected for the team.

Formal PRR reports are no longer required as mandatory documentation to support a Milestone III decision. The current guidance in DoD 5000.2-R simply states, “Full Rate Production of a sys-

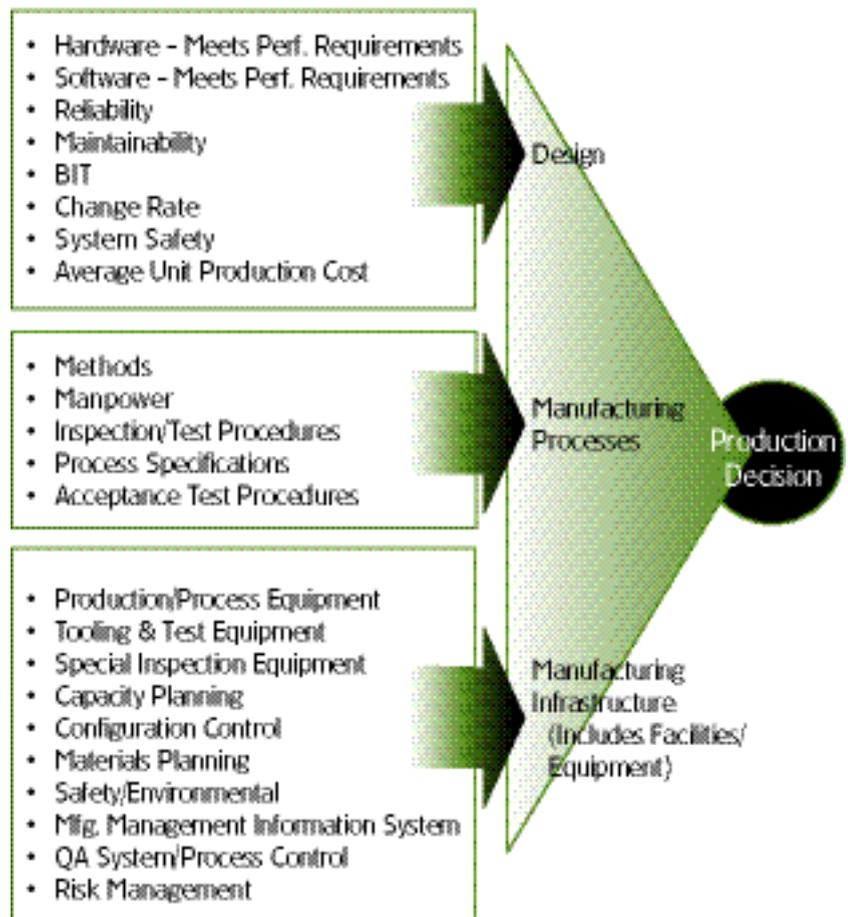
tem shall not be approved until the system’s design has been stabilized, the manufacturing processes are proven, and the production facilities and equipment are in place (or are being put in place).”

Improving the Process?

It seemed that the process could be improved by changing the PRR team structure or make-up and by developing concrete criteria to reduce the subjectivity of the assessment. The team decided to re-think the entire process and to determine what was truly important in determining production transition risk.

Using program personnel, via IPTs or existing functional structures, an iterative and organized PRA should be com-

FIGURE 1. Production Decision Criteria



Full Rate Production of a system shall not be approved until the system’s design has been stabilized, the manufacturing processes have been proven, and the production facilities and equipment are in place (or are being put in place)”. DoD5000.2-R

pleted to streamline the process of assessing the risk involved in transitioning from development into production. In keeping with the DoD 5000-series guidance, three logical areas to be evaluated are Design, Manufacturing Processes, and the Manufacturing Infrastructure.

Considering the Design, the team would assess the stability of hardware and software design, looking at issues such as reliability, maintainability, Built-in-Test (BIT), system safety, and average unit production cost. Evaluating the manufacturing processes captures the maturity of the work instructions, manpower, process capabilities, and inspection/test and acceptance procedures. Assessing manufacturing infrastructure would focus on the maturity of the manufacturing facility and support structure. These areas would be assessed for a specified level of the hardware/software Work Breakdown Structure (WBS) or major hardware deliverable products.

Figure 1 illustrates this concept and indicates specific criteria that could be used for conducting a PRA using this methodology. Traditionally, a PRR also captured the maturity of all “production phase” issues, including many areas such as logistical and training concerns. However, this recommended approach has been purposely narrowed to consider only those processes that affect the design stability, the validation or prove-out of manufacturing processes, or the manufacturing infrastructure. The team recommendation was to have other disciplines such as logistics develop their own criteria or metrics that could be assessed separately or in conjunction with the production discipline.

Rather than rely on subjective opinions of subject matter experts, these criteria have been established to provide the framework for a more objective, quantitative, and thorough assessment of selected areas of production risk. Standard risk assessment worksheets exhibiting the criteria for each element are recommended to properly and less subjectively determine the current status based on established and agreed-to

“metrics.” A scoring scheme would then be used to quantify risk associated with each hardware or product element at the major assembly or subassembly level. Using a predefined scale, the calculated risk for each WBS element or deliverable would be assigned a high, medium, or low risk.

The “metrics” are a gradation of statements for each criterion that represent the potential status with increasing probability of success. Each metric is evaluated using a predefined rating scale of .1, .3, .5, .7, and .9, corresponding to successive levels of maturity toward production readiness. The metric descriptions in each column should be tailored to reflect benchmark accomplishments. For rating and scoring purposes, each criterion could be equally weighted or weighted differently as decided by the team responsible for that element. For each program, the weighting may be designated differently, but agreed to before beginning the assessment. A summary of risks would be presented for each WBS element assessed. No total program risk should be assigned due to the ambiguity of such a high-level rating.

Does One Size Fit All?

While the new assessment process is an improvement from the traditional process, it may not be suitable for all programs and is not suggested as a one-size-fits-all solution. However, the methodology, in theory, remains the same for most programs. The beauty of this approach is that it is just that—an approach.

The specific criteria and metrics must be tailored to fit the program as well as the decision maker. What’s important to one program may not be as critical for others. The illustration in Figure 1 is intended simply to start the thought process. The criteria and metrics presented here represent a first cut or a place to begin. We strongly recommend that these criteria and metrics be carefully reviewed and tailored appropriately for each program. Additionally, a time-phased or iterative approach should be pursued to establish a base-

line; then re-visit the assessment as the program progresses toward a production phase or decision.

Those who attempt to apply this approach will find that a great deal of work must go into the planning phase, and that to be successful all “functionals” must be involved. A core team must be organized to orchestrate, but all parties must “buy in” to the approach and the criteria. Once agreement is gained and the criteria are baselined, the actual conduct of the assessment becomes very simple and can be accomplished very quickly, making an iterative process less cumbersome.

The team make-up is another variable that is program-specific. Depending on the contractual environment and geographic locations, the blend of government and contractor personnel will vary. For the highest probability of success, we recommend a joint team. This can be accomplished from different locations using a variety of electronic communications available today such as e-mail, video teleconferencing, and the use of Web-based applications.

Application Case Studies

The EFOG-M Program

On Sept. 29, 1997, the Deputy for Systems Acquisition (DSA) called for a modified PRR or PRA in support of the decision to spend the \$13 million procurement funding that had been appropriated for the EFOG-M program. While EFOG-M was not designated an ACAT program, this DSA decision was to be considered a Limited Procurement Decision.

A PRA Plan was developed and approved that incorporated a streamlined and iterative team EFOG-M self-assessment using predefined metrics and criteria. The plan called for an initial, informal assessment to create a PRA baseline and updates to be conducted regularly as the Seeker design stabilized and production planning efforts matured. The Initial PRA Plan was signed on April 8, 1998. The EFOG-M program was the first to use the new methodology.

To simplify the PRA, the Seeker was evaluated at only the final assembly level. The initial assessment was intended not only to create a baseline, but also to validate the methodology, criteria, and metrics. The assessment was intentionally kept simple so this could be accomplished. Six hardware assemblies were assessed, and many components or sub-assemblies were grouped into higher level assemblies for ease of assessment. Many hardware elements were not mature enough to assess individually due to the nature of the incremental integration and test process.

The overall response to the PRA methodology was considered favorable to both the government and the contractor. The following discussion is from a May 18, 1998, briefing on the PRA Lessons Learned.

WHAT WE LEARNED

- Methodology seemed to work.
- Discovered some metrics need to be “tweaked.”
- Less time consuming than traditional PRR.
- Less subjectivity; more discussion over rationale than rating.

WHAT WE NEED TO DO BETTER NEXT TIME

- Better define team members for each product assessment.
- Need to ensure entire functional team is involved in the process—at the same time
- Need to break down into more manageable products by contractor.

The initial assessment was completed in May 1998. As planning for the next iteration was underway, we received guidance from management to halt all efforts on the PRA because of program funding and instability. At the time the initial PRA was completed, the plan was to conduct a PRA Update by June 25, 1998, and another Pre-Decision Assessment 30 days prior to the DSA decision. This decision was expected to occur in the September/October 1998 timeframe. The decision was never made, and the EFOG-M program was terminated.

The Vehicle Teleoperated (VT)/Standardized Robotic System (SRS) Program

At the Milestone (MS) I/II review on Nov. 4, 1997, the DSA gave approval for the VT/SRS program to enter a combined Program Definition/Risk Reduction and Engineering and Manufacturing Development phase. As part of the exit criteria for this phase, production readiness was to be verified in accordance with the Production Validation Plan. The Production Validation Plan contained the requirement for PRAs. The PRA plan was developed, coordinated, approved, and signed on June 24, 1998. The plan detailed requirements for two formal assessments: one prior to the start of production of the Operational Test hard-

ware and the second prior to the MS III production decision.

In an effort to baseline the contractor’s design and planning efforts, an initial assessment was conducted in September of 1998, 45 days after contract award. Through this assessment, the government/contractor team was able to become familiar with the database and determine efforts required to achieve a successful production go-ahead at the end of this contract phase. Due to several design, schedule, and cost problems, the two formal PRAs identified in the plan were never completed. In fact, when the contract reached the target price, the government chose not to fund beyond that point.

FIGURE 2. NMD GBI Design Metric Sample

EVENT	DESIGN		
	CRITERIA	Schedule of Engineering Releases	Technical Documentation Stability
WS CDR	100% of BV1 specifications (HW/SW) interface documentation, drawings, under Configuration Control	C1 Hardware/Software Requirements Identified BV3/IFT Hardware/Software-Specification Documents Complete	Productivity opportunities identified
DRR	100% of BV2, 75% of BV3 & 75% of IFT specifications (HW/SW), interface documentation, drawings, under Configuration Control	C1 Hardware/Software Specification Documents Complete	Productivity trades initiated and implementation planning started.
DAB '01	100% of IFT and >30% of C1 specifications (HW/SW), interface documentation, drawings, under Configuration Control	>30% of C1 Drawings Released & CSCI Code Developed	Critical Item Identification & Manufacturability assessed
IFT 13	>60% of C1 specifications (HW/SW) interface documentation, drawings, under Configuration Control	>60% of C1 Drawings Released & CSCI Code Developed	Critical Item Productivity Plan Complete
DAB '03	>90% of C1 specifications (HW/SW), interface documentation, drawings, under Configuration Control	>90% of C1 Drawings Released & CSCI Code Developed	Critical Item Productivity Plan Implemented

During the course of the contract, the PRA database was updated due to a design change that impacted the products that had been evaluated. As a result of this design change, the number of products to be evaluated increased, thus the database and amount of data to be reviewed increased significantly. The impact of this increase in number of products to be evaluated in the PRA process was never realized due to the events identified earlier. Nevertheless, there were several lessons learned about the use and application of the PRA process as part of this contract.

LESSONS LEARNED

- The government/contractor IPT gained appreciation for all the functional interactions in achieving a state of production readiness.
- Metrics needed to be tailored for program-specific application.
- The level of assessment was key in determining time and cost savings over the traditional PRR process.
- Everyone knew at the beginning of the contract what the yardstick requirements were for achieving a successful transition to production.

