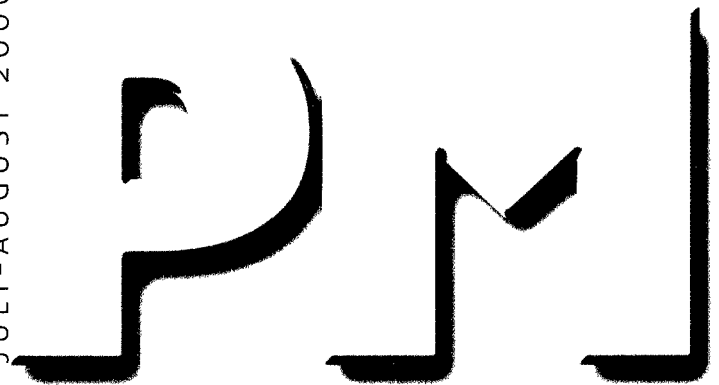


PROGRAM MANAGEMENT "TOOLS" COURSE — DSMC PILOT OFFERING SLATED FOR OCTOBER 2000

JULY-AUGUST 2000



PROGRAM MANAGER



ACQUISITION AND LOGISTICS REFORM DAY —
PACKARD AWARDS 2000

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**ATACMS Block II
FIRST FLIGHT**

**MASTERING THE CRAFT — FUTURE
OF CONTRACTING AS A PROFESSION**

**MILITARY PRODUCTS FROM COM-
MERCIAL LINES**

**LPD 17 Next New Ship
Class — First of 12 Ships
Slated for Commissioning in 21st Century**

*Capt. William H. Luebke, USN
LPD 17 Program Manager
(PMS 317)*

With actual delivery of the LPD 17 still four years
away, the LPD 17 Program's "Virtual Crew" process is
bringing the customer to the ship designer with re-
markable success.



**EC Day 2000 — Embracing,
Highlighting, Promoting
DoD-Industry
Electronic Commerce**



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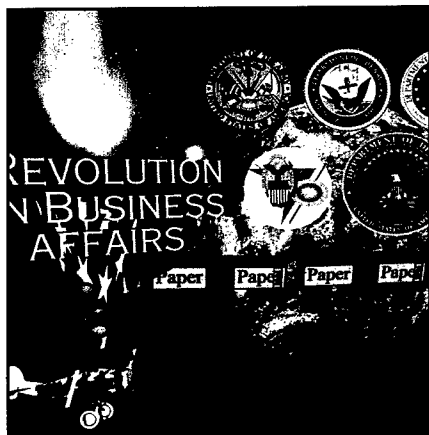
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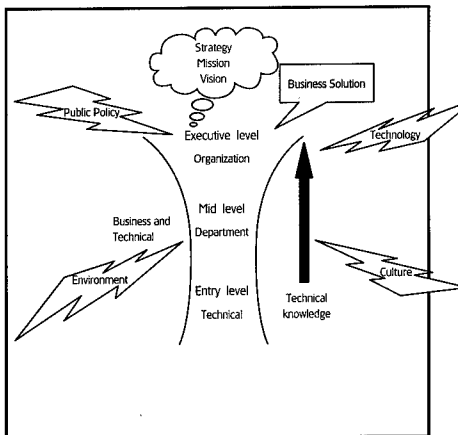
Vol XXIX, No.4, DSMC 157



EC Day 2000

Michelle Fetterman

Joint Electronic Commerce Program Office (JECPO) & Government Electronics and Information Technology Association (GEIA) continue efforts to promote and accelerate an *astounding* transformation of DoD's 20th century legacy of paper processes into a 21st century global digital environment.



Mastering the Craft

Janice M. Menker • Karen M.S. Hiltz

Two contracting professionals discuss the future of contracting as a profession, focusing on an innovative concept called "Business Broker." Includes interview with Deidre A. Lee, Defense Procurement Director and former OFPP Administrator.

Piloted Concepts for Commercial-Military Integration Ready for Implementation

Mary E. Kinsella

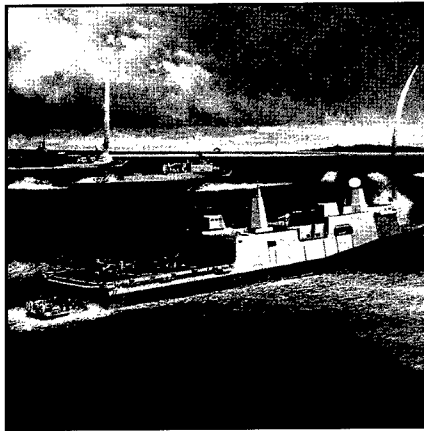
The results are in for an Air Force pilot demonstration called Military Products from Commercial Lines (MPCL).



ATACMS Block II First Flight

B.B. Brassell Jr.

Successful convergence of two major programs — the ATACMS missile and the BAT submunition — results in two flights, two firsts, and two successes.



Bringing the Customer to The Ship Designer

Kendall King

An outstanding example of innovation and Simulation Based Acquisition, the Navy's LPD 17 "Virtual Crew" process is relying on the customer to help design the first amphibious ship of the new millennium.



Roadblocks to Effective Team Dynamics in the IPPD Environment

Steven Thoman

Successful teams learn how to leverage their differences.

Cover: "Lighting" EC Day 2000 "Virtual Torch." From left: **Paul R. Brubaker**, Acting Deputy Chief Information Officer, DoD; **Army Lt. Gen. Henry T. Glisson**, Director, Defense Logistics Agency; **Roger Kallock**, Deputy Under Secretary of Defense (Logistics and Materiel Readiness); **Stan Soloway**, Deputy Under Secretary of Defense (Acquisition Reform); **Army Lt. Gen. David J. Kelley**, Director, Defense Information Systems Agency (DISA).

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EC Day 2000

JECPO Transforming DoD's 20th Century Legacy of Paper Into 21st Century Global, Digital Environment

MICHELLE FETTERMAN

"Today we continue the DoD eBusiness journey that we started two years ago, recognizing this year that electronic commerce is truly the catalyst for change in our emerging DoD digital environment," said Claudia "Scottie" Knott, Director of the Joint Electronic Commerce Program Office (JECPO).

In a repeat of last year's record turnout, Knott welcomed a large, diversified group of government and industry acquisition, contracting, and logistics professionals; information technologists; and senior defense industry and government executives to Electronic Commerce (EC) Day 2000.

Sponsored by JECPO and the Government Electronics & Information Technology Association (GEITA), EC Day 2000 took place June 5 at the Omni Shoreham Hotel in Washington, D.C. The one-day event provided government and industry representatives the opportunity to come together to celebrate and embrace this year's theme: "DoD eBusiness: A Catalyst for Change in a Digital Environment."

Showcasing Their Best

Knott, hosting her third event, explains that the organization was formed in response to the Defense Reform Initiative (DRI), which identified electronic commerce as one of the best business practices available for transfer from industry to the national defense. Organized under the Defense Logistics Agency (DLA) and the Defense Information Systems Agency (DISA), JECPO was created in January 1998 to help move all

Services' acquisition along the road to electronic business. JECPO established EC Day as a way to promote electronic commerce, examine its potential to rev-

olutionize DoD acquisition and logistics, and showcase the partnerships created among industry, business areas, and JECPO.



"Lighting" EC Day 2000 "Virtual Torch." From left: Paul R. Brubaker, Acting Deputy Chief Information Officer, DoD; Army Lt. Gen. Henry T. Glisson, Director, Defense Logistics Agency; Roger Kallock, Deputy Under Secretary of Defense (Logistics and Materiel Readiness); Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform); Army Lt. Gen. David J. Kelley, Director, Defense Information Systems Agency (DISA).

Fetterman is a communications specialist with SRA, Inc., Arlington, Va.

EC Day 2000 featured the presentation of the second annual EC Day awards, which included the Best DoD EC Web Site, Best DoD EC Pioneer, Best EC Team of Government Agency and Small Business Partner, Best EC Team of Government Agency and Large Business Partner, and a special eBusiness Leadership award that was presented to Army Lt. Gen. David J. Kelley, Director of the Defense Information Systems Agency (DISA).

EC Day events included three panel discussions on emerging issues in electronic commerce and electronic business

try contributed their knowledge and insight into electronic commerce and eBusiness, both of which are essential to DoD's "Revolution in Business Affairs."

This year's speakers included Dave McCurdy, former U.S. Congressman and current President of Electronic Industries Alliance (EIA). He explained that with all this new activity and unknowns, "Our job is to help fill in those spaces to make that connection a viable one, in which government and business and the public have a free flow interchange/exchange of ideas in business, in a way that makes government more responsive and better for all of us." McCurdy also reinforced EIA's commitment to making our digital society a global one.

Kelley reminded the group that "What we're here to discuss is support to the warfighter. That is our number one customer. That is our number one mission." He went on to stress the importance of keeping the needs of the warfighter at the forefront when making decisions about electronic commerce, stating that the "customer should always be at the center of what we do and what we decide ... what we're trying to bring to this partnership is application of technology that will, in fact, help the customer."

Emphasizing the importance of keeping ahead of technology in order to provide the best solutions to the warfighter, Kelley shared ways to serve the warfighter using electronic commerce. One lesson learned came from the Electronic Document Application, where a prototype went from 50 users to over 17,000 registered users in a very short period of time. This demonstrated the importance of incorporating scalability into the design of a product or system right from the beginning. Another success Kelley shared with the group was Simple Contractor Registration, which reduced the registration time for contractors from 30 days to 40 hours.

In closing, the soon-to-be-retired Kelley left the group with some advice. He cautioned against thinking any solution is

final for, "This is a journey, not a destination."

Army Lt. Gen. Henry T. Glisson, Director of the Defense Logistics Agency, credited the group with the progress made over the past three years. He said it couldn't have been done without their active participation, partnership, and involvement, and asked for their continued support as we [DoD] try to fulfill the EC vision.

EC Day, he commented, provides the opportunity to "celebrate the accomplishments we've had over the past year and the previous two years," to "identify some areas upon which we need to work a little harder," and to "visit booths, talk to each other, and to educate and learn."

Glisson also explained how crucial electronic commerce and eBusiness are to providing the required support to the 21st century warfighter. "The environment in which we are faced today," he said, "requires us to go in much quicker, into much more lethal situations, with much smaller forces, and we don't have the luxury anymore of getting in large quantities of supplies and equipment to support the warfighter. The only way we're going to do that is through electronic commerce and electronic business."

The journey toward electronic commerce began seven years ago, and in that time, according to Glisson, "We [DoD] have come very close to turning that dream into a reality." He encouraged the EC Day representatives, including those from industry, to "continue the journey." Said Glisson, "The success of our nation depends on you because we in uniform cannot do what we need to do in today's environment without capturing and harnessing the power of electronic commerce and electronic business."

The first keynote speaker, Roger Kallock, Deputy Under Secretary of Defense for Logistics and Materiel Readiness, provided the group with a logistics per-



(eBusiness), 18 mini-track sessions with presentations from business areas, and more than 40 electronic commerce exhibits from both industry and government. In addition, several distinguished speakers from government and indus-

spective on electronic commerce and eBusiness. Explaining the importance of providing actionable information to the warfighter on a real-time basis, he used an analogy comparing the warfighter customer to a "soccer team playing against the invisible enemy without the benefit of rules and regulations." Said Kallock, "We need to get into the mindset of that customer!" Real-time situational awareness, he asserted, "is what logistics transformation is all about."

Kallock emphasized the need for warfighter confidence. He defined it as "the ability to deliver the right product to the right place at the right time at the right cost all the time" and believes that is "what we're all about as a community."

Conceding that there are too many interdependent logistics systems, Kallock stated there is a great need to provide simpler, more focused processes. Electronic commerce has great potential to streamline these multiple processes and help defense logistics fulfill its mission, "[at the] right place, right time, right cost, all the time."

He encouraged everyone to accelerate the progress by bringing together the capabilities within their organizations and suppliers. "I believe what we are about today is learning mass customization and using the Internet and the Web capabilities to do something dramatically different for our business processes and really move the world we find ourselves living in dramatically forward."

The second keynote speaker, Stan Z. Soloway, Deputy Under Secretary of Defense for Acquisition Reform, reaffirmed Kallock's position on providing the best possible service to the warfighter and the importance of building customer confidence.

"As we move down this EC-EB path," Soloway cautioned, "we have to be more aggressive in challenging our internal processes." The use of non-value added systems and processes, according to Soloway, could hinder progress, causing

us [DoD] to lag behind industry. He added that we need to put more emphasis on how we acquire services because many government careers are spent buying products and weapons systems, not services.

The importance of maximizing the benefits of electronic commerce and eBusiness were also emphasized in Soloway's speech. He used the government credit card as an example. Although the card has successfully saved the government hundreds of millions of dollars, he believes the savings would dramatically in-

partment." The government, according to Soloway, needs to figure out who is going to be responsible for carrying out the initiatives being discussed at EC Day 2000. In the current environment of intense competition for IT professionals, he said, we must place an even greater importance on our partnership with industry.

Soloway had a word of caution on the subject of change. "The pace of change is so fast that it doesn't mean you need to be on every bandwagon, and it doesn't mean you need to jump on every op-



Distinguished speakers and guests, EC Day 2000. Seated from left: Michael Daniels, Chairman of the Board, Network Solutions; Dave McCurdy, President, Electronic Industries Alliance; Joanne P. Arnette, Director of Information Operations, Defense Logistics Agency; Army Lt. Gen. David J. Kelley, Director, Defense Information Systems Agency.

crease if we made improvements to the accounting side like we [DoD] did with the transaction side. Soloway also mentioned the bandwidth problem in the field and the importance of making sure everyone has access to these technological advancements.

Referring to the hiring/retention problem the government has with information technology (IT) professionals, he stressed the importance of addressing the problem now. "We have a great need to start hiring new talent. We have a great need to start building that next generation of professionals in the De-

portunity." Using online auctions as an example, he noted that while they have the potential to provide enormous savings to the government, they also run the risk that prices will be driven down to the point where the government will no longer be receiving the best value. Said Soloway, "We don't always have to be the leader. We can be a follower, but we have to be a close follower, and that's a fine distinction that I think we sometimes miss."

The third and final keynote speaker, Michael Daniels, Chairman of the Board

Claudia "Scottie" Knott, Director of the Joint Electronic Commerce Program Office (JECPO) welcomes government and industry acquisition, contracting, and logistics professionals; information technologists; and senior defense industry and government executives to Electronic Commerce (EC) Day 2000. Seated from left: Army Lt. Gen. Henry T. Glisson, Director, Defense Logistics Agency; Paul R. Brubaker, Acting Deputy Chief Information Officer, DoD; Roger Kallock, Deputy Under Secretary of Defense (Logistics and Materiel Readiness); Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform).



of Network Solutions, brought an industry perspective to EC Day 2000. Daniels provided the group with some background and history on the Internet and attributed its birth to the federal government and its industry partners. He predicts that we are still in the early days of the global wave of industry business, a revolution that could continue for the next 10 to 20 years. Although the Internet has primarily been U.S.-centric, he

noted, it has been rapidly expanding to Asia and the Pacific region over the past 18 months.

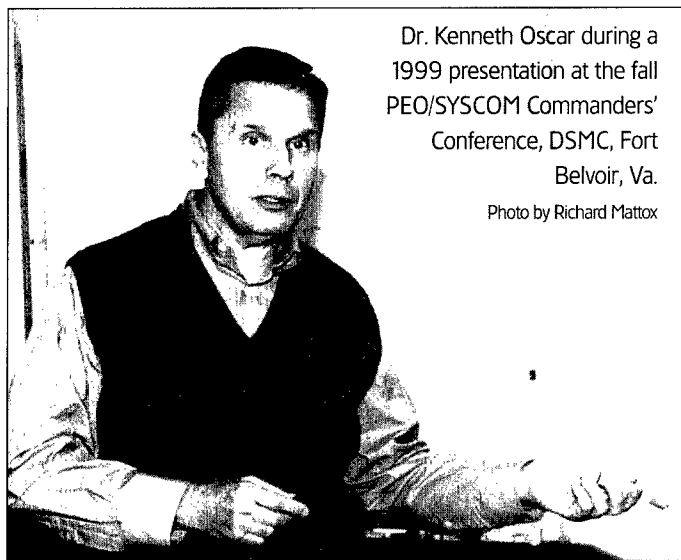
Daniels also touched on issues of Internet business, security, and governance. He emphasized the need for stable, reliable, and trusted service in order to ensure continued customer satisfaction and use. From his experience, the Internet's top three vulnerabilities are physical acts

of terrorism against global infrastructure, insecure protocols including DNS spoofing and cache poisoning, and denial of service attacks. Daniels believes taxation to be the second most important issue as a consensus has yet to be reached on who will do it and how it will be done.

Daniels advised the group to learn as much as possible about this new technology and cautioned them not to make the assumption that certain business areas will not be affected. He believes the Internet "could become at some point the major communication network for buying and selling globally." Daniels commented, "The kinds of things that are being dreamed up and are actually being implemented are beyond people's widest imaginations."

Virtual Torch Passed

Just as last year's EC Day celebration was highlighted by a virtual birthday cake, sponsors of this year's event dazzled onlookers with another novel display. A virtual torch was passed from the 20th to the 21st century, representing the importance of electronic commerce and DoD's transition from the legacy of paper of the 20th century to the global, digital environment of the 21st. This symbolic torch served in no small way to visually represent to all assembled for EC Day 2000 that DoD is demonstrating daily: *virtually anything* is possible in a *virtual environment*.



Dr. Kenneth Oscar during a 1999 presentation at the fall PEO/SYSCOM Commanders' Conference, DSMC, Fort Belvoir, Va.

Photo by Richard Mattox

OSCAR NAMED POLICY CHIEF FOR GOVERNMENT CONTRACTING

enneth Oscar has been named to serve as the new Policy Chief for Government Contracting. As the current Deputy Administrator (Acting) of the Office of Federal Procurement Policy (OFPP), Oscar replaced Deidre A. Lee, who moved to the Defense Department as Director of Procurement in March.

Prior to his move to OFPP, Oscar had served as Deputy Assistant Secretary of the Army for Procurement since 1995. A frequent visitor to the DSMC main campus at Fort Belvoir, Va., Oscar is recognized as a leader in, and strong advocate of, acquisition reform.

DoD EC D

SOLOWAY HONORS FIVE TOP EC

Best DoD Electronic Commerce Web Site

DBusOpps.com

This award recognizes an exceptional DoD business Web site that has resulted in improved efficiency, decreased cycle time, or increased services.

From left: Paul Brubaker, Acting Deputy Assistant Secretary of Defense and Deputy Chief Information Officer; Brent Pope, PricewaterhouseCoopers; Stan Z. Soloway, Deputy Under Secretary of Defense (Acquisition Reform).



Best DoD Electronic Pioneer

U.S. Air Force Supply Asset Tracking System

This award recognizes a DoD electronic commerce pioneering initiative that pushes the current state of EC to eliminate an antiquated paradigm and to demonstrate a high level of government creativity and innovation.

From left: Brubaker; Pete Ramirez, Supply Asset Tracking System Project Manager, Air Force Materiel Command; Soloway.

Best Electronic Commerce Team of Government Agency and Large Business Partner

Integration of TACOM WEB EC and DFAS WinS Systems Team

Large Businesses: Harbinger Corporation, Computer Associates International, Inc. (formerly Sterling Software), and Techolote Research Inc.

This award recognizes the best electronic commerce team of a government agency and an industry partner for outstanding achievement of EC principles or application within DoD.

From left: Brubaker; Deborah Long, Supply Systems Analyst, U.S. Army Tank-automotive and Armaments Command; David Arvin, Systems Accountant, Defense Finance and Accounting Service; Phil McLaughlin, Vice President of Professional Services, Harbinger Corporation; Mark Edmunds, Technical Manager, Techolote Research, Inc.; Sheila Wright, WinS Systems Administrator, Computer Associates International, Inc.; Soloway.

DoD Working Toward First-Class Civilian Education System

RUDI WILLIAMS

ASHINGTON - DoD has a potential civilian employee problem, and Jerome Smith is working on preventing it. The problem is that thousands of highly skilled "baby boomers" will become eligible to retire shortly. Any mass exodus would leave a giant "skills gap" in DoD's civilian workforce. Smith said DoD should start planning to fill the gap now, before it's too late.

When Smith was sworn in as DoD's first chancellor of civilian education and professional development on Oct. 2, 1998, Secretary of Defense William S. Cohen touted the appointment as a new era in DoD's education of its civilian workforce. He tasked Smith with creating a world-class education and professional development system for civilian employees patterned after the best aspects of the military system and corporate America.

"We're looking at the lessons corporate America has learned and is willing to share with us about being world-class competitors," said Smith. "We'd like to take the best of what they've learned and incorporate it into our system."

He noted that a lot of the baby boomers' replacements are already in DoD's workforce and looking at a new era of tremendous technological and socioeconomic change. Smith said DoD must ensure its education and professional development programs prepare these new leaders and managers to do as well or better than their predecessors.

And then there's another high hurdle to cross — recruiting.

"[Because] we must compete with a robust economy for top-quality people, we need to make the Department operate effectively," said Smith, the principal advocate for the academic quality and cost-effectiveness of all DoD civilian education and professional development activities.

Successful world-class companies know their workforce is their most important asset, and so they use education and professional development programs



Dr. Jerome Smith, DoD
Chancellor for Education and
Professional Development

to attract and retain quality people, he noted.

"That's what we need to do if we're going to be competitive with those same corporations for the workforce," Smith emphasized. He said potential employees need to know what DoD can offer that would make Defense the place they want to work.

Smith visited several firms in Northern California's Silicon Valley to see how those high-tech, high-performance companies treat their employees. "They offer wonderful education and professional development to their people for many reasons," he said. "Part of it is to

help them get their product out. Part is to keep their people at the front of the technological revolution, and part of it is to meet their employees' personal needs for their own personal growth.

"That's our competition," he emphasized. "If we want to play in that market, we have to provide the same type of high-quality education and professional development for our workforce." Smith said all DoD civilian employees should know they will receive the appropriate training required for advancement and to do their jobs as well as they can be done. He said he's working toward an education and professional development system that will be personally rewarding for DoD employees.

"We're going to provide a system that makes us competitive," Smith said. "And, it will make our people enjoy their work and feel that they are current and are building their own educational portfolio as they progress through their Defense career. We want people to feel good about working in DoD because it's an important enterprise and critical to our nation's survival."

Ensuring that all of DoD's educational institutions gain accreditation is Smith's first goal. The second is to publish standards that DoD demands of institutions and [identify] programs that are suitable for the workforce.

JULY 2000

TEAMS IN JUNE 5 CEREMONY

Best Electronic Commerce Team of Government Agency and Certified Small Business Partner

This award recognizes the best electronic commerce team of a government agency and an industry certified small business partner for outstanding achievement in the advancement of EC principles or applications within DoD. This year two teams walked away with the award.



Defense Supply Center Philadelphia Directorate of Subsistence Quality Database Management System Team

Small Business: MFG Systems Corporation

From left: Brubaker; Charles Grabowski, Project Manager, Quality Database Management System; Peter Brassington, Director of Emerging Technologies, MFG Systems Corporation; Soloway.



U.S. Air Force Wide Area Work Flow — Receipts and Acceptance Team

Small Business: Space Mark Inc.

From left: Brubaker; Carrie Cardwell, Air Force Wide Area Work Flow Project Manager, Contracting Systems Division, Headquarters, Air Force Contracting; Soloway; William Watson, Project Manager, Space Mark Inc.



DoD to Combat Effects of Civilian Downsizing

JIM GARAMONE

WASHINGTON, May 22, 2000 — After more than a decade of downsizing, DoD has an older civilian workforce with a higher average grade, and this worries DoD officials.

Diane Disney, Deputy Assistant Secretary of Defense for Civilian Personnel Policy, said in a recent interview the Department must address worker age and grades to ensure DoD has the right number of people and right mix of skills for the future.

She said the average age of DoD's workforce has increased from about 42 to 46 since the end of fiscal 1989, "and we expect it to rise over the next couple of years to 47." DoD civilians also have a higher average General Schedule grade now — up from 8.5 in 1990 to 9.3 today. On the blue-collar side, the wage board average grade rose from 8.2 to 8.7.

"The oldest baby boomer turns 55 in 2001," she said. "That means we will begin to see more and more civilians departing starting next year than we've ever seen before." Compounding the turbulence, DoD now has about 76 percent fewer people in their 20s than it did a decade ago.

"At one level, we expect more turnover of people in their 20s than in any other group because that's a decade of explo-



ration," she said. "That's when people try things and move on and try other things." But DoD also has 50 percent fewer people in their 30s than it did a decade ago.

"There is no corollary between skills and age, but at the same time, it is essential that we have age diversity," Disney said. DoD will always have turnover, and there must be an adequate supply of appropriately trained people in the pipeline, she remarked. Since the downsizing began, DoD has eliminated roughly 420,000 civilian positions. The Department must cut another 70,000 between now and the end of fiscal 2005. That's about 10 percent of the current total.

"Downsizing has resulted in a workforce very different from the workforce we faced at the end of fiscal 1989," Disney said. "Coupled with the technological changes that have occurred and the increasingly complex mission of the Department, this downsizing poses some real challenges."

In the acquisition workforce, for example, about half of the people who are now employed won't be around in five years, Disney said. "That provides an unprecedented opportunity to reshape that workforce," she said. "But it requires that we begin now to analyze the knowledge, skills, and abilities that we're going to need at that point."

DoD is finding there are differences in the Department's occupational mix. "We are an increasingly professional workforce," Disney said. "We have eliminated

Garamone is on the staff of American Forces Press Service. This information is in the public domain at www.defenselink.mil/news on the Web.

"Another goal would be to build a true community of DoD civilian educators," he said. "We need coherence because that's what characterizes the good parts of our volunteer education program, K through 12 program, and our military education and training program. We need the same thing on our civilian side."

Smith said his office has become a broker for accreditation of DoD institutions through the voluntary accreditation process in use in American higher education and recognized by the U.S. Department of Education.

Some DoD educational institutions, such as the Uniformed Services University of Health Sciences, lead the way with multiple accreditations. The university, in Bethesda, Md., has regional and specialized accreditations for its doctor, nurse, and doctorate programs.

War colleges and military academies have been accredited for a long time, said Smith, a former leader of a couple of colleges at the National Defense University, a fully accredited institution authorized to give masters' degrees.

"We have other institutions that have specialized accreditations, such as the Defense Information School at Fort Meade, Md., which trains military journalists, broadcasters and photojournalists," Smith said. "It has been accredited by the Council on Occupational Education, a specialized accreditor recognized by the Department of Education."

But, he pointed out, not all DoD institutions are accredited — yet. "We can do it," he said.

Since DoD is moving toward an information-based Department from a production-based operation, Smith said DoD's workforce should be educated in the jobs workers will have in the new information age.

For example, Smith said Jacques S. Gansler, Under Secretary of Defense for Acquisition, Technology and Logistics, is already encouraging his staff to keep learning. "He has issued a continuing education policy document, which requires a certain number of hours of education and professional development every two years for that large workforce — about 150,000 people," Smith said.

DoD also has a superb voluntary education program that allows servicemembers and civilian workers to attend off-duty classes at civilian education institutions, according to Smith.

"What we really don't have is a similarly organized civilian education program," he noted. "That's what we're focusing on improving now."

Smith said since becoming chancellor, he has established a fully manned office and created a Web site. He and his staff planned and hosted the first DoD conference on civilian education and professional development and scheduled the second for Aug. 8-9 at the Uniformed Services University of the Health Sciences.

He has also organized the DoD Metrics of Excellence Task Force, which is laboring to produce standards for DoD educational institutions. The third steering committee meeting is scheduled for June 28 at Smith's office in Arlington, Va.

Smith wants his legacy to be an education and professional development system that results in a world-class civilian workforce. He said the workforce should be comparable and suitable for the support of DoD's already world-class military.

Calling himself "a product of the military education system," Smith said he's a graduate of the U.S. Naval Academy in Annapolis, Md. The Navy also sponsored him through a Stanford University doctoral program.

"That education had some bearing on most every job I was assigned in the Navy," he said. "That ultimately led to my assignment as the commandant of the Industrial College of the Armed Forces — one of our two senior joint war colleges. So I've participated in the education program from the beginning to the end."

"Those exposures convinced me that the military has a very fine professional military education system with the kinds of characteristics that a system needs to have — clear goals, clear assignment of responsibility," said Smith. "There are feedback mechanisms, and tracking mechanisms which measure the quality of the outputs at all the key points."

"I'm convinced those characteristics are what makes the military system so good," he said. "We don't have that same systematic approach in civilian education because we are, for many reasons, divided up in a different way. But there are elements in that process that we can bring into our civilian education system to improve the process."

More information about Smith's office and DoD Education and Professional Development is on the Internet at www.chancellor.osd.mil.

Editor's Note: Williams is a public affairs specialist with the American Forces Press Services. This information is in the public domain at www/defenselink.mil/news.

66 percent of the clerical jobs we had and 47 percent of the blue collar jobs. So our workforce has a greater share of people who are professional, technical, and administrative than it did in the past."

DoD needs workers with increased technological skills, improved service orientation, the ability to adapt to change, and the capacity to do a broader range of things, Disney said.

But these skills are exactly what private industry is looking for also. "We're facing a particularly difficult challenge, ironically because the country is doing so well," Disney said. "With less than a 4-percent unemployment rate, it almost seems as if anybody who can fog a mirror can get a job. So we cannot continue to operate under the assumptions we had in the past."

Among those assumptions is the idea that the federal government offers stable, lifetime employment. "Ten-and-a-half years of downsizing can raise doubts about that," she said.

Another assumption is that DoD cannot compete financially with the private sector. "The growth of the high-technology fields has meant that private industry has dramatically raised the compensation packages it offers to people," Disney said. "As part of the federal government, we don't have the same latitude, but we do have some options such as recruitment bonuses and retention allowances."

DoD and the Services are ensuring that managers know these options exist. "They've not been widely used, but in some occupations they are clearly going to have to be," she said.

For years, supervisors have complained that hiring is too slow. "A private sector employer can meet you now and in five minutes give you an offer," Disney said. "The federal government can meet you now, and then you fill out its forms."

DoD is looking to simplify hiring by examining regulations and working with the Office of Personnel Management to suggest legislative changes, she said.

Finally, DoD is looking to better manage the workforce and ensure it has the right mix of skills at every location to meet its readiness needs. "We have been fortunate that Congress has helped us with buyout authority and retirement authority," Disney said. "These have helped us ensure workforce stability during some very difficult times. "However, we now need to look at the next generation of transition authorities," she continued.

Currently, the use of voluntary separation incentives and voluntary early retirements are tied to reductions-in-force, so the Department has to sacrifice a position to offer a buyout.

Buyouts have helped DoD meet milestones in downsizing to the right number of people, but not necessarily the right mix of occupations, she said.

"We need to be able to offer a buyout where appropriate, but still fill a position," Disney said. "We are working with other agencies and members of Congress to see if we can negotiate that kind of change. We need this change as soon as we can get it."

DoD AWARDS GRANTS TO HISTORICALLY BLACK AND OTHER MINORITY COLLEGES AND UNIVERSITIES

Deputy Director of Defense Research and Engineering Delores Etter announced today [May 25, 2000] the award of grants totaling \$5.388 million to 31 historically black and other minority colleges and universities. These grants represent the final phase of the fiscal 2000 Department of Defense (DoD) Infrastructure Support Program. The grants will enhance programs and capabilities at these institutions in scientific disciplines critical to the national security of the DoD. Since 1992, the program has provided more than \$111 million to minority institutions for program enhancements in science, engineering, and mathematics. The program goals include increased participation of minority institutions in defense research and an increase in the number of minority graduates in the fields of science, engineering, and mathematics.

The grants were competitively selected from over 130 proposals submitted to the Army Research Office (ARO) and the Air Force Office of Scientific Research (AFOSR) in response to a Broad Agency Announcement issued in September 1999. The ARO and AFOSR will award equipment

grants ranging from \$35,000 to \$200,000 for one year. Research grants ranging from \$270,000 to \$572,000 will be awarded by AFOSR.

These 31 awards include 26 instrumentation grants and five research grants. Among the awardees are 13 historically black, 13 Hispanic, and five other minority colleges and universities. These include 17 awards by the AFOSR and 14 by ARO.

Awards will be made only after written agreements are reached between the Department and the institutions.

Details of the awards can be found at http://www.defenselink.mil/news/fact_sheets/hbcuFY00awardslist1.html

Editor's Note: This information, published by the Office of the Assistant Secretary of Defense for Public Affairs, is in the public domain at www.defenselink.mil/news on the Web.

EXCERPTS FROM STATEMENT OF

DR. DIANE M. DISNEY

Deputy Assistant Secretary of Defense for Civilian Personnel Policy

**BEFORE THE MILITARY READINESS
SUBCOMMITTEE
HOUSE ARMED SERVICES
COMMITTEE**

**CIVIL SERVICE SUBCOMMITTEE
HOUSE GOVERNMENT REFORM
COMMITTEE**

Overview of Civilian Personnel Issues • March 9, 2000

Editor's Note: The following text is an excerpt from testimony by Dr. Diane M. Disney on the subject of "Investment in Education and Training." To read the entire text of her testimony, "Overview of Civilian Personnel Issues," go to <http://www.defenselink.mil/dodgc/lrs/docs/test00-03-09Disney.htm>

he primary value of workforce projections is that they enable managers to allocate resources toward meeting future needs. In the 1990s, DoD managers were pleased that implementation of the Goldwater-Nichols Act had been yielding an officer corps that was more highly educated with a stronger joint perspective than ever in the past. However, there had not been a similar investment on the civilian side. To the contrary, civilians tended to remain occupationally stove-piped despite the fact that their jobs were becoming broader and their responsibilities more complex. They had very few opportunities for developmental assignments and little exposure to national security decision making. Clearly, a change was needed.

That change came when, in response to recommendations from the Commission on Roles and Missions of the Armed Forces, DoD created its Defense Leadership and Management Program (DLAMP).

**DLAMP — Preparing DoD
Civilians to Become Key Leaders**

Since its Directive was signed in 1997, DLAMP has been DoD's first systematic,



Aimed at DoD employees currently at the GS-13, 14, and 15 levels, DLAMP requires a one-year rotational assignment outside one's occupation or Component; at least a three-month course in professional military education at the senior level; and at least 10 advanced-level graduate courses in subjects important for Defense leaders.

Department-wide program to prepare civilians for key leadership positions at the GS-14, GS-15, and Senior Executive Service levels. Aimed at DoD employees currently at the GS-13, 14, and 15 levels, DLAMP requires a one-year rotational assignment outside one's occu-

pation or Component; at least a three-month course in professional military education at the senior level; and at least 10 advanced-level graduate courses in subjects important for Defense leaders (in a format similar to a Defense-focused M.B.A.). These activities are completed

over six to 10 years. Competitively chosen for admission, each participant also has a personal mentor to provide guidance throughout the multi-year effort.

With the orientation of its fourth class (258 participants) on Feb. 22, DLAMP now has some 1,100 participants. Currently, 83 are enrolled in the 10-month PME courses at Senior Service Schools for the 1999-2000 academic year; 98 have already completed one of these 10-month courses with their military counterparts. Team-taught graduate courses began on Feb. 23, 1998. As of two years later, the program has conducted 82 graduate courses, with 1,227 students in attendance. Approximately 65 additional graduate courses will be conducted through the remainder of Fiscal Year 2000. In addition, this program is serving as a model for similar efforts in several other countries.

The success of DLAMP has heightened awareness of the need for similar investments in the civilian workforce, both

in terms of leadership skills and in terms of occupational knowledge. Because our research has indicated that higher-level DoD positions are filled overwhelmingly by people who have spent some time within the Department, it is essential that DoD invest in its civilian cadre. To that end, the Defense Science Board's Task Force on Human Resources Strategy recently issued a strong endorsement of DLAMP's expansion and a recommendation for a DLAMP preparatory program for employees at the GS 9-12 levels. This was accompanied by a recommendation to expand efforts to recruit and develop interns on both the specific occupational tracks and on the higher levels as Presidential Management Interns.

To add strength to this area, the Task Force said that DoD should continue with its planned efforts to seek legislative flexibility to permit payment for degrees and certificates in relevant fields of study.

As you are aware, the Defense Acquisition University is being reorganized to provide better-targeted education and training for its students. In another area, the Intelligence Community has created a special Assignment Program to ensure that future intelligence officers have a well-rounded preparation as well as a deep grounding in specific areas. This program encompasses two-year developmental assignments across agencies, as well as specific coursework; completion will be required for Intelligence Community Officer designation in the future.

DoD's Commitment

These examples serve to indicate the Department's commitment to developing new ways to improve the skills and education of its civilian employees to enable them to meet increasing challenges. It also underscores our recognition of the importance of providing a strong, informed, capable infrastructure to support the military.

The Army announced the Joint Tactical Radio System (JTRS) Joint Program Office, with contract support from U.S. Army Communications-Electronics Command (CECOM), recently signed an "Other Transaction" Agreement with BAE Systems Aerospace Inc. — CNI (BAE SYSTEMS), Wayne, N.J.

BAE SYSTEMS will perform a research, development, and production effort to assist in validating the emerging open standard Software Communications Architecture (SCA) being developed as part of JTRS Step 2A activities. Step 2A will result in a validated architecture that will be used to support real-time, distributed, embedded tactical software radio applications. Step 2B provides further validation of the SCA. This Step 2C effort will provide 40 engineering development models of 2-channel systems, and 220 ruggedized 2-channel prototype radios, to help validate the networking portion of the SCA. This Other Transaction Agreement No. DAAB15-00-9-0008 is approximately a \$14.5 million effort.