National Missile Defense (NMD) Program Ground-Based Interceptor (GBI) Element

The NMD Ground-Based Interceptor (GBI) Project Office adopted the PRA concept in 1999. During that time, a tailored plan and matrix were developed and agreed upon by December of the same year. The overall approach was to conduct semiannual PRAs following the progression of the production program up to Defense Acquisition Board 2003 (when the production decision was to be made) and provide official reports annually.

Since the NMD GBI program was in its early stages for production development, following the numerical rating scheme of the base case did not make a lot of sense. The plan was tailored to follow the production program's expected progress in relation to key program events instead of the generic risk categories. Figure 2 displays a sample of this tailoring. In the NMD program, there



was a high amount of concurrency between the development program and the production program. Production activities were being leveraged off the test flight program with little room for error. The final agreed-upon PRA matrix reflects this attempt to capture the evolution of that test program for production and development purposes.

The major metrics of Design, Manufacturing Processes, Manufacturing Infrastructure, and Production Planning were all addressed; however, a fifth category was added—Subcontractor Management. This fifth category was considered crucial due to the criticality of the major subcontractors on the program such as the Kill Vehicle subcontractor. By elevating this category to the metric level, the project office and higher headquarters would be given the visibility into the subcontractors that was not readily available through other means.

An initial assessment was conducted in January 2000 to exercise the plan, work out any unseen bugs, and establish a baseline. From this effort, the plan was refined and the subcontracts management metric was added. The second formal assessment was conducted in April 2000 with a formal report submitted to the Deployment Readiness Review (DRR) panel in May 2000. Lessons learned from this effort included dealing with problems with moving schedules (sliding program events that eventually would collide or slide past other program events), timely access to critical assessment information from subcontractors, and continually emerging information that could not be captured before report publication. The last issue became more prominent as the DRR slipped from June to August, creating a four-month information gap between the assessment report and the progress of the program.

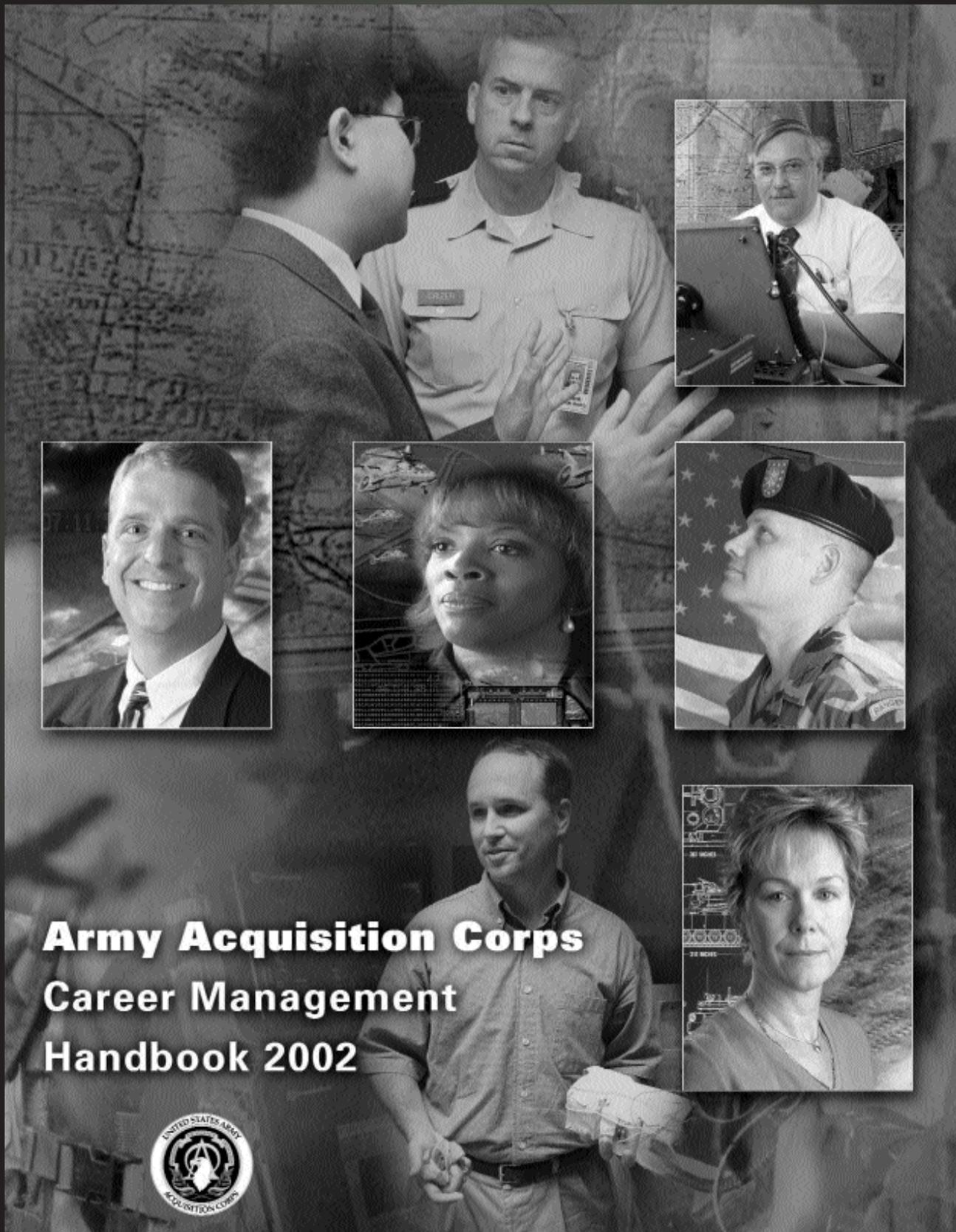
Meanwhile, major upcoming contract modifications impacting the NMD GBI production program were driving the need to revisit the PRA plan and matrix to capture these program changes. Subsequent to this, the NMD program underwent a reorganization and was redesignated Ground-Based Midcourse Defense (GMD). The PRA process has since been adopted for use across all GMD Components.

Toward Production Readiness

The PRA methodology offers a process that supports the teaming environment prominent within today's acquisition process and provides a focus for government and contractor mutual benefit. It offers enough flexibility to be applicable to all programs. The PRA process offers a tool that can track progress toward production readiness in a more real-time environment by assessing ongoing activities in a teaming environment.

Editor's Note: The authors welcome questions or comments on this article. Contact Steve.Austin@rdec.redstone.army.mil.

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Quantity Discounts/ Economic Order Quantity

New Quantity Discount Analysis Tool Lets DoD Buyers Save on Total Cost and Receive More Goods

MICHAEL BOGNER • CHUCK WONG • BERNIE PRICE

We don't always buy the lowest total cost quantity when we buy a quantity-discounted item. We often spend more than we should. This article will show how to buy the lowest total cost quantity, save the buyer money and, in some cases, receive more goods.

Contractors offer quantity discounts. When we buy more of an item, we pay a lower unit cost. However, we should be interested in the *total* purchase cost (quantity x unit cost). With quantity discounts, the lowest total cost quantity can frequently be a larger quantity than typically bought. Let us clarify with an example.

An electronics supplier offered an item at the following range quantities and unit prices:

Quantities	Unit Prices
1-29	\$24,484 each
30-59	\$7,059 each
60 and up	\$6,553 each

How much would you pay for 10 of these items?

For a one-time buy of 10, the total cost would be 10 x \$24,484 or \$244,840. However, there is a better solution. If we bought 30, we would pay 30 x \$7,059 or \$211,770. We save \$33,070 and obtain 20 more. Let's say we needed 17. Although 17 cost \$416,228, we

If your purchasing/inventory system does not offer lower total cost solutions, our user-friendly spreadsheet can assist in the process of dealing with quantity discounts and other costs associated with inventory management.



could buy 30 at a cost of \$211,770 or 60 at a cost of \$393,180.

If we needed to purchase 10 every month, we could buy 10 monthly at a yearly cost of \$2,938,080. But by buying 30 units four times a year the cost would be \$847,080, and two groups of 60 would cost \$786,360. We would offer that many of us would not take the

added step to calculate these alternative lower cost solutions.

If your purchasing/inventory system does not offer these lower total cost solutions, our user-friendly spreadsheet can assist in the process of dealing with quantity discounts and the other costs associated with inventory management.

This article will cover nuances about quantity discounts and provide a short explanation about Economic Order

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Quantities, or EOQs. The Quantity Discount EOQ Analysis Tool (spreadsheet) and associated documentation are absolutely free. Points of contact are provided at the end of this article.

Quantity Discounts

Figure 1 depicts what occurs with quantity discounts using the preceding "Unit Cost versus Quantity" example. The graph displayed in Figure 1 steps down as the quantities increase. This is expected.

Figure 2 shows the "Total Cost versus Quantity." As each new range appears, a drop in total cost results. If we drew horizontal lines across Figure 2 from the first



quantity of the latter two ranges to the early ranges and then dropped the vertical lines, the results would look like Figure 3.

For a one-time purchase, Figure 3 shows that instead of buying quantities 9-29 and 55-59, buying 30 and/or 60 is cheaper. These are the simple cases involving one-time buys.

For recurring buys, we want to buy at the lowest total cost based on our demand rate, quantity ranges, the unit costs, ordering and holding costs, the shelf life of the item, and remaining useful life of the item. The Quantity Discount EOQ Analysis Tool we have de-

FIGURE 1. Unit Cost vs. Quantity

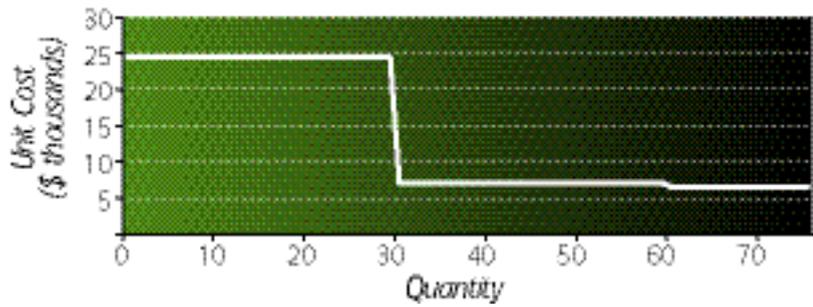
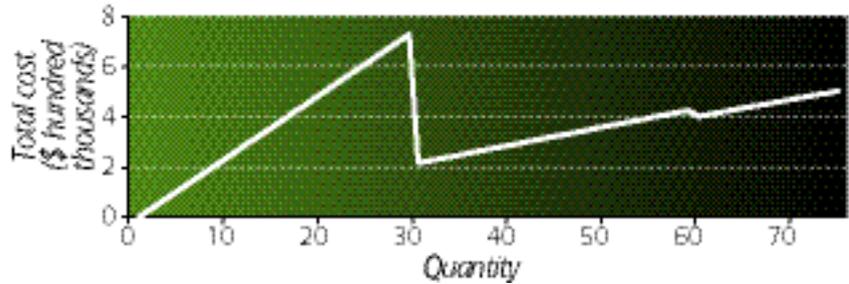


FIGURE 2. Total Cost vs. Quantity



veloped contains these options for recurring buys.

Economic Order Quantities

Understanding the EOQ is essential to fully understanding quantity discounts and inventory theory. For an item with one unit price and a known recurring demand rate, there exists an EOQ that should be purchased to minimize the life cycle costs of purchasing and holding this item.

In Figure 4 (next page), as the quantity purchased increases, the unit cost remains constant, the procurement costs decrease (fewer buys), and the holding costs (storage, theft, obsolescence, cost of money, and disposal costs) increase. The sum of these three sets of costs produces a total cost curve. Therefore, inventory

systems will recommend that users buy this quantity.

For a quantity discounted item, Figure 5 illustrates a set of total cost curves obtained for each range.

As shown in Figure 5, the EOQs of the latter ranges can occur in the earlier ranges, even the first range. The lower unit prices are valid only for purchase quantities within quantity discount Ranges 2 and 3. Thus the EOQs of Ranges 2 and 3 have to be adjusted to the first quantity of their respective ranges.

This is the essence of the quantity discount analysis. As illustrated in Figure 5, an EOQ Analysis Tool that does not handle quantity discounts will always recommend purchase quantity in the first range, regardless of which unit price

FIGURE 3. Total Cost vs. Quantity (Revised)

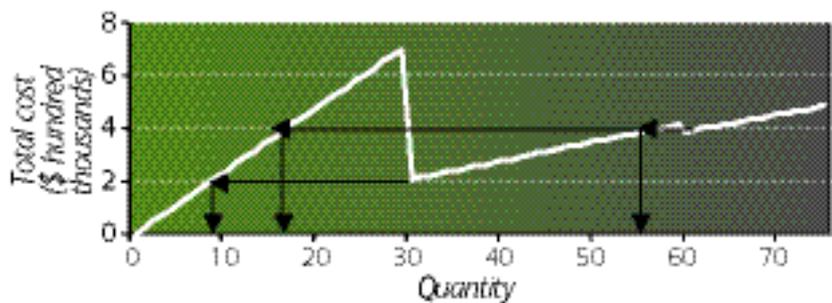
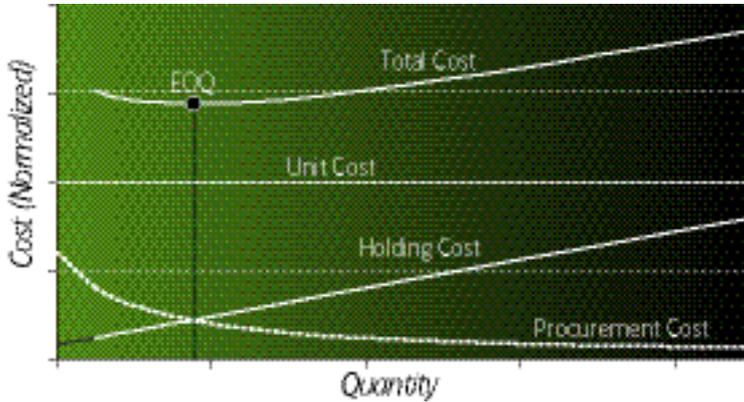


FIGURE 4. Economic Order Quantity (EOQ)

- **Objective:** Find the quantity to buy with Minimum Total Cost EOQ
- Total Cost = Purchase Cost + Procurement Cost + Holding Cost



is used in determining the EOQ. So if the purchasing/inventory system does not have the ability to consider more than one range/unit price and make the necessary EOQ adjustments, then it could be selecting the wrong quantity to buy, and the lowest total cost to the buyer is not achieved.

As previously mentioned, we have developed a user-friendly, stand-alone two-page spreadsheet program (input page and output page) using Visual Basic in Microsoft EXCEL 2000. The user enters the data and the spreadsheet determines the best EOQ. Space does not permit a full explanation of the spreadsheet's capabilities; however, users will find that our spreadsheet program can handle one-time buys, recurring buys, and one-time buys within recurring buys. The user can test other quantities and their costs versus the recommended quantity. Another nice feature is the ability to provide more than one buying alternative when less than two buying periods remain. A full explanation and examples accompany the spreadsheet.

Three Other Ways to Save

While doing this work we often receive excellent suggestions. The first suggestion in particular is quite effective in saving money.

Purchase Spare Parts and Systems with the Same Parts Simultaneously

Quantity discounts apply to systems as well as spare parts (initial, pipeline, and replenishment). Anthony Croce, an engineer at Project Manager, Warfighter

Information Network—Tactical (PM WIN-T), suggests that the spare parts and systems that contain the same parts be purchased simultaneously from the contractor. By considering the individual system parts with the same spare parts, we can purchase the spare parts at a lower unit cost and hence lower total cost.

Simultaneous Purchase May Lower Cost of System Parts

We would argue that similarly, the purchase of the spare parts may cause the system parts to be purchased at a lower unit cost and this too would lower total cost.

Up the Quantity

Finally, the sum of the spare parts and system parts may be close to the end of the range, and it may make economic sense to buy the first quantity of the next range. In this case we receive more parts at a lower total cost.

These three savings need to be realized at all opportunities by DoD, other government agencies, and industry.

A Better Way

Government and industry computerized inventory systems do not correctly calculate the buy-quantities for quantity-discounted items. This analysis and the spreadsheet tool correct the deficiencies and in turn save money and provide more goods to any buyer for any commodity. We estimate that DoD can save \$500 million per year using this analysis and spreadsheet.

Contact Us and Start Saving Now

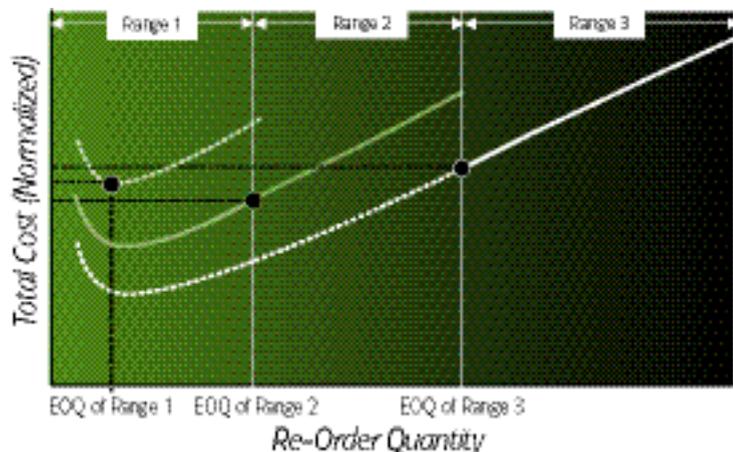
In this article, we have tried to show that although quantity discounts may require us to use more decision-making information, we can save money and receive more goods. Additionally, the Quantity Discount EOQ Analysis Tool, obtainable at no cost from the U.S. Army Communications-Electronics Command, will provide computational recommendations with this added information.

To obtain the spreadsheet tool and associated document files, contact any of the three authors:

- Michael.Bogner@c3smail.monmouth.army.mil
- Bernard.Price@mail1.monmouth.army.mil
- Chuck.Wong@mail1.monmouth.army.mil

Also, briefings can be provided. *Have fund cite, will travel.*

FIGURE 5. EOQ With Range Quantity Discount



New Online Tool Gives SPS Users Help When They Need It

Linda Polonsky-Hillmer

The latest version of the Standard Procurement System (SPS) offers a handy, online reference tool called the "PD² Advisor," which gives users instant help for whatever task users are performing with the software.

"With v4.2, Increment 1, we want users to get the answers they need with just a few clicks of the mouse," explains Army Col. Jake Haynes, SPS Program Manager. "Users are accustomed to drop down menus and help buttons on their desktops. We put these tools in SPS and made them more robust, so no matter what the user needs help with, these tools can do the job."

The SPS Joint Program Management Office (JPMO) began pursuing development of the online help tool after users said they wanted better online support from their SPS software—support that could not only be updated with subsequent releases but could more intuitively help users after they receive formal training.

Typically, SPS users receive classroom training and are given a manual and phone number to their SPS System Administrator (SA) in the event they encounter difficulties. Several weeks typically pass before users are actually provided the software on their desktops. By that time, the information they received in the classroom is far from fresh, which means users can—and do—become frustrated when they try to use the new software. The first thing they do is begin calling their SA with questions.

"With this latest version of SPS, users don't have to burden their SAs or manually page through their user guides to get the answers they need," explains Gino Magnifico, SPS Deputy Program Manager. "The first thing people do when they need an answer is look to their computer. Now, with the Advisor, they'll find the answers they need right at their fingertips."

Following the guidance and standards of the American Society for Training and Development (ASTD), the JPMO developed PD² Advisor working closely with SPS users. They treated the development of the tool not as a training project, but more as a software development project, complete with all phases typical in a development life cycle, including input from SPS training managers and users from all of the Military Services.

PD² Advisor addresses both the functional and technical sides of the SPS software. For users, the tool helps with filling out forms and following procurement procedures. "PD² Advisor is hands-on; it guides users real-time as they're filling in a form," says Robert Primrose, a procurement systems analyst with the Fleet & Industrial Supply Center San Diego. Primrose was one of a handful of users who test drove v4.2, Increment 1 and its PD² Advisor prior to the software's release in June 2002.

Users' needs were the driving force behind the software, according to Will Bishop, a former SPS training manager, who helped develop the Advisor.

"From general questions such as, 'How do I create a purchase request?' to more specific assistance in selecting the right clauses for solicitations and contracts, users will find a wealth of information in this online tool," says Bishop.

For SPS SAs, PD² Advisor will save time in two ways. First, the users they support will be more self-sufficient, requiring less time spent on minor user issues. Second, PD² Advisor can help SAs learn the ropes of this latest version of SPS, which comes with additional tasks for SAs. "For example, CLIN [Contract Line Item Number] template structures can be modified in v4.2, and this is something we haven't been able to do in the past," explains Bishop.

More than 9,400 users are scheduled to log onto SPS v4.2 Increment 1 by February 2003. Currently, the software is deployed in several Army contracting offices. SPS v4.2, Increment 2 is under development and will offer an interface called the Adapter, which will open SPS databases to related logistics and financial systems in DoD.

Need more information? Contact the SPS User Satisfaction Manager: Liz Gooding (703) 227-4407 or lgooding@hq.dcmsa.mil.

Editor's Note: Polonsky-Hillmer is President, CorpComm, Fredericksburg, Va. She has worked with the SPS Program since its inception.

DAU's Systems Engineering Department Revamping SYS-301 Course

Systems Engineering Competencies at Core of Recent Changes

DR. MARTIN FALK

Systems engineering is an interdisciplinary engineering management process that evolves and verifies an integrated, life cycle balanced set of system solutions that satisfies customer needs. It clearly is at the heart of the systems acquisition process, and the DoD relies heavily on systems engineers to provide technical support to program managers. In fact, the Systems Planning, Research, Development and Engineering (SPRDE) career field has more members than any of the other 12 Department of Defense (DoD) acquisition career fields. One way the DoD ensures that its systems engineers possess the needed competencies to perform their jobs is through a certification process that includes specific training requirements.

The Original SYS-301 Course

In 1991 Congress passed the Defense Acquisition Workforce Improvement Act (DAWIA). In response, DoD created the Acquisition Workforce Certification Program. This program established education, training, and experience criteria for each of the 13 acquisition career fields. The SPRDE career field has as one of its criteria for level III certification completion of a two-week course called Systems 301 (SYS-301), Advanced Systems Planning, Research, Development and Engineering (ASPRDEC).

As the first step in developing this course, the Defense Acquisition University (DAU) conducted a number of



Falk is the functional manager for Systems Engineering at DAU's Fort Belvoir, Va., campus. He has over 30 years of acquisition experience, including assignments as the Belvoir Research, Development and Engineering (RD&E) Center's Operations Director and as Chief Scientist at U.S. Army, Europe. Falk is a graduate of APMC 98-03. Also contributing to this article was DAU Professor of Acquisition Management Bill McGovern. A graduate of PMC 95-1, McGovern also serves as Director of DAU's Management Deliberation Center.

workshops with field activities to get their input on what material should be covered. We received over 400 distinct suggestions, ranging from broad areas such as configuration management to specific skills such as being able to do word processing. These inputs were narrowed down into about 30 topic areas by combining related items. Lesson plans, including learning objectives, were then developed for each topic area. A DoD-level functional board oversaw this process and by 1994 the first class was held.

Need for Change

In subsequent years, course materials were updated to ensure currency and minor changes were made to most

lessons to incorporate suggested improvements, but the learning objectives and course structure remained relatively stable. By the end of 1999, however, it was becoming obvious that the skills and competencies needed by senior technical managers were changing. Issues such as the need for systems interoperability and increasing use of software to perform system functions were becoming vitally important. On top of this, a major change in how the DoD would do systems acquisition was soon to be expressed in the new 5000 series of acquisition regulations.

Recognizing that it was time to make a substantial revision to the SYS-301 course, DAU's Systems Engineering De-

partment began a process of interviewing 20 program managers and technical managers from the three Services, other agencies, and industry. Managers were asked what they felt were the skills that senior technical managers needed to be most effective. These skills were then consolidated into 15 skill areas.