The JTRS is an enabler of the doctrine of information superiority, as it must be supported on the battlefield. The

SCA is a specified set of rules, methods, and design criteria for implementing software reprogrammable digital radios. The SCA will become the basis for all future DoD tactical radio acquisitions. While this effort is being sponsored by DoD, it is expected the SCA will become an industry-accepted standard for both commercial and military radios.

This Agreement is an "Other Transaction" Agreement under the authority of 10 U.S.C. section 2371 and Section 845 of the 1994 National Defense Authorization Act, as amended. The other transaction authority is being used to reduce the traditional administrative and oversight burden of government contracts. This innovative agreement is not subject to the normal federal procurement laws and regulations, and allows a great deal of flexibility.

For further information, call Army Public Affairs, (703) 697-7591.

Editor's Note: This Memorandum for Correspondents, released June 30 by Army Public Affairs, is in the public domain at www.dtic.mil/armylink/news.

CSAF Displays Confidence in, Commitment for V-22

WASHINGTON (AFPN) — Air Force Chief of Staff Gen. Michael E. Ryan flew aboard a MV-22 Osprey June 23 at the Naval Air Systems Command, Patuxent River, Md.

The flight was a demonstration of Ryan's confidence in the safety of the aircraft following an April 8 crash in Arizona that resulted in the deaths of 19 Marines. Accompanying Ryan on the flight was Commandant of the Marine Corps Gen. James L. Jones.

Following the flight, Ryan reiterated the Air Force's commitment to purchasing 50 of the multi-mission, tilt-rotor aircraft.

The V-22 Osprey combines the vertical flight capabilities of a helicopter with the forward flight speed and range capabilities of a fixed-wing turboprop aircraft.

According to Ryan, the V-22's versatility is a key factor for the Air Force, which plans to buy the aircraft to support special operations forces.

The Air Force variant, the CV-22, will replace the MH-53J helicopter and augment the MC-130 fleet in special op-

The MV-22 Osprey is a multi-mission, tilt-rotor aircraft that combines the vertical flight capabilities of a helicopter with the forward flight speed and range capabilities of a fixed-wing turboprop aircraft. The Air Force variant, the CV-22, will replace the MH-53J helicopter and augment the MC-130 fleet in special operations missions.

Photo by Staff Sgt. A.J. Bosker

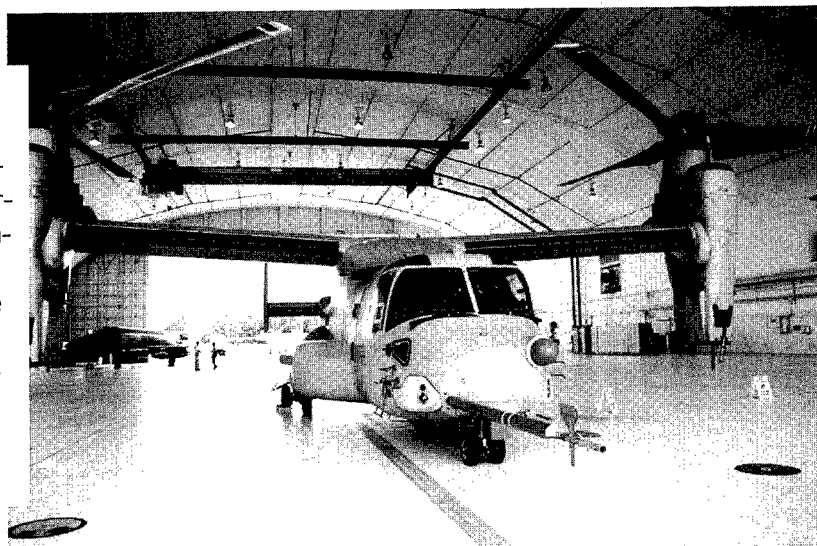
erations missions, he said. The aircraft has the ability to fly at speeds in excess of 250 knots, and has the capability to convert from rotary-wing to fixed-wing flight rapidly. This unique capability increases survivability and gives the V-22 greater range and speed than conventional helicopters.

"It gives a whole new dimension to how we will operate in special operations forces because of the depth it can go," he said. "It can get in where it needs to be and has the hover capability to drop off or pick up assets and get them back out."

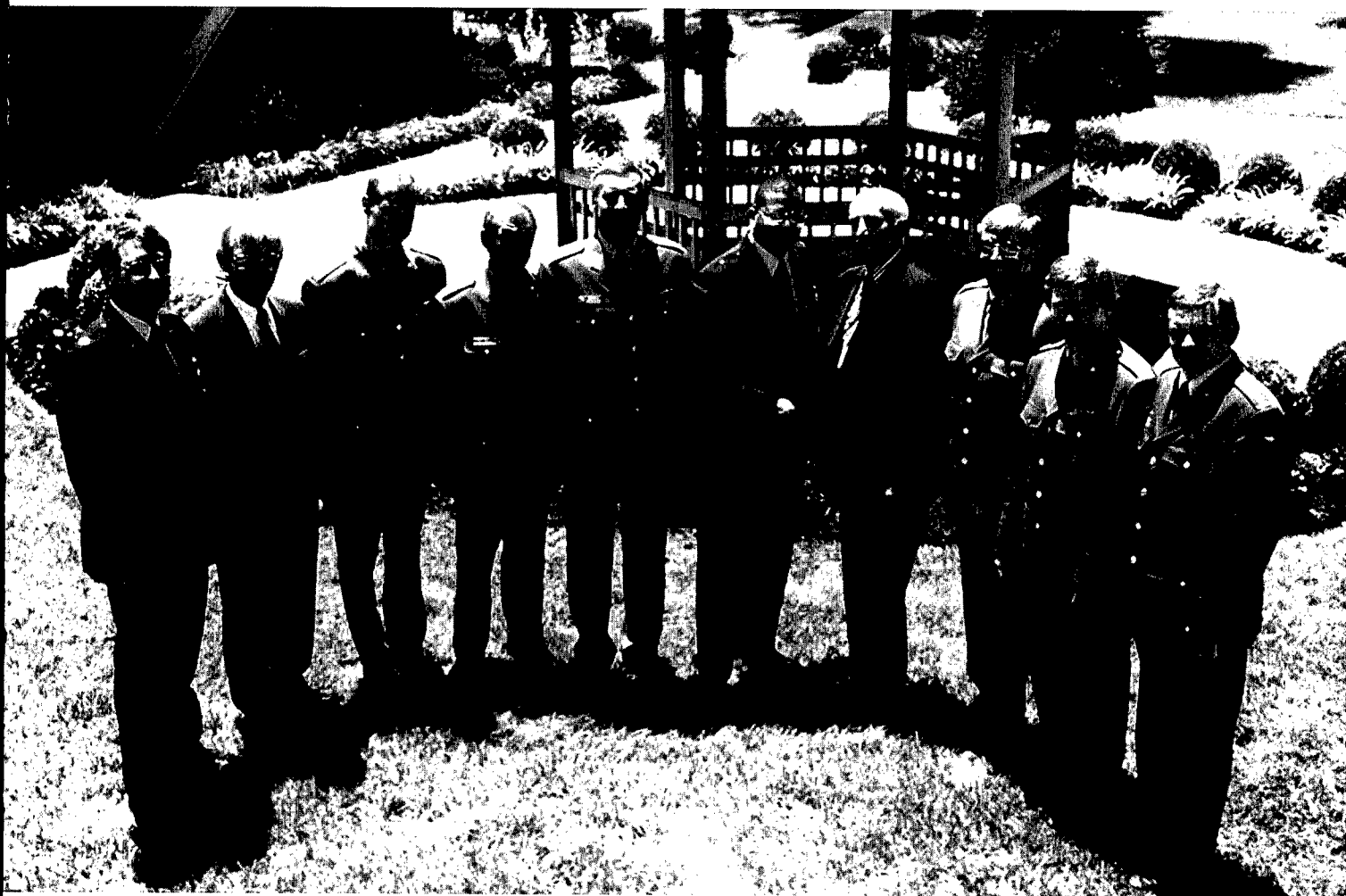
The Air Force expects to achieve initial operational capability in 2004.

The Marine Corps, the lead service in the V-22 program, plans to buy more than 350 MV-22s to replace its CH-46 and CH-53D helicopters. The Navy plans to get a third version of the V-22, the HV-22, for fleet logistics support, special warfare, and combat search and rescue.

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



NEWLY INDUCTED NATO MEMBERS VISIT DSMC



SMC faculty and staff met with members of the Czech Republic on June 20 as part of a continuing OSD Orientation Program on the U.S. acquisition process for newly inducted NATO members. During their orientation, the Czechs visited the Advanced Amphibian Assault Vehicle program facilities; the Air Force Program Executive Office (Fighters and Bombers) (AFPEO/FB), Office of the Assistant Secretary of the Air Force (Acquisition); and the Army Materiel Command. The orientation program will be expanded to include other former Soviet Bloc countries participating in the Partnership for Peace effort. DSMC will likely provide on-site training at a later date.

Pictured from left: Air Force Lt. Col. Raymundo Cancel, U.S. Air Force Office of Defense Cooperation, Prague; DSMC professor Kenneth L. Kladiva, Fort Belvoir, Va.; Czech Army Capt. Roman Komarek, National Armaments Directorate, Prague; Czech Army Col. Vladimir Baleka, Assistant to Deputy Minister of Defense, Prague; Czech Army Gen. Maj. Rostislav Kotil, Defense Attache to United States, Washington, D.C.; Air Force Brig. Gen. Frank Anderson Jr., DSMC Commandant, Fort Belvoir, Va.; Deputy Minister of Defense Jindrich Tomas, Prague; Czech Army Col. Vladimir Cech, National Armaments Directorate, Prague; Czech Army Col. Jan Dzvonik, Ministry of Defense, Prague; Czech Air Force Col. Jaroslav Urik, Prague.

Military Links Developmental and Operational Testing to Meet Technology Challenges of the 21st Century

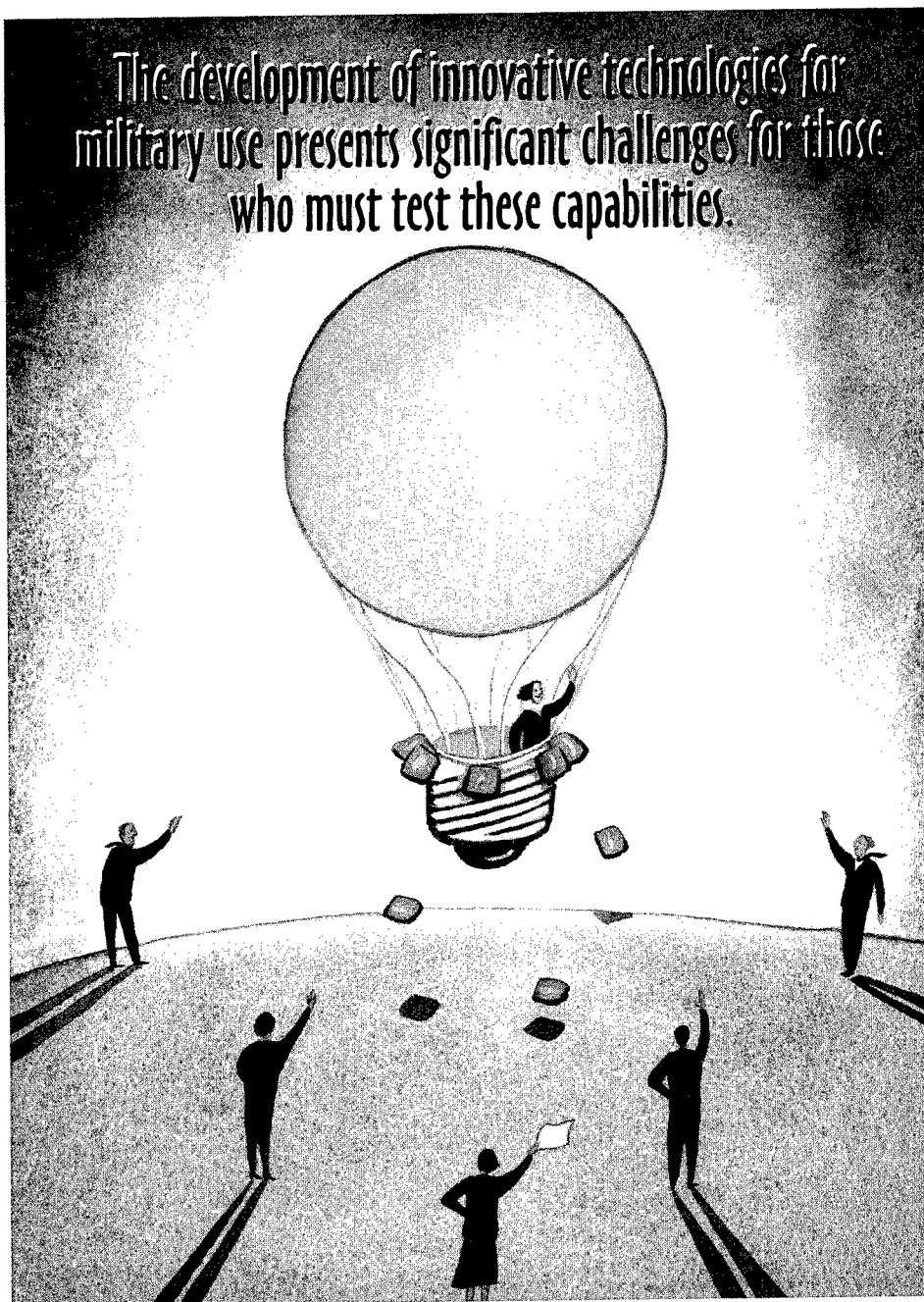
MIKE CAST

In the future, Army tanks might travel on wheels instead of tracks, or use nonferrous materials such as ceramics for armor plating. Monitors the size of a wristwatch might be used to record soldiers' heartbeat rates and other vital signs, take minute blood samples, or even administer drugs to combat stress or illness. The development of innovative technologies for military use presents significant challenges for those who must test these capabilities.

Engineers and scientists from government and industry research laboratories and facilities that test military equipment met April 11-12 at the 13th Annual Test Technology Symposium in Ellicott City, Md., to discuss these and similar technologies that could benefit tomorrow's armed forces. Representatives of various academic institutions as well as engineers from Germany, France, the United Kingdom, and Australia also joined in the discussions.

The symposium, sponsored by the U.S. Army Developmental Test Command (DTC), focused on emerging technologies for testing new military weapon systems and equipment as they evolve from engineering concepts and become reality. The conference underscored efforts in the U.S. armed forces to achieve closer collaboration among the laboratories and

The development of innovative technologies for military use presents significant challenges for those who must test these capabilities.



Cast is a public affairs specialist with the U.S. Army Developmental Test Command Public Affairs Office, Aberdeen Proving Ground, Md.

centers that test and evaluate new military hardware and equipment.

The three U.S. military departments have all undertaken initiatives to link the tests of systems under development with the operational tests that involve test exercises in the field. To reach this goal, the Army reorganized its test and evaluation program in October 1999 to place developmental and operational testing under one command. The Army Test and Evaluation Command (ATEC), headquartered in Alexandria, Va., now oversees three subordinate Army agencies that conduct the tests and evaluations. The DTC, headquartered at Aberdeen Proving Ground, Md., is responsible for tests that enable military program managers to determine the performance and effectiveness of systems under development. The Operational Test Command (OTC), headquartered at Fort Hood, Texas, manages operational tests under field conditions. The Army Evaluation Center, headquartered with ATEC in Alexandria, evaluates the data obtained from both types of tests to determine a system's operational effectiveness, suitability, and survivability.

Military test centers working closely together to provide the nation's armed forces with the latest technology and equipment is nothing new, said Brian Barr, ATEC's technical director and one of the keynote speakers at the symposium. But this collaboration within the Army is now more important than ever, he said, because of the Army's push to become a more mobile, versatile, lethal, and agile force, capable of the "full spectrum" of missions that may come its way in the 21st century. While cautioning that developmental and operational testing will need to remain separate programs in many respects, he said a broad exchange of information and new test technologies is critical to the successful development and fielding of technologically complex systems required by modern military forces. The challenges that confront testers include resource constraints as well as technology, he added.

Due to the Army's reduction in force, which makes it difficult to have military

units available for tests of new equipment in the field, Army testers are seeking to integrate system tests into standard training events, he said. Testers can't control training events, however, so it remains a challenge to get the necessary system performance data in this way. Army test engineers are working to develop ever-smaller data collection modules that can be integrated into vehicles and other equipment, to make data collection less visible and obtrusive to soldiers who use the equipment.

Army leaders have mandated ambitious schedules for acquiring new equipment such as the lighter armored vehicles needed by the Brigade Combat Team, which must be able to deploy anywhere in the world by C-130 aircraft within 96 hours. The tight acquisition schedules will greatly impact testers and necessitate simultaneous rather than sequential tests, Barr said. Systems now coming off the drawing boards are also being designed for joint use by all the military services, he added, so there is a greater need for the Army, Navy, and Air Force to collaborate on testing.

Barr and other speakers noted that modeling and simulation will play an increasingly important role in military testing, not only to focus tests on critical components and reduce the environmental impacts and costs of firing weapons, for example, but also to create simulated "test environments" for various types of systems, some of which can not be tested any other way.

"Our national missile defense program is the largest, most complex system I've been involved with during my 25 years in the test and evaluation program," Barr said. "For missile defense systems, it will never be possible to do full-scale operational tests, as we obviously can't launch a missile at the United States."

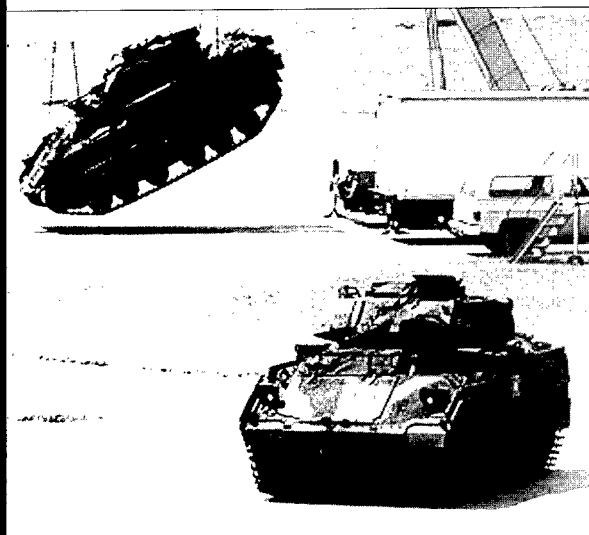
Several symposium speakers emphasized the complexity of emerging weapon systems and technologies, pointing out the need to modernize test facilities and ranges while using or developing increasingly sophisticated test instrumentation. Testers also face the challenge of

doing their work "better, faster, cheaper, and smarter" to remain effective in the wake of budget and personnel cuts to military test programs over the past several years. Although modeling and simulation can never completely replace traditional tests such as live fire, these and other innovative methods can save scarce resources, cut costs, help testers meet tighter schedules, and improve the testing program, said Col. Andrew Ellis, commander of the DTC's Aberdeen Test Center (ATC).

"We've used a finite element analysis model to find the stress points (on an armored vehicle) and used live fire only on those stress points," Ellis explained. "We saved about \$250,000 for the program manager. We have a gymnasticator, or gun banger, that can test the recoil systems on large guns without us having to fire them. The future capabilities of our data acquisition will sharply increase as the desire for rapid data turnaround increases. We're figuring out how to provide real-time data to a test customer at the site."

Technologies that enable satellite relay of test data will not only rapidly give test customers the information they need to make decisions, Ellis said, but also enable tests to take place at locations remote from formal test centers. Echoing Barr's remarks, Ellis added that unobtrusive, embedded data acquisition systems, such as monitors built into vehicle engines, for example, would give testers the ability to see if performance in the field matches developmental specifications.

The use of modeling and simulation, the ability to conduct tests at sites other than test centers, and close partnerships with test customers were also themes underscored by Brian Simmons, technical director of the DTC, during his presentation at the symposium. He pointed out that test customers, primarily program managers responsible for acquiring weapons systems and equipment, pay a large percentage of the test costs, and they have the option to do business elsewhere if they are not satisfied with a test center. This gives the test centers an



A Bradley Fighting Vehicle is suspended from cranes to determine its center of gravity while another heads for a steep climbing event, both part of the evaluations that candidate Infantry Carrier Vehicles are undergoing at the Aberdeen Test Center.

added incentive to conduct high-quality, reliable tests, he said.

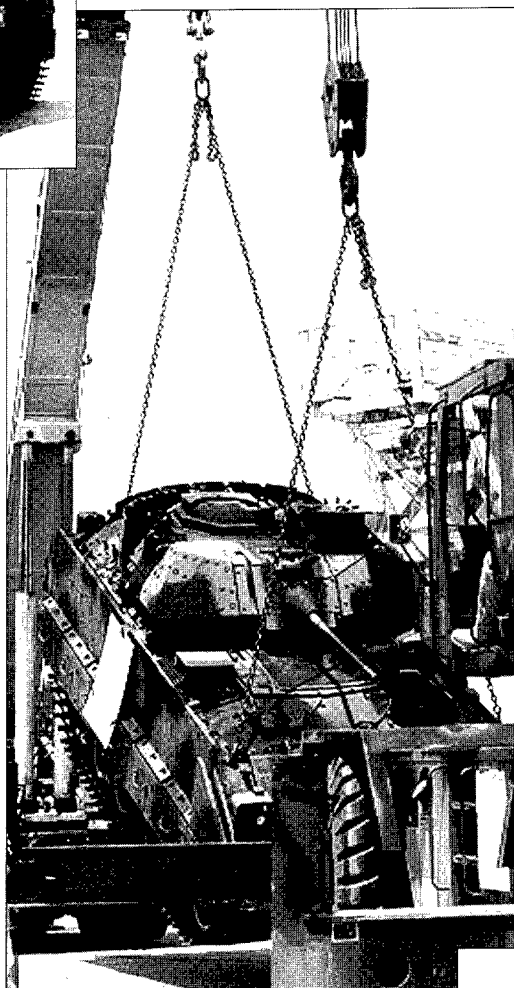
"Developmental testing is discretionary, and there is no impetus to use the DTC," he said. "So what we have, and what we can do, must be responsive to the needs of the Army. We are clearly on the same team as the program managers."

Simmons also described the DTC's modeling and simulation work, including a command initiative called the Virtual Proving Ground (VPG), part of an Army initiative dubbed Simulation and Modeling for Acquisition Requirements and Training (SMART). Among its diverse programs, the VPG includes the ATC's "gun banger" and simulations that test aircraft and vehicle performance without needing to fly or drive the test items. The VPG also includes a laser targeting system that enables testers to check the aim of tank guns without firing rounds, as well as a variety of other modeling or simulation technologies. These technologies support customers by cutting millions of dollars in test costs each year, Simmons said.

Modeling can also cut costs by helping test directors be properly prepared to get the best data possible from expensive, destructive tests such as missile flights at White Sands Missile Range, where a test can cost \$1 million a day, he said.

Program managers have seen the benefit of these technologies and

U.S. servicemembers — when George Rumford of the Defense Department's Foundation Initiative 2010 displayed a slide showing the names of the 19 Marines killed during the April 8 crash of the Marine Corps' MV22 Osprey in Marana, Ariz. Noting that there was no reason to believe testing on the MV22 was inadequate and that theories on the cause of the crash would be speculative



A Bradley Fighting Vehicle is suspended from cranes to determine its center of gravity, one of many evaluations that candidate Infantry Carrier Vehicles are undergoing at the Aberdeen Test Center.

before the investigation is complete, Rumford nonetheless emphasized the crucial importance of military testing to prevent system failure and loss of life.

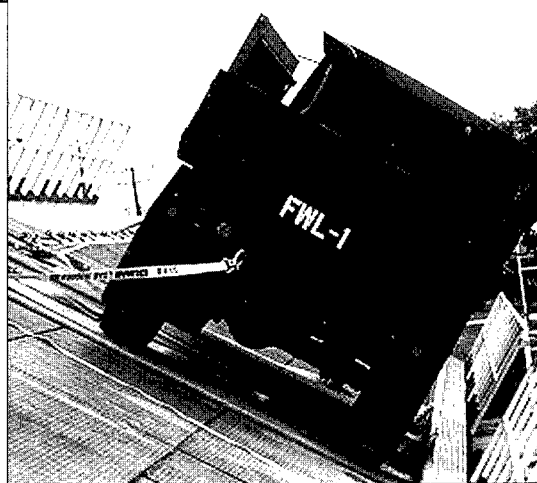
Editor's Note: This information is in the public domain. For questions or comments on this news release, contact the author at (410) 278-1142 or castm@dtc.army.mil.

A truck in the Army's Family of Medium Tactical Vehicles is banked on the Aberdeen Test Center's tilt table to check its stability on steep grades. This is one of the many evaluations being performed on Infantry Carrier Vehicle bid samples.

have provided funding to build some of the innovative test facilities, he added.

"There is nothing more important that we can do than support the Virtual Proving Ground," Simmons said. "All of this is anchored in real testing and is a tool, not a replacement for physical testing."

Symposium attendees got a somber reminder of the primary goal of military testing — saving the lives of



Two individuals and eight teams were recognized by the Defense Standardization Program (DSP) at an awards ceremony held Friday, July 7, 2000, at the Double Tree Hotel, Arlington, Va. Since 1986, the Department of Defense has presented awards to personnel and organizations for outstanding performance in the implementation of the DSP.

DSP's mission is to identify, influence, develop, manage, and provide access to standardization processes, products, and services for warfighters and the acquisition and logistics communities. In addition, the program promotes interoperability, reduces total ownership cost, and sustains readiness.

The 1999 winners of the DSP plaque awards are:

Klaus Rittenbach — Information Engineering Directorate, Center for Information Technology Standards, Defense Information Systems Agency, Fort Monmouth, N. J.

Chairman of the working group that developed the DoD interoperability standard for video teleconferencing (VTC). Rittenbach also received a \$5,000 monetary award for special achievement. Due to his efforts in VTC, federal agencies are saving millions of dollars in travel costs each year.

Raymond Paul Tremblay — Standardization Group, Quality Engineering and Safety Team, Quality Engineering Directorate, Tank-automotive and Armaments Command, Picatinny Arsenal, N. J.

Chairman of the American Society for Mechanical Engineers (ASME) drawing practices committee. Tremblay led the DoD in its transition from military standard drawing practices to a non-government standard in the ASME.

Army — The U. S. Army Soldier Biological and Chemical Command, Natick Soldier Center, Aerial Delivery Engineering Support Team, Natick, Mass.

This team partnered with industry to develop industry-wide standards to replace more than 100 detailed military specifications and standards for parachute textiles and components. Their achievement is estimated to have an annual savings of about \$1 million.

Navy — Naval Sea Systems Command's Detection Processing and Navigation Systems Program Management Office Advanced Display System Team, Arlington, Va.

Using open system interfaces and commercial off-the-shelf computer resources, this team designed the AN/UYQ-70 Advanced Display. This next-generation display and processor will be used with surface, sub-surface, and airborne combat weapon systems.

U. S. Marine Corps — Direct Reporting Program Manager, Advanced Amphibious Assault Weapon System Mark 46 Development Team, Woodbridge, Va.

This group used standard components from existing successful weapon systems to develop a new medium-caliber gun system. Their accomplishment reduced costs, development time, and risk.

Multi-Place Life Raft Replacement Team, Aviation Life Support Systems, Naval Air Warfare Center, Aircraft Division, Patuxent River, Md.

This team made great strides in maintainability by replacing a detailed military specification for emergency rafts with a performance specification.

High Level Architecture Team, Naval Air Warfare Center Training Systems Division, Orlando, Fla.

Applying an existing interoperability standard, this team interconnected simulators from the Army, Navy, Air Force, and Marine Corps to provide the first-ever simultaneous joint training exercise.

Air Force — The Evolved Expendable Launch Vehicle System Program Office, Space and Missile Command, El Segundo, Calif.

This team pioneered the first standard, multi-purpose expendable launch vehicle capable of carrying payload weights of up to 45,000 pounds. The estimated savings over the next 20 years will be more than \$5 billion.

Joint Team — The Joint Service Electronic Combat System Tester Integrated Product Team, Naval Air Warfare Center, Weapons Division, Point Mugu, Calif.

Faced with the problem of obsolete, unreliable, and expensive testers, this team developed common support tester equipment to minimize costs, increase interoperability, and reduce the future logistics footprint.

Defense Logistics Agency — Document Automation and Production Service Team, Philadelphia, Pa.

The DAPS team created the Acquisition Streamlining and Standardization Information System. This system gives everyone in government and industry online access to specifications, standards, and other technical data.

Additional information on the Defense Standardization Program may be obtained by visiting www.dsp.dla.mil/.

Editor's Note: This information, published and released July 7 by the Office of the Assistant Secretary of Defense (Public Affairs), is in the public domain at www.defenselink.mil/news.

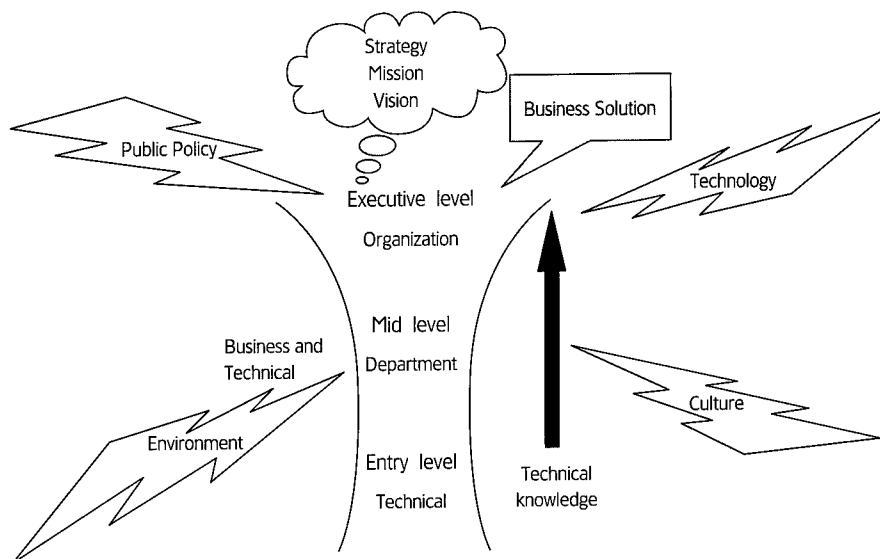
Mastering the Craft

JANICE M. MENKER • KAREN M.S. HILTZ

ulled in many directions, those of us who are federal government contracting professionals and our industry counterparts struggle to maintain technical excellence in our chosen profession and still provide quality service to our customers. Our business is complex and changing daily. As we move into the 21st century, the Information Technology (IT) profession is increasingly becoming the profession of choice for our current and future workforce. The perceived level of importance of the IT profession has likewise been elevated and is reflected by the salaries, benefits, and flexibility being offered to those who enter its ranks.

Within the federal government, the acquisition and contracting professional has often been the target of criticism — sometimes deserved yet often unfounded, and in many instances at political expediency. Yet we, as business professionals, adapt and frequently even excel in the face of adversity! We adapt because we are professionals — experts in the technical science of contracting, but also experts in the art of crafting business arrangements. However, is the same degree of respect and perceived level of importance accorded our particular field of expertise? Is our contracting and business expertise any less professional than the IT engineer?

Who can recall the last award given for the "Outstanding Contract Solution?"



We, the authors, have often struggled with the criticisms and observations about the practice of our craft and discussed the business practice of today in the context of our own personal experiences. And in doing so, we discovered an interesting concept.

"Business Broker"

While attending a presentation by Deidre A. Lee, former Administrator, Office of Federal Procurement Policy (OFPP) on the future of the contracting professional, one concept emerged from her remarks that aroused our curiosity. Repeatedly, she used the term "Business Broker." Our interest piqued, we wanted to know more.

- Who was this person — the Business Broker?
- What will be the focus of the position?
- How does a Business Broker differ from a Contracts Specialist or a Contracting Officer?
- What will this person do differently?
- What job series will this become?

What was Lee really thinking? Even with our common knowledge and understanding of "our" profession, we found ourselves arriving at different conclusions. Yes, we recognized that a contracting professional is an individual who brings unique talents, ways of thinking, and behaving to the work place. Likewise, we recognized that we hear words

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and perceive those words in the context of our own individual reality (Strauch, 1983).¹ Still struggling with understanding this new concept, we concluded that perhaps others struggled as well. But the concept was exciting!

Approaching the Administrator, we sought clarification of the concept, her vision, and her support for marketing the "message." This article summarizes that interview, presents a historical perspective of the profession, and offers a guide for the future to "master the craft of acquisition and contracting."

We are here to discuss the Business Broker concept you introduced at a conference late in 1998. Can you please provide your definition of Business Broker?

I believe a Business Broker is an individual who provides business acumen to the acquisition team. This person will possess technical knowledge, expertise in applying sound business principles, and good judgment that creates innovative sourcing solutions to achieve agency or organizational needs. The focus is on creating solutions.

What do you believe to be the five most important characteristics of a Business Broker?

The primary characteristics I would select are:

- Creativity and innovation
- Flexibility and adaptability to changing times
- Results-oriented — solutions-focused
- Leadership skills — leading change.
- Dedicated to continuous personal and professional development.

How does this concept differ from the practice of the "art of business" today?

Circumstances, often beyond our control have caused some of today's con-

"It will no longer suffice to hide behind the rules. We [contracting professionals] must step forward and be proactive by designing solutions to achieve results."

**—Deidre A. Lee
Director, Defense Procurement**

tracting professionals to follow a rigid, rules-based process — tomorrow's contracting professionals, the Business Brokers, will be encouraged to be creative thinkers, crafting solutions based on business considerations. We know that today's professionals have been overwhelmed with laws, rules, and regulations that strictly limit their opportunities to make judgment calls, and that they were not rewarded for being innovative and creative.

What do you consider to be the significant difference between contracting professionals today and those of yesteryear (i.e., from the 70s and 80s)?

The acquisition environment today revolves around more complex business relationships and demands more critical thinking than ever before. Typically, the acquisitions of today are creative business deals that are formed by breaking new ground. Whereas, many of yesterday's procurements were purchasing functions accomplished in accordance with a defined set of rules, today's workforce is better educated and better trained, which facilitates today's process. Let me not forget though — the world of IT is pushing a faster tempo

and affecting the business decisions as well.

What five most significant challenges or ways of thinking do you believe are required of the current workforce in order to be a Business Broker?

First of all, be less dependent on rules for what you can or cannot do and rely on your judgment for what makes good business sense and why. Follow your instincts! Then, understand a contracting professional does not add value by virtue of the ability to write and the authority to sign contracts. Added value is bringing that business expertise that helps shape effective and successful acquisition strategies and then brokers the business deal. The Business Broker must demonstrate to the team they are more than just a writer of a contract once others have decided what needs to be bought. The Business Broker must focus on, and understand, the entire acquisition process — the full range of acquisition characteristics and functions, not just contracting.

When applying business judgment and making business decisions, the new contracting professional will understand the ramifications of your decisions throughout the process — programmatic, technical, financial ... more than just contract management. You can provide effective advice only by understanding the entire process. Additionally, cooperation within the team is fundamental to the team's success.

We often hear that contracting personnel are not team players. The new Business Broker will reverse that image by avoiding the "here I am, come to me" and proactively engage the other team members as well. We must educate others and be prepared to contribute as a member of the team. Shared visions, goals, and efforts will lead to shared successes.

Lastly, training will be a significant challenge in transitioning to Business Brokers. We must assess the needed skills

*Director, Defense Procurement, Office of the
Under Secretary of Defense
(Acquisition, Technology and Logistics)*

In June 5, 2000, Deidre A. Lee became the Director of Defense Procurement, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)). As Director of Defense Procurement, she is responsible for all matters related to procurement policy in the Department of Defense. This includes directing the Defense Acquisition Regulations Council and developing policy for contract pricing and financing; contract administration; international contracting; and training of contracting personnel. In addition, she is the principal advisor to Dr. Jacques S. Gansler, USD(AT&L) on major weapon system contracting strategies as well as an advisor to the Defense Acquisition Board on procurement matters.



Previously, Lee served as Administrator, Office of Federal Procurement Policy (OFPP), a position to which she was nominated by President Bill Clinton and subsequently confirmed by the Senate in July 1998. As OFPP Administrator, Lee was recognized as one of the Administration's most active and successful acquisition reformers, skillfully implementing effective procurement strategies through education and government-industry partnerships for continued procurement reform.

From March 1993 until her confirmation, she was the Associate Administrator for Procurement at the National Aeronautics and Space Administration (NASA). Prior to that, she served as the Deputy Associate Administrator for Procurement and the Executive Officer to the Deputy Administrator of NASA. She rose through the ranks to become NASA's senior acquisition official and has a distinguished record as a reformer and innovator. Lee developed successful procurement initiatives at NASA, including the Mid-Range, Performance Based Contracting, Source Selection, Cost Control, Consolidated Contracting Initiative, and the Single Process Initiative/Block Changes. From 1984 until 1990, she worked at the Johnson Space Center as Chief of the Space Shuttle Procurement Division, Chief of the Orbiter and STS Integration Procurement Branch, and Chief of the Data Systems and Aircraft Operations Branch.

She was awarded NASA's Outstanding Leadership Medal and Exceptional Achievement Medal. In 1996, she was a recipient of the Senior Executive Service Presidential Rank Award.

Lee began her career with the Department of Defense where she served in various procurement-related positions, which included base procurement in Okinawa, Japan; systems acquisition at Hanscom AFB, Mass.; and logistics procurement at Hill AFB, Utah.

Lee holds a B.A. in Business Administration from Central State University, Edmond, Okla., and an M.P.A. from the University of Oklahoma.

She is married to William T. Chisholm, and they reside in Arlington, Va.