Once these skill areas were compared to the SYS-301 course content, we discovered that several subjects covered in the course—such as International Acquisition and Environment, Safety, and Health (ESH)—had not been mentioned in the interviews. Since the goal of this research was to provide direction for a curriculum revision, we decided to modify the original 15 areas to ensure that

FIGURE 1. Systems Engineer Competencies

<p>1. Total Systems View Ability to think beyond engineering and consider all functions and stakeholders in the Systems Engineering process. Ability to understand the entire acquisition process.</p>	<p>Total Ownership Cost (TOC). Ability to understand designing for change using techniques such as open systems architectures. Ability to understand Cost As an Independent Variable (CAIV).</p>	<p>15. Ethics Ability to understand ethical considerations and adhere to ethical principles.</p>
<p>2. Teaming Ability to build, work in, motivate, and lead high-performing multidisciplinary teams.</p>	<p>9. Risk Management Ability to plan, assess, handle, and monitor risk.</p>	<p>16. Environment, Safety and Health (ESH) Ability to understand Environment, Safety and Health (ESH) requirements and how to design systems to effectively meet those requirements.</p>
<p>3. User Focus Ability to understand the user's perspective and requirements. Ability to conduct requirements analysis and to structure Research and Development work effort to match user needs.</p>	<p>10. Management of Changing Technology Awareness of current state-of-the-art, and mechanisms to introduce technology. Ability to accurately assess technology maturity of a system. Ability to understand Information Technology and how to effectively acquire and use it. Ability to understand spectrum management, system security, and Joint Technical Architecture.</p>	<p>17. International Acquisition (IA) Ability to understand International Acquisition (IA) policy and techniques. Ability to utilize offshore technology in system design where it provides a benefit. Ability to understand interoperability requirements.</p>
<p>4. Contract Technical Management Ability to understand contractors' processes and perspectives, to work with contractors and provide informed assessments of their progress, and to understand the source selection process.</p>	<p>11. Earned Value Ability to understand Earned Value (EV) principles, evaluate EV data, and make recommendations.</p>	<p>18. Test Integration Ability to assist in test planning and design. Ability to respond to issues arising during test.</p>
<p>5. Configuration Management Ability to manage and communicate changes to systems in all phases of the life cycle.</p>	<p>12. Software Management Knowledge of software development principles and techniques. Ability to integrate software considerations into the systems engineering process. Ability to assess development progress and identify risks and pitfalls.</p>	<p>19. Logistics Integration Ability to understand designing for supportability. Ability to develop or evaluate design changes in response to supportability issues.</p>
<p>6. Post Production Support Ability to identify improvements to systems for the purpose of Operations and Support (O&S) cost reduction, safety, replacing obsolete parts, reliability, tech insertion, etc. Ability to use Systems Engineering process to implement these changes.</p>	<p>13. Design Impacts on Manufacturing Understanding of producibility issues and how to manage the design for producibility.</p>	<p>20. Evolutionary Acquisition/Open Systems Architecture Ability to develop Evolutionary Acquisition (EA) design strategies and ensure system design supports the EA approach. Ability to understand open systems architectures.</p>
<p>7. Financial Management Ability to understand the Planning, Programming and Budgeting System (PPBS) system, sources and uses of funds, and how budget issues impact the program.</p>	<p>14. Modeling and Simulation Ability to understand uses of Modeling and Simulation (M&S). Ability to use M&S throughout the life cycle and to assess the contractor's use of M&S. Ability to work in an integrated data environment.</p>	<p>21. Assimilation and Communication of Technical Information Ability to evaluate technical issues, assess program performance, make recommendations, and effectively present these issues to diverse audiences.</p>
<p>8. Operational Cost Reduction Ability to assess design impact on Total Operational Cost and identify means to reduce</p>		<p>22. Adaptability Ability to respond quickly and effectively to changing conditions or events that impact the program's systems engineering process.</p>

all topics already covered in the course were included.

Figure 1 displays the final list of 22 areas. We termed these “Systems Engineer Competencies.” By no means is this a comprehensive list of all competencies required by systems engineers. Domain-specific technical knowledge, organizational knowledge, management skills, and many behavioral competencies are not included. These competencies were beyond the scope of SYS-301, and it was assumed they would be acquired through other means.

The interview process did not prioritize the competencies and used too small a sample to treat it as representing the thoughts of the entire acquisition community. The next step, therefore, was to develop a questionnaire that could be administered to a broad cross-section of senior program managers, engineers, and technical managers.

The first part of the questionnaire asked a number of demographic questions. The second part, displayed in Figure 2, asked respondents to rate each of the 22 competencies as having high, medium, or low importance. In order to distinguish those of highest importance, respondents were asked to rate not more than eight competencies as high.

The questionnaire also asked for an assessment of the degree to which DoD’s technical workforce possessed each competency. We did this to allow an analysis showing where there were gaps between: 1) how important a competency is, and 2) the current level of competence. Space was provided for respondents to add any competencies not on the list that they thought were important.

The survey was administered to 137 students while they attended the SYS-301 class, to 96 students in the Advanced Program Management Course (APMC), and to 90 senior technical managers throughout DoD. Respondents were able to fill out the questionnaire online with their input going di-

rectly to the Center for Research, Defense Acquisition University. They were then able to analyze and sort responses by Service, years of experience, rank, and several other categories using the “GroupSystems Survey Tool” by GroupSystems.com

Study Results

Figure 2 shows the overall rankings for the entire population of 323 responses, with competencies listed in descending order of importance. The corresponding assessment of the degree to which people in the SPRDE career field possess these competencies is listed in the right column of Figure 2.

The first four competencies were rated “high” importance by the majority of the respondents. The next nine had at least twice as many “high” ratings as “low” ratings. Only the last three had more “low” than “high” ratings. Of interest is the frequency of “low” ratings for the observed degree of competence. Only five of the 22 competencies received more “high” than “low” ratings.

Half had more than twice as many “low” ratings as “high” ratings.

For the most part, the three sample groups had similar rankings for both “importance” and “degree observed.” There were, however, some notable exceptions.

- The Advanced Program Management Course students ranked “operational cost reduction” and “financial management” much higher in importance and “test integration” much lower in importance.
- Senior technical managers ranked “ethics” much higher in importance.
- The ASPRDEC students ranked “modeling and simulation” much higher and “adaptability” much lower in importance.
- The ASPRDEC students ranked “assimilation and communication of technical information” and “adaptability” much lower for degree observed.
- Senior managers ranked “user focus” much lower for degree observed.

FIGURE 2. Questionnaire

Competency	Importance	Observed
1. Total Systems View	High	Moderate
2. User Focus	High	Moderate
3. Risk Management	High	Moderate
4. Teaming	High	Moderate
5. Assimilation & Communication of Technical Information	Moderate-High	Moderate
6. Software Management	Moderate-High	Moderate-Low
7. Management of Changing Technology	Moderate-High	Moderate-Low
8. Test Integration	Moderate-High	Moderate
9. Operational Cost Reduction	Moderate-High	Moderate-Low
10. Adaptability	Moderate-High	Moderate-Low
11. Logistics Integration	Moderate-High	Moderate
12. Configuration Management	Moderate-High	Moderate
13. Contract Technical Management	Moderate-High	Moderate
14. Evolutionary Acquisition/Open Systems Architecture	Moderate	Moderate-Low
15. Financial Management	Moderate	Moderate-Low
16. Design Impacts on Manufacturing	Moderate	Moderate-Low
17. Ethics	Moderate	Moderate-High
18. Modeling & Simulation	Moderate	Moderate-Low
19. Post Production Support	Moderate	Low
20. Earned Value	Moderate-Low	Moderate-Low
21. Environment, Safety & Health	Moderate-Low	Moderate
22. International Acquisition	Moderate-Low	Low

Since the three groups had different perspectives due to the nature of their jobs, some differences were to be expected.

Analysis

Our next step was to determine what this research suggested as to how we should adjust the SYS-301 course material. Rather than merely focus on the most important competencies, we felt it important to take into account how well the SPRDE population was already doing in each area. The thought here was that areas where we are already doing well may not need extra emphasis, even if they are important. Conversely, areas where we are doing poorly may need extra emphasis, even if they are not the most important.

To help us in this assessment, we did a “gap analysis.” We assigned numerical values to high (8), medium (4), and low (1) ratings and then averaged the responses to get numerical values for each competency. The results (Figure 3, next page) show that significant gaps exist in about half of the competencies.

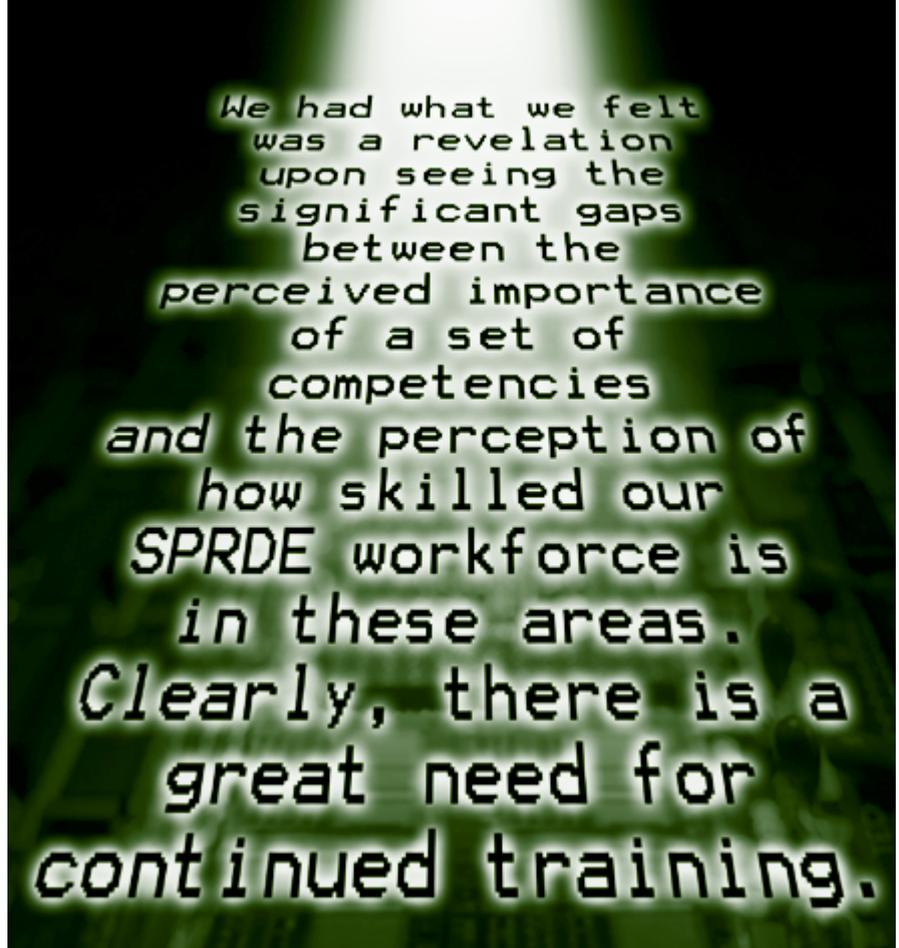
After evaluating this information we drew the following conclusions about how much emphasis each area should receive in SYS-301. This does not imply that any of these areas are unimportant. It just recognizes that time constraints limit what material can be covered in one class. To the extent students need additional training in areas we don't strongly emphasize, other resources are available to provide that training.

STRONGLY EMPHASIZE

Total Systems View (H)
Risk Management (H)
Teaming (H)
User Focus (M)
Assimilation and Communication of Technical Information (M)
Software Management (L)
Management of Changing Technology (M)

EMPHASIZE

Operational Cost Reduction (L)
Adaptability (L)
Evolutionary Acquisition/Open Systems (M)



Logistics Integration (L)
Test Integration (L)

EMPHASIZE SOMEWHAT

Modeling and Simulation (M)
Post Production Support (L)
Design for Manufacturing (M)
Financial Management (L)
Contract Technical Management (M)
Configuration Mmanagement (L)

LITTLE EMPHASIS

Earned Value (L)
Ethics (M)
Environment, Safety and Health (M)
International Acquisition (M)

The next step was to determine how much emphasis each area was already receiving in SYS-301. All faculty members then teaching the class were asked to estimate how many hours were spent in each area. Areas with more than 4 hours were ranked “high,” those with between 2 and 4 hours were ranked “medium,” and areas with less than 2 hours were ranked “low.” These ratings are shown in parentheses in the areas of emphasis covered above.