— technical, business and interpersonal
— then explore how best to acquire those skills. Our training efforts must give particular attention to educating the existing workforce of the need to abandon the older, comfortable way in favor of the new approach for Business Brokering. We must also explore better mentoring capabilities — mentor each other and bring the junior person along as well.

If the GS 1102 job series as we know it today is eliminated, who or what do you see replacing it or filling the void? If this change in function became a reality, what proposed policy will be issued by OFPP regarding this change in job function?

When we speak of the GS 1102 job series being eliminated, we are not speaking of the job series itself; rather, of what we see as the role performed by the GS 1102. What we see is today's 1102 being re-created with a larger focus and redefined role. As the job functions change, OFPP will propose appropriate changes to policies relative to education, training, career development, and even acquisition regulations. Currently, the Federal Acquisition Institute is pursuing a "competency based" approach to defining the knowledge, skills, and abilities of the 1102 professional, similar to that done for the IT professionals (computer scientists, programmers, etc.).

Will there be mandatory educational and training requirements?

It is premature to speculate on specific changes needing to be made to the educational and training requirements until we institutionalize the role of the Business Broker. We expect education and training to be important components for any career development program.

Given the state of acquisition management training within the federal government and the focus of training within the Department of Defense, there appears to be a discrepancy in training between civilian agencies

and DoD. How do you envision a similar training path evolving for the contracting professional in civilian agencies?

In November 1999, I entered into a Memorandum of Agreement [MOA] with Stan Soloway, the Deputy Under Secretary of Defense for Acquisition Reform, to proceed toward a common training framework for all federal 1102s. Our joint vision is to achieve reciprocity of training. This will involve agreements for common training fundamentals and have training courses measured against a common standard. I expect efforts that occur pursuant to the MOA will lead to the elimination of distinctions between training results and skills across all federal agencies.

What do you consider to be the single greatest challenge facing professionals in the acquisition business – not just the contracting professional but all those involved in providing goods and services to meet the government's needs and missions?

The greatest challenge today is establishing cohesive teams where functional walls are eliminated and participants in the acquisition process work collectively toward common outcomes. Too often, acquisitions are marred by the lack of ownership across functional organizations, to the detriment of achieving timely, quality, and effective results. The mentality of "that's not my job" must be eliminated, as must the attitude of "I know everything." Team members must realize the value other team members bring to the table, and everyone must make contributions to the success of the team. By combining capability, accountability, and ownership at the team level, the government will be able to conduct effective acquisition business.

But What Does It All Mean?

After digesting what Lee stated in her interview, you now might want to ask, "What does this mean to those currently in the GS 1102 series?"; or, if you are an industry counterpart, you may be wondering how this change would affect your

relationship with the government. Before we attempt to answer this question, let's first look at the evolution of the contracting profession.

Managing the Public's Business

The federal government has three branches: Executive, Legislative, and Judicial. Each branch has an impact on our profession. The Executive Branch is charged with expending public funds. The Legislative Branch provides the laws that are translated into the regulatory structure we work within. The Judicial Branch provides the case law that gives support and clarification for many of the "judgments" contracting professionals will make. Related to these constitutional participants are a host of others who review and report on the profession – the General Accounting Office (GAO), the Inspectors General (IG), the media, and, of course, the public – the taxpayers whom we serve.

Picture the Constitution as the grand strategic plan, the compass that provides direction for the country. The administration and execution of that plan is accomplished through the laws and regulations passed over time (Halachmi, 1992).² Within the Executive Branch, agencies and departments manage the public's business via the Constitution and the suite of laws, regulations, and policies passed over time.

Those of us who have practiced this business for years know and understand – intervention can be precipitated in various ways: a news article, a GAO report, an IG report, a complaint by a concerned taxpayer, or even congressional testimony. The central element, however, is the perception by those who have not mastered this craft that injustice abounds, that practices are biased for a given constituency, or the business practice does not reflect good management methods. There is, however, one constant – *change* – and change has been the mainstay of the contracting profession.

The creation of the Constitution and the governance framework established the delicate balance and backdrop against

which acquisition and procurement has evolved over time and is performed today. In the following discussion, we present and examine the historical record of how these laws have evolved over time and the context in which the Congress and the Executive Branch perceive the need to change.

By turning our attention to the past, today's contracting professional may find clues, guidance, and a better understanding of the present. To help devise a roadmap to the future, we offer the following questions that contracting professionals may want to contemplate:

- What is the role and responsibility of the contracting professional today?
- How has the role evolved over time?
- Is there really a difference between yesterday, today, and tomorrow?
- How is this Business Broker going to act and behave in the future?
- Is the craft or practice going to be any different tomorrow than it is today?

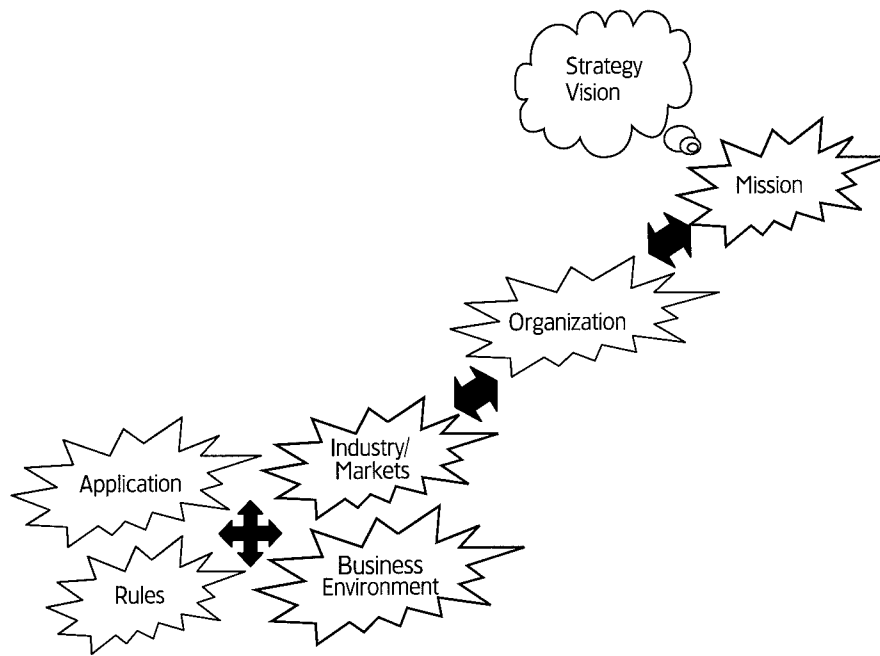
Procurement Responsibility

Before we study the roadmap that led us from the past to the present, let's look at the responsibility involved with procurement. The Contracting Officer has sole responsibility, on any given day, for spending public money. This individual is charged with the responsibility for executing a contract in order to acquire goods and services that are necessary for accomplishing the government's mission. As stated in the Federal Acquisition Regulation,³ FAR Part 1.602-2, Responsibilities:

"... the Contracting officer shall:

- (a) Ensure that the requirements of 1.602-1(b) have been met, and that sufficient funds are available for obligation;**
- (b) Ensure that contractors receive impartial, fair, and equitable treatment; and**
- (c) Request and consider the advice of specialists in audit, law, engineering, transportation, and other fields, as appropriate."**

While all three factors are equally important, it is the last two factors that prescribe the actual business practice, yet it is the first factor that appears to dom-



inate perceptions about the profession. The Procuring Contracting Officer (PCO), as identified in the FAR, is charged with specific responsibilities and authorities. The PCO has the responsibility for executing contracts that are fair and equitable, but must consider the needs of both parties to deliver goods and services in order to meet the specifications or requirements.

However, while PCOs have this authority, they do not operate in a vacuum, nor can they execute that authority in a vacuum. Other specialists are involved such as Program Managers (PM), Quality Assurance (QA) specialists, Small Business Specialists, lawyers, and finance managers. Likewise, PCOs cannot accomplish the science of contracting without the assistance of these specialists and subject matter experts. Keep in mind, the degree of assistance necessary is commensurate with the complexity of the goods or services and is itself an art that seeks to integrate technical needs with business solutions.

Let's recap — the PCO:

- is an individual who is responsible for a certain outcome (*performance*);
- cannot execute the contract (*science*) to achieve the outcome without the assistance of others (*art*);
- is responsible for the contract relationship (*outcome*); and

- must be a team player (*performance, science, art, and outcome*).

The PCO, by honing technical, financial, legal, people, and business skills is practicing the *science* and *art* of constructing effective business deals in a team environment.

Over time, the specific role and mechanics of executing these responsibilities has shifted, altered, adjusted, or been refined through a variety of mechanisms (laws, regulations, and management practices). However, the prevailing mechanism is the laws passed by Congress and interpreted in the regulations and agency policies and procedures. Also, it must be recognized that existing concurrently, through legislative mandates, is the evolving suite of management practices that guide the performance of the individuals and have been adopted by government managers.

Why does Congress intervene? As elected officials, they are the representatives for the public and are charged with deliberating and interpreting the desires of their constituency in a bipartisan forum, collectively enforcing the Constitution of the United States. Then the Executive Branch interprets these laws through regulations, Executive Orders, and other policies that become business and management practices.

Understanding the Past to Unlock the Future

A review of various management texts reveals that procurement is generally considered to be a management activity or function associated with purchasing, inventory management, logistics management, or finance and accounting. It is generally not a separate line function within an organization existing independently but is a service function serving the organization at large.

For our purposes in the federal government, the term or function called procurement dates back to pre-Revolutionary War. By understanding the nature of the incidences that precipitated the evolution of our business, a deeper appreciation for our craft is gained.

Beginning June 16, 1775, the Continental Congress authorized General George Washington to appoint a Quartermaster General (supplies) and a Commissary General (food) (ABA Report, 1989).⁴ That first law governing the purchase of military goods and services was entitled the "Purveyor of Public Purchases Act" and laid the foundation for the purchase of goods and services from private citizens or businesses.

On June 20, 1776, the Congress stated "... victual at Continental expense all such volunteers as have joined or shall join the United Army." To comply with the legislation and achieve the objective, George Washington appointed Joseph Trumbull as Commissary General (ABA Report, 1989).⁵ Trumbull's duties were to *procure* and *distribute* food supplies to the newly formed Continental Army.

Why was such action required? Why did Congress perceive that such a law was required? Could not George Washington fight the war without such legislation?

The Continental Congress observed that the colonies competed for scarce resources, and in so doing defeated the objectives of General Washington to successfully fight a unified war. While some colonies had better access to supplies,

clothing, and food, other colonies were struggling to provide the necessary resources to their troops.

The concept underlying the decision is one prevalent in management literature and actually practiced for years in Greek and Roman history (Simon, 1976) — centralization vs. decentralization.⁶ How do I achieve my objective? Do I use a centralized or decentralized management system to achieve economy and efficiency in order to produce a specified outcome?

To achieve greater economy and efficiency of operations, George Washington was authorized to appoint an individual who would be responsible for acquiring the goods and services needed to execute an effective war. However, it should be noted that the record does not show the specific characteristics or attributes Trumbull possessed, nor what management style he used to achieve the designated outcome.

This auspicious beginning is characteristic of procurement legislative history. The history of our profession and its practice is likewise a history of congressional operations and focus during times of war and peace. In some instances, the legislation corrected perceived inefficiencies. In other instances, both efficiency and effectiveness were critical. The early evolution was directly related to war efforts because the administrative apparatus was meager in comparison to today's infrastructure.

After each war was fought, however, Congress would hold a post-critique to determine how effective the operations were. At the conclusion of the Revolutionary War, for example, Congress determined that the practice of using agents to procure supplies was effective, but not necessarily efficient. Once the war was over, the actual act of administering the Constitution and managing the public's business became important.

In 1781, Congress reviewed how well the warfighting system worked, e.g., was it effective and efficient? The conclusion

reached: the lowest price was not paid for goods and services. Therefore, effectiveness was obtained — the war was won — but efficiency was lost. At that time the Superintendent of Finance proposed a four-point program that became accepted and passed into legislation in 1831:

Centralize the procurement function.

Grant authority to dispose of excess material.

Grant authority to finance purchases of needed supplies where there were shortages.

Introduce competitive contracting in place of agents on commission.

The perceived inefficiency reflected the practice of reimbursing agents the cost of goods and services sold plus profit. Why was this practice considered inefficient? Congressional members perceived that the lowest price was not always paid and that personal gain appeared to be the primary motivation. It was observed that agents sold excess quantities to the government while receiving higher profits in return.

Congress then attempted to control this behavior with appropriate legislation. It is interesting to note that an ongoing philosophical discussion contained in the *Federalist Papers* (Hamilton, 1961) is the concept of the goodness of man and the associated degree of government required to control man's behavior.⁷ This argument exists to this day — how much government is too much? This particular legislation sought to control man's behavior by controlling how contracting representatives (now contractors) would conduct transactions and be reimbursed for their work. By focusing on how these agents were paid, Congress sought to control behavior and perhaps motivation as well.

By 1818, the procurement function was continuing to evolve. Secretary of War John Calhoun determined that contracting authority needed to be clarified, creating the institution of "defense procurement careerists." During the War with Mexico, Contracting Officers of the

Quartermaster, Ordnance, and Commissary Bureaus acquired food, clothing, arms, and transportation.

In the next ensuing years, the procurement function shifted back and forth between civilian and military control. At the time of the Civil War, temporary purchasing agents were appointed in the military, "... no competition existed and collusion and favoritism were rampant," (ABA Report, 1989).⁸ Again, throughout the history of procurement and even today, competition has been considered the primary mechanism to avoid favoritism and spoils. Further, the best competition was "Formal Advertising" or award to the lowest price. However, the competitive marketplace, envisioned by the Legislature, is not necessarily the marketplace the government and industry must operate within. Our marketplace is regulated and controlled by the actions of a few as perceived by many.

Many laws and actions were taken by both the Legislative and the Executive Branches of government to guide the strategic direction of the country, to change the administrative apparatus by introducing management reforms, or to correct perceived inefficiencies in the governmental processes.

Authorized the Department of Foreign Affairs, Department of State, Department of War, Treasury Department, Office of Attorney General.

Created the Civil Service Commission and prescribed methods and rules for appointing individuals to the Civil Service (avoided the spoils system and favoritism perceptions).

Report of the Secretary of War, created a general staff and denoted kinds of authority, commanding vs. advising

Created a General Staff Corps and designated An Act to Increase the Efficiency of the Army. (Note: Two laws are required

to create and resolve organizational issues, a theme recurring throughout history).

Public money, known as appropriated funds, would be spent for its intended purpose.

Established the need for a National Budget with a message, summary financial statement, expenditures, estimates, and changes in law.

Specified National War Powers Emergency Act—in times of emergency, procurements are exempt from regulations.

Created the Bureau of Budget, Office of Comptroller General.

Labor rates in construction industry.

Concerned with economic consequence of only using goods produced in America.

Established the Armed Services as we know it today and the contracting authority as it is known in the Department of Defense.

Provided the contracting authority for all civilian agencies, except DoD, NASA, and the Coast Guard (Alston, Worthington, Goldsman, 1984).⁹

Established uniform policies for NASA.

For the Contracting Profession, Change is Not New

As the reader may now have surmised from our story thus far, reform or change is *not new* and has actually been the hallmark of the profession. But read on. The story continues!

After World War II, the Hoover Commission introduced the concept that defense is big business and commented on the rising costs of weapons systems. In 1950, the Small Business Act was passed, conveying a preference to award public

contracts to small business concerns. Also, while this history may appear to be more heavily focused on defense, other federal agencies were being created. Managing the public's business was now becoming more diverse with a broader focus on accomplishing multiple missions in order to satisfy the growing number of government agency missions. By the 1960s, the Commission on Government Procurement agreed on the following determinations:

- The System is flawed with too much bureaucracy, too many layers.
- Civilian control is required.
- The term "Acquisition" is introduced as a life cycle methodology, i.e., program management is required. (*Note: This coincides with the introduction and evolution of management practices initiated by National Aeronautics and Space Administration and Navy nuclear programs [Alston, Worthington, Goldsman, 1984].*¹⁰)

In 1962, the Truth in Negotiations Act was passed, which requires contractors to submit cost or pricing data for certain procurements. As the title of the Act implies, a concern existed regarding the veracity of the data contractors provided to support their costs..

From 1970 – 1990, other initiatives included: the Carlucci Initiatives, emphasizing Program Manager accountability and a preference for Fixed Price contracts; and the Packard Commission, stressing streamlined reporting and education and training. In 1978, the Contract Disputes Act was passed giving industry an opportunity to seek redress in the courts; and in 1982, the Prompt Payment Act required the government to pay its bills on time. The Competition in Contracting Act was signed in July 1984 making competition the law vs. mandating how competition was obtained (Formal Advertising vs. Determination and Findings for negotiated procurements), the legislation in practice since the Civil War. That year also produced another significant milestone—a single set of procurement or acquisition regulations, known as the Federal Acquisition Regulation (FAR), was created.

Additionally, the emphasis turned to "acquisition" vs. "procurement."

In 1986, the President's Blue Ribbon Commission on Defense Management, known as the Packard Commission, issued its report, "A Quest for Excellence," providing various recommendations to improve the procurement process. In 1990, the Defense Management Review (DMR) and the Defense Acquisition Workforce Improvement Act (DAWIA) sought to professionalize the acquisition workforce. As a result, a college degree was emphasized along with professional designation. However, no mechanism for achieving the professional designation was identified.

A View of the Present

Where does the past end and the present begin? What's different now, and what can be said about the future? The 1990s continued to see major reform as a democratic administration was ushered in. Suddenly, laws passed by Congress over the past 20 years, intended to control perceived inefficient and ineffective operations, were now considered to be constraining. Those same laws, once considered as necessary to achieve some desired outcome, were now being reversed. At the same time, environmental factors such as Information Technology were influencing legislation.

The Federal Acquisition Streamlining Act (FASA) introduced Electronic Commerce and Electronic Data Exchange to streamline the process. Yes, certain agencies were already using a form of automated contracting operations (remember decentralization). FASA also encouraged contracting officers to use judgment (though it was never discouraged), considered the FAR to be guidance, and introduced credit cards for a micro-purchase threshold of \$2,500.00. The introduction of the credit card was revolutionary in that everyone who has a credit card is not a contracting officer or procurement official, but they both have the same authority.

The Federal Acquisition Reform Act (FARA) introduced a new Part 15. Instead of "discuss with one, discuss with

all," a new standard was created. The practice of "keep all offerors in the competitive range if they have a reasonable chance for award" is replaced with "only keep the most highly rated in the competitive range." Many would argue that they were always using this "new" standard, that as a Contracting Officer they made such interpretations. However, these practices were not universally accepted or necessarily standard throughout the government.

Not to be forgotten is the recent legislation that focused on aligning civilian agency education and training with the Department of Defense. Additionally, legislation such as the Government Performance Results Act (GPRA), Information Technology Management Reform Act (ITMRA), and the Chief Financial Officers (CFO) Act has attempted to interject a more commercial business way of operating — focus on results, not processes or rules. Yet, it was the perceived failure to follow the rules that brought us to this point. Has there really been a change? And what will the next series of legislation and Executive Orders attempt to correct?

Looking Toward the Future

Given the history of procurement legislation — government buildup followed by downsizing — the one reality we know is there will always be new legislation that attempts to right perceived inefficiencies and imbalances in the system. The forefathers wrote a Constitution during an agricultural economy where travel took days and technology was focused on improving the farms. As the Industrial Revolution brought in newer technologies, cities grew and expanded, commerce crossed state and international boundaries, while legislation sought to protect and control society and the individuals within society. Laws were passed to protect workers to ensure safety in the workplace, and minimum wage standards were put in place.

Further, business influences caused legislation to be passed. The prime example is ITMRA or the Clinger-Cohen Act, which recognized that the world of automated computer equipment was now

TODAY	SHORT TERM (2 – 5 YEARS)	LONG TERM (5-15 YEARS)
High integrity and adherence to ethical standards	Communication skills	Communication skills
Communication Skills	High integrity and adherence to ethical standards	Human relations/interpersonal skills
Human relations/interpersonal skills	Flexibility and adaptability	Leadership
Flexibility and adaptability	Human relations/interpersonal skills	High integrity and adherence to ethical standards
Leadership—ability to influence and persuade	Leadership—ability to influence and persuade	Flexibility and adaptability
Self-motivation	Customer focus	Customer focus
Accountability	Self-motivation	Accountability
Customer focus	Accountability	Complexity management and decision making

Survey of Contracting and Purchasing Professionals, Emerging Demands on a Changing Profession, Contract Management Institute, National Contract Management Association, Presentation to the Federal Acquisition Institute Research Round Table, February, 2000.

information technology. This single act wiped away over 30 years of history in how the government purchased computers, computer equipment, and computer resources. Yet while the Brooks Act itself was rescinded, the actual mores and ways of operating will evolve over time. But how do we go from business as usual one day to a new way of conducting business with the passing of a single law?

As mentioned earlier, the one constant in our business is *change*, whether it's change in the business structure in which we operate, change in the mechanics of how we perform the function, or change in the professional requirements — *change continues*. Perhaps it is this focus or vision that prompted Lee to look toward the future and envision a change in our profession.

Making Sense of It All

The authors began this article with two questions: "What does Business Broker really mean?" and "How will it affect the contracting profession?" Lee articulates a vision for the future into the new mil-

lennium. However, looking at the explosion of IT and comparing its evolution to that of the Industrial Revolution, clearly, IT has the potential to drastically change the business relationship and will do so at a more rapid rate than previously envisioned.

In the past 25 years, processes have become automated. Business processes have changed because of automation. Business processes have become re-engineered (Hammer and Champney, 1993).¹¹ The GAO consistently suggests that federal acquisition needs to adopt commercial-like practices that are used in the private sector. However, we must ask ourselves two appropriate questions: What does the private sector do differently? Can public contracting really be like private-sector contracting? While government must become more business-like, i.e., the Government Performance and Results Act emphasizes outcomes vs. processes, *this does not mean government must be like business*.

There continues to be a basic difference between the private and public sector —

motivation and rewards. In the private sector, outcome is linked to return on investment (ROI), a financial term. Investment decisions are made based on the amount of gain returned to the stockholder; therefore, profit becomes the equalizer in private industry. Profit is not evil — it is the measure of success!

In the public sector, outcomes are linked to agency mission objectives as well as political objectives. In many instances, these objectives may not be consistent or efficient, as evidenced by many of the socio-economic rules and regulations. While these have a clear social objective, the economic consequences may be inefficient. What does this mean to the procurement function and the contracting officer? If financial rewards are the motivation in the private sector, then what are the rewards for the public sector?

As a Business Professional, you are responsible for ensuring public money is invested wisely. Where are you investing? You are investing in the private sector in order to accomplish the agency mission through the awarding of contracts. Your focus for investing will vary based on the objective of the agency. For instance, an Agency that has a \$20-million operating budget with \$2 million allocated to procure from the private sector will have a different focus from the agency that will spend \$250 billion in the private sector. You must be willing to adjust your focus along with your particular set of knowledge, skills, and expertise to seek solutions for the agency.

Figure 1 is a visual representation of how the future professional's growth might appear. Very simply, at the entry level you focus on gaining technical knowledge of the contracting function. As you progress through the profession, increasing demands on your knowledge require you to apply that knowledge to the business need. As the leader of the organization, focus shifts from internal contract management to external organizational management using procurement policies to improve the organization. The responsibility and procurement

mission has not changed — simply shifted to a higher level.

Endless Opportunities

The opportunities for the future of the contracting professional are endless! In *SeaPower*, August 1993, retired Navy Vice Adm. Jerry O. Tuttle stated, "Amateurs buy equipment; professionals find solutions."¹² Given an outcome focus, only time, GAO decisions, and congressional inquiries will determine how accepting lawmakers will be of the recent legislative changes.

Now to answer the question, "What does this mean to those currently in the GS 1102 series?" In our minds, the answer lies in several areas.

The future contracting professional must be solution-focused; strategically connected; and understand the agency's mission as well as the strategic planning process and the investment decision-making process. The contracting professional must engage the acquisition process and be able to link agency mission to life cycle outcomes using contracts as the means, not the end. Regardless of the specific title, the contracting professional is aligning congressional desires for a responsive procurement system to the agency mission outcomes. By becoming grounded in the technical skills but focused on improving processes to achieve improved outcomes, the profession is recognized as a field of business experts, just as IT professionals who solved Y2K problems are experts in their field.

Organizational performance is the key mission, with procurement policy and practices the mechanisms that add value to the agency. Each contract awarded, each purchase made, satisfies some aspect of the agency mission. For example, procurement may want to consider outsourcing as a solution to meeting agency needs if it reduces outlays and permits the agency to focus on primary needs. An outcome focus is one that integrates technical needs with business solutions to achieve enhanced performance. A business visionary understands the technical issues but envisions

the business solution to achieve technical objectives.

What must you do to prepare yourself?

- Become familiar with the Strategic Planning Process.
- Understand legislative history.
- Understand how politics, government execution, and administration are linked.
- Be familiar with legislators for your state, locality, or product area.
- Know your products.
- Do market research.
- Be proactive, not reactive.

The GAO has consistently stated they will not override the "judgment" of the Contracting Officer. They may question the procedure. They may question the business acumen. However, they will not question decisions based on your judgment. Figure 2 represents a progression through the learning process to seek greater understanding and knowledge for the future.

What skills will you need to possess in the future? A recent study published by the National Contract Management Association lists skills required by the Contracts Manager of the future. Figure 3 (NCMA, CMI Report, 2000) presents the data from research conducted by the Contract Management Institute and compares the behaviors associated with today's profession and the behaviors desired in 15 years. These bear a striking resemblance to the behaviors described by Lee as characteristics of the Business Broker. Likewise, Figure 4 (NCMA, CMI Report, 2000) presents the research results regarding how our performance will be measured. Again, note the striking similarities to terminology used by Lee in describing the future professional. It will no longer suffice to hide behind the rules. *We must step forward and be proactive by designing solutions to achieve results.*

The similarities between this set of knowledge, skills, and abilities resonate with those described by Lee. The numerous studies over time, both legislative and executive, have demonstrated a

need for better business management. This particular study reinforces the need for future professionals to have a broader perspective, understand agency needs and mission, and seek business solutions to technical problems.

Final Comment

No one, not Deidre Lee or the authors, can predict the future. However, if history holds true, public contracting officials will always be held to a higher standard of responsibility and accountability. As such, we must view ourselves as the means to an end—not the end itself. The contracting professional is a guardian over the process of spending the public's money. We have that fiduciary responsibility. Management practices will come and go, and perhaps that is the key. The FAR and the entire suite of Circulars and Executive Orders are guidance.

In some instances, certain and specific prescriptions prevail. However, understanding that prescription in the context of its history leads to an appreciation for this business of ours as both a science and an art. The *science* is the technical skills needed to write a contract. The *art* is integrating that science with the business needs of the agency and the public, and maintaining currency with rapid technology growth. Our *performance* will always be held to a higher standard. It's a fact of life. We meet the standard when we exceed the customer's expectations and achieve the desired *outcomes* that drive an agency's success.

The future holds no bounds. With education and training and a new way of thinking, we can be prepared to meet that future and become Business Professionals or Business Brokers—professional equals of the most competent IT professionals and respected by them as well. One prediction is sure—information technology is going to continue to affect the government's business model as we know it today. This demand for new thinking offers insight to the individual who wants to step “outside the box” and envision a newer way of managing the public's business using the procurement process!

Editor's Note: The authors welcome questions or comments on this article. Contact Hiltz at hiltzk@mitre.org; Menker can be contacted at JMenker@gt.com.

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TODAY	SHORT TERM (2 - 5 YEARS)	LONG TERM (5-15 YEARS)
Quality	Quality	Quality
Timeliness	Customer Satisfaction	Customer Satisfaction
Customer Satisfaction	Timeliness	Timeliness
Meeting Mission Goals	Meeting Mission Goals	Meeting Mission Goals
Productivity	Innovation	Innovation
Negotiated Savings/ Cost Reduction or Containment	Productivity	Productivity
Personal Leadership	Optimizing Best Value Transactions	Personal Leadership
Optimizing Best Value Transactions	Personal Leadership	Optimizing Best Value Transactions

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Piloted Concepts for Commercial-Military Integration Ready for Implementation

MARY E. KINSELLA

In recent years, *Program Manager* has served as the forum for two timely articles¹ on an Air Force pilot demonstration called Military Products from Commercial Lines (MPCL).² Briefly, the goal of MPCL was to enable manufacture of military products on a commercial production line. The results are now in. This article outlines the program's approach and summarizes the results.

Capturing the Processes

In 1994, the Manufacturing Technology Division of the Air Force Research Laboratory (AFRL) began work on the MPCL pilot demonstration. The intent of the lab program was simply to show that MPCL could be done and to capture the enabling processes. By working through barriers to commercial manufacturing and capturing the processes necessary to accomplish it, the MPCL program conceivably could blaze a trail for weapon systems such as the F-22, Comanche, and other DoD system programs to implement commercial manufacturing approaches for affordability.

The Air Force Manufacturing Technology (ManTech) investment in MPCL, \$21.5 million, would take much of the risk out of implementing acquisition reform in the program offices and reduce the amount of nonrecurring costs re-

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quired for commercial manufacturing approaches in the future.

The MPCL contract was initiated in May 1994. One month later, Secretary of Defense William Perry issued a memo, bringing attention to acquisition reform and mandating the reduction of military specifications and standards. Acquisition reform efforts were in their infancy and ran in parallel with the MPCL program. Complementary to acquisition reform, MPCL actually demonstrated ac-

quisition reform concepts and provided real data in support of its benefits.

After careful review, ManTech awarded the MPCL contract to TRW Avionics Systems Division (ASD) and subcontracted to TRW Automotive Electronics Group North America (AEN). A three-phased effort, the contract's duration would eventually exceed four years.

The MPCL program was defined in terms of three areas — business practices, manufacturing infrastructure, and process technology — and managed through integrated product teams. Emphasis throughout the program was to involve as many customers and stakeholders as possible, increasing the likelihood of buy-in and end results that met or surpassed expectations. Although specific demonstration vehicles from specific programs were chosen, the scope of work included a focus on how MPCL results could be generally applied in addition to how the specific demonstration could be successful. In that way, processes could be documented for future use outside of the demonstration product.

The avionics modules selected for the demonstration were two F-22 CNI modules, which were also common to the Army Comanche helicopter: the Pulse Narrowband Processor (PNP) and the RF Front End Controller (RFEC). These modules were chosen for their commonality among weapon systems, multiple use within systems, high design-to-cost, standard module construction, compatibility with commercial automation equipment and systems, and commonality with commercial component suppliers.

Within these criteria and the objectives of the program, the MPCL team concluded that the PNP and RFEC modules would be very good candidates for a high-impact demonstration and, at the same time, would be highly representative of many module types that could potentially be built commercially.

Commercial manufacturing emphasizes cost and quality over performance. The

commercial manufacturer maintains highly efficient processes to stay competitive and won't bother with the deal unless it is profitable. Non-value-added contractual requirements are simply unacceptable. The MPCL approach is *not* to change commercial processes and practices to meet military demands. Rather, the challenges are to enable dual production with minimal disruption to current manufacturing; to show a commercial business case; to redesign for commercial manufacture; to offer a reasonable subcontract; and to give and take for an assured high-quality, low-cost product.

Why go through all this? Because the payoff is big. The primary metric used to determine MPCL success is module acquisition cost. The baseline measurement is the F-22 design-to-cost model for each of the PNP and FEC modules. Against this baseline, MPCL redesign indicates 50- to 75-percent cost avoidance, exceeding the original program goal of 30 to 50 percent. Considering the number of avionics modules in a system, potential payoff is significant.

Business Practices

The "old" way of doing business has no room for commercial enterprises. In general, the "old" process of military acquisition has evolved to business practices that are driven by military specifications, standards, and contract clauses to such an extent that the intent has been lost. Unwieldy contracts have so many references and cross-references to specifications and standards that few people can understand them. In many cases, requirements are added only because they are boilerplate, i.e., they have always been added in the past. The emphasis on quality and affordability is not there. Only companies with well-established defense infrastructures can do business this way — and at great expense.

Purely commercial companies dismiss this sort of business without a second thought. They have neither the time nor the infrastructure to take on defense cus-

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tomers. To do so would lessen the efficiencies that have kept them competitive in the world marketplace. But since many commercial companies have high quality processes and products to offer the DoD at reasonable prices, MPCL was motivated to break out of the old way and remove the barriers to commercial manufacturing. The estimate for TRW AEN to build the two MPCL demonstration modules was 50 percent less than the military baseline for these modules. It was the goal of MPCL to figure out how to take advantage of that.

Assessments early in the program (Phase I) pointed out some of the discrepancies between military and commercial processes and practices. For example, at TRW ASD, a typical military approval process for nonstandard parts, based on MIL-STD-965, has six steps and lasts 192 days, whereas a typical new parts approval process at TRW AEN has three steps and lasts 135 days.

To illustrate, the cost to produce an automotive air bag crash sensor is 79 percent less than the cost to produce a military helicopter restraint system crash sensor (Figure 1). The F-22 subcontract to TRW ASD for their portion of the CNI system had 183 contract clauses and 204 technical requirements (specifications and standards), whereas a typical commercial contract at TRW AEN has 27 contract terms and conditions and 35 technical requirements.

Convincing TRW AEN to sign up to the MPCL subcontract was no easy task. Several months of negotiation were required. Indeed, the original subcontract had 30 or more contract clauses — not a comfortable contracting situation for AEN. However, once the program was underway, the Business Practices (BP) Team set out to find a way to simplify subcontracts to commercial suppliers, using the TRW AEN subcontract as the baseline.

THE NEW WAY OF DOING BUSINESS — THE MPCL APPROACH
The MPCL approach in the BP area was threefold. First, TRW AEN had to be convinced of the business case for building

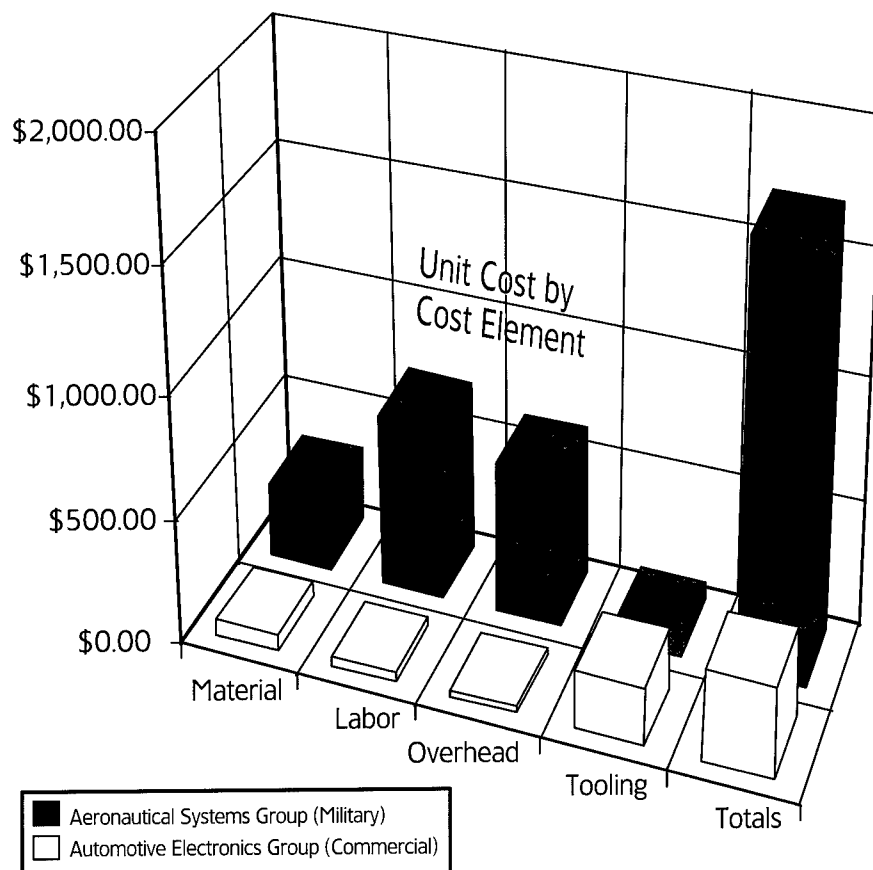
military products. Second, there had to be a contracting vehicle agreeable to all parties. Third, a practice needed to be established whereby TRW AEN could use their existing processes and would not be mandated only by military specifications and standards.