Students in three ASPRDEC classes were also asked their assessments of what was actually being taught. They agreed closely with the instructors except for the area “management of changing technology,” which they felt should have much more emphasis. A comparison between what was needed and what was being taught shows agreement in most areas, but it also highlighted several areas where changes were indicated.

More Emphasis

Software Management
Operational Cost Reduction
Management of Changing Technology

Less Emphasis

International
Environment, Safety and Health
Ethics

DoD Workforce Report

During this same period, the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics was conducting a study of competencies required by the DoD acquisition work-

We found the survey on systems engineering competencies very useful in helping us develop a road map to revise SYS-301. While...the results seem...obvious, it was important to have inputs from a broad cross-section of the acquisition community before we proceeded.

force. This study resulted in a report titled "Future Acquisition and Technology Workforce Report." This report listed 435 functional competencies. Of these, 274 were relevant to the SPRDE career field. These were grouped into 33 "environmental trends."

A comparison with our study results indicated very good agreement. For example, two of the environmental trends were "increased emphasis on interoperability" and "increased emphasis on software development." A number of environmental areas addressed the need to reduce operational costs through a variety of means.

Implementation

With this information in hand, we began to incorporate changes into the course material. A new two-hour lesson titled "Architecture and Interoperability" addressed systems architectures and current policy on interoperability requirements and certification. This knowledge is then used in a case study where students develop a system architecture and look at interface requirements. Six hours of instruction in software acquisition were added. Topics covered include policy, development strategies, the software life cycle, best practices, and software risk management.

In order to make space for this new material, we decided to eliminate the Contracting Issues lesson and shorten the ESH and International Acquisition

lessons. While the survey results didn't make a strong case to eliminate the contracting lesson, we felt that most of the students had already received more contracting training than we were providing. We also felt that those students needing more training in this area would be better served by taking a separate contracts course. The ESH and International Acquisition lessons were shortened in response to our survey results.

Some additional material on operational cost reduction was added to existing lessons, but this area requires further work. While the Ethics lesson, which is based on the Challenger incident, remains, we are using it to also address issues of effective decision making in addition to purely ethics issues.

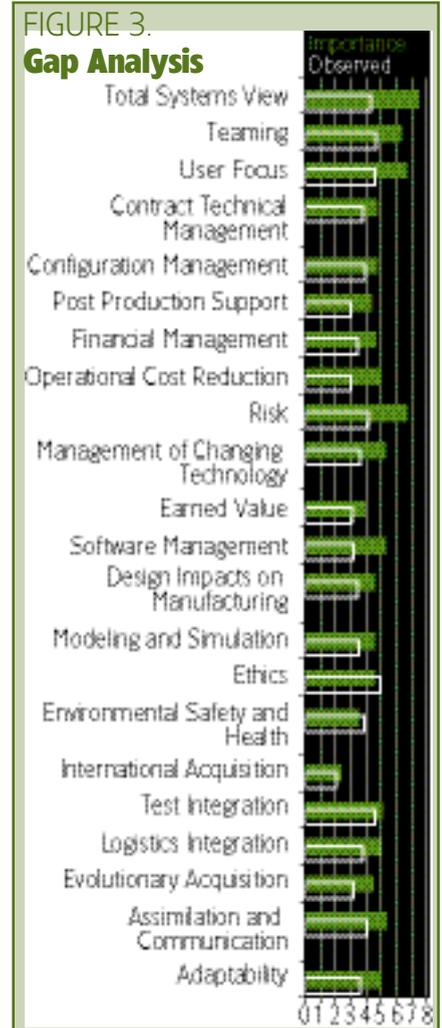
The Way Ahead

We found the survey on systems engineering competencies very useful in helping us develop a road map to revise SYS-301. While many of the results seem intuitively obvious, it was important to have inputs from a broad cross-section of the acquisition community before we proceeded. We did find some obvious gaps between what was being taught and what our customers felt they needed. We also had what we felt was a revelation upon seeing the significant gaps between the perceived importance of a set of competencies and the perception of how skilled our SPRDE workforce is in these areas. Clearly, there is a great need for continued training.

While we changed SYS-301 significantly, we will continue to make additional changes that will address those study issues that have not yet been implemented. Our changes will also include new material required to keep the course current as the acquisition environment continues to evolve.

SYS-301 is not the only systems engineering course to have undergone change. In June of 2001 DAU introduced a revised Systems 201 (SYS-201) course—Intermediate Systems Planning, Research Development & Engineering—that converted what was formerly a two-week, in-residence course into a hybrid course with a distance learning portion followed by one week in class. One of the options we are considering for SYS-301 is to convert it to a hybrid course in the future.

Editor's Note: For questions/comments, contact Falk at martin.falk@dau.mil.





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The name of the Defense Systems Management College Alumni Association—DSMCAA—has changed to recognize DAU-DSMC organizational realignments and provide for a broader-based, more inclusive membership. The name is now Defense Acquisition University Alumni Association (DAUAA). The DAUAA Web site URL and e-mail address have also changed:

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New Version of PM CoP Portal Now Online!

<http://www.pmcop.dau.mil/pmcop/>

The Assistant Secretary of the Navy for Research, Development, and Acquisition (Acquisition Reform Office), and the Defense Acquisition University (DAU) have updated their recently developed Program Management Community of Practice (PM CoP) Web site. In addition to a new user interface, the site features better support for discussion forums, member information for community collaboration, and new content in the areas of contract management and risk management.

The PM CoP portal and communities are helping the program manager, the program management team, and their industry partners perform their jobs more effectively through knowledge sharing. PMs now have anywhere, anytime (24/7) program management support for job performance through a Web portal. Populated with links to net materials, lessons learned, questions, best practices, yellow pages, and chat capability, the goals of the PM CoP include: knowledge capture and retrieval, collaboration, solution development, new idea generation, and online mentoring of acquisition workforce personnel.

The development and support team consists of executive leaders, an Overarching Integrated Product Team (IPT), and Working IPTs, which include joint leadership and membership. Through the participation of 30+ current and former program managers in February 2001, five key high-priority kick-off areas were identified in supporting a PM community :

- Risk Management
- Contract Management
- Software Acquisition Management
- Systems Engineering
- Earned Value Management

Currently, Risk Management, Contract Management, and Systems Engineering communities are linked to the portal. A previously developed Total Ownership Cost (TOC) community has also been integrated into PM CoP. Links are also provided to information sources on various subjects of interest to the Program Management community, which are candidates for future communities of practice.

How can the PM CoP benefit you and your program? The PM CoP supports program managers from the ranks of the DoD acquisition, technology, and logistics workforce and their executive teams by providing a valuable resource to aid their program management efforts in several areas:

- Solving real-world problems and performing tasks typical of the acquisition workforce.
- Managing requirements.
- Performing political, social, technical, economic, and programmatic activities.
- Achieving organizational goals more efficiently.

Long-Term Plans

The long-term PM CoP vision calls for community support for all key acquisition functional areas. Eventually, the Navy Acquisition Reform Office and DAU anticipate that there may be around 40-50 key functional areas. In the coming year the Navy Acquisition Reform Office, Defense Acquisition University, Office of the Secretary of Defense, and Defense Contract Management Agency will partner to develop an Earned Value Management focus area within the PM CoP.

What are you waiting for? Log in now, learn, and share. Your knowledge contributions are what the community is all about!



I certainly enjoy PM as it keeps me up to date in the field of acquisition, and there certainly are a number of substantive things going on—particularly e-learning—but it also indicates how many times in this field a new initiative is really “reinventing the wheel.” It would be of great value if authors were required to do library research so that the history could be presented which indicates the initiative is really new—somewhat similar to the library research that is required of engineers to justify asking for research money for new initiatives.

My basic training in acquisition came under David Packard, Deputy Secretary of Defense; Dr. John Foster, Director, Defense Research and Engineering; Pete Malloy, Office of the Secretary of Defense Procurement Policy, and very bright and dedicated colonels from Air Force, Army, and Marine Corps.

In several articles in the most recent issue of PM, several alternative solutions were offered for the systemic problems facing the acquisition system since the contracts for the purchase of Navy ships (Constitution, Constellation) during the Revolutionary War (and outlined in great detail by that fictional story of the Farnsworth cannon, a humorous saga of today’s procurement problems laid out during the Revolutionary War era).

All but one of the eight roadblocks noted in Mr. Slate’s article were around [in] the ‘70s, ‘80s, and ‘90s. We still have not learned how to write specifications for a product that remains fixed during the life of a procurement. We have tried dictating “no changes”—we got the product but it had to be modified (an electronic system, ships, aircraft build-

ings, etc.). We tried rigid specs for commercial—or none at all—only to find reliability can be a real problem as can be maintenance and support. We have tried to fix all of these. Why did the fixes not work? Mr. Slate’s *10 Consequences of Implementing an Evolutionary Acquisition Strategy* have elements that have been tried before. Why have they not worked in the past?

We do have up-front funds for new initiatives, known as 6.2 Applied Research and 6.3 Advanced Technology Development. They are closely guarded by the R&D community, [and are] normally annual funds as the Congress likes to maintain annual visibility and control. This is not likely to change. We have had, for a long time, project teams in place at this early stage, and the interface with the user (warfighter) was the Laboratory representatives serving with the operating forces (now the CINCs and the strategic plans of the Research and Development Secretariat of the Services.

The basic issues are two fold: First, is the “thing” (system) really needed, or are we pursuing technology based on marketing and salesmanship? Can we more properly modify or upgrade something we have, or the commercial sector has, which might be bought off the shelf, but at a lesser technology achievement? These trade-offs have been performed for years, but in my long-term experience in the Service, in industry, and finally as a consultant, new ideas for new technology take on a life of their own—and sometimes disappear into the “system” only to surface a year or two later with another name. Second, which I will comment on in a moment, is Professional and Dedicated Management, with authority to stop acqui-

sitions at any stage [where] they do not meet technical cost or schedule requirements.

We have so many voices involved now in the requirements process, it would not seem too desirable to add another faction to the process. The warfighters have a very strong voice in the requirements process based on the input of the CINCs. They have enough to do and want the acquisition community to get on with the acquisition process—and without getting into their business of requirements determination.

In our latest conflict in Afghanistan it appears that we do not need as much new technology as we do better training in tracking information system coordination, current weapons utilization, and logistics support. But I will wager the eager technologists are already proposing new technology for problems we may not have.

Dr Foster articulated many times, the problems of the un-unc's (unknown-unknowns) which plague most acquisitions. And the best strategies should make cost and schedule allowances, but such contingencies will be eliminated in the budget process. Nor is patience a known quantity in DoD or the Congress. Dr Foster also pushed "R&D on-the-shelf," i.e., the sequential development of useful technology but not necessarily of immediate need [which is] then "put-on-the-shelf" to be fully developed or produced at a later date.

It would be more than wonderful if we could freeze requirements, but we would have to have the same agreement from our potential adversaries—something that is not likely.

In the period I was most active in the system—the '70s—we tried concurrent development to hasten introduction, we tried setting contractual milestones for performance, to be met before proceeding (unfortunately, system or product advocates tended to select no challenging milestones).

In that period and subsequent, we have had Blue Ribbon panels, Commissions, Reviews, GAO investigations and reports (some of the best recommendations for fixes have come from these), Law and Regulation changes, and new initiatives generated internally to DoD. The recommendations of these efforts have seldom been fully implemented before a new Administration comes in with new ideas to "fix the Acquisition System" This normally involves substantial time-consuming paperwork reporting on the negligible progress in fixing the system. Not much has changed since the '70s in acquisition system results.