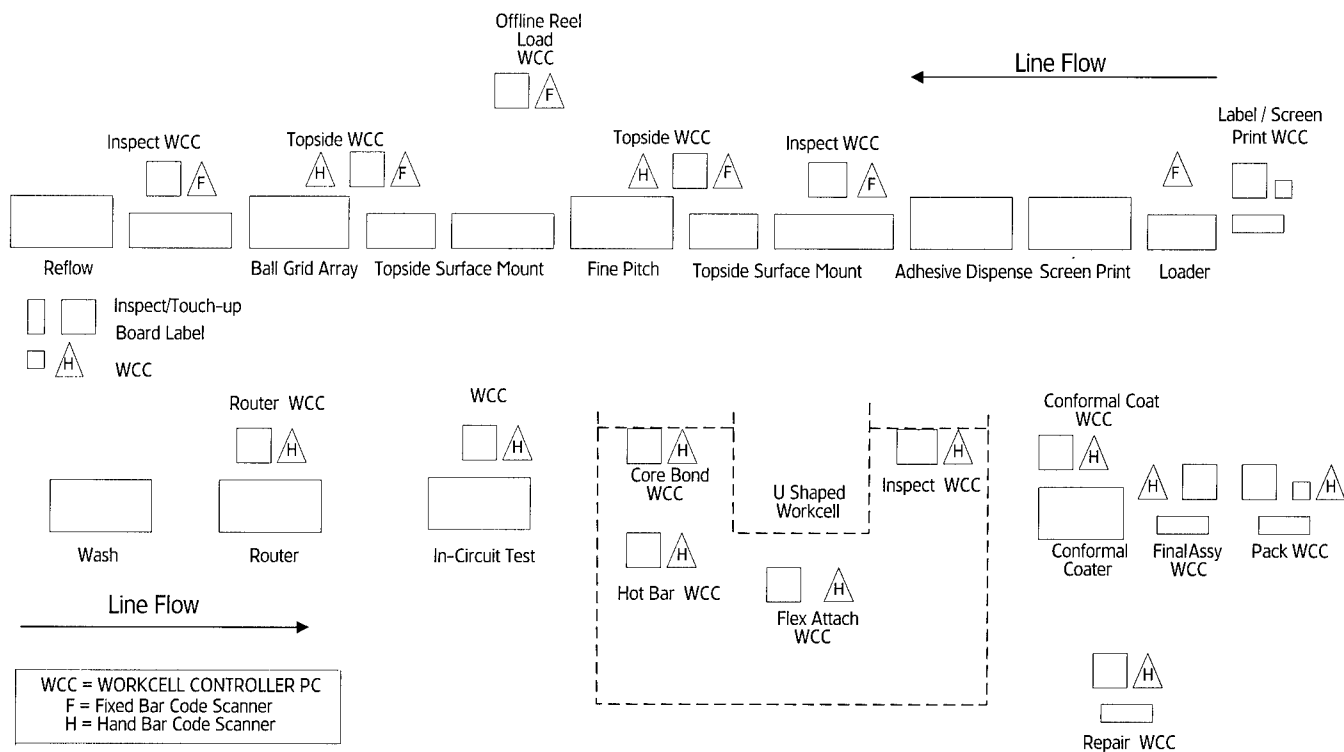
The business case was accomplished by using a TRW AEN financial spreadsheet, predicting future manufacturing orders, and showing profitability for TRW AEN with reasonable price for TRW ASD. Once this exercise was completed, TRW AEN truly “bought in” to the MPCL program and viewed TRW ASD as a “real” customer. From then on, TRW AEN participated fully in MPCL to establish the commercial manufacturability of the demonstration modules. TRW AEN now has plans to bid on future defense work.

The contracting effort initially involved significant analysis work but soon converged on the definition of commercial

items. Declaring the MPCL modules commercial items was the quickest and most effective way to simplify a subcontract to be a commercial-like document. The BP Team had to wait for the implementation of the Federal Acquisition Streamlining Act (FASA) and the Federal Acquisition Reform Act (FARA), which eased some requirements for commercial items. They also worked very closely with contract personnel, discussing and working through every issue.

Finally, after two years MPCL set a precedent and successfully obtained commercial item status for its modules. The determination was based on the fact that the MPCL modules are built using commercial processes and practices. In addition to commercial item status, a price analysis was required to eliminate the cost accounting clauses. MPCL demonstrated and documented a successful (and reusable) price analysis process.





The specifications and standards effort involved integrated teams to review technical requirements and determine how they should be stated. This was no trivial task since team participants did not always agree. It was found, however, that many industrial standards worked for many military applications. A *BP Manual* was generated describing technical requirements, incorporating American National Standards Institute (ANSI), International Organization for Standardization (ISO), American Society for Quality Control (ASQC), Society of Automotive Engineers (SAE), and Electronic Industry Association (EIA) standards; the supplier's own competitive commercial practices; and only a couple of military standards. The manual is suitable for the MPCL effort and transferable to other similar commercial manufacturing ventures.

With commercial item status, price analysis, and the *BP Manual*, the TRW AEN subcontract was modified from more than 30 clauses to three, and from 204 specifications and standards to 32. This subcontract was used to generate a Model Subcontract for others to use in similar commercial manufacturing ventures. The efforts of the BP Team have

begun the process of drawing interest from commercial manufacturers in producing products for defense systems. (The *BP Manual* and Model Subcontract have been included as part of the final MPCL report.)

Manufacturing Infrastructure

There were several reasons why TRW AEN was selected as the commercial supplier for MPCL, not the least of which was that TRW desired a corporate strategy whereby the efficiency of its commercial manufacturing could be leveraged for some military products.

At their Marshall, Ill., plant, TRW AEN produces safety critical products for a stringent automotive customer. Their processes are well suited to the production of digital CNI modules. And while TRW AEN designs most of the products they build, they do have at least one customer who does their own designs for production at Marshall. TRW ASD emulated this by designing MPCL products for further manufacture at the Marshall plant.

The baseline-manufacturing floor at TRW ASD is a lab-like environment with several people using tweezers and mag-

nifying glasses to place parts. Production is a few hundred modules per year. Flexibility is high; emphasis is on product performance and military specification. In contrast, the manufacturing floor at Marshall is highly automated, with conveyors and several high-speed, pick-and-place robots. Production is tens of thousands of units per day, and millions of components are placed per day. Everything revolves around the price of the product, and every fraction of a penny counts. Emphasis is on quality and efficiency.

Leveraging What Works

At this point, the government members of the MPCL team had to overcome a certain amount of culture shock and stay focused on the objective. How could the efficiency and affordability of TRW AEN manufacturing be leveraged for the MPCL products, and for military products in general?

The answer to this was not simple, but several approaches became clear. First, now that military products are a very small part of the electronics market, the DoD must learn how to be a "good customer." Second, the redesign of the MPCL products must emphasize design-

for-manufacture (and design-for-commercial-manufacture). And third, computer integrated manufacturing (CIM) will enable low-volume, complex military products to be built on relatively high-volume commercial production lines.

CIM — A Key Enabler

In the MPCL case, CIM is a key enabler to seamless commercial-military integrated manufacturing. It is the CIM system that allows military products to be efficiently produced on a commercial manufacturing line along with commercial products. The MPCL Manufacturing Infrastructure (MI) Team developed and implemented the CIM system at TRW AEN. Their primary objective was to develop and deploy a flexible CIM system that not only supports the existing high-volume needs, but also provides for low-volume, high-mix production on the same line.

The MI Team provided software tools and information systems to support product design, enable the flow of data from design to manufacturing, and ensure proper control and monitoring of production. The CIM system now provides design-driven production, product quality modeling, automatic product changeover, process mistake-proofing, factory control, work cell control, a centralized production and quality data model, modularity, and transferability.

The benefits of CIM for MPCL include a reduction in cycle time module procurement through test of more than 30 percent and product changeover in less than 15 minutes per station. Without these efficiencies, TRW AEN would have decided that manufacturing the military modules was too disruptive to their factory, and that future work in this area would probably not be feasible.

Process Technology

Every effort was made in MPCL to approach tasks from the angle of quality and affordability. This is different from the usual approach to acquisition and military design, and required out-of-the-

METRIC	METHODOLOGY	TARGET (BASIS)	RESULT	INDEX
Pulse Narrowband Processor (PNP) Cost	Material - Actuals Labor - Estimates	\$18.0 K (50% Reduction)	\$18.6 K	97 %
Front End Controller (FEC) Cost	Material - Actuals Labor - Estimates	\$17.4 K (50% Reduction)	\$11.0 K	100%
Cumulative Damage Index (CDI) (Durability, Reliability)	Test	1.0 (F-22 Life)	1.0	100%
Form, Fit, Function	Demonstration	100% (F-22 Comparison)	100%	100%
Weight	Test	1.3 lbs (F-22 Baseline)	1.0 lbs	100%
Number of Processes with Process Capability (Cpk) > 1.33	Build	14 (Design for Manufacturability [DFM] Analysis)	11	79%
Number of Processes with Set-up Time < 15	Demonstration	11 (Return on Assets Employed [ROAE] Analysis)	11	100%
			TOTAL TECHNICAL PERFORMANCE INDEX (TPI)	97%

box thinking at every turn, including the Process Technology (PT) Team's redesign process.

Once demonstration modules were selected, the PT Team set about the task of conceptual design. No limitations were placed at this point, and the team listed possible design concepts based on design packaging approaches such as plastic, ceramic, chip-on-board, leaded packages, and area array packages. Using a design-for-manufacture approach and a decision matrix methodology, the concepts were scored and the highest scoring concept selected.

A plastic ball grid array (PBGA) approach was chosen, i.e., an approach based on plastic packages for components, attaching them to the modules using an array of solder balls. Elements factored-in to the design selection included durability life; design-for-manufacture; recurring and life cycle costs; weight; platform commonality; technical risk; nonrecurring cost; fit; and functionality. TRW AEN's "Flex Line 3" was selected for module production because of process similarity and because it allows for more frequent product changeover. Figure 2 is a schematic of Flex Line 3.

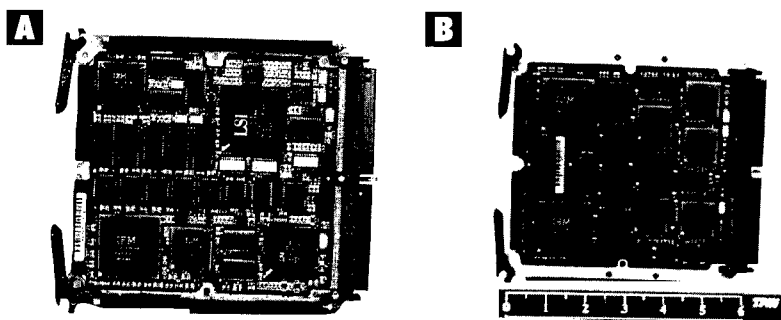
Such a design approach would never have materialized through the baseline

military redesign process. Approaches to affordability are severely limited by longstanding practices such as an attitude of performance-at-any-cost and an exaggerated mistrust of suppliers. In the MPCL program, team members had the freedom to leave this sort of baggage by the wayside and pare the project down to its essential elements: the technology was there, the price was good, and performance requirements were met.

In Phase II, the PT team performed detailed design, demonstrated durability and reliability of the selected design, and built design validation modules. Process development was underway as well, preparing TRW AEN's Flex Line 3 for its first military products.

Production validation was conducted in Phase III. The PT Team efforts were not without issue, but no issues were raised that could not be resolved in a manner conducive to sound commercial product and process development.

The primary difficulties for the PT Team had to do with the custom Application-Specific Integrated Circuits (ASIC) in the demonstration modules. These could not be designed out in the MPCL program but had no commercial equivalents. Because these parts are custom, complex, and low-volume, their lead



times are the longest, and manufacturing and test problems abound.

These issues surface in many military designs with custom ASIC components. In MPCL, custom ASICs represent less than 10 percent of the parts, but more than 50 percent of the cost. The remaining 90 percent of the parts are commercially available, and some are already provided by TRW AEN suppliers.

Process development included some capital investment to accommodate features of the MPCL modules (such as cores, connectors, and fine pitch parts) that are not characteristic of TRW AEN's other products. In several cases the capital has dual use application, while a few process steps apply only to MPCL modules at this point. In general, however, the changes to module designs to accommodate the production line *far outweigh* changes to the production line to accommodate modules!

TRW AEN has been able to benefit from a few new processes introduced through MPCL. For example, PBGA process technology is something that TRW AEN has wanted to develop for their other customers. MPCL has allowed them to accelerate that development. MPCL process development in general has prepared TRW AEN to handle more complex products, which will be required for future automotive customers as well as military ones.

Although details of design, development, manufacture, test, and verification are too numerous to include here, they can be found in the PTF Final Report. The

results of these activities have demonstrated a 54-percent cost reduction for the PNP module and a 73-percent cost reduction for the RFFEC module. The weight of the modules has been reduced by 35 percent. Durability testing indicates that the modules will survive at least one full 20-year military fighter lifetime using commercial parts and processes. Component reliability far in excess of 12,000 hours has been demonstrated by accelerated tests. Full functional compatibility with the predecessor military modules has been verified by design validation testing. Figure 3 shows program metrics, and a demonstration module is shown in Figure 4.

The MPCL Conclusion

MPCL concludes that neither business practices nor manufacturing infrastructure nor product and process technologies pose any insurmountable barriers to building military products on commercial lines. Military products can be built on commercial lines at significantly lower cost, and of equal or higher quality. This is only one pilot demonstration, but it is not an atypical one. The practices and processes demonstrated in MPCL can be used elsewhere for similar benefits. Every MPCL accomplishment is transferable and, where appropriate, has available data and documentation.

Next Step — Implementation

While the pilot program itself was an overwhelming success, implementation of MPCL is not a trivial matter. It cannot be done piecemeal but, rather, requires an entire change of mindset. It is a business strategy that must pervade

the thought processes of everyone involved. TRW is well on its way to leveraging commercial manufacturing for defense needs. However, interest among defense contractors in the MPCL concept has not gone very far beyond TRW. To date, a couple of companies may be interested in a similar corporate strategy; a few more are willing to redesign with commercial components if sufficient Nonrecurring Engineering (NRE) cost is paid but are otherwise noncommittal. Others have ignored the concept entirely, seeing no incentive to change a well-established process.

Why MPCL and related concepts are so slow to catch on is not quite clear. Lack of incentives, fear of competition, and resistance to cultural change have been cited as probable reasons. Indeed, defense manufacturers are still getting paid to keep doing what they've always done; and, while acquisition cost savings is incentive for the program offices, it is not necessarily incentive for prime contractors. Nevertheless, the evidence is clear: *those who can implement the concepts of MPCL will have a competitive advantage.* In fact, the implementation of MPCL is the current topic of discussion among acquisition professionals and the next challenge in this continually evolving effort called acquisition reform.

Editor's Note: Detailed program results have been compiled into several volumes of final reports³ and are available from AFRL/MLME or on the Web at <http://www.ml.afrl.af.mil/ib/pilots/MPCL-Main.html>. The author welcomes questions or comments on this article. Contact her at mary.kinsella@wpafb.af.mil.

END NOTES

1. *Program Manager*, November-December 1996, pp. 32-38, and July-August 1998, pp. 48-56.
2. Contract No. F33615-93-C-4335
3. The MPCL Final Report includes an Executive Summary; Volume I, *Business Practices* (includes the Model Subcontract); Volume IA, *Business Practices Manual*; Volume II, *Manufacturing Infrastructure*; Volume IIIA, *Process Technology*; and Volume IV, *Lessons Learned*.

All Benefit From DoD-Industrial Dual-Use Partnerships

LINDA D. KOZARYN

ASHINGTON, May 17, 2000 – The military needed a way to send messages around the world, and thus, the Internet was born.

Troops needed a better way to navigate, and thus GPS, the Global Positioning System, was born.

In both cases, one thing simply led to another. That's the underlying premise of "dual use technology."

Military research and development has led to the production of many items that are now part of everyday life. Instant coffee, powdered milk, digital watches, and lightweight graphite bicycles and tennis racquets all have military roots. In aviation, a long-term relationship between the military and industry has led to America's dominant role in the world market.

Today's home computers are now linked to the World Wide Web; and planes, boats, and privately owned vehicles feature GPS. In fact, because of new technology that allows the military to degrade GPS signals by region as situations may require, the Clinton administration recently lifted restrictions that immediately increased GPS' accuracy tenfold for users.

The Defense Department is expanding this link between the military and the civilian world through research and development partnerships with corporate America. Since 1997, DoD has initiated 283 joint projects to develop technology that can be used by both the armed forces and by private industry.

Kozaryn is on the staff of American Forces Press Service. This information is in the public domain at www.defenselink.mil/news on the Web.



A soldier prepares to heat a meal using a flameless ration heater being developed by the Army and TDA Research Inc. The heater may also be marketed commercially for camping and for school and workplace lunches.

DoD has invested about \$400 million through its Dual Use Science and Technology Program. Corporate America has invested another \$440 million in the program.

Maintaining technological superiority on future battlefields depends on DoD's ability to take advantage of advances occurring in commercial industry, according to Jacques Gansler, Under Secretary of Defense for Acquisition, Technology and Logistics. DoD wants to take advantage of the efficiencies, innovation, reduced cycle time, and lower cost technologies coming from the commercial world.

"Dual use is essential to the overall research and development effort of the Pentagon," Gansler said at a recent seminar on emerging technologies. "While government research and development remains important, we have to recognize that in many areas that are relevant to us – particularly information warfare and information-based systems for the warfighter – commercial developments are as important as perhaps any we make ourselves."

DoD oversees the Dual Use Science and Technology Program implemented by the Army, Navy, and Air Force. "We try to partner with industry to develop technology we both need," said program manager Dan Petonito. Ultimately, the goal is to reduce DoD's acquisition and logistics costs by using commercial products, he said.

DoD shares investment costs 50-50 with commercial partners. About 25 percent of the funds for a project come from DoD's \$30-million annual budget for the pilot program. Another 25 percent come from the Service laboratories. The balance comes from nonfederal sources, primarily industry.

Instead of designing technology specifically for the military, civilian officials incorporate defense considerations into commercial designs, Petonito explained. A company named Continental Teves, for example, partnered with the Army to develop an anti-lock brake system for medium-duty trucks. Continental Teves put up 75 percent of the project cost, and the Army put up the rest.

"For that 25 percent, they made sure that the system would not only work on medium-duty trucks, but also on the Army's Humvees," he said. "They actu-



DoD Value Engineering Achievement Awards For 2000 Presented

Under Secretary of Defense for Acquisition, Technology and Logistics Jacques S. Gansler presented the annual Department of Defense Value Engineering Achievement Awards during a ceremony held today at the Pentagon.

Value engineering is a systematic function analysis leading to actions or recommendations to reduce the production or operations cost of systems, equipment, facilities, services, and supplies. Its objective is to retain required system performance and quality while reducing cost.

"Ongoing changes in the DoD value engineering program," Gansler said, "have made it a more powerful tool to optimize the best values in total ownership cost, and allow us to achieve all necessary performance better, faster, and cheaper."

The awards are intended to recognize significant achievements in value engineering during the past fiscal year and to further the use of value engineering by DoD personnel and its contractors. During the last fiscal year, 1,901 in-house value engineering proposals were accepted with projected savings of \$602 million. Another 154 contractor-initiated value engineering change proposals resulted in additional savings of \$23 million.

The value engineering awards program has seven winning categories: (1) program management, (2) individual/team, (3) procurement/contract administration, (4) value engineering professional, (5) field command, (6) installation, and (7) contractor. In addition, a "special" award is given to recognize innovative applications or approaches that expanded the traditional scope of value engineering use.

The DoD Value Engineering Achievement Awards recipients for 2000 are:

Office of the Secretary of Defense

Special

Laurence Paulson, DoD VE Program Manager, 1992-1999

Army

Program Management
Individual/Team
Professional
Procurement/Contract
Administration
Field Command
Installation
Contractor
Special

Multiple Launch Rocket System Project Office
Baton Rouge Value Engineering Team
Nanette Ramsey, U.S. Army Materiel Systems Analysis Activity
Gerald Taulbee, U.S. Army Soldier and Biological Chemical
Command
U.S. Army Industrial Operations Command
Red River Army Depot
Robinson, Stafford & Rude, Inc.
Ronald L. D'Amico, U.S. Army Corps of Engineers

ally incorporated some unique requirements that would not necessarily have been incorporated if they hadn't gotten that money from the Army."

Modifications to meet military needs are not necessarily costly if made during the design phase, Petonito said. "But to take that same system and then try to modify it for the Humvee later would not only cost considerably more, but you wouldn't have a commercial item anymore."

Upcoming joint development projects are aimed at producing affordable sensors, advanced propulsion, power and fuel efficiency, information and communications systems, weapons systems sustainment, environmental as well as medical and bioengineering technologies.

Along with the potential for military use, Petonito said, dual use technology has to have sufficient commercial potential to support a viable industrial base. "That's really the key. You can develop the technology, incorporate it into commercial products which support an industrial base, and then DoD can tap into it."

In lieu of standard contracting procedures, dual use program officials use cooperative agreements and other transactions.

"They give us a lot of flexibility and allow us to attract commercial companies," Petonito said. "We don't have to go through the federal acquisition regulations. For all intents and purposes, we can start with a clean piece of paper, sit down with an industry partner, and come up with our own terms for progress payments, audits, and intellectual property rights."

The Services and commercial firms are currently engaged in numerous development projects. Examples include:

- The Army and TDY Research Inc., are developing a flameless ration heater



The Defense Department is expanding this link between the military and the civilian world through research and development partnerships with corporate America.

that could be used by servicemembers in the field as well as by civilians for camping, school, and workplace lunches.

- The Army's Night Vision and Electronic Sensors Directorate and Indigo Systems Corp., have developed a 6-ounce infrared camera about the size of a D cell battery that could be mounted on smart munitions to provide greater accuracy, on rifle sights and on helmets to provide night vision. DoD officials say the camera is already in high demand by civilian fire departments for its ability to see through smoke.

- The Army and Applications Tech Inc., are developing an optical character

recognition process that can translate Arabic and Farsi (Persian). The system incorporates several hundred military characters and the capability to translate low-quality documents such as those one might find in the field.

- The Navy, Boeing, and Northrop Grumman are developing a new method of manufacturing complex titanium parts for aerospace systems. Success would cut the cost of fabricated parts by 30 percent and cut the delivery times for both military and commercial components by 75 percent.

- The Navy and a team from the University of Connecticut, Stevens Institute of Technology, Rutgers University, Inframmat, Robert W. Rigney and Associates, and A&Co, developed a new protective spray coating that is safe for the environment and uses existing commercial off-the-shelf equipment. In its first military use, the coating will replace hard chrome on a series of submarine components, but wide use is anticipated on ships, aircraft, and land vehicles because of the coating's ability to prevent various types of wear, corrosion, and erosion, thereby reducing maintenance costs.

- The Air Force and Raytheon Systems Co., are developing an antenna that can be used for weapon system delivery and for cellular communications. Telecommunications companies have already deployed about 5,000 of the antennas, DoD officials said.

- The Air Force and National Semiconductor have established the first high-volume commercial line of standard and radiation-tolerant electronic components used in military and civilian satellites. The project will reduce the cost of these components by up to 70 percent.

For more information about the Dual Use Science and Technology Program, visit www.dtic.mil/dust.

DoD Kickoff Ceremony Marks Start of Acquisition and Logistics Reform Week 2000

SYLWIA TERESA GASIOREK

ain and more rain greeted visitors to this year's Acquisition and Logistics Reform (ALR) Week Kickoff Ceremony at the Pentagon May 22. Because of the heavy downpour, Under Secretary of Defense for Acquisition, Technology and Logistics Dr. Jacques S. Gansler moved the ceremony from the Pentagon courtyard to the auditorium.

"We have been moving pretty well along with supercomputers in terms of being able to predict the weather, but not to be able to control it," he apologized. Joint Chiefs of Staff Chairman Army Gen. Henry H. Shelton noted that, "Rangers love the rain, but all the smart ones stay inside."

Despite the rain, a sizable crowd turned out for the ceremony, marking the gathering together of DoD and defense industry acquisition and logistics professionals for the opening of ALR Week 2000, May 22-26.

Gansler began the day's events by applauding the continued efforts and considerable improvements brought about by "a truly outstanding DoD acquisition workforce." He said that this year's theme, "Embracing Change for the 21st Century Warfighter" served to emphasize that, "Our warfighters have to have not only the best of traditional weapons, but the best of the new systems as well. And not only the best of the weapons, but also the best of the



"Victory does not always go to the strongest military force, but to the one that can adapt to changing situations more rapidly."

—Army Gen. Henry H. Shelton
Chairman, Joint Chiefs of Staff

logistics support. If we're going to do the job that's required, we can give them nothing less."

Joined by Shelton and Deputy Secretary of Defense Rudy de Leon, Gansler thanked the acquisition and logistics community and defense industry for recognizing the challenge of rapid changes. He also noted the speed of change in military operations, in weapons systems, in new threats, in new technologies, and in new industrial structures.

Preparation

ALR Week 2000 was preceded by a carefully orchestrated campaign of activity and preparation. Announcing ALR week in a January 24 memorandum, Gansler pointed out that although DoD has experienced many successes in acquisition and logistics reform, still much needs to be accomplished.

"Acquisition and Logistics Reform Week will enable us to further embrace the revolution in business affairs, and take the next step in providing better, faster, and less expensive products to customers," he said. His objective was that the DoD acquisition and logistics community cease their normal operations for one day and focus on reform.

Commanders and managers at all levels were in charge of planning and designing activities consistent with their particular needs. Such activities included discussions of lessons learned, panels,

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Navy

Program Management	STANDARD Missile Program Office, Program Executive Office
Individual/Team	Value Engineering Team, STANDARD Missile PMS 422
Procurement/Contract	Maria Melton, V-22 Contracting Officer; James Smith, V-22 Senior
Administration	Contract Specialist
Field Command	Naval Air Systems Command, Research and Engineering Group
Installation	Naval Surface Warfare Center, Crane Division
Contractor	Bell Boeing Joint Program Office
Special	P141U Aircraft Maintenance Hangar Function Analysis Concept
	Working Group
Special	Low Maintenance Vented Nickel Cadmium Battery Improvement
	Team

Air Force

Program Management	MILSTAR II Program Office, Space and Missile Systems Center
Individual/Team	Lt. Col. Dennis M. Miller, Air Armament Center
Professional	Larry Keith Hamilton, Warner Robins Air Logistics Center
Procurement/Contract	U-2 Contractor Field Service Representative, Warner Robbins Air
Administration	Logistics Center
Special	Lt. Col. Randy Blaisdell, Electronic Systems Center, Detachment 5

Defense Logistics Agency

Program Management	Value Management Program Unit, Defense Supply Center Columbus
Professional	Mitchell McElroy, Defense Supply Center Columbus
Individual/Team	Charles Grabowski and John Woloszyn, Defense Supply Center
	Philadelphia
Special	Value Engineering Office, Defense Supply Center Richmond

Ballistic Missile Defense Organization

Program Management	PATRIOT Program Management Office
Individual/Team	Joel Ellis, Theater High Altitude Area Defense Project Management
	Office
Professional	Karen Caudle, U.S. Army Aviation and Missile Command
Procurement/Contract	Donna Cancel, PATRIOT Project Management Office
Administration	

Defense Information Systems Agency

Individual/Team	Spend Plan Review Team
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Editor's Note: This information is in the public domain at www.defenselink.mil/news on the Web.

speeches, case studies, classes, and simulations.

The Defense Acquisition University Acquisition Reform Communications Center (ARCC) provided a supporting package of training materials. The ARCC training package, together with satellite broadcasts and other Service/Agency-hosted training events, supported DoD's policy of continuing acquisition education.

In addition, a newly designed ALR Week 2000 Web site at www.acq.osd.mil/alrweek2000 provided information on 42 government and industry exhibits, eight hardware displays, scheduled presentations, as well as a number of other ALR activities and training materials.

The Challenge is Change

Introducing the first speaker, Army Gen. Henry H. Shelton, Gansler quoted Shelton by saying, "Victory does not always go to the strongest military force, but to the one that can adapt to changing situations more rapidly." He also said that the aim of ARL Week 2000 was to stop and think about what else can be done, and how the process of change can be accelerated throughout the acquisition and logistics communities.

Responding to the theme of ARL Week 2000 Shelton said, "I think all understand that the national security challenges that we face in the twenty-first century and, most importantly, the lives of our troops demand a flexible, timely, and responsive acquisition system that supports the warfighter by reducing the cycle times and leveraging the very latest in technology." He also emphasized that developing a flexible and timely acquisition system was a daunting task.

Following Shelton, de Leon said, "We've moved from the courtyard into the auditorium, but it really doesn't change our focus much. We are here to talk about the criticality of Acquisition Reform. Indeed, the acquisition choices we make today will directly affect the military choices we can make tomorrow and for decades to come."



"We need to continue consolidating and streamlining, cutting excess infrastructure, competing more functions with the private sector, and adopting proven cutting-edge business practices," de Leon said.

—Rudy de Leon
Deputy Secretary of Defense

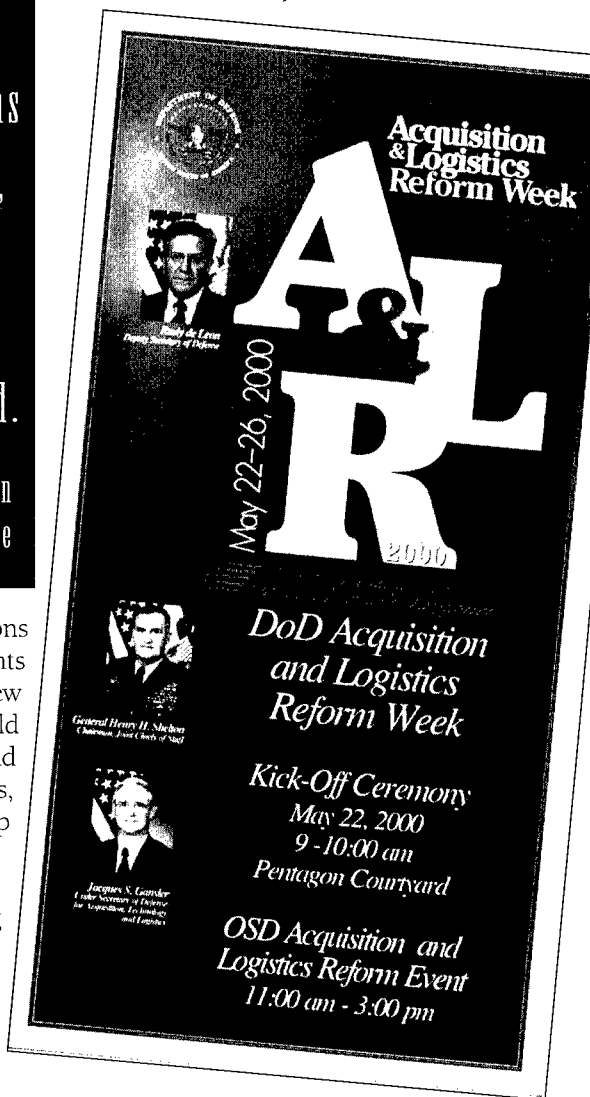
He also recognized last year's missions in Kosovo as remarkable achievements of the warfighters as well as the new technologies. DoD's acquisition world is changing rapidly, de Leon noted, and DoD acquisition personnel, methods, tools, and procedures must keep up with the globalization process.

"We need to continue consolidating and streamlining, cutting excess infrastructure, competing more functions with the private sector, and adopting proven cutting-edge business practices," de Leon said.

Next Steps

Following de Leon, Gansler spoke of cost as a major consideration in any attempt to reform DoD's acquisition system. "Our goal has been not only to produce and support the best for warfighters — the highest quality and highest performance — but to do it in such a way that cost is a major consideration in every aspect of our acquisition and logistics process," said Gansler. To achieve that goal, he named four initiatives DoD's acquisition community must undertake:

- Implementing the concept of affordability, concentrating on higher performance at lower cost, thus maximizing both savings and increases in performance.
- Strongly committing to reform of DoD's current logistics systems, from outdated systems to an integrated supply chain driven by modern informa-



2000 DAVID PACKARD EXCELLENCE

G A N S L E R H O N O R S T H R E E T E A M

U.S. Army Medium Tactical Vehicle Replacement Program Team

The U.S. Army/U.S. Marine Corps team executed a cutting-edge acquisition strategy, realized lowered operating costs, achieved best value, and integrated commercial practices resulting in a real revolution in off-road mobility.



U.S. Marine Corps Weapons Systems MARK 46 Development Team

The Development Team is a world-class model, which exemplifies the use of Cost As an Independent Variable, Interoperability, and Integrated Product and Process Development to improve warfighter capability while significantly reducing total ownership cost.



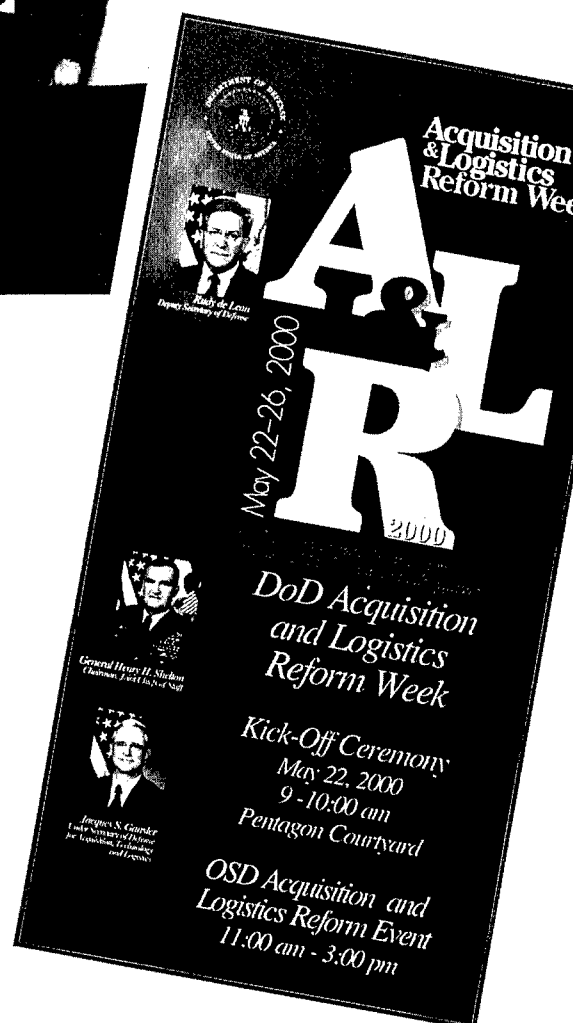
IN ACQUISITION AWARD WINNERS

AT MAY 22 PENTAGON CEREMONY



**National Reconnaissance Office
Relay Satellite Team**

The NRO's Relay Satellite Team delivered the last of a multiple satellite buy ahead of schedule and under budget. The new relay satellites will have eight times the capability of their predecessors. The relay team integrated commercial practices and new technologies to build the satellites faster, better, and cheaper. It also was among the first to use an earned value system of management and became the role model for other NRO programs.



tion technologies and a wide range of best business practices, meaning a true transformation of DoD's logistics operations.

- Recognizing how DoD's acquisition practices shape the structure, conduct, and performance of the defense industrial base, which will require examination of effectiveness and efficiency of defense industry in a global environment.
- Focusing on the DoD acquisition workforce, meaning training to acquire and maintain skills as well as gaining support and understanding of the new processes required to institutionalize Acquisition Reform.

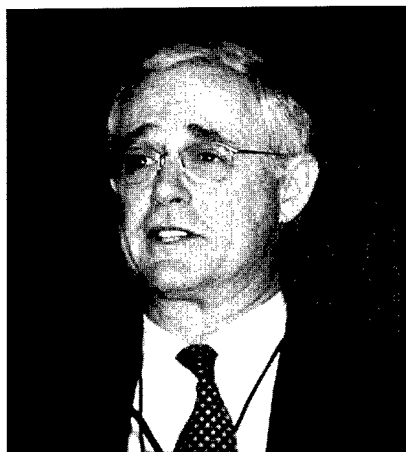
During his 30-month period as Under Secretary of Defense for Acquisition, Technology and Logistics, Gansler said he had developed appreciation for the hard work of the entire acquisition and logistics workforce, their dedication, and their competence to revolutionize the new policies and procedures required to do business.

"DoD has become a world-class performer in this new world because you in the acquisition and logistics community are already world-class performers." Although a lot still needs to be done, he is confident of further ongoing success. "We owe it to the warfighters," he emphasized.

David Packard Award for Acquisition Excellence

This year Gansler honored three teams with the David Packard Award for Acquisition Excellence — DoD's highest acquisition award. The award is established to recognize DoD civilian and military members, organizations, groups, and teams who have made highly significant contributions that demonstrate exemplary innovation and best acquisition practices. The 2000 David Packard Award winners (shown on pp. 42-43) are:

- U.S. Army Medium Tactical Vehicle Replacement Program Team
- U.S. Marine Corps Weapons Systems MARK 46 Development Team
- National Reconnaissance Office Relay Satellite Team



"Our goal has been not only to produce and support the best for warfighters — the highest quality and highest performance — but to do it in such a way that cost is a major consideration in every aspect of our acquisition and logistics process."

—Dr. Jacques S. Gansler
Under Secretary of Defense
(Acquisition, Technology & Logistics)

De Leon praised the winning teams by saying that they blazed new trails with bold, innovative, and imaginative thinking, and that the achievements of the entire acquisition and logistics community remind us that DoD is on the right track. "The real risk," he said, "is that of standing still."

Also recognizing the 2000 Packard Award winners, Shelton said, "I'm very proud to be a part of a Department that is pursuing the improvements that we've seen in both speed as well as in reform ... My congratulations to all of the winners that are here today. You obviously have excelled in what I would call a world-class field of acquisition and logistics personnel and you, in the process, have made us better — and you've made us better faster."

Shelton said that DoD has been working very hard toward acquisition and logistics reform, to create world-class systems, to recognize the information technology content of the new systems, and to provide the flexibility to be more efficient and more effective.

DoD 5000 Series Rollout

Concluding the kickoff ceremony, Gansler encouraged the crowd to stay, view the exhibits, and hear the DoD 5000 Series Rollout briefing. He said that the new 5000 series introduces more flexibility into the acquisition process, recognizes the need for the rapid speed of change, recognizes the information technology content of these new systems, and essentially provides "... you in the acquisition and logistics community the flexibility that you need in order to do these jobs much more efficiently and effectively."

Ric Sylvester, Assistant Deputy Under Secretary of Defense for Systems Acquisition and Dr. Joe Ferrara, Deputy Director, Acquisition Systems Management briefed the rollout of the new DoD 5000.1 and 5000.2 series entitled, "The New Acquisition Model: DoD 5000." The new 5000 series revisions, they said, provide an acquisition framework that delivers advanced technology to the warfighters faster; reduces total ownership costs; and is more flexible and focused on interoperability, supportability, and affordability.

Much anticipated and well received, the presentation can be downloaded from the ALR 2000 Web site at www.acq.osd.mil/alrweek2000/.