I had the privilege of serving on the committee chaired by VADM Vincent DePoix that drafted the first DoDI 5000.1. We had a fine and vocal group—we made sure the instruction covered the equality of cost and schedule with technical requirements, consideration of logistics requirements up front, and number of other critical requirements. We finally got a 10-page draft we could all reasonably agree on and took it to Mr. Packard. As I remember, Dr. Foster was in attendance. The eruption was immediate—the words as I remember them were concise.

"I do not need 10 pages to say, "Do it right the first time." I want no more than a page

and one-half and no enclosures—and I want it on my desk for signature in one week.”

We got it done, and each of us representing the Services got the job of handcarrying it through our Service for approval. I saw more flag officers in three days than I saw in the rest of my career. We got it done and it was signed by Mr. Packard and followed by five pages of 5000.2. I downloaded the current versions: 15 pages for 5000.1 and 52 pages for 5000.2. Something has gone badly wrong if our managers need 67 pages of rules plus references, plus the Defense Acquisition Regulation, plus the Federal Procurement Regulations. The burden on the manager has gotten much greater with little perceived improvement in cost, schedule, or technical performance.

It is no wonder we look for new ways of solving the problem. However, the real solution is highly qualified acquisition managers not taught by the multitude of short courses, which result in a checklist with little embedded knowledge. A background is needed which requires an engineering degree so the manager can talk to engineers on their own terms—an MBA from a University, i.e., Harvard, Stanford, or one of the top five; a year's internship with industry; a year's internship with either the GAO or a congressional staff; a two-year tour as a deputy or senior position in a Service acquisition after the long course at DAU. That is a total of five years out of a 20- to 30-year career. We might have to change a few rules, but what a payoff.

We need real professionals in the business, not the facade we have now which really gives lip service to the intent of professionalizing the acquisition workforce. You do not

learn to “drive” a ship, fly an aircraft, or drive a tank in the classroom, even with simulation. You need experience, and we need to make sure those to whom we entrust the system have it.

We do not need helical or spiral acquisition. We need to review history and see why similar initiatives to Evolutionary Acquisition failed. I would wager a substantial sum that the fixes at that time were never given a real opportunity because of a change of Administration or a loss of focus because of Vietnam, the Energy Crisis, or other large national events.

We still have the opportunity to “do it right the first time” and make sure—in the words of that amazing salesman, the “Professor” in *The Music Man*—“You have to know the territory.”

We must always remember that acquisition is an art not a science. And while we have put many band aids on the system, it is the trained people who make it work in spite of the bureaucracy and all the organizations who come aboard a project with the words, “We are just here to help you.” Really train and educate the managers—and then get out of the way and let them work.

—Ret. Navy Rear Adm. Rowland G. Freeman
Williamsburg, Va.

Editor's Note: The DAU Press does have a forum for researched articles—the *Acquisition Review Quarterly* journal. For more information on ARQ, contact Norene Fagan at norene.fagan-blanch@dau.mil.

Aldridge Publishes Policy on Continuous Learning

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3010

13 SEP 2002



ACQUISITION,
TECHNOLOGY AND
LOGISTICS

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Continuous Learning Policy for the Department of Defense Acquisition, Technology and Logistics Workforce (DoD AT&LWF)



Our DoD AT&LWF members are doing very important work. However, their working environment is dynamic, challenging, and changing. To keep pace, the DoD AT&LWF must operate as a continuous learning community, continually striving to improve their professional knowledge and performance. Accomplishing continuous learning as well as Defense Acquisition Workforce Improvement Act (DAWIA) certification training is critical to achieving acquisition, technology, and logistics excellence. DoD AT&LWF members must participate in meaningful continuous learning activities to stay current and proficient in functional disciplines, AT&L initiatives areas, and leadership and management skills.

Members of the DoD AT&LWF shall acquire a minimum of 40 Continuous Learning Points (CLP) every fiscal year as a goal and 80 CLPs being mandatory within two years. Members may count certification training toward CLPs. Components should give priority to providing certification training over other continuous learning activities. Data on the number of personnel required to meet standards and the percentage of attainment will be reported annually. Attachment 1 provides additional information for implementing this revised and streamlined policy. A Continuous Learning Guide (ADS-00-10-BR [rev tbd] will be published separately. This guide will also be on the DAU web site, <http://clc.dau.mil>.

This revised policy augments the DAWIA education and training certification process in support of our strategic goal to "revitalize the quality and morale of the DoD AT&LWF" and replaces *Reform Through Learning, Continuous Learning for the Defense Acquisition Workforce Policy*, dated December 1998. I encourage the Secretaries of the Military Departments and the Heads of the DoD Components to review their practices to leverage the efficacy of continuous learning to all members of the DoD AT&LWF.

My point of contact is Mr. Dan Dennison, OUSD(AT&L)AI/AET&CD, (703) 681-3464.

E.C. Aldridge, Jr.

Attachment
As stated



Editor's Note: This information is in the public domain. To download the attachment to Aldridge's memorandum, go to <http://www.acq.osd.mil/ar/docs/CL%20Policy.pdf>.

Contract Performance Information System

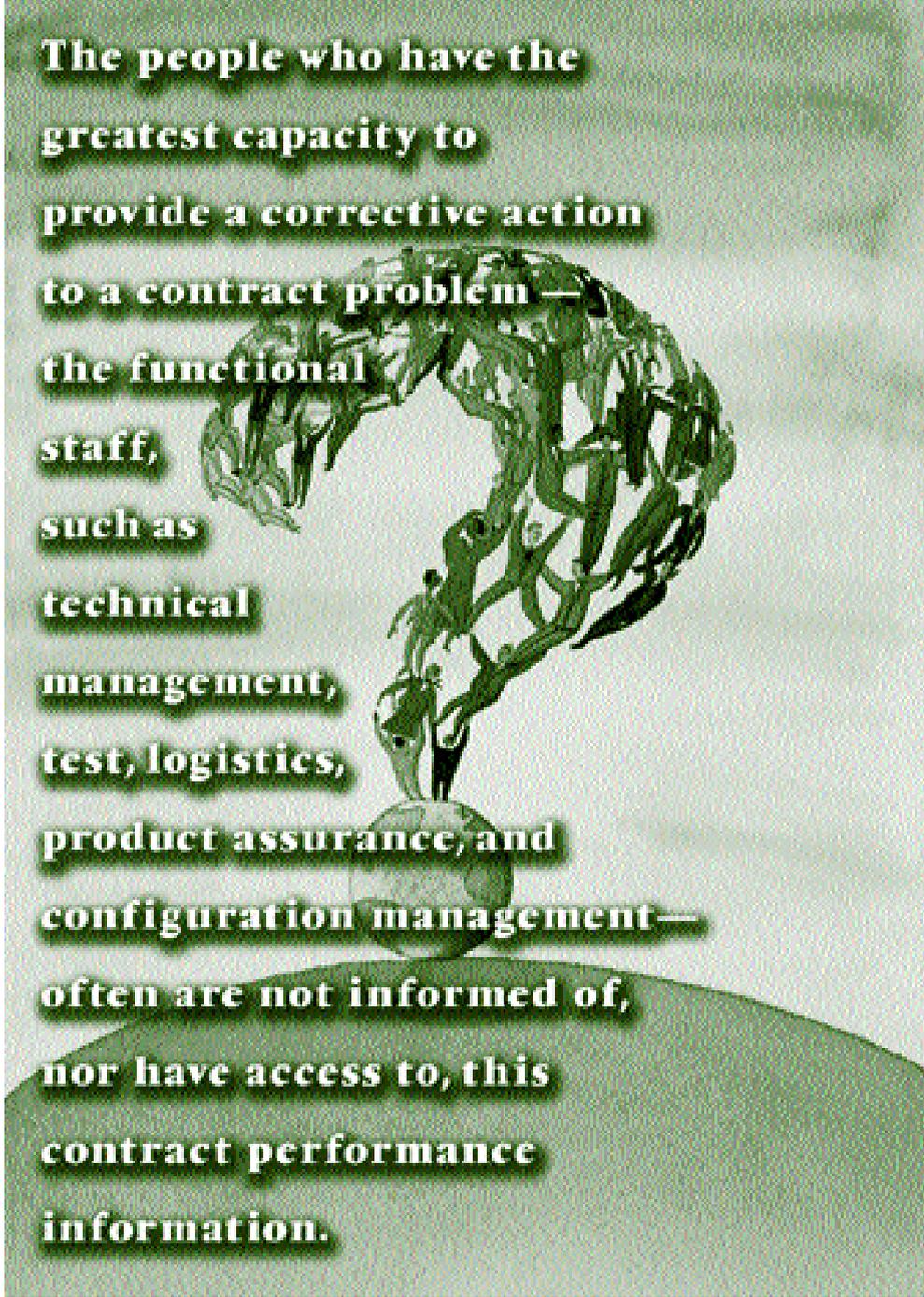
Delivery and Accessibility of Earned Value Information

ALAN GILBERT MARKELL

I have often thought there was a need to have a computer-based contract performance information system easily accessible to anyone within a project office or program executive office. Frequently, contract performance information is kept within a special, select group of management and the earned value specialists within a project office or support office. The people who have the greatest capacity to provide a corrective action to a contract problem—the functional staff, such as technical management, test, logistics, product assurance, and configuration management—often are not informed of, nor have access to, this contract performance information.

The management and earned value specialists need to get this type of information out to the functional staff so they know the status of the program, are aware of problems promptly, and can provide corrective actions. Program managers usually have a pool of very smart employees to work around problems. The smart program manager, instead of assuming a stoic, “bear the burden” posture, will rely upon the functional staff to develop solutions to problems when things go wrong. Contract performance measurement is simple, and the earned value specialists should strive to keep it that way. Making contract performance information very accessible and simple is in the best interests of a program.

Markell is an Operations Research Analyst in PEO, Tactical Missiles, Kinetic Energy Missiles Project Office, Cost/Schedule Branch, at Redstone Arsenal, Ala. He is a graduate of DAU's Advanced Program Management Course (2000), and is a certified Program Management Professional, and member of the Army Acquisition Corps.



The people who have the greatest capacity to provide a corrective action to a contract problem—the functional staff, such as technical management, test, logistics, product assurance, and configuration management—often are not informed of, nor have access to, this contract performance information.

FIGURE 1. Example of Contract Performance Information System Database

For Period Ending	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02
BCWS	1	1,000	2,003	3,006	4,009	
BCWP	1	1,002	2,005	3,010	4,015	
ACWP	1	999	2,002	3,005	4,008	
BAC	1	88,000	88,000	88,000	88,000	
LRE	1	88,000	88,000	88,000	88,000	

Input number of months to display in charts 4

Earned value information is simple—so-
lutions are difficult.

Contract Performance Information System

To rectify this problem, I have created a computer-based, Intranet or Internet, contract performance information system to facilitate access to, and monitoring of, performance of many contracts. This information system will have the capability of storing several contracts such that a program executive office could put all of their contracts in the database, or a project office could use it for their contracts for internal use only. My program accomplishes this goal—and it is user friendly and absolutely free. The commercially available software that I know to be capable of accomplishing this goal is very expensive, and non-power users would rarely find what they need to know.

It is not within the scope of this article to explain contract performance measurement or earned value management. Therefore, my article focuses on the delivery and accessibility of earned value information.

Database

The contracts in my database are fictional; I have named them Alpha, Bravo, and Charlie. These databases are in no way identical to any existing contracts. Figure 1 shows an example of my fictional database. I allow for inputting 25 months of data. This program could very easily be modified to add additional months, but I had no interest in what happened more than 25 months ago.

Developing the System

I used Microsoft Excel for making these charts and calculations. The inputs are

general contract information with six fields for numerical input: 1) Budgeted Cost of Work Scheduled (BCWS), 2) Budgeted Cost of Work Performed (BCWP), 3) Actual Cost of Work Performed (ACWP), 4) Budget At Completion (BAC), 5) Latest Revised Estimate (LRE), and 6) Number of months to be graphically displayed.