Navy, MIT Establish Graduate Program In Product Development

The Navy announced today that a memorandum of agreement with the Massachusetts Institute of Technology (MIT) has been signed to establish a new master's degree program at the Naval Postgraduate School (NPS) in Monterey, Calif. This graduate degree, a masters of science in Product Development, was developed at MIT jointly between their school of engineering and Sloan School of Management to produce a cadre of professionals skilled in engineering and management to bring about dramatic improvements in the way American corporations develop and build new systems and products.

Because the demand for this curriculum greatly exceeded MIT's capacity to accommodate all applicants, MIT established a multi-university consortium to replicate the educational program at a number of other universities with the help of a number of corporations. The initial partner universities with MIT are the Rochester Institute of Technology (with Eastman Kodak Co. of Rochester, N.Y., and Xerox of Stamford, Conn., as their primary partners) and the University of Detroit Mercy (with Ford Motor Co. of Dearborn, Mich., as the primary partner and input from General Motors Corp. of Detroit and Chrysler Corp. of Auburn Hills, Mich.).

The newest partner with MIT is now the NPS. The Navy is proud to join this partnership, titled Product Development Leadership for the 21st Century (PD21), as another example of the longstanding cooperation between the Navy and MIT in numerous research and educational endeavors.

In a letter to Charles Vest, president of MIT, Undersecretary of the Navy Jerry Hultin, wrote: "PD21 is aligned with our efforts to transform the Navy and Marine Corps acquisition and procurement process.

This initiative fits nicely with our broader campaign entitled Revolution in Business Affairs (RBA), a strategic change initiative aimed at dramatically improving the way we acquire, deliver, maintain, deploy, and operate the business side of our national defense institution."

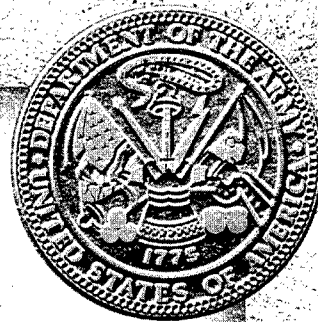
"I fully expect that graduates of the PD21 curriculum will become leaders and change agents in our RBA, and will apply their new knowledge to significantly increase the quality of our products and reduce acquisition life cycles. This initiative is a great example of inter-university collaboration, and cross-industry and government cooperation and has the potential to make a significant contribution to our nation's economic competitiveness and national security."

The PD21 curriculum will convene its first class in September 2000 and will be conducted entirely through the use of distance learning technology at several military installations across the country. The program will take two years to complete, including all class work and the completion of a thesis. The program is targeted at full-time professionals working in Navy and Marine Corps organizations responsible for the development and acquisition of major defense systems.

Additional information can be obtained from Professor Carson Eoyang, director of PD21 at (831) 656-3200, E-mail address ckeoyang@nps.navy.mil or on the Web at www.pd21.nps.navy.mil.

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

U.S. ARMY PUBLIC AFFAIRS NEWS RELEASE



DoD to Field New Civilian Personnel System

GARY SHEFTICK

WASHINGTON (Army News Service) — A new automated human-resources data system will soon be fielded to all civilian personnel offices across the military.

The modern Defense Civilian Personnel Data System [DCPDS] is expected to support regionalization of services by quickly moving data across organizations and geographic locations, said Carole Johnson, chief of the Regionalization Project Management Office for the Army's civilian personnel.

Using the modern DCPDS will take a period of adjustment, Johnson said, but added that ultimately users will appreciate the benefits of increased access to information, enhanced productivity, reduced redundancy, and improved operations. She said the modern DCPDS will significantly improve the access of up-to-date information for managers and personnelists.

Redundant operations and duplicate data entry will decrease with the new system, Johnson said. Personnel actions will be electronically routed and easily tracked between the desktops of managers, Civilian Personnel Advisory Centers, and Civilian Personnel Operations Centers [CPOC]. Johnson said this is the first time the same system has been fielded to personnel offices throughout the Defense Department. It will also be the largest human-resources information system in the world, according to DoD officials.

As early as 1994, it was determined that automation technology was a way to improve efficiencies while cutting the personnelist workforce. "Since then, 10 civilian personnel regions have been created across the Army, and the personnelist workforce has been reduced by 41 per-

cent," said Johnson. Other DoD components are taking similar actions as part of this DoD-directed initiative.

"Undertaking a program of this scope did not happen without comprehensive planning, aggressive implementation, and challenges," Johnson said. In preparation for the monumental tasks of regionalization and modernization, the Army spent considerable time re-engineering its major personnel processes to make them more standardized, streamlined, and effective, Johnson said.

"While the new system was being developed, we used interim and bridge applications that were developed to implement the new personnel processes and to meet the immediate automation needs of the regional service centers," Johnson said.

Johnson said she hopes to have the new system deployed to all Army civilian personnel regions by mid-February 2001.

"It's a very aggressive deployment schedule, but one we feel we can accomplish," she stated. The deployment schedule is posted on the Civilian Personnel Online Web site: <http://www.cpol.army.mil/modern>.

The Army, along with the Navy and Air Force, has already tested the system. The Army's Pacific Region, headquartered at Fort Richardson, Alaska, was the Army test site. Testing there began last October. Refinements to the system continue.

Supervisors will become more involved with the new system and related support software applications once the system is deployed, Johnson

said. Managers will be able to initiate and track the status of personnel actions from their desktops as well as access and retrieve information on their subordinates. Additional enhancements will be made as the system [as] users' needs mature.

Employees will also be able to take a more hands-on role in completing and monitoring their own personnel transactions. The Army is currently deploying a new benefits delivery system and has established a center, the Army Benefits Center-Civilian at Fort Riley, Kan. The ABC-C uses an interactive voice response system and Web capability to allow employees to make changes to their health benefits, life insurance, the Thrift Savings Plan, and to conduct retirement processes by telephone or automation.

"ABC-C will interact with the new modern Defense Civilian Personnel Data System to update employee records in the database," Johnson said.

The Army is also in the process of deploying Resumix in serviced organizations. Resumix software operates with the modern DCPDS to provide an automated rating and referral capability

for applicants. Resumix software will allow job applicants to prepare their resumes online and submit their applications electronically to the CPOCs. At the CPOCs, this software will automatically rate the applications and prepare candidate referral lists. All Army regions will be using Resumix by the end of the year.

"The modern DCPDS was developed in partnership with Oracle HR," Johnson said. "A federal shell was built on top of the Oracle Human Resources database and then tailored to meet the needs of the DoD workforce."

In June 2000, Lockheed Martin Federal Systems assumed operation and maintenance of the system. The Defense Civilian Personnel Management Service has functional proponentcy for the overall system.

Editor's Note: Sheftick is the Chief of Army News Operations, Information Strategy Division, Office of the Chief of Public Affairs, Headquarters, Department of the Army. This information is in the public domain at www.dtic.mil/armylink/news.

Leonardo and His Weapons



D S M C D e b u t s N e w E x h i b i t

SMC Visual Information Specialist Ed Boyd has re-emerged with still another persona. This year Boyd takes on the identity of Leonardo da Vinci in DSMC's latest exhibit, *Leonardo and His Weapons*, which debuted at a recent Armed Forces Communications & Electronics Association (AFCEA) Convention and Exhibition in Washington, D.C. DSMC's "Man of a Thousand Faces," Boyd has appeared over the years as Santa Claus, Uncle Sam, and Neanderthal Man, among others.

Why Leonardo, some might ask. Because Leonardo da Vinci was not only a great artist, but also a visionary engineering genius with a true gift for designing weapons. During his lifetime he experimented with poisonous missiles, multi-firing weapons, high-explosive artillery, shrapnel bombs, breech-loading guns, water-cooled cannon barrels, rockets with fins, parachutes, life preservers, gliding and lifting techniques for flight, and missile trajectory.

One of the first test and evaluation practitioners, he believed in "test first and state the rule after." Moreover, he designed gears, pulleys, and levers to multiply the effects of human labor in an era that lacked engines.

Leonardo truly encountered many of the same problems defense industry has today — budget, support, program stability, changing technology, and changing threats.

Many of his designs were never built due to construction limitations, lack of propulsion, need for unavailable materials and techniques, and inability to find managers capable of realizing his creations.

Today our warfighters depend on sound acquisition management to provide their weapons. Imagination is not enough. The Defense Systems Management College teaches business skills that bring acquisition projects to life.

DSMC offers education to more than just government employees. Course tuition is free to qualifying defense contractors. Foreign nationals may also be authorized to attend.

Basic courses are available online to DoD acquisition staff. Call the DAU/DSMC Registrar at 1-888-284-4906 or E-mail registrar@dsmc.dsm.mil. View our Catalog at www.dsmc.dsm.mil for classes, research, consulting, and publications, including fee-for-service possibilities.

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Now defense industry executives can attend the Defense Systems Management College and get the same defense acquisition management education as Department of Defense program managers and their staffs – and tuition is free to eligible students. The 14-week Advanced Program Management Course is held at the Fort Belvoir, Va., campus just south of Washington, D.C. The next classes are Sept. 11 - Dec. 15, 2000; Feb. 5 – May 11, 2001; and Aug. 13 – Nov. 16, 2001. For more information on this course or 30 other courses, call the DSMC Registrar at 1-888-284-4906 or visit the DSMC Home Page at <http://www.dsmc.dsm.mil> to view the *DSMC 2000 Catalog* or other DSMC publications.

THE DEFENSE SYSTEMS MANAGEMENT COLLEGE
A CAMPUS OF THE DEFENSE ACQUISITION UNIVERSITY



Navy Strategic Planning Process for Science and Technology Demonstrations

JIMMY EVANS

ffectively managing the research, development, testing, and delivery of integrated advanced technology self-protection systems that meet Fleet requirements to increase aircraft and aircrew survivability is a primary concern and priority for the U.S. Navy. Toward that end, the Strategic Planning Process for technology insertion is intended as a primary management tool. For purposes of this article, the process assumes a Program Manager Air (PMA) office in charge of managing and executing these efforts under the direction of the Program Executive Officer for Tactical Aircraft (TACAIR) within the NAVAIR community. Additionally, the planning process is focused toward projects that are not qualified for an Acquisition Category I (ACAT I) designation under DoD 5000 policy guidelines.

To aid the planning process, the ONR Commanding Officer has established Future Naval Capabilities (FNC) with technology "Spikes" to identify and link technology to requirements. To explain, FNCs are composed of 12 enabling capabilities called Spikes. The term Spikes comes from the process of identifying prioritized capabilities from a pool of technology investment. The pulling effect of these capabilities causes a ripple or Spike effect. Hence, the term Spikes. The 12 Spikes captured from the pulling process follow:

Electro Optical/
Infrared threat systems
are evolving rapidly,
driven by economic
conditions worldwide.
These threat systems,
called Man Portable
Aircraft Defense or
MANPAD, are
cheap, very effective,
and easily portable.
They continue to be a
major concern to aircraft
and aircrews.

- Organic Mine Countermeasures
- Information Distribution
- Time Critical Strike
- Decision Support System
- Autonomous Operations
- Littoral Antisubmarine Warfare
- Total Ownership Cost Reduction
- Missile Defense
- Platform Protection
- Expeditionary Logistics
- Warfighter Protection
- Capable Manpower

Some characteristics of Spikes should include: significant technology options and operating concepts; significant or sufficient budget; definite milestones and objectives; deliverables; and well-defined demonstrations.

The FNCs are still in the development process and will not become active until Fiscal Year 2002.

An Innovative Approach

The Strategic Planning Process outlines a historical and proven method that addresses TACAIR platform protection requirements and could serve as a guideline for the Platform Protection Spike of the FNCs.

A proactive approach, the planning process provides a formal procedure for the selection of proposed advanced technology programs for urgent Fleet requirements. The data gathered as a re-

Evans is a deputy leader for the Electronic Warfare Advanced Technology Integrated Product Team (IPT) funded by the Office of Naval Research (ONR) and managed by PMA-272. The author wishes to acknowledge the contributions of Capt. (Sel) Dan Gahagan, ONR; Cmdr. Joel Sewell, Naval Air Systems Command (NAVAIR) PMA-272; Maj. James Stanford, CNO N-88 Pentagon; Dr. Ray Patten, Naval Research Laboratory; Dr. Harry Hurt, ONR; Dr. Bill Lukens, ONR and DSMC; Mike Lewis, NAVAIR PMA-272; and Dr. Dave Bertocci, Tekla Research Incorporated (TRI).

sult of this process should be used to provide Fleet and operational input to Science and Technology (S&T) programs as well as set forth a road map to transition Research and Development (R&D) advanced technology into the Fleet. Since Advanced Technology Demonstrations and Concepts are non-ACAT, no formal procedures are established for incorporating these technologies into existing programs.

Strategic Planning Process is viewed as a "living" document that must be adapted and changed to meet demands dictated by an ever-changing acquisition environment. It provides the overall strategic-direction philosophy needed to manage cost-effective programs in today's environment of reduced resources, while at the same time serving as the road map to meet Fleet requirements for increased aircraft self-protection. It should be revisited and revised annually, or more frequently as required.

In major system/end item acquisition, the Requirements Generation System as described in Chairman, Joint Chiefs of Staff Instruction (CJCSI) 3170.01A sets forth a formal process that identifies Service deficiencies through a continuing evaluation process by reviewing the latest National Security Policy, National Mil-

itary Strategy, Defense Planning Guidance, Commander in Chief Integrated Priority List, Joint Intelligence Guidance, and projected worldwide threats provided by the intelligence community. This information is then incorporated into a formal document called Mission Area Analysis (MAA).

The MAA identifies the operational and support tasks needed to meet mission objectives from a broad scale. The CJCSI also provides for Service requirements to be identified through a DoD component-generated Mission Need Analysis (MNA). The MNA evaluates Service deficiencies using a task-to-need methodology to identify mission needs and looks across DoD component boundaries for solutions. An integral part of the process consists of identifying opportunities to exploit technology breakthroughs, which provide new capabilities that address established needs, reduce ownership costs, or improve the effectiveness of current equipment and systems. The MNA also identifies the time-based nature of the need and the specific time frame the need is expected to exist.

Before a new program is initiated, both material and nonmaterial solutions are explored. An analysis of alternatives is

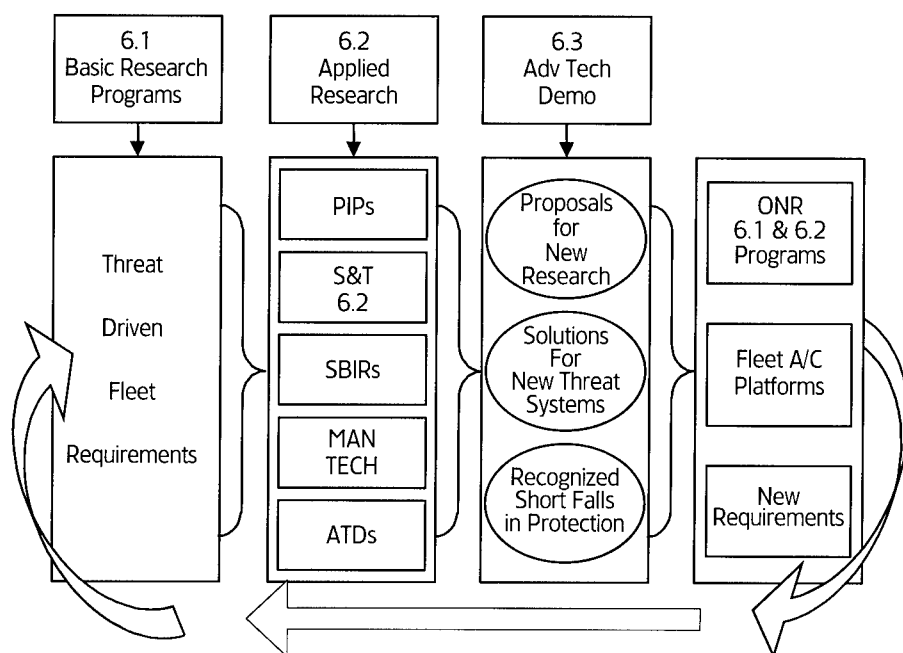
also conducted. When a DoD component has determined that a material solution should be pursued, an MNS will then be prepared.

The problem with this formalized system is that it does not account for non-ACAT I system acquisitions. In the system acquisition environment, specifically aircraft self-protection systems, an urgent requirement is usually identified during operational mission scenarios, oftentimes as a result of a new or improved threat system being identified in the theater of operations. The requirement is urgent, and a solution is needed well before an MAA or an MNA is completed or an MNS is generated. Ideally, the new requirement was anticipated long before the operational forces needed the system, and an MNS has already been prepared and staffed. But as is often the case, the urgent requirement was not pre-determined, and a need exists to provide a solution well before the formal system described in CJCSI 3170.01A can react.

In such cases, the requirement is transmitted from the operational units through Operational Advisory Group meetings, technical seminars, the normal chain of command, or transmitted through a number of other direct contract avenues to either the Requirements Department of the Service or directly to the Acquisition Agency. At this point, the Acquisition Agency begins a process to expeditiously provide a solution to the urgent requirement.

One of the first actions involves reviewing current MNS to see if they have any applicability in a particular situation. Another step is to review ongoing research and development efforts to determine if they may offer a needed solution.

The road map for advanced technology programs depicted in Figure 1 provides a visual description of how programs and projects are driven by Fleet requirements, the interaction of programs and projects, as well as the transition path for the projects. Threat-driven Fleet requirements can be addressed in several ways such as Product Improvement



Programs, Mature 6.2 Research Projects, Small Business Innovative Research Programs, Manufacturing Technology Programs, and Advanced Technology Demonstrations. The results of those processes produce solutions for threat systems, proposals for new research, and identified shortfalls in protection. The solutions are then transitioned to Fleet platforms, the shortfalls are transitioned to new requirements, and the new proposals for research are transitioned to ONR for a new-start program.

Funding for science and technology programs has traditionally been divided into Basic Research and Applied Research. One of the criteria for selection of projects to progress from Basic Research to Applied Research is the consideration for transition to a platform, system, or technology insertion into an ongoing project.

Historically, the global arms market exports weapon systems to any nation that can pay for them, and both new as well as older threat systems are proliferated with increased speed. To keep pace, the U.S. S&T community maintains a continuing awareness through scientific investigation of emerging technology that could have military application. Defense scientists and engineers must understand the potential of emerging technologies and be poised to react rapidly to an innovative use of technology by potential adversaries. Advanced Development Programs, Advanced Technology Demonstrations, and other ongoing technology programs will speed consideration of alternative operational concepts for U.S. employment of new technology.

Moreover, Electro Optical/Infrared threat systems are evolving rapidly, driven by economic conditions worldwide. These threat systems, called Man Portable Aircraft Defense or MANPAD, are cheap, very effective, and easily portable. They continue to be a major concern to aircraft and aircrews. Multi-mode threat seekers are already operational and will continue to evolve and proliferate, rendering existing Countermeasures (CM) systems and employment techniques ob-

solete. Expendable CM technology is lagging far behind missile technology. Rapid advances in missile technology and historically long development cycles have combined to keep CM technology at least 10 years, or two generations, behind missile technology.

Radio Frequency threat systems, especially in the end game encounter, continue to be a significant threat to naval aircraft and aircrew. Current CM systems as well as threat warning systems are in need of upgrading, particularly for those aircraft that will not receive the ALE-50 and ALR-67 (V3) systems.

Strategic Goals

Several overriding goals must be considered prior to development of the planning process:

- The continuing need to enhance the survivability of Navy aircraft to perform and survive as an integral part of the Navy and Marine Force Structure.
- The evolution of threat systems, together with increased proliferation brought about by current world economic conditions, presents an overriding need for advanced technology R&D programs to continue current improvement of aircraft self-protection systems, and to expand the envelope of technology to meet emerging threat systems.
- The need to improve interface with Fleet operational units to ensure research, development, and testing programs that are focused to address Fleet

requirements for increased aircraft survivability.

- The need to provide input to the S&T community to focus 6.1 and 6.2 projects to meet Fleet requirements.
- The need to improve interface between the Operational Fleet, acquisition professionals, and research scientists by better leveraging the capabilities of the Naval Science Assistance Program (NSAP).

Assumptions

The Strategic Planning Process is based on assumptions that form the parameters under which the Navy's plan was developed. Significant change or elimination of one, or all, of these assumptions could change the recommendations or priorities in the plan. Selection of advanced technology programs to address current and future threats should be based on the following overriding assumptions.

Survivability of both Navy aircrews and aircraft will remain a high priority for successful mission accomplishment. In today's environment, as well as the battle area of the future, survivability against sophisticated threats that will be found in most Third World countries will require aircraft with equally sophisticated integrated aircraft self-protection systems.

While the primary objective of aircraft survivability systems and equipment programs is to provide a high probability of

Needs Assessment/Requirements

OAG deficiency
Shortfall in protection
Program-driven
Platform requirement
Technology insertion
MNS/ORD requirement

Technology Evaluation

Feasibility of the technology
Maturity of the technology

Cost Analysis

Risk assessment
Military worth
Cost benefit

Transition Path

Product Improvement Program
Platform requirement
Technology insertion
Ongoing program requirement

survival for the aircraft and its aircrew against the most sophisticated threats, a secondary, but equally important, objective is to reduce aircrew workload, so pilots and aircrew can concentrate on delivering weapons in the "end-game encounter."

The TACAIR Force Structure will remain unchanged.

The unique mission profiles and operational scenarios for Navy aircraft and pilots will continue to place them in direct confrontation with current and future threat systems with no existing protection. The basic tactical warfare missions (interdiction, close air support, and air-to-air combat) will remain into the next millennium. However, technological advances in threat systems will most probably result in an ever-increasing arsenal of sophisticated surface-to-air and air-to-air weapons.

All indications suggest that air warfare will be characterized by a rich electronic countermeasures environment, improved target acquisition and classification capabilities through all-weather imagery, and around-the-clock continuous operations.

Navy Electronic Warfare S&T programs must continue to address shortfalls in aircraft protection from current and advanced threat systems. Moreover, S&T programs must also look to focus efforts on future threat systems and begin to initiate R&D efforts to address those threats.

The Navy will continue to have unique environmental requirements such as carrier suitability, Hazards of Electro-Magnetic Radiation to Ordnance, Electro-Magnetic Capability, and other at-sea operational restrictions that must be considered when joint programs with other Services are explored.

Approach

This planning process is a four-step proactive approach. Each step is inter-

Navy Electronic Warfare S&T programs must continue to address shortfalls in aircraft protection from current and advanced threat systems. Moreover, S&T programs must also look to focus efforts on future threat systems and begin to initiate R&D efforts to address those threats.

laced and continuously ongoing. For example, gathering data to determine requirements for new advanced technology CM systems is a daily process, every single day of the year.

Step One is a continuous assessment of the current levels of aircraft protection compared to threat systems already fielded or in near-term development. As part of Step One, an assessment of operational requirement documents on file or in process is accomplished and results in a list of shortfalls in aircraft protection for which no documented requirement exists.

Also conducted in Step One are the data gathering efforts to obtain Fleet requirements for solutions to shortfalls in threat protection. The data gathering efforts include attending the Operational Advisory Group (OAG); directly interacting with the NSAP and Fleet personnel, including Air Component to the Atlantic Fleet, Air Component to the Pacific Fleet, and Air and Rescue Force. It also includes interacting with Naval Surface Warfare Weapons Center and Fleet units, including representatives from appropriate PMAs and N-88.

Information concerning available technology will be obtained through interaction with ONR; contact with Department of Defense laboratories; attendance at 6.1 and 6.2 reviews; involvement in industry independent research and development through meetings with industry representatives; seeking out *Congressional Business Daily* sources; and finally, by attending technical conferences and symposia such as Infrared Information Symposium, Joint Electronic Warfare Committee, and Advanced Technology Electronic Defense Systems.

The information gathered in Step One will produce a raw data list of requirements, shortfalls, and current technologies. In Step Two, the list of shortfalls will be analyzed by the PMA and compared with input from the Fleet, as well as technical organizations. The product of this step will be a listing of shortfalls in aircraft threat protection that are reinforced by a requirement from the Fleet. The PMA list is to be published in priority order. In this step, the data will be analyzed and interpreted for identification of needs vs. available technologies. Upon completion of the comparison, a list of needs will be generated, representing the initial version of a requirements list. The analysis will consider urgency of need so that the list will be presented in a prioritized chronology.

During Step Three, a review of current S&T programs will be made to determine their application for possible so-

lutions to the shortfalls identified in Step Two as well as the potential for transition into 6.3. In addition, during this step the scientific feasibility/maturity of the programs will also be reviewed to determine any potential for transition into 6.3. The product of this phase is the comparison of current S&T programs with Fleet requirements to determine if shortfalls are addressed by current R&D efforts. Step Three also involves a thorough evaluation of the requirements list generated in the previous phase to deter-

mine the viability of the recommended projects.

Figure 2 illustrates the evaluation criteria. Based on the results of the evaluation, a prioritized requirements list should be generated for use in the implementation phase of the plan.

Finally, Step Four will be the implementation and utilization of the data pro-

duced in the first three steps. Action in this step will be focused on the utilization of the requirements list generated in Step Three. Small Business Innovative Research and Manufacturing Technology lists will be monitored, and inputs will be provided on a prioritized basis. Recommendations will be made to N-88 for funding S&T projects; likewise, recommendations will be made to ONR for future project selection. Attendance at the annual ONR reviews will be critical. Ongoing programs will be monitored with a view toward providing technology insertion, as appropriate. In addition, platform interface will be conducted not only to ensure that information generated by the plan is made available to appropriate PMAs, but also to coordinate efforts in meeting requirements.

Sgt. Kenneth E. Lowery II, USA

he Defense Systems Management College recently held its first Enlisted Person of the Quarter board of the new millennium. When the smoke cleared, Navy Petty Officer 2nd Class Robin W. Kelsick stood alone. Kelsick is an interior communications electrician who has been stationed here at DSMC for approximately three years.

Kelsick first heard about the board about two weeks before it convened. Although the boards were right around the corner, he persevered and studied whenever possible partly due to the support of his unit.

"They were extremely supportive," said Kelsick. "It helped me to relax to know I could count on them for the time I needed."

Kelsick also gleaned knowledge from his peers to aid in his studies.

"I talked to people who went up prior to me and they gave me pointers."

The Enlisted Person of the Quarter board, precursor to the Enlisted Person of the Year board, is designed to allow enlisted personnel to rise to the occasion and shine above their respective peers. The board consists of a chairman and a panel of senior noncommissioned

officers who ask a series of job-related, Service-related, and current events questions. The panel also observes each servicemember for posture, uniform appearance, and overall military bearing.

"[The board] lets us recognize our outstanding personnel," said Navy Master Chief Scott Russell, Senior Enlisted Advisor, DSMC. "It puts them in the running for the Enlisted Person of the Year program."

Besides a certificate of commendation from the DSMC Commandant, Kelsick also walked away with a \$25 gift certificate redeemable at the post exchange; a \$25 check from the Non-commissioned Officers Association (NCOA); an NCOA certificate of award for Petty Officer of the Quarter; and an NCOA certificate of award for Sailor of the Quarter.

"I'm leaning more toward doing my twenty [years in service]," he said. Kelsick also remarked that he would be taking his examination for promotion in September.

For all those considering following in his footsteps, Kelsick offers this advice.

"Work hard and be good at what you do. Help out, and volunteer in the community."

Editor's Note: Lowery is a staff writer for *Program Manager* magazine.

DSMC Commandant Air Force Brig. Gen. Frank Anderson Jr., presents DSMC's first Enlisted Person of the Quarter award of the new millennium to Navy Petty Officer 2nd Class Robin W. Kelsick. The award was presented June 23 at Scott Hall, DSMC main campus, Fort Belvoir, Va.

Photo by Richard Mattox

Increased Emphasis

A shrinking DoD budget will place increased, rather than decreased, emphasis on development programs to meet threat system shortfalls. To date, there is simply not enough funding to explore every project in 6.1 and 6.2 R&D programs, and there remains an urgent need to focus S&T programs to meet shortfalls in protection of naval aircraft and aircrews.

Moreover, significant shortfalls exist in aircraft protection against certain threats currently fielded, and that gap is increasing. Near-term solutions will narrow the gap, but it is essential for S&T programs to remain focused on addressing current shortfalls and the evolution of advanced threat systems.

In addition to catching up with currently fielded threats, the Navy must look ahead to the next generation and anticipate advances in missile technology. Imaging seekers represent the next logical step, and several have already reached Introduction of Operating Capability or are being deployed. As imaging and other seeker technologies are identified, S&T programs to counter them must already be underway.

Editor's Note: The author welcomes questions or comments on this article. Contact him at EvansVJ@navair.navy.mil.



EELV Program Saves Billions, Honored With Top Award

1ST LT. TONYA SUMMERALL, USAF

LOS ANGELES AIR FORCE BASE, Calif. (AFPN) — The Evolved Expendable Launch Vehicle (EELV) Program Office recently received a top-level award for its efforts in saving the Air Force \$5 to \$7 billion.

EELV's innovative payload-to-launch vehicle integration design and standardization of booster cores earned the program office the 1999 Defense Standardization Program National Honorary Award.

The driving force behind the EELV program is the effort to make space launch more affordable for the nation by using a family of unmanned, expendable space launch vehicles that have evolved from existing systems. These will comprise the Department of Defense's sole source of expendable medium- and heavy-lift transportation to orbit.

EELV is the first program designed to use a standard specification for government payloads that will use the same mechanical and electrical interface to the launch vehicle and will employ a standardized booster core. This new design will facilitate manufacturing, assembly, payload integration, and [the] launch operation process.

"EELV improves on the current Delta II, Atlas, and Titan launch systems by providing, for the first time, standard mechanical, electrical, and environmental payload-to-booster interfaces," said Knauf. "This means we can more readily switch payloads from one EELV booster to the other. This flexibility is a first for the Air Force and is very important to the warfighter and [Air Force] Space Command."

The Delta IV and Atlas V families of the EELV booster use the same standard booster core, said Knauf. The largest vehicle in each family basically uses the same core as the smallest vehicle.

The EELV development program is about 75 percent complete. Production of flight vehicles for the first EELV launches [is] well underway, and the first government flight is scheduled to take place in May 2002.

Editor's Note: Summerall is with the Space and Missile Systems Center Public Affairs Office, Los Angeles AFB, Calif. This information is in the public domain at www.af.mil/news.

EELV has joined with Lockheed Martin Astronautics Corporation and the Boeing Company to develop a national launch capability that satisfies the government's forecasted launch requirements and reduces the cost of space launch by at least 25 percent, said Lt. Col Jim Knauf, EELV and Delta IV program manager.

Evolved Expendable Launch Vehicle (EELV). A family of launch vehicles, services, and supporting systems that will significantly reduce the life cycle cost of launching planned government and commercial payloads between 2001-2020. Lockheed Martin Astronautics, in partnership with Boeing and the U.S. Air Force, is developing a cost-effective, highly responsive family of launch vehicles to meet all DoD objectives.

Image courtesy Lockheed Martin Astronautics



Program Management "Tools" Course

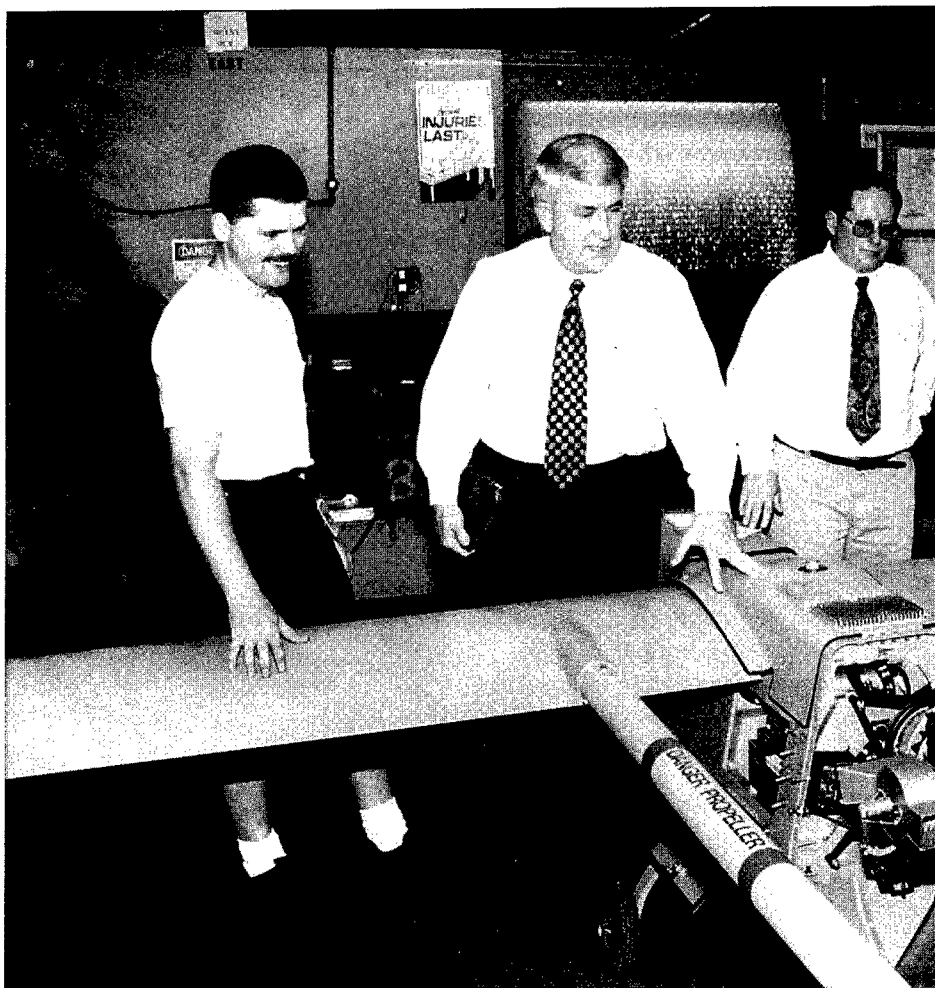
STEVE ISRAEL • BILL BAHNMAIER

im the "Tool" Man will soon be able to take the new PMT 2XX Program Management Tools Course. Scheduled for a pilot offering in October 2000, PMT 2XX is DSMC's answer to a formal request from the Chair of the Acquisition Management Functional Group to develop a Level II Program Management Career Field certification course. PMT 2XX will provide journeyman-level members of the defense acquisition workforce a comprehensive view of key tools used in the DoD systems acquisition management process. As an instructional foundation, the new course will use a hypothetical Unmanned Aerial Vehicle (UAV) acquisition program.

Ideally, upon completion of the course, students will be better prepared to manage the business and technical aspects of systems acquisition. Likewise, they will be better prepared to work on Integrated Product Teams (IPT) supporting acquisition programs.

Laying the Groundwork

Several professionals from the defense acquisition workforce played key roles in laying the groundwork for PMT 2XX. Frank Swofford, the DSMC National Defense Industrial Association Chair, initiated contacts with interested industry providers of this type of course offering. Stan Soloway, the Deputy Under Secretary of Defense for Acquisition Reform, encouraged the pursuit of Distance Learning as the preferred method of course delivery. Wil Perantino and Tina



Visit and discussions on the Pioneer UAV at Aircraft Intermediate Maintenance Department, NAS Patuxent River. From left: Larry Loudon, Technical Representative, AAI/ESI; Wayne Glass, BTRC, PMT 2XX Course Design; Steve Israel, PMT 2XX Project Officer; Frank Ferney, Director, Pioneer CFA, Naval Air Warfare Center Aircraft Division; Bill Bahnmaier, PMT 2XX Program Manager.

Israel is currently supporting DSMC as a private consultant and Project Officer for development of PMT 2XX. A 1967 graduate of the U.S. Naval Academy, he holds a B.S. in Engineering and was recently recalled to a one-year active-duty assignment as a U.S. Naval Reserve rear admiral, Naval Sea Systems Command (NAVSEA), leading the Naval Reserve Engineering Duty Program. **Bahnmaier** is a professor of Program Management, Program Management and Leadership Department, Faculty Division, DSMC. He holds an M.S. from the Naval Postgraduate School and is currently the Program Manager for development of PMT 2XX.

Minor, on the Defense Acquisition University (DAU) Headquarters staff, provided valuable technical analysis of the contractor concept papers.

PMT 2XX courseware will be compliant with Sharable Courseware Object Reference Model (SCORM) architecture, which will facilitate the future use of



PMT 2XX **will provide** **journeyman-level** **members of the** **defense acquisition** **workforce a** **comprehensive** **view of key tools** **used in the DoD** **systems** **acquisition** **management** **process.**

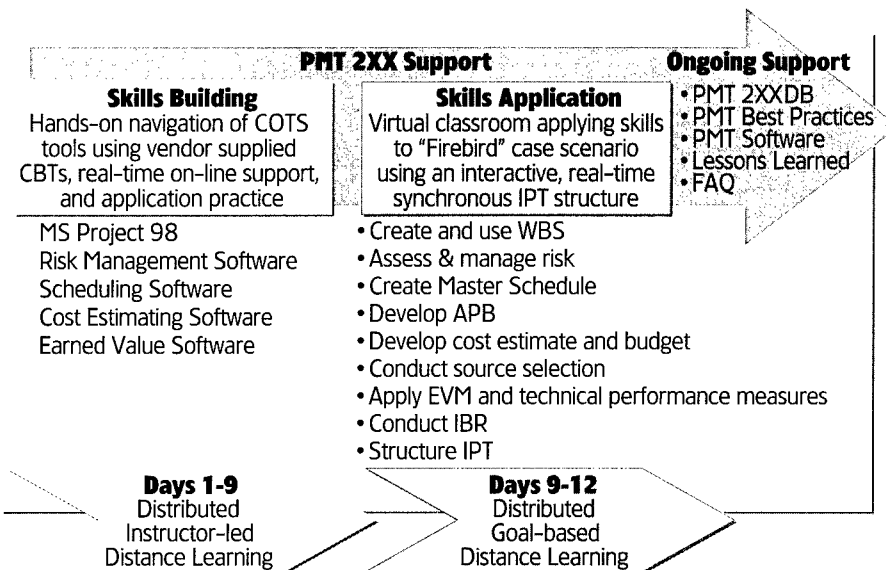
After careful consideration, the PMT 2XX Team recommended a software-intensive system course scenario called "Firebird," which is based loosely on joint UAV programs managed by U.S. Naval Air Systems Command (NAVAIR) at the Naval Air Station (NAS) Patuxent River, Md. The Firebird scenario was initially developed for the new ACQ 201 course. However, the basic PMT 2XX course design was left up to industry to propose in white papers and subsequent concept papers solicited in early April and May.

The DAU acquisition strategy that evolved included the use of the Federal Supply Schedule, which was initiated by an Industry Day April 12 where five industry teams made company presentations and initial approaches to the PMT 2XX course development.

Shortly after Industry Day, PMT 2XX Concept Papers were received and evaluated; and a follow-on task order was issued to Andersen Consulting for the development of PMT 2XX.

Andersen's concept consists of 90 hours of Web-based training offered to students over a 12-day period. Courseware is expected to be interactive and modular in format, a blend of a distance learning training approach and a virtual class-

course modules in other DAU offerings, including future Knowledge Management systems planned for the college. Additionally, PMT 2XX will interface with the DAU Virtual Campus/Operating Support System (OSS), which will handle student registration, tracking, exams, and end-of-course critiques. The new "Tools" Course will address gaps in career field performance, mainly: scheduling, cost estimating, risk management, contract management, Earned Value Management (EVM), Work Breakdown Structure (WBS), and leadership skills.



Day	Module	Time
01	Course Overview	2.0 hours
	Management & Leadership	3.0 hours
	Work Breakdown Structure	2.5 hours
02	Work Breakdown Structure (cont'd)	6.5 hours
	Contracting	1.0 hour
03	Contracting (cont'd)	4.0 hours
	Cost Estimating	3.5 hours
04	Cost Estimating (cont'd)	6.5 hours
	Scheduling	1.0 hour
05	Scheduling (cont'd)	7.5 hours
06	Scheduling (cont'd)	5.5 hours
	Earned Value	2.0 hours
07	Earned Value (cont'd)	7.0 hours
	Risk Management	0.5 hours
08	Risk Management (cont'd)	7.5 hours
09	Risk Management (cont'd)	1.0 hour
	Goal-based IPT Scenario	6.5 hours
10	Goal-based IPT Scenario (cont'd)	7.5 hours
11	Goal-based IPT Scenario (cont'd)	7.5 hours
12	Goal-based IPT Scenario (cont'd)	4.5 hours
	Course Wrap up	3.0 hours

room. The virtual classroom supports real-time, synchronous, and off-line, asynchronous interactions in an IPT environment. Off-line interactions include research, reading, and routing materials for review. Real-time interactions occur at scheduled times each day, and include electronic IPT breakout sessions scheduled, as needed, by each IPT.

Use of the existing Firebird scenario is expected to provide several benefits, including reduced development effort, as well as increased participant retention gained by using a familiar scenario from ACQ 201. The PMT 2XX course structure is a distance learning solution that incorporates the flexibility of self-paced skills building with goal-based skills and team applications as depicted in Figure 1.

The PMT 2XX Course Schedule proposed by Andersen suggests a Goal-Based Scenario based on the Firebird UAV as the Capstone event of the course.

Other unique characteristics of the Andersen proposal include a DAU/contractor partnering approach for both course delivery and maintenance, which will allow for planned, structured releases, ensuring best practices integration and course currency. A listing of course modules is shown in Figure 2.

Andersen Consulting partnered with DSMC and provided their own five- to eight-person, on-site team to begin the development process on campus the week of July 3.

Leading the Andersen Team is Ken Bloom. Bloom has 10 years' experience designing, developing, and delivering training programs, and is a senior manager within the Government Market Unit at Andersen Consulting. He also has extensive experience in adult learning and human performance and holds a post-graduate degree in Instructional Technology from Wayne State University, as

well as a master's degree in Behavioral Psychology from Eastern Michigan University.

Other Andersen teammates include Ann Rettie, a Partner at Andersen, responsible for providing functional guidance and supervision of all Training Development Teams. Steven Huck will provide technical guidance to the PMT 2XX team, and will work with DAU to ensure technical readiness, interactivity, and interfaces are in place for course deployment.

The DSMC PMT 2XX Team consists of Bill Bahnmaier as Program Manager; Steve Israel as Project Officer; Ron Richardson, representing the Office of the Secretary of Defense (OSD) staff; Dr. Bob Ainsley, Program Manager, Acquisition Management Curriculum Enhancement; and Chip Summers, Jesse Stewart, Dan Costello, and Norm Bull, DSMC faculty.

Contracting support will be provided by Veronica Joyner and Bill Moxham from the U.S. Army Military District of Washington Acquisition Center as well as DSMC's Director of Contracting and Logistics, John Lawless.

Looking Ahead

Development of PMT 2XX as well as the acquisition strategy continues to be on a DAU "fast track" and streamlined in format. Use of the General Services Administration schedule has shortened the award process, but has allowed for the benefits of competition to be realized. Award of the PMT 2XX contract in less than three months reflects a new way of doing business in line with current DoD initiatives and regulations to bring commercial products to the DoD market in shorter time frames.

After completion of the successful pilot, the first course offerings are scheduled to begin in January 2001.

Editor's Note: The authors welcome questions or comments on this article. Contact Israel at israel_steve@dsmc.dsm.mil. Contact Bahnmaier at bahnmaier_bill@dsmc.dsm.mil.

F-22 Program Delivers Power System Breakthrough

JOHN HAIRE

EDWARDS AIR FORCE BASE, Calif. (AFPN, June 30, 2000) — The F-22 Combined Test Force [CTF] here recently posted program savings of more than \$330,000 with a dramatic new innovation in the testing infrastructure used for the Raptor.

The innovation — described as a technological breakthrough by Vern Renfrow, the F-22 test team's senior facility engineer — is a first-of-its-kind aircraft external DC power system. The system converts standard AC power available in maintenance hangars to a 270 DC volt system required to power the Raptor's avionics systems for ground tests.

One major asset of the next-generation fighter is a unique avionics suite. The F-22 flight test director, Col. C.D. Moore, said an ability to provide electrical power for avionics and electrical system ground testing and other functions is vital to the Raptor's avionics and flight expansion test program.

The F-22 power requirements are not found in any other aircraft, such as the F-15, F-16, B-1, or C-17, which use a 400-hertz system. Furthermore, the Raptor requires a power supply free of frequency variations and fluctuations. Electrical supply systems existing in the F-22 CTF's hangars "simply could not meet the power requirements of the F-22 without severe risk to both the aircraft's avionics and the integrity of the overall test program," Renfrow said.

To fix the problem, Steve Bridgers, the F-22 test team's senior supervisor for fa-

cility maintenance, analyzed existing hangar areas. His survey derived two solutions: regulating input voltage and procuring a converter that would meet F-22 power requirements.

After studying both concepts, Bridgers determined that neither option could be practically accomplished given hardware currently available in the aircraft industry. However, believing that use of a power converter was the proper method to solve the problem, Bridgers then developed a solid state power converter that would meet the test team's need.

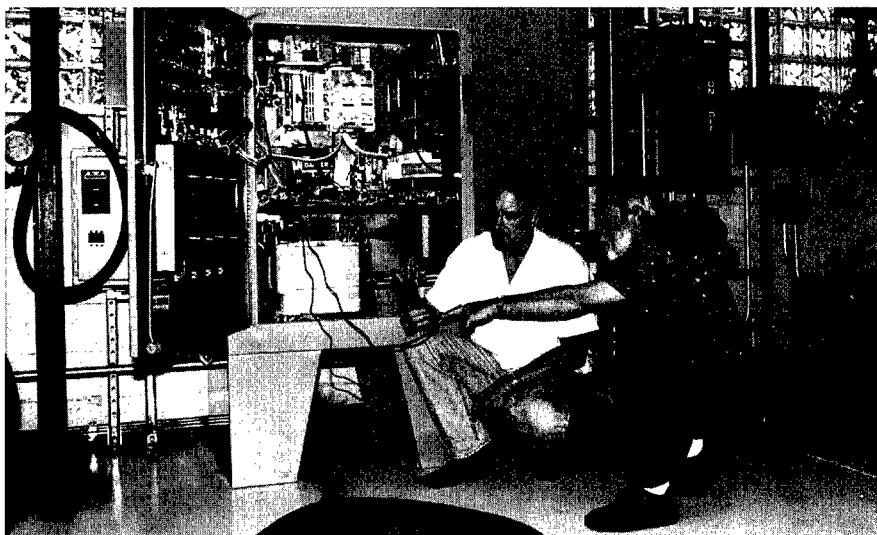
Bridgers' design — which Moore said is a first-of-its-kind application — provides power the F-22 needs and is the most efficient system of its kind in the aviation industry. Unlike all other converter systems, it's capable of operating con-

tinuously at full load, and even under the hottest desert climate conditions. Moore said, the system "has far exceeded all F-22 CTF requirements."

Renfrow noted the new system takes up far less space than other design proposals, and it can power both the aircraft's avionics and systems simultaneously without a decrease in efficiency, with one power converter replacing the five portable power carts currently required to power the F-22 independently of hangar power supplies. Since its adoption, it has been a key ingredient of success to the F-22's logistics test program.

The new system paves the way for future testing of 21st century aircraft to include the Joint Strike Fighter and others that may soon undergo flight testing in the skies over Edwards.

Steve Bridgers and Vern Renfrow of the F-22 Combined Test Force, examine an external DC power system for the F-22 Raptor. A first-of-its-kind application, the system provides power the F-22 needs and is the most efficient system of its kind in the aviation industry. It is also capable of operating continuously at full load, under the hottest desert climate conditions.



Haire is with the Public Affairs Office, Air Force Flight Test Center, Edwards AFB, Calif. This information is in the public domain at www.af.mil/news.

Use of Due Diligence in the Wholesale Logistics Modernization Program

LEA DUERINCK

The Army's Wholesale Logistics Modernization Program (WLMP) will dramatically upgrade the Army's wholesale logistics business processes and supporting information technology (IT), ensuring future and current Army readiness. The WLMP involves converting existing government functions at the Logistics Systems Support Center (LSSC) and the Industrial Logistics Systems Center (ILSC) to the private sector.¹

Specifically, the WLMP contract requires Computer Sciences Corporation (CSC), the winning offeror, to provide business process re-engineering and modernization services for the Army's current wholesale logistics processes and supporting IT. CSC will also provide Sustainment services for the Army's wholesale logistics IT systems that will be transferred to CSC. Finally, all government employees that are displaced by the WLMP will receive a "soft landing." The soft landing requires that CSC provide three-year job offers, consisting of equal or better pay and benefits within the same geographic area. Accordingly, the WLMP acquisition is equivalent to a commercial organization acquiring another corporate entity.

Commercial Business Practice — Due Diligence

Throughout the WLMP acquisition process, a concerted effort was made to maximize free and open communication between industry and government



to the extent permissible by law and regulation. A commercial business practice known as "due diligence" was used among the numerous innovative acquisition practices.

In the commercial world, due diligence has many meanings, ranging from the investigation process done prior to corporate acquisitions, initial public stock offerings, or acquisition of real property to the affirmative legal defense usage. Corporations often conduct due diligence investigations prior to making business decisions such as whether to

acquire another corporation. The investigations often entail analyzing the risks, assets, and liabilities of a project, acquisition, or venture. Many times, the investigation process involves examination of myriad items, pending litigation, financial records, leases, and potential environmental liabilities. Thus, the due diligence investigation may be used as a valuable risk management tool.²

In the context of the WLMP, due diligence was used to provide offerors with a vast array of information regarding the operations of the LSSC and ILSC IT sys-

Duerinck is an attorney-advisor with the U.S. Army Communications-Electronics Command (CECOM) Legal Office, Fort Monmouth, N.J.

tems, and the operations and structural nature of the organizations supporting those IT systems. The WLMP solicitation defined due diligence as a "period of time wherein offerors shall be allowed to examine the organizations and operations associated with the WLMP. This period will allow offerors to assess the program's needs in order to mitigate proposal risks." The decision to use due diligence was made to ensure that offerors fully understood the complexities of

portant to mold the process in order to ensure that it would be manageable from a business perspective and, at the same time, could handle all the offerors' reasonable requests. Generally, the WLMP due diligence process was ongoing and consisted of two major components: an Internet-based virtual library and site visits.

Virtual Library

First, as much information as possible was placed in the WLMP's virtual li-

brary, which was updated throughout the WLMP acquisition process. Often, these updates were provided at the request of offerors, via face-to-face exchanges and the Interagency Interactive Business Opportunities Page (IBOP). The IBOP is a Web page that the government uses to electronically procure goods and services. This Web page allows interested contractors to view and download U.S. Army market surveys and government solicitations, as well as messages pertaining to those solicitations and to communicate via the IBOP with Contracting Officers. It should be noted that

the entire due diligence process was shaped through industry input throughout the course of the acquisition.

Site Visits

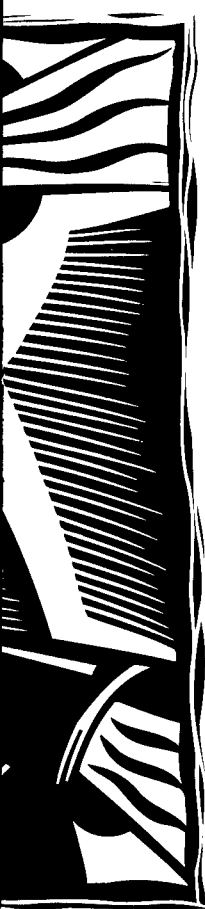
Second, offerors were informed in the solicitation that only those remaining in the initial competitive range were allowed to conduct site visits to the two affected organizations—LSSC and ILSC—as well as various related organizations such as the U.S. Army Communications-Electronics Command. The purpose of the site visits was to provide offerors a chance to verify and validate information that they had already obtained throughout

the acquisition. During the site visits, offerors were able to question and request information pertaining to the WLMP from government management personnel and subject matter experts. If the information was not readily available by the end of the site visit, but the information request was reasonable and made during the site visit, a record of the requests was kept and an attempt was made to answer those requests in a reasonable period of time after the due diligence site visit period ended.

Throughout the site visit period, the government strove to maintain an equilibrium between providing offerors as much information as possible within the desired acquisition schedule and ensuring that the overall due diligence process remained manageable, without impacting or disrupting the government workforce's mission. Accordingly, the government, with substantial input from industry, formulated written operating procedures for conducting the site visits. The solicitation contained a draft due diligence framework outlining potential rules and site locations, which was provided to offerors for suggestions and comments in order to develop the operating procedures.

To help facilitate the process, these written operating procedures were provided to government due diligence Site Managers, who would oversee the offerors' site visits. The operating procedures covered what information could be provided to offerors, outlined Site Manager guidelines and responsibilities, as well as administration of the site visits. The operating procedures were provided to the Site Managers and also to participating offerors as a part of the government's continuous effort to be as open as possible with offerors during the acquisition process, and to ensure that both sides clearly understood the guidelines for conducting the site visits.

Limiting the number of offerors and the amount of time to conduct the site visits were two of the key parameters necessary to ensure the site visits remained manageable. First, only offerors remaining in the initial competitive range³



Throughout the WLMP acquisition process, a concerted effort was made to maximize free and open communication between industry and government to the extent permissible by law and regulation.

those IT systems and the organizations that supported them. Through the use of due diligence, offerors were able to mitigate their proposal risks, which, in turn, mitigated the government's risk. Since risk management was one of the fundamental building blocks upon which the WLMP acquisition was constructed, due diligence was an integral component of the WLMP's overall risk management plan.

In applying this commercial concept to the WLMP, it was important to tailor it to conform to the Federal Acquisition Regulation and Law. Moreover, it was im-

were allowed to participate in the site visits. The number of attendees an offeror could bring to a location was also limited. Second, the entire due diligence site visit period was limited to a total of 10 days. During that time, offerors were allowed to visit ILSC and LSSC for 10 days and simultaneously allowed one- or two-day visits to other organizations; invariably, that often meant sending different teams simultaneously to a multitude of locations. Generally, the visits were only to be conducted during normal business hours to minimize disruption to the workforce and its mission.

However, despite these constraints, it is important to note that a guiding principle during the site visits was to provide as much information as possible within prescribed limits. The operating procedures contained a checklist of questions for Site Managers to use in determining whether to provide information requested by offerors.

For example, some of the questions on the checklist asked whether the request was reasonable and whether the request for information was prohibited from disclosure for security reasons. Most importantly, the operating procedures emphasized that Site Managers should fully respond to any reasonable information requests provided that the information was available and was not specified as something that should not be disclosed.

Particular attention was paid to ensure that provision of information did not violate any federal regulations or laws. Since the acquisition required the winning offeror to provide job offers to displaced government employees, it was necessary to obtain personnel information. And since the Privacy Act, 5 U.S.C. § 552a (2000) prohibits the release of certain information regarding individual employees, the Site Managers were specifically instructed to only provide the information listed in the operating procedures.

In all other instances, Site Managers were advised to provide answers to reasonable requests, providing the information actually existed and didn't fall into one

of the exceptions such as the requirement not to disclose source selection information. In other words, not disclosing requested information was meant to be the exception, not the rule. Thus, the desire to fully provide to offerors any requested information, within prescribed limitations, was strongly endorsed to the Site Managers. As mentioned previously, an underlying principle of due diligence was to provide offerors with as much information as possible unless an exception applied.

Additionally, it was also important to make certain that the site visits would not create any conflict of interest or post-employment job restrictions per 18 U.S.C. §§ 207-8 (2000) for current employees since the offerors, as part of the soft landing requirements in the solicitation, were required to provide job offers to the displaced government employees. Accordingly, offerors were asked to refrain from extending job offers or accepting resumes from those government employees during this time period.

Site Managers were advised not to disclose proprietary, source selection, or competition-sensitive information in accordance with FAR Part 3 and 41 U.S.C. § 423 (2000). To preclude inadvertent disclosure of this type of information by Site Managers, the operating procedures contained examples of what constitutes proprietary, source selection, and competition-sensitive information.

Finally, since these site visits were part of an overall source selection, equal treatment for all offerors during the visits was essential. Further, operating procedures required that information provided by Site Managers on their own initiative, such as introductory briefs, must be consistent. The availability of locations and the maximum amount of time allotted for the site visits were also the same for all offerors.

Ultimately, it was the offerors who chose, within prescribed limits, a location to visit and the amount of time to spend there. The choice of the location visited and the time usage was wholly at the offerors' discretion; however, all offerors

were given equal opportunity during the visits. A crucial aspect of the site visits was allowing offerors maximum flexibility during due diligence to gather the necessary information.

An Acquisition Reform Initiative That Works

The due diligence process was an integral part of the overall WLMP acquisition. Use of this commercial business practice allowed interested offerors to examine the IT organizations and systems to be transferred to the private sector, thereby allowing them to fully assess the program's needs. With the knowledge gained during due diligence, offerors were able to mitigate their proposal risks. Ultimately, this resulted in the government being able to mitigate its own program risks, by instilling confidence that the selected offerors had a full and thorough knowledge of the program needs.

Editor's Note: The author welcomes questions or comments on this article. Contact him at Keogh@mail1.monmouth.army.mil. The Point of Contact for this subject within the Fort Monmouth Legal Office is Lea Duerinck, (703) 532-3188, DSN 992-3188.

E N D N O T E S

1. The Office of Management and Budget (OMB) Circular No. A-76 cost comparison requirements were waived for the WLMP in accordance with *OMB Circular No. A-76* and *OMB A-76 Revised Supplemental Handbook*. Accordingly, the functions at LSSC and ILSC were directly converted to the private sector without an A-76 competition.
2. Due Diligence itself is an affirmative legal defense often asserted by underwriters, corporation and venture capitalists, and others when being sued by investors, fiduciaries, and shareholders for breach of a fiduciary duty.
3. Pursuant to Federal Acquisition Regulation (FAR) 15.306(c)(2), offerors were informed in the solicitation that in the interest of conducting an efficient competition, it was anticipated that the initial competitive range would consist of no more than three offerors.

DoD's "Fast Track" Initiative Named Semifinalist

SMALL BUSINESS
INNOVATION RESEARCH
Department of Defense



ast Track," a bold experiment in public-private collaboration to enable small companies to develop commercially successful new technologies, has placed DoD's Office of the Under Secretary of Defense (Acquisition, Technology and Logistics) squarely in the running for one of the coveted *2000 Innovations in American Government Awards*.

The new Fast Track initiative, managed by the Office of Small and Disadvantaged Business Utilization (SADBU), provides a significantly higher chance of Small Business Innovation Research/ Small Business Technology Transfer (SBIR/SBTT) award and continuous funding to small companies that can attract outside investors. For the investors, Fast Track offers an opportunity to obtain a match of between \$1 and \$4 in DoD SBIR/STTR funds for every \$1 the investor puts in.

The Department of Defense (DoD) SBIR and STTR programs fund over \$.5 billion each year in early-stage Research and Development (R&D) projects at small technology companies — projects that serve a DoD need and have commercial applications.

- The SBIR Program provides up to \$850,000 in early-stage R&D funding directly to small technology companies (or individual entrepreneurs who form a company).
- The STTR Program provides up to \$600,000 in early-stage R&D funding directly to small companies working cooperatively with researchers at universities and other research institutions.

Small companies retain the intellectual property rights to technologies they develop under these programs. Funding is awarded competitively, but the process is streamlined and user-friendly.

Started in 1986, the Innovations Awards are sponsored by the Ford Foundation and administered by Harvard University's John F. Kennedy School of Government in partnership with the Council for Excellence in Government. The awards recognize government initiatives that are original and effective. The rigorous selection process is based on four criteria that are used to evaluate each application: originality of the approach; effectiveness in addressing important problems; value of services to clients; and the potential for replication in other jurisdictions.

In early September, the National Selection Committee will name 25 finalists. On October 13, they will announce the 10 winners who are then awarded \$100,000 each from the Ford Foundation. The remaining 15 finalists will each receive \$20,000.

Editor's Note: If you have questions about how to participate in SBIR, STTR, or Fast Track, please contact the SBIR/STTR Help Desk by phone, fax, or E-mail.

Comm: 800-382-4634

Fax: 800-462-4128

E-mail: SBIRHELP@teltech.com.

DSMC's International Engagement Program

RICHARD KWATNOSKI

"Our strategy is founded on continued U.S. engagement and leadership abroad. The United States must lead abroad if we are to be secure at home."

(A *National Security Strategy for a New Century*, The White House, December 1999.)

In December 1999, the White House issued the latest version of *A National Security Strategy for a New Century*. The *Strategy* stated that "International cooperation will be vital for building security in the next century because many of the challenges we face cannot be addressed by a single nation ... *durable relationships with allies and friendly nations are critical to our security.*"

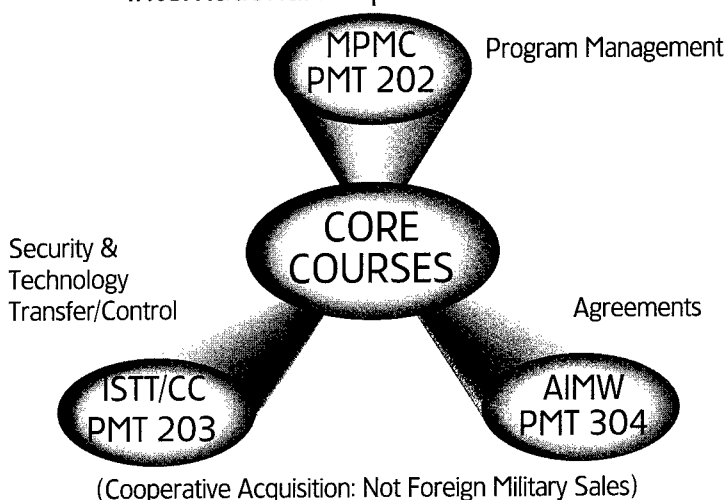
The *Strategy* goes on to note the crucial role of the U.S. military in protecting and promoting U.S. interests, but that it is not a substitute for other forms of engagement. Other forms of engagement are diplomatic, economic, scientific, technological, cultural, and *educational* activities.

What Do DSMC's Educational Activities Have to Do With This?

DSMC's engagement activities consist mostly of educating those in the DoD acquisition workforce who will engage the allies as a part of their official activities, along with some educating of the allies directly.

Kwatnoski is the Director of International Acquisition Courses, Executive and International Department, School of Program Management Division, DSMC.

International Acquisition Courses



How Does DSMC Support the Policy of Engagement?

Our primary educational engagement activity is our family of international acquisition courses (Figure 1). DSMC offers three one-week international courses, which for the most part are for those in the DoD acquisition workforce who will engage the allies directly.

The introduction to international cooperative acquisition programs, concentrating mostly on program management in the international environment.

**DSMC will
pursue a
philosophy of
taking
advantage of
our strengths
to correct
our weaknesses.**

As the course title conveys, this is about the transfer/control of information and technology in international projects.

Annual Seminars

- Atlantic
- Pacific

Biannual Forums (OSD and Services)

Over the years DSMC has partnered with other organizations for some one-time engagement activities such as the “European and Transatlantic Armaments Cooperation Symposium” in 1996 sponsored by the French, German, Italian, and British Embassies, and endorsed by the Under Secretary of Defense (Acquisition, Technology and Logistics).

Another example would be the U.S.-Japan Project Management Seminar conducted in 1998 at the request of the Director, Pacific Armaments Cooperation in the Office of the Director for International Cooperation. The University City Science Center, a consortium of educational institutions, and the Strategic Management Group, a private contractor, conducted the Seminar with educational oversight by DSMC international faculty.

Special Offerings In – Theater

Symposia

conduct biennially for Pacific Command in Singapore or Canberra, Australia.

This is a workshop in international project agreements, often referred to as Memoranda of Understanding or Agreement.

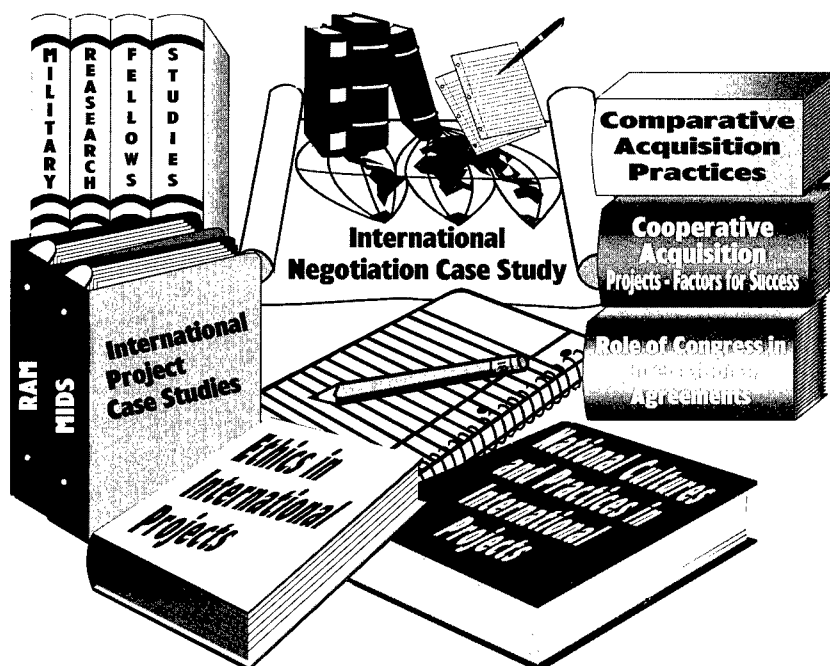
Secondary in importance only to our international acquisition courses, are the various seminars, forums, symposia, and special offerings that DSMC conducts regularly or occasionally (Figure 2). DSMC has formed strategic arrangements with Atlantic and Pacific partners.

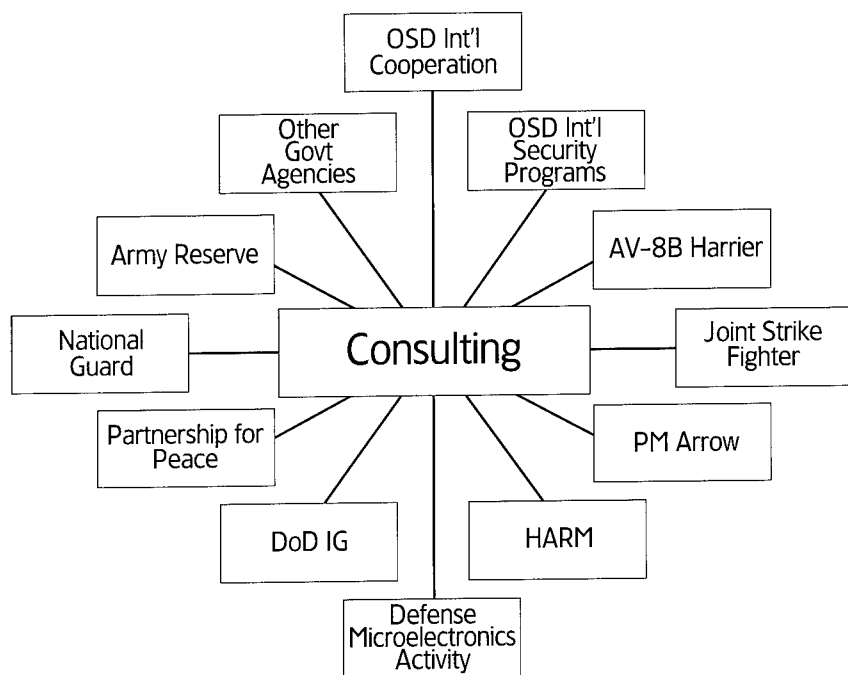
At DSMC we host a biannual International Acquisition Forum for the Office of the Secretary of Defense (OSD) and the Military Services to present and exchange views on contemporary, and sometimes contentious, international acquisition topics. DSMC has hosted all eight of these Forums since 1996, which are chaired by the OSD Director, International Cooperation.

DSMC has produced many research products to support international engagement activities, some of which are unique resources for the acquisition community (Figure 3). International studies were completed in the following areas:

- With Atlantic partners, we have been conducting an annual international acquisition/procurement seminar with defense acquisition educational institutions in the United Kingdom, Germany, and France for 12 years on a rotational basis. The thirteenth Atlantic Seminar is scheduled for June 2001 in Berlin, Germany.
- In the Pacific we have a similar arrangement with defense institutions and Ministries in Australia, South Korea, Singapore, and New Zealand. The third annual seminar is scheduled for Sept. 18-21, 2000, in Singapore. Another engagement activity in the Pacific Theater is the Defense Cooperation in Acquisition Course that we

- Comparative acquisition practices (Atlantic and Pacific)
- Cooperative acquisition projects – factors for success (Atlantic and Pacific)





- National cultures and practices in international projects
- Ethics in international projects
- International negotiation case study
- Role of Congress in international agreements
- Military Research Fellows studies
- Case studies of international projects (Rolling Airframe Missile and the Multi-functional Information Distribution System).

The Military Research Fellows have chosen an international topic three times over the years. The most recent report by the Fellows, *Transatlantic Armaments Cooperation*, is scheduled for publication in August 2000. DSMC has pursued research in comparative acquisition practices for nearly eight years. In September 1999, DSMC published *Comparison of the Defense Acquisition Systems of France, Great Britain, Germany, and the United States*. A similar effort is underway with the Pacific nations of Australia, Japan, South Korea, and Singapore. A separate, but similar effort was completed on the comparative Test & Evaluation Policy of the United States, France, Germany, and the United Kingdom.

Additional research publications include a three-volume U.S.-German comparison, *Effects of a Scale-Down in Defense Budgets*, as well as *Standards and Trade*

in the 1990s, and *Workforce Education Privatization - The UK Experience*.

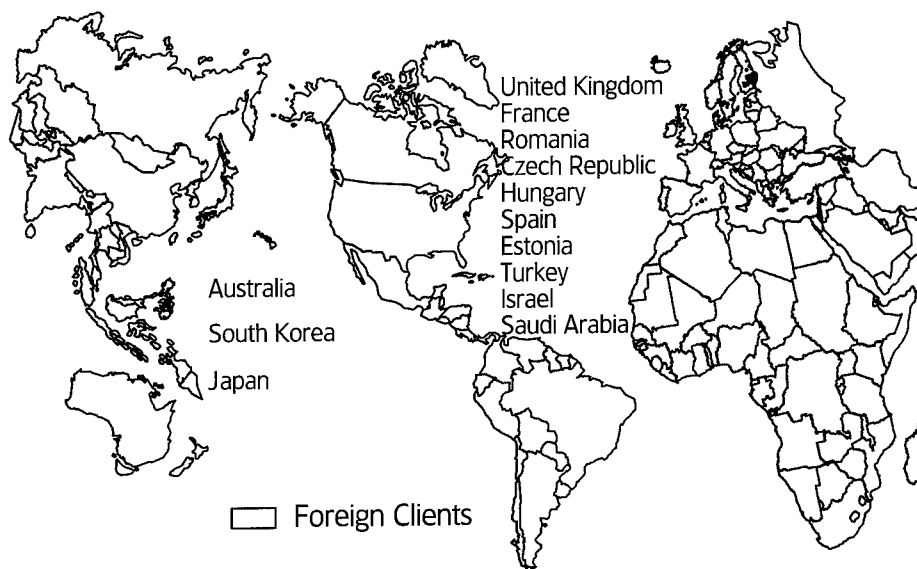
Most consulting on international topics is conducted by the two DSMC international faculty members. While clients are too numerous to list, significant efforts in the recent past (Figure 4) have included Assistant Deputy Under Secretary of Defense, Armaments Cooperation; Director, International Security Programs in OSD (Policy); the Joint Strike Fighter International Program Of-

fice; PM Arrow; High Speed Anti-Radiation Missile Project Management Office (HARM PMO); the Defense Microelectronics Activity; the DoD Inspector General; and the Partnership for Peace Information Management System (PIMS).

DSMC international faculty have provided lectures to allied customers overseas in Australia, Japan, Spain, and the United Kingdom. They have consulted often on acquisition training and education possibilities with many nations. They maintain contact with defense industry through associate committee membership in the National Defense Industrial Association.

In addition, allied nations often bring to the College consulting opportunities for other DSMC faculty on U.S.-specific topics such as software management for Australia; acquisition practices for Israel and South Korea; project management for Estonia (with Department of Energy); contracting and acquisition reform with Japan; and a long-term Security Assistance assignment in the Czech Republic (Figure 5).

DSMC maintains an international Web site containing information about international acquisition courses, annual Atlantic and Pacific Seminars, information dissemination, consulting, and overseas



PRESENTATIONS

GUIDEBOOKS

WEB SITE

PUBLICATIONS

PM and ARQ Magazines

travel. Numerous articles related to international acquisition have been published in *Program Manager* and *Acquisition Review Quarterly* (Figure 6). Over 15 of these articles published in the last five years are posted on the DSMC Web site.

From the five years prior, another 15 articles were published in *Program Manager* and *The DISAM Journal of International Security Assistance Management*. DSMC publishes two international guidebooks: *Guidebook for Preparation and Negotiation of International Armaments Cooperation Memoranda of Understanding*, Volumes I and II. Further, over 25 formal presentations on international topics were delivered upon request in a variety of forums.

The DSMC Library maintains a contemporary collection of international periodicals and books relating to international programs; likewise, the Learning Resource Center maintains a collection of video and audiotapes on international subjects.

During the past decade, DSMC has hosted over 80 formal foreign visits from 28 nations: Argentina; Australia; Belgium; Brazil; Bulgaria; Canada; China; Colombia; Croatia; Czech Republic; France; Germany; Hungary; Italy; Israel; Japan; NATO Working Group, the Netherlands; New Zealand; Poland; Romania; Saudi Arabia; Spain; Sweden; South Africa; South Korea; Taiwan; Turkey; and the United Kingdom.

Foreign nationals attend many DSMC courses, including the 14-week Advanced Program Management Course. While 21 nations have sent students to DSMC in

the last four years, Japan sends far and away the most students. South Korea and Turkey provided the second greatest number of students.

DSMC also has an International Chair, complementing the DoD, Services, and industry chairs of the Executive Institute. South Korea provided the first chair in 1998. France will fill the International Chair beginning in August 2000.

How Are We Doing?

A detailed, internal DSMC analysis indicates that there are strengths and weaknesses in our international engagement program. As shown in Figure 7, we are very strong in courses and forums, and reasonably strong in international research and consulting activities. Our engagement program begins to weaken with special offerings and continuous learning. Our support to the Commanders in Chief could be improved, and we

are weakest in our industry partnerships and support of allied educational activities. DSMC will pursue a philosophy of taking advantage of our strengths to correct our weaknesses.

What Should We Be Doing?

To expand the College's engagement program will require meeting with representatives of the Commanders in Chief, industrial associations, selected defense companies, our allied partnering educational institutions, and other U.S. Government organizations with active international engagement programs.

We are also thinking about hosting a joint European/Pacific Command conference on Defense Cooperation in Acquisition. Special offerings conducted biennially for Pacific Command should be expanded to the European Command. A joint seminar with defense industry would be another engagement activity worthy of consideration. Better supporting our allies' acquisition education programs is also under consideration.

While DSMC is in the planning stage of expanding our international engagement program, we would appreciate hearing the views of *Program Manager* readers. Please contact the author at Kwatnoski_rich@dsmc.dsm.mil with any suggestions that you might have.