As shown in Figure 1, the column displaying only “1” entries is prior to awarding the contract. Using entries of “1” is

a space holder of sorts, and provides a practical solution to a programming problem. The blank columns are the future months. Once the user enters the number of months to be graphically displayed by putting a number to the right of “Input number of months to display in charts,” the model automatically outputs graphs depicting the most recent number of months selected. The last month displayed on the charts is determined by the last month with a value in the Actual Cost of Work Performed (ACWP) row.

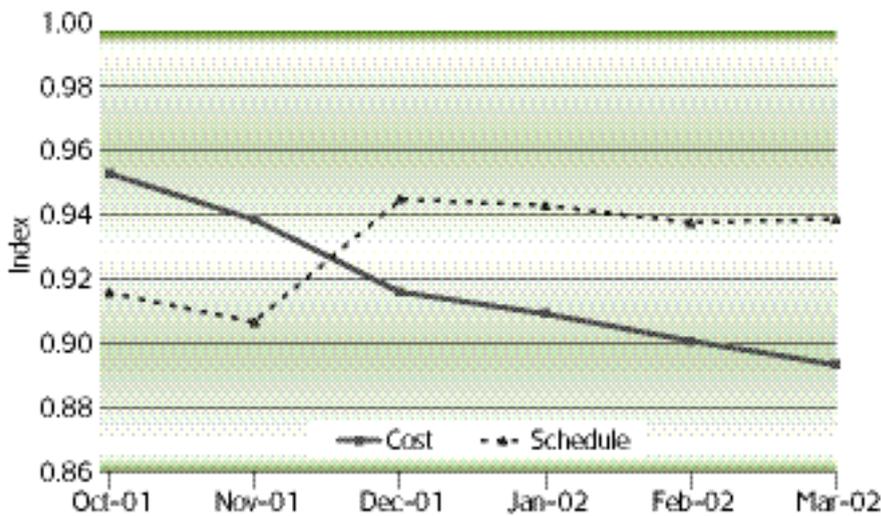
The outputs will be General Contract Information, Cost and Schedule Performance Index, and Cost and Schedule Variance, all graphically displayed for each contract.

Figure 2 shows the General Contract Information. Many values on the General Contract information are derived from

FIGURE 2. General Contract Information

Contract Name		Alpha Project	
Contract #	DAH001-01-C-0140		
Contractor	Big Company		
As of Date	Mar-02		
Start Date	10 October 2000		
Completion Date	30 April 2003		
Contract Type	CPIF		
Share Ratio	60% / 40%		
Fee; Min, Target, Max	5%, 7.5%, 15%		
Cost			
<i>(thousands of dollars)</i>			
BCWS	\$85,129	% of Schedule	56%
BCWP	\$79,919	% Complete	53%
ACWP	\$89,458	% Spent	59%
CV	-\$9,539		
SV	-\$5,210		
CPI	0.893		
SPI	0.939		
Target Cost	\$151,000		
BAC	\$151,000		
Klr LRE	\$151,000		
Govt EAC	\$169,023		
PMO	Alpha PO		
PM	COL One	313-0001	
DPM	LTC Two	313-0002	

FIGURE 3. Cost and Schedule Performance Index



automatically taking values off of, or calculated from, values on the input data sheet. This includes % of Schedule, % Complete, % Spent, CV, SV, SPI, CPI, and EAC.

Figure 3 shows Cost and Schedule Performance Index. Cost Performance Index is a measure of cost efficiency comparing the value of work accomplished for a dollar of cost. Schedule Performance Index is a measure of schedule efficiency comparing the value of work accomplished to the value of the work scheduled. I think of Performance Index as showing the degree of a problem, while Variance shows the magnitude of the problem.

Figure 4 shows Cost and Schedule Variance. Cost Variance is the difference between the value of work accomplished and the actual cost. Schedule variance is the difference between the value of work accomplished and the value of the work scheduled to that point in time. Variance shows the magnitude of a problem in dollars.

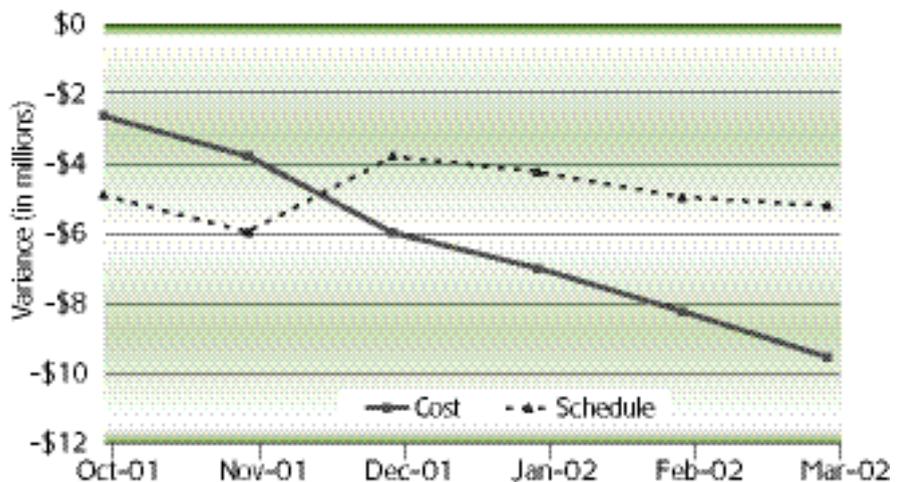
To automatically show the most recent number of months in the charts, I used the Microsoft Excel functions CountA and Offset.

The syntax for CountA is CountA (range). Microsoft writes, "CountA counts the number of cells that are not empty and the values within the list of

arguments. Use COUNTA to count the number of cells that contain data in a range or array." I used CountA to count the number of columns; columns correspond to months that contain data. CountA is used to find the column that has the latest, most recent month of data.

The syntax for Offset is OFFSET(reference cell, range begins number of rows up or down, range begins number of columns left or right, range height, range width). Microsoft writes "OFFSET Returns a reference to a range that is a specified number of rows and columns from a cell or range of cells. The reference that is returned can be a single cell or a range of cells. You can specify the number of rows and the number of columns to be returned."

FIGURE 4. Cost and Schedule Variance



The definition of Offset gave me a headache. In this case Offset finds the data set for the months to be charted, for example, the most recent 6, 12, or 18 months. The "range width," or "range is columns wide" argument is the number of months to display in the graphs. The range width is a negative number, which effectively says from the latest month go back the specified number of months, for example, 6, 12, or 18 months.

I then created Excel named ranges, such as Months, CPI, SPI, CV, and SV, which are the input data sets for the Cost and Schedule Performance Index chart, and the Cost and Schedule Variance charts. The formula for the range named CPI (Cost Performance Index) is shown in Figure 5. The Schedule Performance Index range is named SPI; the Cost Variance and Schedule Variance have range names of CV and SV, and they are very similar to CPI (Figure 5).

I had difficulty programming these functions and integrating these with Excel charting software. Descriptions of these functions are confusing. I read books and articles about setting up charts using this method, but I found that experimenting with Excel functions more readily led to workable solutions. (Users who find that Excel charting software just does not suit their needs may want to use a different charting software.)

I also used Excel to create the graphs and General Contract Information. To

FIGURE 5. Range Names

CPI=OFFSET(reference cell, range begins rows away, range begins columns away, range is rows tall, range is columns wide)

```
CPI=OFFSET('Alpha data'!$B$12,0,COUNTA('Alpha data'!$B$6:$AY$6)-1,1,'Alpha data'!$M$48)
```

configure these files for uploading to the Internet or Intranet, I used Excel FILE, SAVE AS WEB PAGE to save it as a HTML files. The files names are Alpha Project.htm, Bravo Project.htm, and Charlie Project.htm. I used WS_FTP free-ware software to upload the HTML files onto my Web site at <http://amarkell.home.mindspring.com>.

One Contract in One Minute

A major goal of mine was to make this system extremely easy to use and update, and I believe I accomplished that goal. With my contract performance information system, a user could conceivably perform a monthly update of one con-

tract in one minute. Just about anyone can fit that into his or her schedule.

The input data fields are colored red. If you input data where the print is black, you made a mistake. I keep a set of charts updated for one contract at the second level Work Breakdown Schedule, and I find that it saves me time rather than costing me time. If called upon, I can produce a variance or index graph very rapidly.

Potential Improvements

A very obvious improvement would be to add a variance analysis and a corrective action plan. They are very impor-

tant, but they are usually influenced by management's tendency to present problems in the best light and long-time delays. Knowing about a problem sooner, however, is better than waiting for a variance analysis and corrective action plan.

How to Get a Copy of the Program

My program could easily be modified to adapt to your contract. Again, the Web site for my fictional Alpha, Beta, and Charlie contracts output is <http://amarkell.home.mindspring.com> and the file names are Alpha Project.htm, Bravo Project.htm, and Charlie Project.htm. I hope some readers of this article are motivated to use my program to show their contract performance information.

Anyone that would like a copy of my program can e-mail me a request at amarkell@mindspring.com.

USDA Graduate School Honors DAU as Runner-up for W. Edwards Deming Award

On Sept. 12, during a ceremony held at the U.S. Department of Agriculture (USDA) Graduate School Annual Faculty Reception, the USDA Graduate School presented the W. Edwards Deming Outstanding Training Award to the Air Force Audit Agency. USDA also honored the Defense Acquisition University, Maintenance and Logistics Command Atlantic, and Department of Energy Idaho Operations Office with the Training Recognition Award as runners-up for the 2002 W. Edwards Deming Outstanding Award. Presented annually, the award honors a Federal Government civilian organization or branch of the military that has successfully completed an innovative employee development and training program.

The Deming Award honors Dr. W. Edwards Deming and recognizes his 22-year career with the Graduate School as a mathematics and statistics faculty member and curriculum chair. Deming, known as the father of the Japanese post-war industrial revival, was regarded by many as a cutting-edge quality guru. Before his death in 1993, he authored hundreds of papers and published *The New Economics*, a synthesis of his ideas on quality and leadership.