STRENGTHS

Academic Courses

International Forums

Consulting

Research & Info
Dissemination

Special Offerings &
Continuous Learning

CINC Support

U.S. Industry
Partnership/Liaison

Allied Education
Support

WEAKNESSES

ATACMS Block II First Flight

B.B. BRASSELL JR.

An Army Tactical Missile System (ATACMS) Block II missile flew for the first time Oct. 16, 1997. Approximately 200 seconds into the flight, the missile came apart at the seams. Skin panels came off the payload section, and its contents were flung in all directions into the airstream. Cause for alarm? Hardly. The Block II missile had just completed its first successful dispense of 13 inert Brilliant Anti-armor (BAT) submunitions.

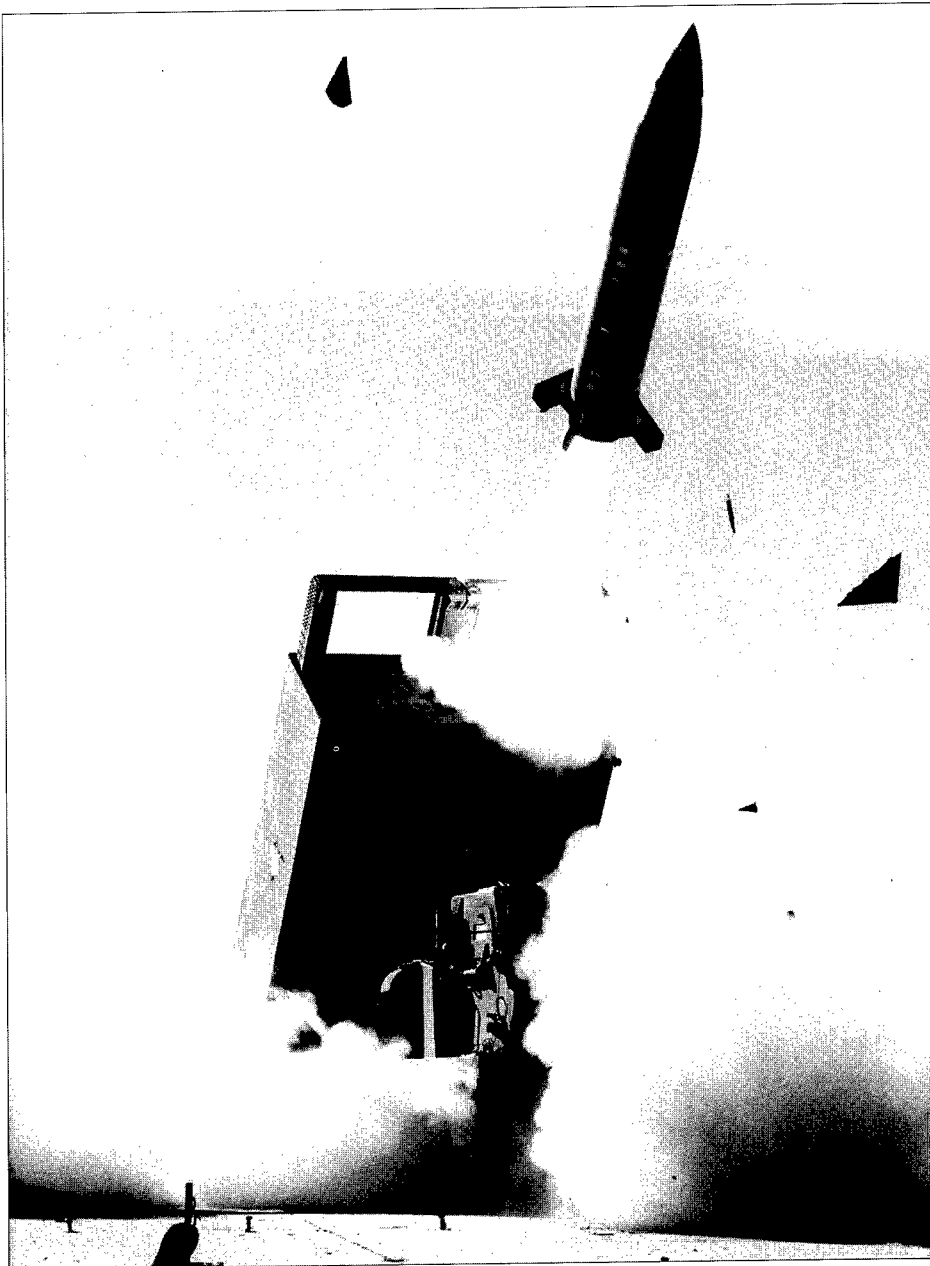
Two Flights, Two Firsts, Two Successes

As with any new program, there were critics who doubted this would work. Most expressed concern that the submunitions would crash into each other. Although this flight eliminated many concerns, there were still doubters. Could it be repeated? Would tactical BAT submunitions survive the dispense environment?

One month later, on Nov. 19, 1997, any remaining doubts were put to rest. The Army launched the second Block II missile against a moving armored column 70 miles away. This time, the missile payload contained a live tactical BAT. After another perfect dispense, the first live BAT dispensed from the missile, acquired, tracked, homed on, and impacted a moving vehicle. Two flights, two firsts, two successes.

Successful Convergence of Two Major Programs

These flights occurred two years into the missile program, on schedule and on budget. They represented the successful convergence of two major programs — the ATACMS missile and the BAT sub-



The Army Tactical Missile System (ATACMS) is a conventional surface-to-surface artillery weapon system capable of striking targets well beyond the range of existing Army cannons, rockets, and other missiles. ATACMS missiles are fired from the Multiple Launch Rocket System (MLRS) M270 weapons platform. ATACMS was very successful in Operation Desert Storm.

Brassell is the Block II Chief Engineer at Lockheed Martin Missiles and Fire Control, Dallas, Texas.

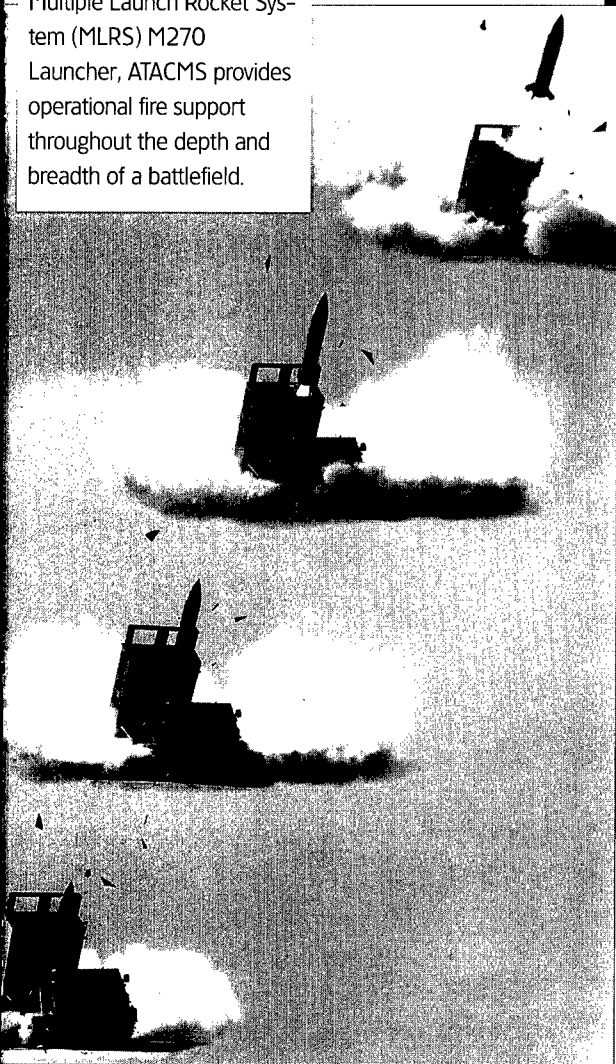
A series of photos from the successful Oct. 16, 1997 test flight of an ATACMS Block II Missile. During the flight, 13 Brilliant Anti-Armor (BAT) submunitions were successfully dispensed.



Lockheed Martin Missiles and Fire Control conducted a successful test flight of an ATACMS Block II Missile Oct. 16, 1997. The ATACMS Block II Missile will have a range of more than 80 miles (128 km) and will carry 13 BAT submunitions. The BAT submunition is produced by Northrop Grumman and has the lethality and intelligence to search out and destroy moving armor.



Fired from the dual-capacity Multiple Launch Rocket System (MLRS) M270 Launcher, ATACMS provides operational fire support throughout the depth and breadth of a battlefield.



munition. Despite many developmental and integration issues that had to be resolved along the way, the flights remained on schedule.

This article attempts to examine the things we did that led to this remarkable success. It will explore some of the reasons behind our success in expectation that some of our successes may be applicable and transferable to other programs. At first blush, some will seem obvious; maybe all of them will. However, we don't always implement the obvious for one reason or another.

My belief is that the following eight tenets played a major role in our achievement of a successful First Flight.

- Early Start
- Teaming Does Work
- Think Outside the Box
- Success is in the Details
- Test, Test, Test
- Treat Success with Suspicion
- An Informed Customer is the Best Customer
- Subcontractors are Our Friends

The remainder of this article presents an item-by-item discussion of these tenets.

One of the most beneficial keys to success was something that wasn't under our control. The Army TACMS-BAT Project Office recognized the benefit of early work leading to the award of a development program. In our case, three funded studies occurred prior to the development contract. In Phase I, we examined design feasibility. In Phase II, we fabricated a generally representative dispenser and then conducted a sled test. Finally, in Phase III, we developed a prototype

tactical payload section, followed by a series of dispense tests.

One lesson to come out of this early effort is that success and failure are relative and must be viewed in the long term. Phase III testing revealed that our skin severance system was not compatible with the Northrop Grumman-developed BAT submunitions. We also learned that the dispenser design had three significant problems: lack of radial symmetry during dispense, excessive roll rate from several payload locations, and excessive acceleration in the dispense direction.

Viewed from the standpoint of Phase III, these results might have indicated a failure of the design. However, the Phase III activity was beneficial in that it provided a baseline from which to start the development effort, and it uncovered problem areas with the skin separation and dispenser concepts. This allowed problem solving to begin right away, once the development contract was in place, and significantly reduced dispenser development time. The first-flight schedule could never have been maintained had these problems been uncovered after the development program was underway.

Another way of looking at this is to identify risks early and address them first. Sometimes actual testing is not feasible, and in this case a good risk assessment should be performed as a minimum. Plus, a good risk assessment will help you and the customer determine where early dollars are best spent.

We were only the second major program at Lockheed Martin Missiles and Fire Control – Dallas (LMMFC-D) to institute Integrated Product Teams (IPT). We came online at a time when there was not much company history about what was right or wrong about IPTs or even how to make them work most efficiently.

Our philosophy, which worked well for us, was to keep the number of teams to a minimum. We chose to form teams along the lines of major new products or subsystems. Initially, the teams were Payload Section, Improved Missile Guid-

ance Set/Sequencer Interface Unit, Missile Software, Launcher and C2, and Flight Termination and Telemetry. Later we added a Simulation and Performance team for two reasons: 1) because the simulation was a deliverable (i.e., product); and 2) to mirror the Project Office's internal organizational structure.

We assigned IPTs the responsibility for designing, analyzing, testing, documenting, production engineering, and producing configuration items within the cost, performance, and schedule requirements of the Block II program. For example, the payload IPT was responsible for integrating the structure and skin separation and dispense systems with the interfacing items such as the solid rocket motor, the guidance section, the BAT submunitions, and the Enclosure Assembly Launch Pod. IPTs were led by a senior engineer who served as Cost Account Manager for the respective elements under development.

LMMFC-D's program management was via the Program Integration Team, which was led by the Block II Program Manager. This group met weekly to review status, assign action items, and resolve conflicts between teams. It was composed of the Program Manager, the IPT leads, and the functional (engineering, manufacturing, quality) managers as well as key support areas such as Finance and Configuration Management. The Project Office and our associate contractor (BAT developer) were invited to participate on all teams, and the major subcontractors participated on their respective IPTs.

One lesson learned is that teaming is not a synonym for meeting. Too many fail because they don't recognize this simple fact. A key benefit of teaming is supposed to be increased communication. Don't forget there are ways to communicate besides sitting in meetings all day.

To facilitate integration with the BAT submunition and enhance communication between LMMFC-D and Northrop, a Northrop office was established on-site and manned nearly full time during the first year and a half of the program.

Northrop rotated engineers through the office based on the most pressing item of interest at the time. This on-site access to key individuals played a major role in resolving differences and maintaining schedule for the first flight.

The teaming process was successful at all levels. For instance, there were no live BATs to be dispensed on the first flight. LMMFC-D and the Project Office's engineering staffs proposed flying the missile to a nontactical dispense altitude in order to capitalize on the capability of White Sands Missile Range (i.e., instrumentation) to obtain dispense coverage unavailable on tactical flights. This idea was presented to the government's Test and Evaluation Integrated Product Team (T&E IPT) for approval. The T&E IPT was highly receptive to the idea and approved the Test Plan change. The result was stunning video and camera coverage of the skin separation and dispense events, and conclusive visual confirmation that these critical events worked as designed.

One thing to guard against is a "that's the way it's always been done" syndrome. It comes in many related forms and is a general reluctance to make or even evaluate change. After all, if it's not broken, don't fix it – right? Thinking outside the box is the antidote for this attitude.

Our missile's role – essentially a bus to transport submunitions – had led to the idea that it was not a "maneuvering" missile. At the beginning of Block II, a simple pull-up was used to slow the missile prior to dispensing the BAT submunitions. A new-to-the-program engineer, unencumbered by history, suggested and developed a much better energy management approach. This approach involved coning the missile at sometimes-large angles of attack. This was so successful that it produced a relatively constant environment for dispense over a wide range of launch conditions and provided better (X2) control of terminal conditions.

It was pretty startling the first time we saw this maneuver during flight-testing.

The days of thinking of our missile as nonmaneuvering were definitely over.

Another example of this type of thinking relates to teaming on a larger scale. Honeywell was selected to develop the Submunition Interface Processor (SIP), a card to go into the Missile Guidance Set the company already manufactured. Our schedule was such that we needed a prototype much sooner than Honeywell could deliver one. Part of Honeywell's problem was their unfamiliarity with the processor we needed for the SIP. The unique solution was to develop the design as a team. LMMFC-D engineers were responsible for the basic board layout and function, while Honeywell engineers participated in part selection and producibility considerations.

After we completed and checked out the prototype, the entire responsibility for the SIP shifted to Honeywell. This arrangement was very successful. We had the desired prototype in time to support early software development, and Honeywell had a design that worked and was compatible with their manufacturing process.

Block II was fortunate in that this was already an Army TACMS business area culture. It originated with the Business Area Executive and flowed down through the management structure. At all levels, managers were taught to pay attention to the details. This tends to keep small problems from becoming big problems and is one of the primary reasons Army TACMS has been so successful historically. This philosophy was carried into our weekly Program Integration Team meetings.

We began daily status meetings 100 days prior to first flight. Generally, these meetings lasted less than an hour, and the primary focus or topic varied from day to day. All parts (down to the nut and bolt level) and tasks required to support the flight were tracked. Nothing was assumed too trivial to identify its status. This level of detail is essential as the flight date approaches because so many things must happen at a specific time, and

Treat success with suspicion. Analyze all test results – even apparently successful results – as if a failure had occurred. This level of detail applied across the board will often uncover surprises that could be problems down the road.

seemingly minor hiccups can have significant consequences. Good scheduling is a must during this time.

A thorough, progressive test program is a must. The sooner subsystem and system problems are uncovered and resolved the better, and schedule impact is minimized.

We begin our testing at the component level and proceed through subsystem to system level. Our electronic and software items progress from component testing to the software lab to the Design/Test Support (electronic integration) lab to real-time Hardware-in-the-Loop (HWIL) testing before flight test. All electronic boxes go through HWIL before each development flight.

Integration testing with real hardware is essential to success. When we first tested a BAT in our integration lab, we discovered the BAT communication protocol was not as specified in the System Interface Specification. In other words, the BAT was communicating differently from the way the missile software had been designed. This discovery occurred barely three months prior to the flight date and

had the potential for a major slip in schedule. Fortunately, a major effort from our software team modified the missile software in time to keep the flight date. Had we relied on the way it should have worked instead of testing, the initial flight with a live BAT would have been a failure.

One of our rather unique tests involved full-scale testing of the skin separation system in a wind tunnel. One skin panel was separated (due to tunnel constraints) on each run. This testing allowed us to verify this critical event at actual flight conditions and provided timing information for the skin kicker bag system (forces skins away from missile) that could not have been obtained any other way. We also learned that the kicker bags needed to stay with the skins because, otherwise, they would blow by the stowed BATs and damage their wing and fin retention straps. Had we not done this, we would have had several BATs fail on each flight and probably not have been able to resolve why (in-flight camera coverage is not sufficient at dispense to resolve this level of detail).

We learned a valuable lesson the hard way late in the test program. This did not impact the first flight, but it is significant enough to cover here. The Block II missile carries 13 BATs; 10 in an outer ring and three in an inner ring. Sequencing of the dispense event is controlled by the Sequencer Interface Unit (SIU). Normally, the missile's skin panels are separated, followed by dispense of the outer-ring BATs and finally dispense of the inner-ring BATs. On our tenth and last flight, the inner ring was prematurely commanded to dispense barely one second after launch. The SIU was designed with three levels of protection built in to prevent premature/inadvertent dispense. We learned there were periods of time very early in the flight where two of the three could be easily defeated. This coupled with a failure (a short in this case) caused the inner ring to dispense prematurely.

We also learned two key lessons from this. First, we had focused on the performance of the SIU in the region of time

where it was supposed to be functional. Here the behavior was normal. Had we looked in detail over the entire flight time, we would have observed the anomalous behavior early in the flight. Second, we should have performed some tests in a failed condition, such as the short. This testing also would have revealed the problem.

A former manager once passed on what I consider exceptional advice. He was referring to flight test results, but I have found his advice valid for all testing. He said to analyze all test results — even apparently successful results — as if a failure had occurred. He was addressing the tendency to form a quick opinion and move on when something looks successful and comparing that with the digging we do to understand and explain failure. *This level of detail applied across the board will often uncover surprises that could be problems down the road.*

However, this “treat success with suspicion” attitude must come from the top. Program management sets the stage for what is expected. But once the environment or expectation is established, I find that it is self-sustaining.

No one would argue that good customer relations are not important to the success of any program. Customer trust is not something that happens overnight, but over a period of time. Our philosophy was to pass as much information to the customer as possible. The program manager, chief engineer, and IPT leads were on the phone several times a week with their counterparts in the Project Office. One benefit of information free-flow is that it minimizes Project Office over-reaction to negative events. It also provides more lead-time for the Project Office to help with problems or potential problems instead of reacting to them.

One area that benefited from the team environment was the System Interface Specification, which defined the interface requirements between the BATs and the missile. LMMFC-D, Northrop, and

Know when to cut your losses and drop an under-performing subcontractor or go to a second source before cost and schedule get away from you.

Knowledge is time. By staying aware of the subcontractor's situation, you buy time to either fix the problem or move on to something else.

the Project Office worked this document jointly.

Another key to the success of the first flight was the fact that the Project Office's acting Product Manager and his chief deputy attended our weekly Program Integration Team meetings for a couple of months prior to the first flight. They heard firsthand the status and problems. After the meetings, they would often “walk the floor” and discuss issues directly with the engineering teams. This made communications with them much easier the rest of the week due to their depth of knowledge.

When you stop and think about this, it makes perfect sense. Good lasting relationships — among friends or subcontractors — are based on familiarity and trust. Each relationship is unique and therefore, will be treated a little differently based on its unique characteristics and needs.

One thing that is important is to know a subcontractor's product as well as they

do. This allows you to make informed decisions regarding schedule issues, design changes, or test results. More than once, subcontractors made use of our expertise to resolve potential show stoppers. One of our second-source subcontractors went through a period where they relied on one of our engineers to help resolve technical performance issues with their product. We stayed the distance with them, and the result was a design that met the requirements for about half the cost of the original supplier.

The flip side of the coin is in knowing when to cut your losses and drop an under-performing subcontractor or go to a second source before cost and schedule get away from you. Knowledge is time. By staying aware of the subcontractor's situation, you buy time to either fix the problem or move on to something else.

One time when knowing our subcontractor paid off occurred when we were driven to examine alternative concepts for separating the skin panels. One of these concepts used high-pressure gas to inflate a flattened steel tube. The stroke of the tube as it expanded to its original circular shape provided an energy source. We used the stroking action to fail fasteners. We began with a sub-scale demonstration of the concept to verify that it would indeed fail fasteners. This being successful, we proceeded to more complex testing.

An interesting lesson occurred when we went out for bids to develop the Flat-to-Round skin separation system. Function time was our most critical technical requirement. Of the two vendors who submitted bids, one had a substantially lower function time based on what seemed to be sound assumptions. This vendor won the competition but was not the one who had initially explored the concept with us and performed the proof-of-principle tests.

The first component-level test after contract go-ahead was a total disaster. The tubes ruptured at the ends and failed to break any fasteners. It seemed as if the

basic physics of their concept was wrong. Naturally, this caused a lot of concern, but what could have been an ugly situation was ameliorated by our trust and confidence in their technical staff. The subcontractor was allowed to work through this and ultimately developed a concept that met all the requirements and did not impact the development schedule. Obviously, there was increased attention and oversight, but no panic.

Block II had two major subcontractors. They both produced quality products. But, as mentioned earlier, they had their differences and each needed handling differently. One was undermanned and tended to let paperwork slip. Great attention needed to be focused on ensuring Subcontractor Data Requirements List deliveries were on schedule. An on-site representative at this contractor was a big help in that he could provide ready assessment on the status of activities at the contractor's facility.

The other subcontractor was relatively small and was weak in some areas of analytical capability, particularly the analysis of large-scale structures. In this case, we used some of our own resources to bolster the subcontractor's and let him focus on his strengths. This was quite successful.

Our IPTs were arranged around products, so the IPT was the primary interface with the subcontractor. The IPT lead was the principal technical contact and, in conjunction with the IPT, provided technical direction to the subcontractor. The Materials organization was still the only entity that could issue formal (contract) direction, but Materials was a part of the IPT and participated in its activities. We found weekly teleconferences with subcontractors to be beneficial. IPT members at LMMFC-D and the subcontractor would participate. Often, we would three-way with Project Office engineering. All necessary personnel were

on hand to resolve issues quickly, and the whole team was aware of the big picture and status.

Frequent on-site Technical Reviews are another useful tool. There is a tendency to shy away from this with today's communications capabilities such as video-teleconferencing; however, face-to-face meetings are still the most productive.

Success Doesn't Just Happen

Mission success is not something that just happens. It requires continual attention. The foundations for success must be established in the beginning by creating the right environment. By paying attention to the tenets for success presented here, a government or industry team's chances are greatly enhanced.

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

"Information Solutions for the 21st Century"

Nov. 6-9, 2000 • DoubleTree Hotel • Rockville, Md.

The Defense Technical Information Center (DTIC) will host DTIC 2000, its Annual Users Meeting and Training Conference Nov. 6-9, 2000, at the DoubleTree Hotel, Rockville, Md.

This year's theme, "Information Solutions for the 21st Century," reflects DTIC's primary objective: to assist its customer community in meeting tomorrow's challenges by providing the most relevant information in the most appropriate format as quickly as possible.

DTIC 2000 provides a unique opportunity for attendees to explore in detail new developments not only at DTIC, but throughout the federal technical information network. As in past years, the conference will feature a number of presentations and ses-

sions that focus on the most current issues relative to the research, development, and acquisition communities.

These sessions are designed to acquaint participants with the latest policy and operational developments, and will provide practical details on valuable and diverse domestic and foreign information resources. They will also address security issues, the World Wide Web, copyright laws, and the storage and dissemination of electronic documents.

"Information Solutions for the 21st Century" will provide timely, accurate information that will enable users to better meet the challenges of the future. It also promises to provide the tools needed to expand participants' horizons to meet these challenges.

For more information, contact Julia Foscue, DTIC 2000 Conference Coordinator; or access the DTIC Home Page on the World Wide Web.

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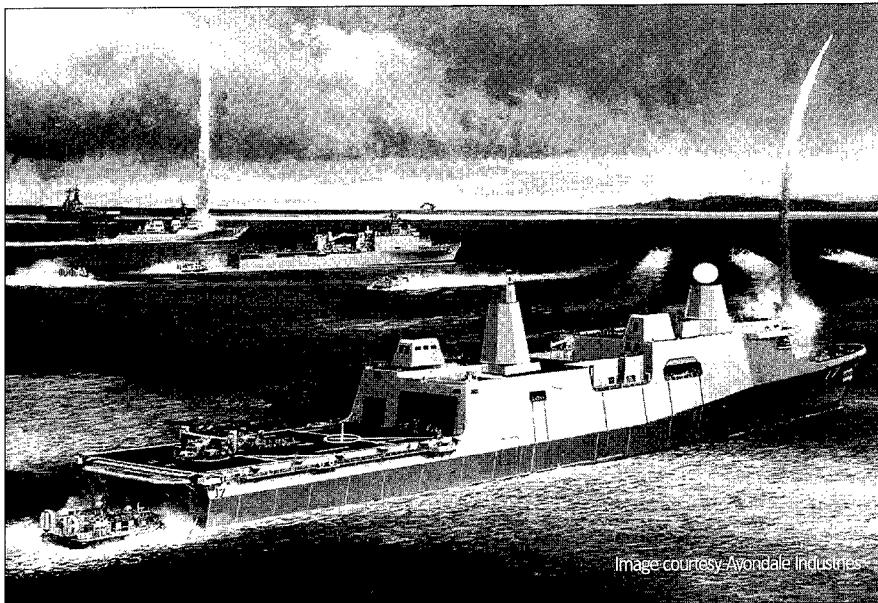
Bringing the Customer to The Ship Designer

KENDALL KING

he ship's helmsman glances again at his helm console and compass, checks his magnetic Fluxgate compass, and then takes a momentary look up to find where the Officer of the Deck (OOD) is located. The OOD hovers near the centerline of the Pilot House using one of the Integrated Bridge System consoles to scan the radar picture while keeping an eye outside, dead ahead (Figure 1). Both watch standers are on the bridge of the USS San Antonio (LPD 17), the Navy's newest amphibious transport dock, as the helmsman continues the inspection.

Next, the helmsman looks right to view the Commanding Officer's chair, continues further right to check the chart table and ship's navigation area, swivels to view the Boatswain's Mate of the Watch's position, and then completes the pivot by viewing the port side of the bridge and the training console.

The interesting part of this scenario is not that LPD 17 has a daydreaming helmsman nor that he or she just turned their head around 360 degrees. Instead, what is truly innovative is that this scenario took place before beginning construction of the ship. In fact, actual Fleet Sailors were able to view the Pilot House design from the helmsman's console in an electronic 3D model. With the completed ship's delivery still three years away, these "Virtual Crewmembers" reviewed, revised, and then validated a Pilot House that they will not physically enter until the year 2003. This is the LPD



Artist rendition of an LPD 17 class ship launching an Evolved Sea Sparrow Missile while operating in the littoral. Current planning has reserved space and weight for the Vertical Launch System Only.

17 Program's Virtual Crew process where the customer is brought to the ship designer.

LPD 17 Program Fundamentals

In designing the first amphibious ship of the new millennium, the LPD 17 program faced formidable objectives. Primarily, the ship class needed to satisfy its customers, the Navy and Marine Corps team, who must accomplish a variety of expeditionary warfare missions within changing national strategies, against diverse threats, while keeping costs down. To help meet this objective, TEAM 17 (Litton/Avondale Industries, Bath Iron Works, Raytheon Systems

Company, and Intergraph Corporation) fully embraced the tenets of Integrated Product and Process Development (IPPD).¹

In 1995, Secretary of Defense William Perry stated that IPPD "can enhance our ability to provide what the warfighter needs, when needed, and at a cost that the Department can afford."² For LPD 17, using IPPD created an environment where the best government and industry practices coalesce into timely decisions and optimal processes. These will ultimately lead to a product that fully serves the customer's requirements.

King is a retired Navy captain and senior analyst with American Systems Corporation. He has supported the Design for Ownership process since 1996 and now facilitates the Virtual Crew for PMS 317. During his naval career, he commanded the USS Fresno, LST 1182. A 1971 graduate of Clarion University of Pennsylvania, King holds advanced degrees from American, Golden Gate, and Old Dominion Universities.

In the words of John McIntire, government leader of the LPD 17 Total Ship Engineering Team, "In shipbuilding, the majority of the issues are process-related. There are many technical experts among the government and industry who can be correcting and redirecting process to prevent problems rather than fixing the product. 'After the fact' is too late." With IPPD in hand, and a full understanding of the program's objectives, TEAM 17 set about creating a revolutionary design for the Fleet.

Design for Ownership

A key element in IPPD is customer focus. In fact the first paragraph of the first chapter of the *DoD Guide to IPPD* spells out its importance: "The primary objective of IPPD is to identify and satisfy the customer's needs better, faster, and cheaper. The customer's needs should determine the nature of the product and its associated processes."³ For TEAM 17, the customer is the Sailor who will crew LPD 17 and the Marine who will embark in the ship for the next 40-50 years.

Fleet Sailors have traditionally been involved in designing Navy ships, but often that participation occurred only at key milestones. Borrowing an approach from the Boeing 777 effort, the LPD 17 team established the Design for Ownership (DFO) process where involvement is established early and sustained throughout the design development. By soliciting Fleet and Marine ideas, suggestions, and recommendations at various stages in design, the program captured such benefits as:

- Reduction in initial cost and late, expensive changes.
- Assurance that Ship/Systems will be delivered combat-ready.
- Avoidance of surprises when Pre-comm Crew arrives and first Landing Force embarks.

Since mid-1995, LPD 17's DFO process has brought together the warfighter, operator, maintainer, and trainer into the design, test, construction, logistics, and life cycle planning efforts inherent in the Integrated Process and Product Development (IPPD) approach. Our DFO

Team collected Fleet and Marine Corps recommendations, passed them to appropriate TEAM 17 IPTs, and then documented the outcomes. In some instances these suggestions entered LPD 17 class design, while other inputs provided added justification to enable improvements (and added funding) or were incorporated into planning for LPD 18.

Still other DFO data contributed "general consideration" items that influenced non-design criteria such as in manning or training. Finally, certain issues were not incorporated into design and were documented for historical record, followed by a response generated as feedback to the originator (Figure 2).

The DFO process relied upon a series of workshops and face-to-face events with TEAM 17. In over 50 separate meetings, Fleet and Marine Corps attendees participated in a variety of activities such as reviewing mission and capabilities, identifying maintenance and training concerns, modifying/reviewing medical and dental space design, revamping spaces to improve process, or developing a revised ship's organization.

Flag and general officers to hospital corpsman and gunnery sergeants have played a role in these sessions. In one example, part of the Navy/Marine Corps team that rescued Air Force Capt. Scott O'Grady from Bosnia in 1995 returned to contribute their lessons learned to the design review of the LPD 17's Combat Information Center and Troop Opera-

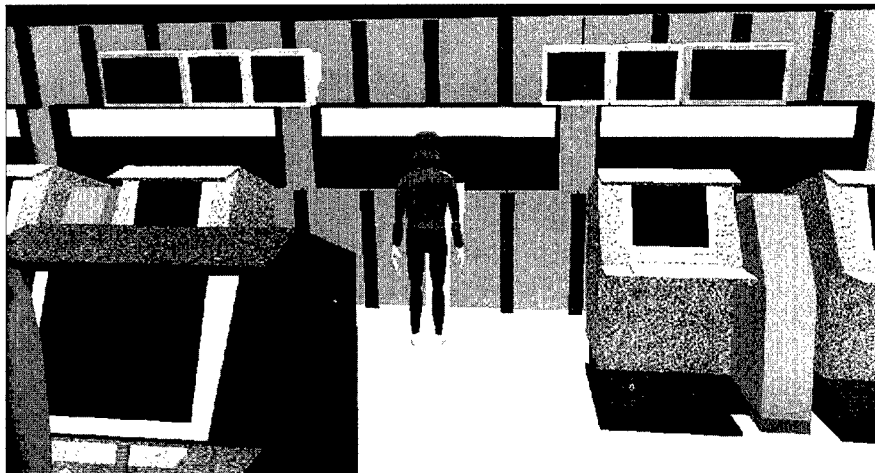
tions and Logistics Center. In another example, we adopted the pots and pans washer recommended by a second class petty officer.

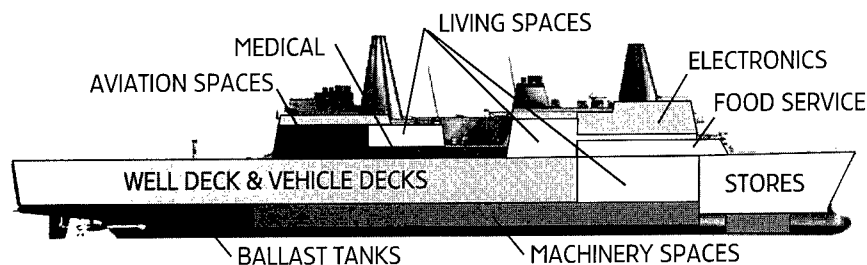
To date, we have capitalized on the 1,400 individual issues received from Sailors and Marines, and over 200 ideas have directly led to design changes so far. However, to maintain our customer focus we evolved DFO into the next step — the Virtual Crew.

Unit Readiness Reviews (URR) are critical milestones in the LPD 17 program. "Units" are the basic building blocks of the ship, consisting of adjacent ship spaces with supporting distributive systems. LPD 17 consists of 211 units. During each URR, the Alliance will present its detailed design to the government for review and for the approval to begin production. To help with the preparations, the Alliance asked for Sailors and Marines to join in their pre-URR design review process. These future customers became the Virtual Crew, and their impact relies upon a distinct organization and pattern of events to achieve success.

VIRTUAL CREW ORGANIZATION

Today, Virtual Crew consists of a core group of subject matter experts who may be called upon to provide specific expertise tailored to a specific need at the right time. Ideally, the Virtual Crew draws from the same specialists each time, but Fleet workload and operational tempo have priority. A session may not have the





same experts every time, but expanding the audience enhances the opportunity for fresh ideas.

Building upon the hundreds of Sailors and Marines who participated in various DFO events, we wanted to expand our baseline invitee list into the larger Virtual Crew pool of experts. As a recruiting initiative, program Master Chief Petty Officer Paul Chism visited both coasts to meet with commands, brief them on Virtual Crew, and then invite participation. His audience included the Amphibious Group staffs, Afloat Training Groups, Fleet Training Groups, and even the collective master chiefs in the Navy. With Marine Corps involvement assured from their previous longstanding DFO interest, the first series of reviews began in May 1999.

In its workup for URRs, the Alliance orchestrated a schedule of upcoming initial design reviews, 50-percent design reviews, and 90-percent design reviews of various ship zones (or units). Each relevant IPT such as Hull, Machinery, Interior Ships' Electronics, or Topside teams identified the zones where they desired Virtual Crew focus. A "zone" might include a single space such as the flight deck, upper vehicle stowage, or a series of miscellaneous spaces in adjacent areas. Each zone would show decks and bulkheads, furniture and equipment racks, and distributive systems such as ventilation, electrical, and firemain. The zone's detail would of course vary as the Alliance's design progressed.

To coordinate execution of the Virtual Crew, our government DFO Team transitioned their DFO experience to execute this process. The Team promulgates

the Virtual Schedule two weeks in advance via E-mail and updates it weekly or even daily to keep pace with the dynamic design process. Team members also follow up to verify anticipated attendance and will sometimes seek additional participation.

For instance, in a recent Shore Power Control Station session, representatives from the Board of Inspection and Survey, a lead electrician from a naval base public works department, and a crane operator joined the Virtual Crew's electrical and engineer officers from the Amphibious Groups and Navy Safety Center to comment on design.

The DFO Team sends out readahead material, provides copies of previous relevant Virtual Crew action items, and distributes appropriate issues from the DFO lessons learned database to enhance participation. At each Virtual Crew session, they also help capture action items and then periodically disseminate the action

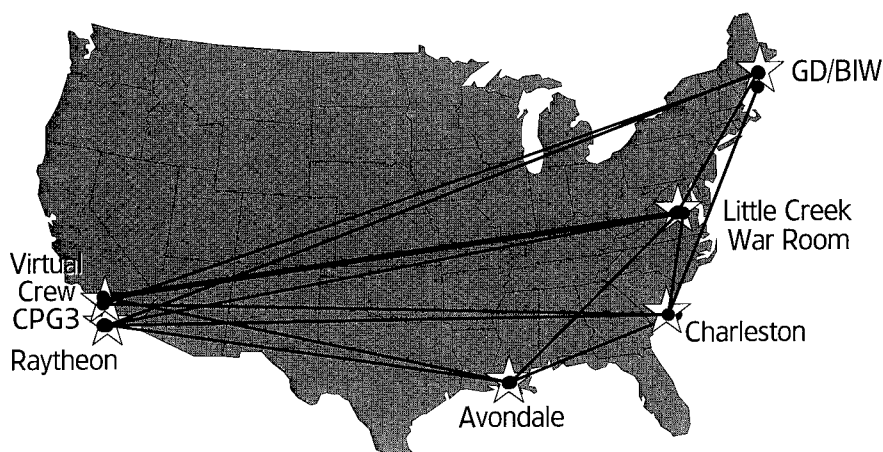
taken to the Virtual Crewmembers in a feedback report.