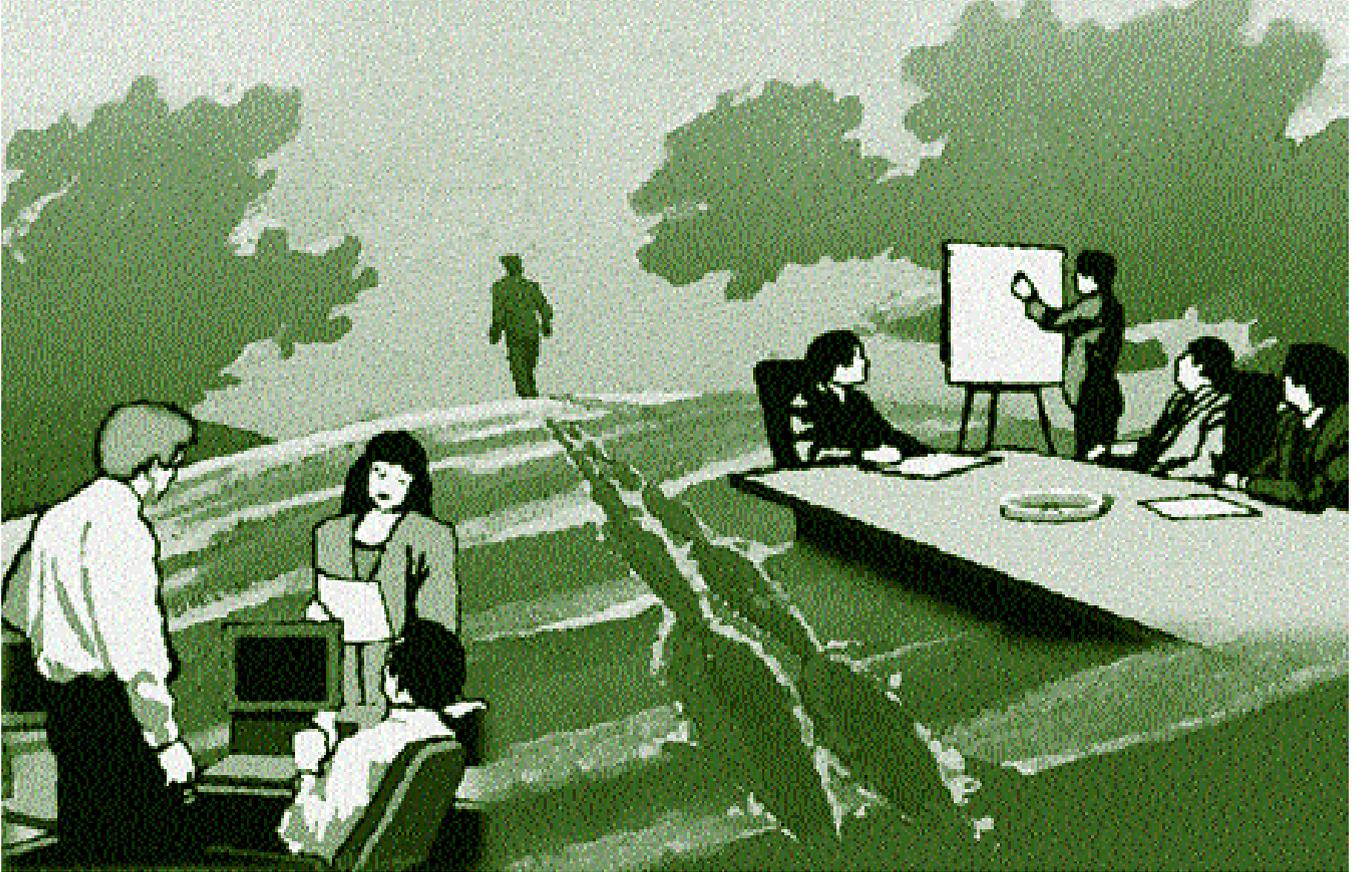


USDA Graduate School Training Recognition Award—presented to DAU during the USDA Graduate School Annual Faculty Reception, Sept. 12, 2002. Pictured from left: Christopher St. John, DAU Advanced Distributed Learning; Frank J. Anderson Jr., DAU President; and Dr. Jerry Ice, Executive Director, Graduate School, USDA.

Photo by Army Sgt. Kevin Moses

Arrange for an Offering of DAU's New:

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COURSE OFFERINGS

This course is offered on a fee-for-service basis with the date and location negotiated with the sponsor. The course can also be tailored to better meet the needs of the sponsoring organization.

CALL NOW!

Call the DAU Program Management and Leadership Department at 703-805-3424 or E-mail owen.gadeken@dau.mil to set up a course offering.





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Surfing the Net

DEPARTMENT OF DEFENSE

Under Secretary of Defense (Acquisition, Technology and Logistics) (USD(AT&L))

<http://www.acq.osd.mil/>
ACQWeb offers a library of USD(AT&L) documents, a means to view streaming videos, and jump points to many other valuable sites.

Director, Acquisition Initiatives (AI)

<http://www.acq.osd.mil/ar>
Acquisition news and events; reference library; AI organizational breakout; acquisition education and training policy and guidance.

DoD Inspector General

<http://www.dodig.osd.mil/pubs/index.html>
Search for audit and evaluation reports, Inspector General testimony, and planned and ongoing audit projects of interest to the acquisition community.

Deputy Director, Systems Engineering, USD (AT&L/IO/SE)

<http://www.acq.osd.mil/io/se/index.htm>
Systems engineering mission; Defense Acquisition Workforce Improvement Act information, training, and related sites; information on key areas of systems engineering responsibility.

Defense Acquisition Deskbook

<http://web1.deskbook.osd.mil>
Automated acquisition reference tool covering mandatory and discretionary practices.

Defense Acquisition History (DAH) Project

<http://www.army.mil/cmh-pg/acquisition/acqhome.htm>
The DAH Project is a multi-year program to produce a detailed history of defense acquisition since 1947, to be published in six volumes. The site features a quarterly online newsletter, project status announcements, acquisition history links, and contact information.

Defense Acquisition University (DAU)

<http://www.dau.mil>
DAU Course Catalog, *Program Manager* magazine and *Acquisition Review Quarterly* journal; course schedule; policy documents; and training news from the Defense Acquisition Workforce.

Defense Acquisition University Virtual Campus

<https://dau1.fedworld.gov>
Take DAU courses online at your desk, at home, at your convenience!

Army Acquisition Corps (AAC)

<http://dacm.rdausa.army.mil>
News; policy; publications; personnel demo; contacts; training opportunities.

Army Acquisition

<http://acqnet.saalt.army.mil>
A-MART; documents library; training and business opportunities; past performance; paperless contracting; labor rates.

Navy Acquisition Reform

<http://www.ar.navy.mil>
Acquisition policy and guidance; World-class Practices; Acquisition Center of Excellence; training opportunities.

Navy Acquisition, Research and Development Information Center

<http://nardic.onr.navy.mil>
News and announcements; acronyms; publications and regulations; technical reports; "How to Do Business with the Navy"; much more!

Naval Sea Systems Command

<http://www.navsea.navy.mil>
Total Ownership Cost (TOC); documentation and policy; Reduction Plan; Implementation Timeline; TOC reporting templates; Frequently Asked Questions.

Navy Acquisition and Business Management

<http://www.abm.rda.hq.navy.mil>
Policy documents; training opportunities; guides on areas such as risk management, acquisition environmental issues, past performance, and more; news and assistance for the Standardized Procurement System (SPS) community; notices of upcoming events.

Navy Best Manufacturing Practices Center of Excellence

<http://www.bmpcoe.org>
A national resource to identify and share best manufacturing and business practices being used throughout industry, government, and academia.

Space and Naval Warfare Systems Command (SPAWAR)

<https://e-commerce.spawar.navy.mil>
Your source for SPAWAR business opportunities, acquisition news, solicitations, and small business information.

Joint Interoperability Test Command (JITC)

<http://jitc.fhu.disa.mil>
Policies and procedures for interoperability certification. Access to lessons learned; link for requesting support.

Air Force (Acquisition)

<http://www.safaq.hq.af.mil/>
Policy; career development and training opportunities; reducing TOC; library; links.

Air Force Materiel Command (AFMC) Contracting Laboratory's Federal Acquisition Regulation (FAR) Site

<http://farsite.hill.af.mil/>
FAR search tool; *Commerce Business Daily* Announcements (CBDNet); *Federal Register*; Electronic Forms Library.

Defense Systems Management College (DSMC)

<http://www.dau.mil>
DSMC educational products and services; course schedules; job opportunities.

Defense Advanced Research Projects Agency (DARPA)

<http://www.darpa.mil>
News releases; current solicitations; "Doing Business with DARPA."

Defense Information Systems Agency (DISA)

<http://www.disa.mil>
Structure and mission of DISA; Defense Information System Network; Defense Message System; Global Command and Control System; much more!

National Imagery and Mapping Agency

<http://www.nima.mil>
Imagery; maps and geodata; Freedom of Information Act resources; publications.

Defense Modeling and Simulation Office (DMSO)

<http://www.dmsomil>
DoD Modeling and Simulation Master Plan; document library; events; services.

Defense Technical Information Center (DTIC)

<http://www.dtic.mil/>
Technical reports; products and services; registration with DTIC; special programs; acronyms; DTIC FAQs.

Defense Electronic Business Program Office (DEBPO)

<http://www.defenselink.mil/acq/ebusiness/>
Policy; newsletters; Central Contractor Registration; Assistance Centers; DoD EC Partners.

Open Systems Joint Task Force

<http://www.acq.osd.mil/osjtf>
Open Systems education and training opportunities; studies and assessments; projects, initiatives and plans; reference library.

Government-Industry Data Exchange Program (GIDEP)

<http://www.gidep.corona.navy.mil>
Federally funded co-op of government-industry participants, providing an electronic forum to exchange technical information essential to research, design, development, production, and operational phases of the life cycle of systems, facilities, and equipment.



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Surfing the Net

FEDERAL CIVILIAN AGENCIES

Acquisition Reform Network (ARNET)

<http://www.arnet.gov/>

Virtual library; federal acquisition and procurement opportunities; best practices; electronic forums; business opportunities; acquisition training; Excluded Parties List.

Committee for Purchase from People Who are Blind or Severely Disabled

<http://www.jwod.gov>

Provides information and guidance to federal customers on the requirements of the Javits-Wagner-O'Day (JWOD) Act.

Federal Acquisition Institute (FAI)

<http://www.faionline.com>

Virtual campus for learning opportunities as well as information access and performance support.

Federal Acquisition Jump Station

<http://nais.nasa.gov/fedproc/home.html>

Procurement and acquisition servers by contracting activity; CBDNet; Reference Library.

Federal Aviation Administration (FAA)

<http://www.asu.faa.gov>

Online policy and guidance for all aspects of the acquisition process.

General Accounting Office (GAO)

<http://www.gao.gov>

Access to GAO reports, policy and guidance, and FAQs.

General Services Administration (GSA)

<http://www.gsa.gov>

Online shopping for commercial items to support government interests.

Library of Congress

<http://www.loc.gov>

Research services; Congress at Work; Copyright Office; FAQs.

National Technical Information Service (NTIS)

<http://www.ntis.gov>

Online service for purchasing technical reports, computer products, videotapes, audiocassettes, and more!

Small Business Administration (SBA)

<http://www.SBAonline.SBA.gov>

Communications network for small businesses.

U.S. Coast Guard

<http://www.uscg.mil>

News and current events; services; points of contact; FAQs.

TOPICAL LISTINGS

MANPRINT (Manpower and Personnel Integration)

<http://www.MANPRINT.army.mil>

Points of contact for program managers; relevant regulations; policy letters from the Army Acquisition Executive; as well as briefings on the MANPRINT program.

DoD Specifications and Standards Home Page

<http://www.dsp.dla.mil>

All about DoD standardization; key Points of Contact; FAQs; Military Specifications and Standards Reform; newsletters; training; nongovernment standards; links to related sites.

Risk Management

http://www.acq.osd.mil/io/se/risk_management/index.htm

Risk policies and procedures; risk tools and products; events and ongoing efforts; related papers, speeches, publications, and Web sites.

Earned Value Management

<http://www.acq.osd.mil/pm>

Implementation of Earned Value Management; latest policy changes; standards; international developments; active notebook.

Fedworld Information

<http://www.fedworld.gov>

Comprehensive central access point for searching, locating, ordering, and acquiring government and business information.

GSA Federal Supply Service

<http://pub.fss.gsa.gov>

The No. 1 resource for the latest services and products industry has to offer.

Commerce Business Daily

<http://www.govcon.com/>

Access to current and back issues with search capabilities; business opportunities; interactive yellow pages.

DAU Alumni Association

<http://www.dsmcaa.org>

Acquisition tools and resources; government and related links; career opportunities; member forums.

INDUSTRY AND PROFESSIONAL ORGANIZATIONS

Electronic Industries Alliance (EIA)

<http://www.eia.org>

Government Relations Department; includes links to issue councils; market research assistance.

National Contract Management Association (NCMA)

<http://www.ncmahq.org>

"What's New in Contracting?"; educational products catalog; career center.

National Defense Industrial Association (NDIA)

<http://www.ndia.org>

Association news; events; government policy; *National Defense* magazine.

International Society of Logistics

<http://www.sole.org/>

Online desk references that link to logistics problem-solving advice; Certified Professional Logistician certification.

Computer Assisted Technology Transfer (CATT) Program

http://catt.bus.okstate.edu/new_catt/index.html

Collaborative effort between government, industry, and academia. Learn about CATT and how to participate.

Software Program Managers Network

<http://www.spmn.com>

Site supports project managers, software practitioners, and government contractors. Contains publications on highly effective software development best practices.

Association of Old Crows (AOC)

<http://www.crows.org>

Association news; conventions, conferences and courses; *Journal of Electronic Defense* magazine.



If you would like to add your acquisition or acquisition and logistics excellence-related Web site to this list, please put your request in writing and fax it to Sylvia Gasiorek-Nelson, (703) 805-2917. DAU encourages the reciprocal linking of its Home Page to other interested agencies. Contact the DAU Webmaster at webmaster@dau.mil.



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