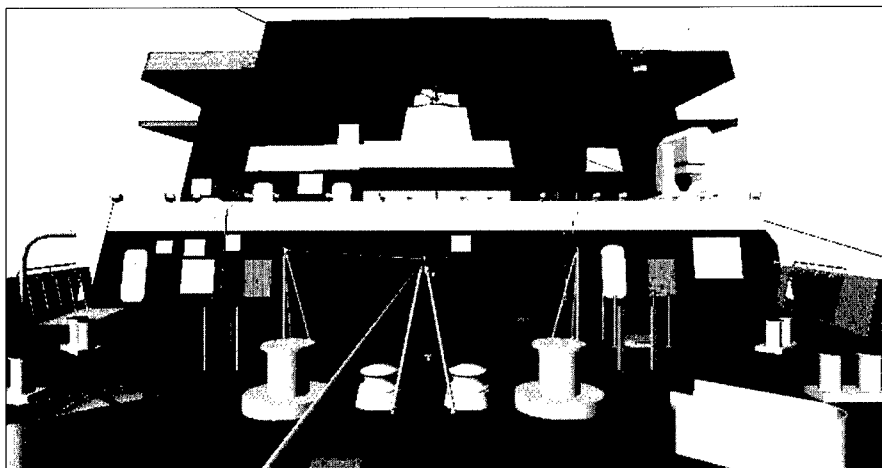
Video Teleconferencing (VTC) facilities provide for connectivity among the design sites (Figure 3) and between the Virtual Crew and Design Teams. Using a Memorandum of Agreement established with the Commander of the Expeditionary Warfare Training Group Atlantic in Little Creek, Va., our program conducts business from a shared "LPD 17 War Room." West Coast participants connect via VTC at the headquarters for Commander, Amphibious Group Three.

SEQUENCE OF EVENTS

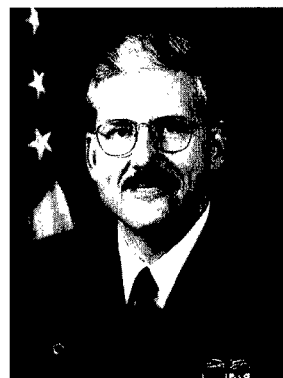
A typical Virtual Crew session starts with a DFO Team member updating the crewmembers on the LPD 17 design. This ensures that all crewmembers start with an understanding of the ship and the Virtual Crew process. Next, the Alliance establishes VTC connectivity with all of the sites, and then the IPT Design Leader for that particular zone presents the ground rules. Typical ground rules for a Virtual Crew follow:

- Questions and comments are welcomed anytime during the event.
- Crewmembers signal the War Room Moderator (DFO Team) who unmutes "near end" so that the comment can be made (this reduces talkover interference).
- Crewmember confirms his or her identity, command, and location be-





LPD 17 Program Manager
(PMS 317)



fore asking a question or commenting.

- Crewmember asks a question or makes a recommendation. Important criteria for these inputs include: safety; the impact on the ship's ability to achieve required operational or combat readiness; potential for reduced Total Ownership Cost; and the possibility for improved quality of life.
- Action Item is captured, and then session moves on. Discussion may be limited, depending upon the amount of time allotted.
- Crewmember may request any view, may ask for dimensions, or may even ask for an anthropomorphic Sailor to "walk through" the design area.
- At the end of each session, Virtual Crew reviews action items from all sites.
- All suggestions and recommendations will be considered. They may not be adopted or may be referred to LPD 18 or beyond, but they are considered.

The IPT Design Leader then starts a zone overview using a PowerPoint presentation. The leader establishes the location of the space on the ship's profile, displays a two-dimensional drawing of the zone with the list of spaces included, and often portrays drawings of adjacent spaces both above and below the zone of interest.

Next, the leader guides the Virtual Crew through furnishings and equipment lists, reports the status of various field modification requests (impending design

changes), and concludes with an estimate of the zone's progress. For instance, a 50-percent design review might include 100 percent of the structural aspect of the zone, 50 percent of the furnishings, and none of the firemain distributive system. (Figure 4 provides an example of the ship's foc'sle used in the initial design review of the Shore Power Control Stations.)

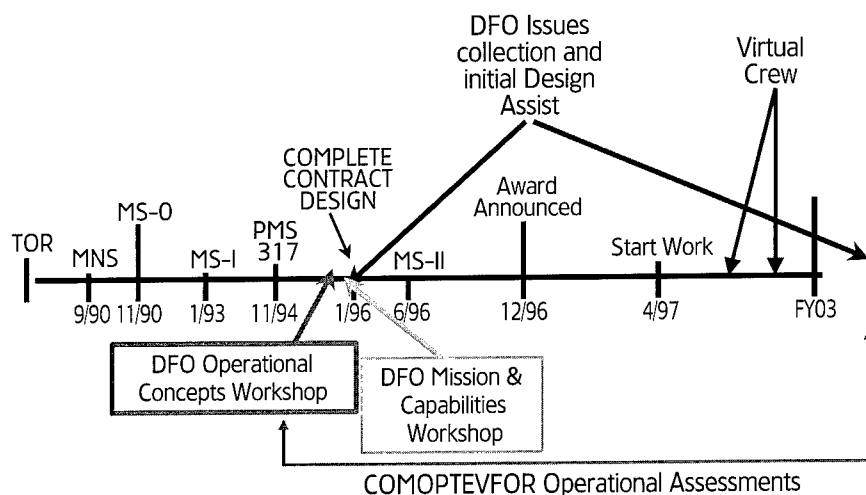
Next, the IPT Leader conveys the Virtual Crew through a three-dimensional electronic model of the zone using DENEb or IDR modeling.⁴ Usually, the "walk-through" starts from the top down for the entire zone and then focuses on an individual space. The viewer may be guided through the space from that top-down approach or allowed to enter through the space's door. Distributive systems such as lighting, may be removed to enhance the view or added to demonstrate a more realistic view. Equipment foundations may be viewed from the bottom up.

The review may also include a check on equipment maintenance envelopes such as a Sailor opening an equipment rack drawer. Overhead clearance, passageway clearance, or distances between bunks can also be measured. If a Virtual Crewmember requests a certain view, the computer model can portray that perspective, for example, from the helmsman's console in the Pilot House. Or the modeler can actually move an electronic Sailor or Marine throughout the com-

partment, validating ease of movement or visibility from the anthropomorphic 95-percent-sized male's or 5-percent-sized female's standpoint. Each of the other spaces in the zone is similarly reviewed until the zone is completed and all action items collected.

partment, validating ease of movement or visibility from the anthropomorphic 95-percent-sized male's or 5-percent-sized female's standpoint. Each of the other spaces in the zone is similarly reviewed until the zone is completed and all action items collected.

TYPICAL WALKTHROUGH
Review of LPD 17's Closed Circuit TV Control space provides a typical example of a Virtual Crew session. Both West and East Coast participated, including a first class journalist who operates a TV system on an amphibious ship. After the top-down review and during the walk-through of the space, the petty officer noted that the Design Team had positioned the TV for monitoring picture



changes early. The Virtual Crew is also more work. The IPTs now must coordinate more formal design reviews, incur more comment, and sometimes endure more criticism, which increases workload as they improve design.

We also discovered that the Sailors and Marines — our ultimate customers — are very interested and committed to helping with the LPD 17 design. They appreciate being invited and appreciate helping to make a difference. Sometimes they do not understand why a certain change cannot be implemented, and this has led to focus groups on such topics as Motor Gasoline facilities, Navigation Lights, the Advanced Enclosed Mast/Sensor and Flag Display, and Shore Power Control Stations. These splinter groups created compromise and buy-in among the participants by expanding Virtual Crew sessions into actual day-long, face-to-face workshops. The Virtual Crew places a premium on busy Sailors' and Marines' time, but the LPD 17's program partnership would not succeed without their participation.

Both DFO and the Virtual Crew have made a difference, but their impact would have been even more significant earlier in the acquisition process. These processes should be implemented prior to the development of the Operational Requirements Document or at least as part of the Request for Proposal (RFP) development.

The first inputs that we received in 1995 and early 1996, although late in the actual acquisition process, were incorporated into the RFP at absolute minimal cost. A Virtual Crew review, even with some of the basic space computer models we had at the time, would also have helped (Figure 5). For example, in 1999 the Virtual Crew discovered a structural beam impacting visibility in the Pilot House that should have been eliminated from the design in 1995 when other structural changes were made.

Still, from the program manager's perspective, Virtual Crew adds real value. In the words of Navy Capt. William Luebke, LPD 17 Program Manager, "The

quality where it could only be seen from the equipment racks (where he would go to adjust the system). This was good, but he also recommended placing the TV on a swivel or relocating the monitor so it could be viewed from the desk of the control room — where the TV system operator would spend the bulk of his or her time. The journalist also recommended deleting some of the furniture in the space to open more studio room, a relatively easy change at this stage in procurement.

Other members of the Virtual Crew discovered an equipment rack that interfered with a manhole cover opening to the next deck. Relocating the rack away from the cover as validated by the Virtual Crew becomes far less expensive for the Alliance to correct before steel is cut.

Other questions arose during the session that led to a recommendation to verify TV camera storage. The next day, a DFO team member accompanied the journalist to his ship and took digital pictures of the ship's more effective way of stowing the large studio camera. These pictures were then transmitted to the Design Team to help validate their planning and design.

Virtual Crew Results

So far, the LPD 17 program has hosted 70 Virtual Crew sessions with participation of over 600 individual Fleet and Marine Corps representatives. Although the initial plan defined only 65 high-in-

terest spaces for target review sessions, the Virtual Crew has examined five times that number of spaces — from fan rooms to main engineering rooms. The IPTs have reaped the benefits of hundreds of comments; less than halfway through the review, 68 recommendations have thus far led to engineering changes.

This number may seem trivial, but if discovered after delivery these items could have led to safety concerns, reduced combat readiness, or just dissatisfaction with the ship's design. For example, in the Main Machinery Room a person exiting the space from the lower level had to go up a ladder, cross the upper level, and then leave the space from the other side. Relocating the ladders to the same side eased access and safety in case of a lower-level fire.

In another instance, the IPT relocated a Wet Sprinkling Pipe to clear a wireway in a Troop Living Space as noted by the Virtual Crew. Other incorporated changes have impacted boat operations, repair locker stowage, and even lack of compatibility between a welding shop and nearby fuel tanks. Indeed, Virtual Crew is making its mark on LPD 17.

Lessons Learned

Virtual Crew has not been a perfect process, and we are learning much as it matures. Even when discovered four years before delivery, changes have costs. Our change budget has gone further because we have identified many needed

DFO process and Virtual Crew have helped avoid costs; are eliminating some of the late, potentially costly changes; and importantly, are helping to ensure customer acceptance and satisfaction with the first amphibious ship of the 21st century.

These tools are helping us achieve the primary objective of IPPD and are definitively keeping our focus on the customer. Best of all, in 2003, when that young Sailor steps up to the helm console or that officer takes the Conn in the LPD 17 Pilot House, they will not be surprised at what they see — they will appreciate that the LPD 17 Program Management Team brought the customer to the ship designer.

Editor's Note: The author and program manager welcome questions or comments on this article. Contact Luebke at LuebkeWH@11pd17.navy.mil;

contact King at Kendall.King@2asc.com.

END NOTES

1. Team 17 consists of the government representatives, headed by the LPD 17 Program Office, PMS 317, and the primary industrial activities of the Avondale Alliance — Litton/Avondale Industries, Bath Iron Works (BIW), Raytheon Systems Company, and Intergraph Corporation. In the simplest division of labor, Litton/Avondale will build eight of the ships, BIW will build four of the ships, Raytheon will oversee total ship integration, and Intergraph will focus on development of the Integrated Product Data Environment.

2. Secretary of Defense Memorandum, May 10, 1995, "Use of Integrated Product and Process Development and Integrated Product Teams in DoD Acquisition."

3. DoD Guide to IPPD, Chapter 1, "IPPD Concepts." (The electronic media for the Guide may be downloaded from www.acq.osd.mil/te/survey/tenets.html on the Web.)

4. Software produced by DENEb and used by the majority of the Virtual Crews, which creates an interactive simulation from a 3D electronic model. This software allows for anthropomorphic ("Ergo people") Sailors to be placed in the model and to move about; permits visualizing a perspective from a certain position in the space; and has the ability to measure dimensions as requested. IDR, the Intergraph Design Review software, creates a 3D picture that can provide multi-views, but does not include the other DENEb features. Intergraph is used for initial design review in situations where all of the components (library parts) have not been configured or added into the computer model.



avy Capt. Robert Vernon, Dean, School of Program Management Division (SPMD) departed the College June 18, 2000, for a new assignment as Professor of Naval Science and Commanding Officer of the Naval Reserve Officer Training Corps at the University of Oklahoma in Norman. Vernon has been the Dean of SPMD since his arrival at the College in June 1996. Upon his departure, he was awarded the Defense Superior Service Medal by Air Force Brig. Gen. Frank Anderson Jr., DSMC Commandant.

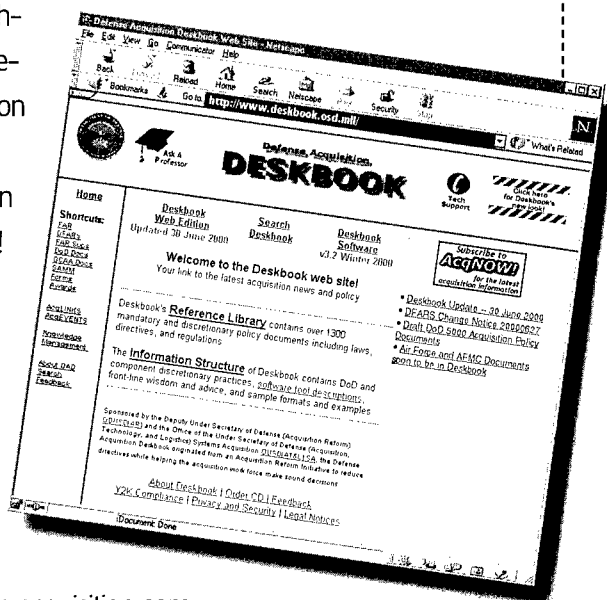
Acquisition Awards Link

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Deskbook Awards link, finding award information has now become easier!

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Success of DoD Mentor-Protégé Program Highlighted at Sixth Annual Conference

Department of Defense (DoD) prime contractors, Small Disadvantaged Businesses (SDB), and DoD procurement representatives came together recently at the Sixth Annual Mentor-Protégé Conference. This year's event was held at the Ritz-Carlton Hotel in Arlington, Va. Organized in 1991, the annual event is part of the DoD Mentor-Protégé Program, a national initiative to encourage large defense contractors to develop the technical capabilities of SDBs and qualifying organizations that employ the severely disabled, allowing them to compete more effectively for defense-related work.

In describing the value of the conference and program, Janet K. Koch, Mentor-Protégé Program Manager said, "We have framed this year's conference not only to recognize outstanding mentor-protégé teams but also emphasize the benefits in developing strategic alliances and exploring new markets together. Our goal is to provide fresh ideas, shared experiences, and the opportunity to develop new partnerships."

This year's three-day conference focused on providing better value to DoD, expanding SDB opportunities beyond the DoD marketplace, and increasing opportunities to SDBs and organizations that employ the severely disabled through teaming and establishing strategic alliances with large and small business firms.

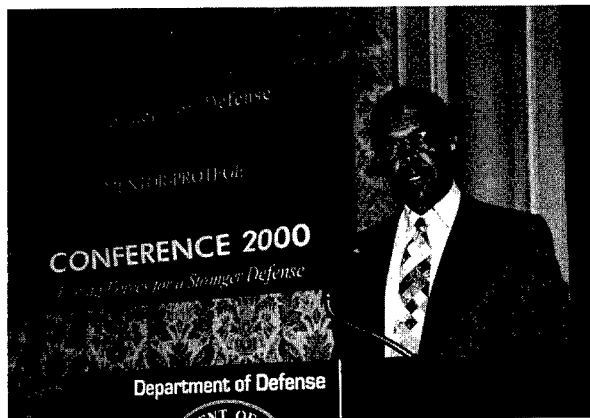
Leading into the conference, Robert L. Neal, Director, DoD Office of Small and Disadvantaged Business Utilization announced congressional extension of the Mentor-Protégé Program. "I am pleased to report that we have received reauthorization of the Mentor-Protégé Program for another three years ... The challenge before us is to 'join forces' to develop an even stronger cadre of small disadvantaged business firms, capable of supporting today's dynamic Defense marketplace."

Participants agreed that attending the conference is a good investment of time. Workshops and seminars on topics such as "Taking Your Protégé into the Commercial and Foreign Sector"; "Strategic Alliances"; and "Value Beyond the Program" were conducted by luminaries from both the public and private sectors.

Mentors and protégés continued to mix business with pleasure at the reception, held at the Car Barn in the Georgetown section of Washington, D.C. Business owners mingled with key decision makers, displaying a willingness to listen and describing the benefits they offer to prospective clients. As one participant remarked, "Business cards were flying faster than sorties during the Gulf War."

From Football Great to Successful Entrepreneur

However, the highlight of the conference was the presentation of the Nunn-Perry



Keynote speaker, National Football League Hall of Famer Gale Sayers. Sayers is now a highly successful businessman and entrepreneur.

Awards and introduction of the keynote speaker, National Football League Hall of Famer Gale Sayers. Prior to his remarks, the audience enjoyed film clips from his career — an undeniably astounding display of athletic accomplishment on the playing field.

The film clips, besides serving as an introduction to the keynote speaker, also reinforced the idea that success in one area *can* translate to success in another; that the intrinsic values that lead to success reside in the *person*. From ruling the gridiron along with the Chicago Bears or living the real-life experiences that resulted in the popular film "Brian's Song," today's Gale Sayers is the consummate businessman. President of The Sayers Source, he and his wife, Ardythe, are co-owners of a \$300 million revenue-generating business, which provides value-added computer products and technology solutions.

Article contributed by the editorial staff of Minorities and Women in Business (MWIB) magazine.

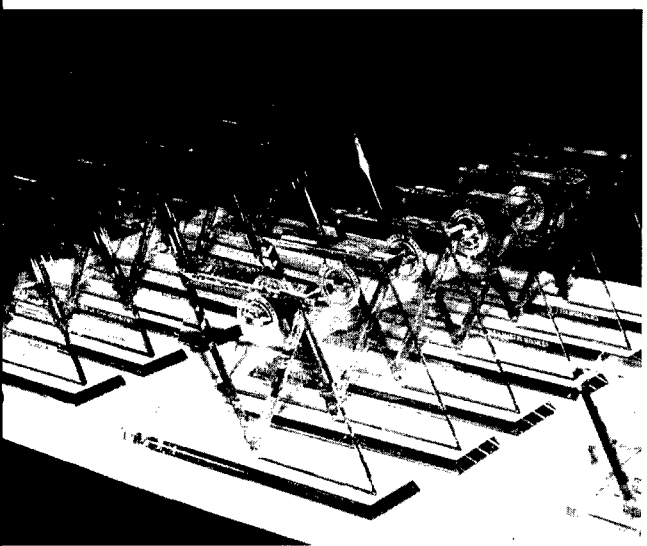
Focusing his remarks on "No More Minority Businesses but Strategic Partnerships," Sayers entertained his audience with many interesting anecdotal comparisons between business and football. Pleading with major corporations and government agencies to open doors to business opportunities for minority businesses, Sayers quoted statistics that showed the tremendous gulf between the economic spending power wielded by minorities and the dollars spent by Fortune 1000 companies with minority-owned enterprises.

Sayers pointed out that while his name has provided easier access to decision makers, once he got in the door it was

Concluding his remarks, Sayers compared the operation of a successful business to the gazelle. He said that a gazelle can change direction without breaking a stride to avoid a predator. "Like the gazelle, business owners must be able to change directions when new opportunities present themselves."

Nunn-Perry Awards

This year, 12 teams of DoD prime contractors and their SDB protégés were presented the Nunn-Perry Awards. Sherrie Goodman, Deputy Under Secretary of Defense for Environmental Security, who also worked for Senator Sam Nunn, presented the awards.



The Nunn-Perry Award

up to him to land the account. He cited one example where a prospective client told him that he was a fan, but then let him know that he "had better be able to meet the company's needs" if he planned on getting the business.

Participants also heard Sayers expound on his belief that, at times, the words "minority business" sometimes can carry a negative connotation. He pointed out the unfortunate reality that corporate America often equates minority business with inability to perform. Despite the obvious obstacles faced by minority business owners, Sayers urged minority entrepreneurs to present their story to prospective clients by leading with their "skill sets."

The award is named in honor of former Senator Sam Nunn for his vision and insight in sponsoring legislation to create and fund the DoD Mentor-Protégé Program and former Defense Secretary William Perry for his commitment to the implementation of the program. The 2000 Nunn-Perry Award winners were selected from credit and reimbursable agreements sponsored by the Military Departments and other Defense agencies.

The recipients of the Nunn-Perry Award were selected based on each mentor-protégé team's success in achieving cost-efficiencies, enhancing their protégé's technical capabilities, and increasing prime contracting and subcontracting awards to SDB firms. This year's winners:

- Northrop Grumman Corporation, Electronic Sensors and Systems Sector, Huntsville, Ala., and The ENSER Corporation, St. Petersburg, Fla.
- Advanced Resource Technologies, Inc., Alexandria, Va., and Triumph Technologies, Inc., Alexandria, Va.
- The Boeing Company, St. Louis, Mo., and Manufacturing Technology, Inc., Fort Walton Beach, Fla.
- Greenhorne & O'Mara, Inc., Greenbelt, Md., and Utility Automation 2000, Inc., Huntsville, Ala.
- Lockheed Martin Missiles and Fire Control, Dallas, Texas, and The Tecnico Corporation, Chesapeake, Va.
- Northrop Grumman Corporation, Integrated Systems and Aerostructures Sector, Dallas, Texas, and Mandaree Enterprise Corporation, Mandaree, N.D.
- The IT Group, Alpharetta, Ga., and Deerinwater Environmental Management Services, Inc., Norman, Okla.
- Science Applications International Corporation (SAIC), Oak Ridge, Tenn., and American Technologies, Inc., Oak Ridge, Tenn.
- Raytheon Systems Company, Dallas, Texas, and RS Information Systems, Inc., McLean, Va.
- The Boeing Company, Mesa, Ariz., and Technology Management, Inc., San Diego, Calif.
- Computer Sciences Raytheon, Patrick Air Force Base, Fla., and Data Voice, Inc., Palm Bay, Fla.
- Lockheed Martin Missiles and Fire Control, Orlando, Fla., and T/J Technologies, Inc., Ann Arbor, Mich.

Clearly, Director Neal is a staunch supporter of the Mentor-Protégé Program. "There are very few federal assistance programs that result in extensive benefits to all participants, mentors, protégés, and sponsoring agencies. The Mentor-Protégé Program," continued Neal, "is the best example of how a carefully crafted federal program can meet the needs of the DoD and is a testament to Senator Nunn's vision."

Editor's Note: For more information on the Mentor-Protégé Program, refer to the Office of Small and Disadvantaged Business Utilization (OSADBU) Web site at http://www.acq.osd.mil/sadbu/mentor_protege/ on the Internet.

2000 NUNN-PERRY



The Boeing Company, Mesa, Ariz., and Technology Management, Inc., San Diego, Calif. Presenting the team awards were Sherrie Goodman, DUSD (Environmental Security) (left) and Robert L. Neal Jr., Director, DoD Office of Small & Disadvantaged Business Utilization (right).



Northrop Grumman Corporation, Electronic Sensors and Systems Sector, Huntsville, Ala., and The ENSER Corporation, St. Petersburg, Fla.



Computer Sciences/Raytheon, Patrick Air Force Base, Fla., and Data Voice, Inc., Palm Bay, Fla.



Advanced Resource Technologies, Inc., Alexandria, Va., and Triumph Technologies, Inc., Alexandria, Va.



Lockheed Martin Missiles and Fire Control, Orlando, Fla., and T/J Technologies, Inc., Ann Arbor, Mich.



The Boeing Company, St. Louis, Mo., and Manufacturing Technology, Inc., Fort Walton Beach, Fla.

AWARD WINNERS



Greenhorne & O'Mara, Inc., Greenbelt, Md., and Utility Automation 2000, Inc., Huntsville, Ala.



The IT Group, Alpharetta, Ga., and Deerinwater Environmental Management Services, Inc., Norman, Okla.



Lockheed Martin Missiles and Fire Control, Dallas, Texas, and The Tecnico Corporation, Chesapeake, Va.



Science Applications International Corporation (SAIC), Oak Ridge, Tenn., and American Technologies, Inc., Oak Ridge, Tenn.



Northrop Grumman Corporation, Integrated Systems and Aerostructures Sector, Dallas, Texas, and Mandaree Enterprise Corporation, Mandaree, N.D.



Raytheon Systems Company, Dallas, Texas, and RS Information Systems, Inc., McLean, Va.

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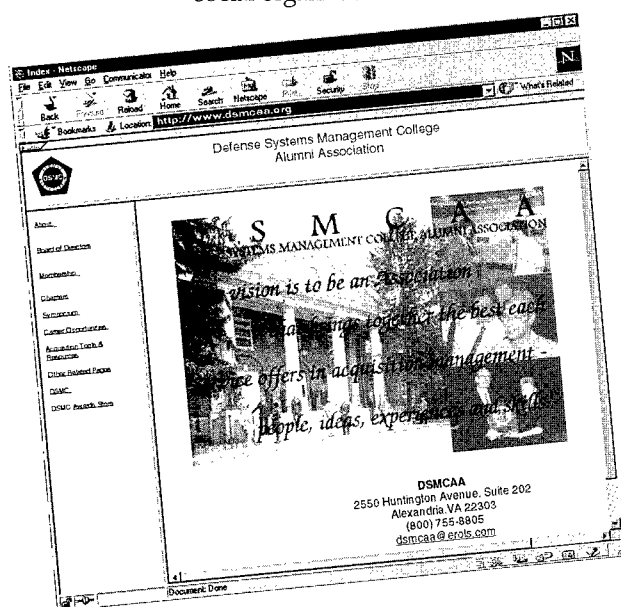
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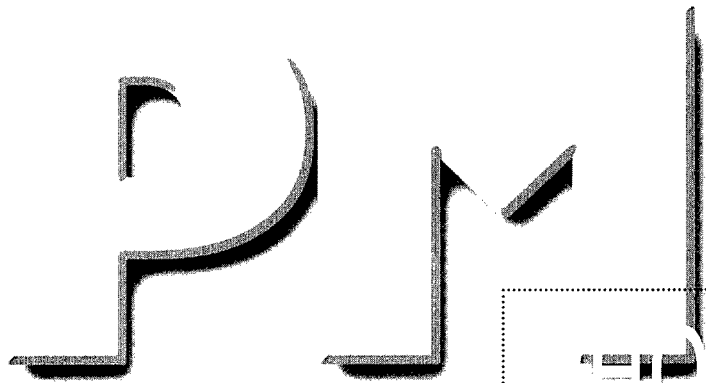
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DSMC Hosts Second PEO/SYSCOM Commanders' Workshop

LEON REED

early 450 industrialists and representatives of the DoD acquisition, logistics, test, budget and finance, and science and technology (S&T) communities met April 3-5 at the Fort Belvoir, Va., campus of the Defense Systems Management College (DSMC) for the Second Annual Program Executive Officers'/Systems Command (PEO/SYSCOM) Commanders' Workshop.

This year's workshop provided the strongest integrated life cycle view ever discussed at these conferences. Specific breakout groups addressed the entire life cycle from development and integration of new technologies and systems through support of mature, fielded systems.

PEO Series Initiates Optional Tutorials

Previous PEO/SYSCOM conferences and workshops have all taken place over a two-day period. This year, workshop organizers decided to add four parallel tracks of tutorials on the afternoon before the official start of the conference. These tutorials allowed conference organizers to address important topics that otherwise would not be addressed at the conference.

In particular, the tutorials provided a forum for overview presentations on several DoD programs and processes (e.g., Working Capital Fund; Planning, Programming, and Budgeting System (PPBS); Reducing Total Ownership Costs (R-TOC); and economic/industrial assessments) that have an important impact on the systems acquisition process.



Front row, from left. Air Force Brig. Gen. Frank J. Anderson Jr., DSMC Commandant; Donna Richbourg, Principal Assistant Deputy Under Secretary of Defense (AR); Stan Soloway, Deputy Under Secretary of Defense (AR); and Dr. Jay Mandelbaum, Office of the Assistant Deputy Under Secretary of Defense for Systems Acquisition.

The four parallel tracks covered several acquisition-related topics:

- The acquisition workforce and the role of acquisition support teams throughout the life cycle (Marty Evans, U.S. Air Force Career Management and Resources Division, and David Franke, Air Force Materiel Command).
- Modification management and evolutionary acquisition (Air Force Maj. David Snyder, Air Force Materiel Command, and Air Force Maj. Ross McNutt, Air Force Acquisition Management Policy Division).
- Lessons learned and best practices in the Reducing Total Ownership Costs (R-TOC) program (Leon Reed, Institute for Defense Analyses, and Michael Novak, Office of the Secretary of Defense [OSD] Strategic and Tactical Systems).
- Secretary of Defense (SEC-DEF) Corporate Fellows, Observations from Industry (Army Lt. Col. Keith Armstrong, Navy Capt. Steve Enewold, Air

Reed is a member of the research staff, Institute for Defense Analyses, Alexandria, Va.

Dr. Sheila Widnall, Institute Professor, The Massachusetts Institute of Technology, and former Secretary of the Air Force. Widnall addressed the conference on the subject of "Acquisition Reform: Where We've Been and Future Challenges."



—Dr. Sheila Widnall
Former Secretary of the Air Force



"Introduction and Discussion of Breakout Groups." Panel members from left: William Mounts, Director of International and Commercial Systems Acquisition; Louis Kratz, Assistant Deputy Under Secretary of Defense (Logistics Architecture); Brad Gale, Director for Customer Initiatives, Lockheed Martin Aeronautics Company; Lee Frame, Deputy Director for Conventional Systems, Operational Test and Evaluation; Robert Tuohy, Director for Plans and Programs, Defense Research and Engineering; Dr. Joseph Ferrara, Deputy Director, Acquisition Systems Management; and Richard Sylvester, Assistant Deputy Under Secretary of Defense (Systems Acquisition).

Force Lt. Col. Brenda Johnson, Air Force Lt. Col. Darren McDew, Navy Cmdr. Burt Palmer, Marine Col. Arthur Sass, and Eric Briggs, Director, SECDEF Corporate Fellows Program).

- A PPBS Primer (Siobhan Tack, DSMC).
- Defense Working Capital Funds — how they work and the differences

among the Services (Jeffrey Bennett, Logistics Management Institute).

- Mergers, Acquisitions, and Foreign Investment — implications for the acquisition manager (Victor Ciardello, OSD Director of Financial and Economic Analysis).
- Strategic Planning for Industrial Capabilities — the role of the acquisition manager (Martin Meth, OSD Director of Industrial Capabilities and Assessments).

With no previous experience presenting tutorials at this conference, conference organizers hoped that as many as 125 people would attend one or more of the tutorial sessions; actual attendance more than doubled this estimate. Post-conference feedback was overwhelmingly positive.

Buoyed by this favorable response, organizers plan to include tutorial presentations as an integral part of future PEO/SYSCOM Commanders' conferences and workshops.

Introduction to Breakout Groups

Although the plenary sessions provided an opportunity for conference attendees to gain insight into current DoD acquisition policies, practices, and procedures, the breakout groups served as the focus for the workshop and accounted for the largest block of time.

A total of nine breakout groups were developed to cover the full range of the systems life cycle. The groups were instructed to identify problems within their topic area and to develop workable solutions for presentation to DoD leaders.

Before the conference participants adjourned to their groups, a panel of breakout group leaders discussed the key issues. Dr. Joseph Ferrara, Deputy Director, Acquisition Systems Management, opened the panel's discussion with a presentation on the newly completed revisions to the DoD "5000-series" acquisition directives. These revisions provide an acquisition framework displaying the following characteristics:

- Delivers advanced technology to the warfighters faster.
- Reduces total ownership costs.
- Is more flexible and focused on interoperability, supportability, and affordability.

(The chart shown at the bottom of this page depicts the new acquisition process as described by Ferrara.)

While the current process allows evolutionary approaches, Advanced Concept

Technology Demonstrations (ACTD), and other innovations, they are treated as "excursions" from the normal process. The new acquisition policy involves multiple process paths; there is not just one way of entering the acquisition process.

Evolutionary acquisition — based on time-phased requirements — is defined as the preferred (but not the only) acquisition approach. Programs should define a minimum number of Key Performance Parameters (KPP) to facilitate cost-performance trades.

The system also provides for a maximum of only three potential milestone review points:

- Analyze alternatives — explore concepts and technologies.
- Begin systems development and demonstration.
- Commit to low-rate production.

Ferrara acknowledged that the new acquisition policy is likely to present a number of implementation challenges. Such challenges might include, but certainly are not limited to, the following:

- Employ new product support strategies.
- Accept a militarily useful capability early, based on demonstrated technology, and obtaining objective capability when technology matures.
- Ensure that successive evolutionary blocks are adequately funded.
- Ensure that "transition funding" is available to speed the transition of successful demonstrations to acquisition.

- Integrate the test and evaluation community into the new acquisition approach.
- Ensure that the workforce (including industry) is adequately trained to successfully implement the new approach.
- Assure Congress that the new approach will continue to allow them visibility into DoD programs and continue their ability to verify DoD's accountability for program success.

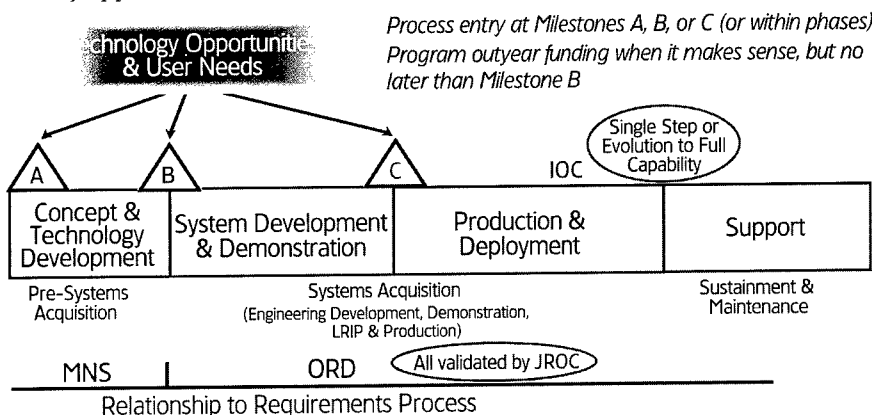
Brad Gale, Director for Customer Initiatives, Lockheed Martin Aeronautics Co., gave an industry perspective on "The Business Cycle and Economic Incentives." He described the economic realities facing defense industry and how the acquisition process can impede or foster an economically healthy industry.

Gale asserted that defense budget and workforce reductions are key factors influencing current industry financial health. Industry has consolidated in response to actual or anticipated funding cutbacks. While industry has taken on more responsibility for weapon system management and support, debt levels for defense contractors are very high.

"Capital is what it's about," Gale stated. "It drives economic health. And capital is exiting this industry. If investors abandon an industry, you have a vicious cycle, not a business cycle."

Gale stated that capital markets are very fluid and highly rational. DoD acquisition managers must be aware of the factors investors consider such as return (dividends and/or growth), cash flow, risk, and predictability. He suggested that current acquisition reform measures such as performance-based acquisition, longer-term contractual arrangements, and increased contractor design authority can help provide the kinds of incentives that are needed to maintain a healthy business environment.

Robert V. Tuohy, Director of Science and Technology Plans and Programs, described commonly identified barriers to more effective transition of technology from the laboratory into defense prod-



ucts and capabilities and described the objectives of the breakout group focused on this subject. Both the S&T and the systems acquisition communities are in broad agreement concerning the importance of the following actions:

- Identify barriers to transition.
- Assess ongoing initiatives to improve/speed transition.
- Identify actions to improve and speed transition.
- Define, discuss, and prioritize potential new initiatives.

He described several OSD efforts to promote broader awareness and more effective transition of technology, including efforts to upgrade DoD's "technology watch" capabilities in order "to gain a higher understanding of expertise, products, and science and technology efforts outside of the traditional program realm."

DoD hopes to use these capabilities, he said, "to identify, both domestically and internationally, new collaborative opportunities with partners who possess technical expertise, unique technologies, or where there is a common program objective."

Tuohy also described DoD's planned "Virtual Technology Exposition" (VTE), a Web site that is intended to "increase awareness of emerging technology in the Department of Defense and to assist acquisition planners as they make decisions during requirements determination; mission needs analysis; and mission area analysis."

Following these overview presentations, the conference attendees split into nine breakout groups, which dealt with the following topics:

Co-chaired by John B. Todaro, Director Technology Transition, Defense Research and Engineering, and Dr. Michael F. McGrath, Vice President for Government Business, Sarnoff Corp.

Co-chaired by Dr. Joseph Ferrara, Deputy Director, Acquisition Systems Management, and Navy Capt. Paul Rosbolt, J-8/Requirements and Acquisition Division, Joint Staff.

Co-chaired by Lee Frame, Deputy Director for Conventional Systems, Operational Test and Evaluation, and Army Brig. Gen. John Holly, Program Executive Officer, Tactical Missiles.

Co-chaired by Brad Gale, Director for Customer Initiatives, Lockheed Martin Aeronautics Co.; Tom Graves, Deputy Director for Plans and Programs, U.S. Air Force Aeronautical Systems Center; and Paul McMahon, Associate Dean of Research, Defense Systems Management College.

Co-chaired by Louis Kratz, Assistant Deputy Under Secretary of Defense for Logistics Architecture; Army Col. Gregory Potts, Director of Readiness, U.S. Army Tank-automotive and Armaments

Command; and Army Lt. Col. Joe Steinkamp, Program Manager Palladin and Field Artillery Ammunition Supply Vehicle (FAASV).

Co-chaired by William R. "Bob" Dickie, General Manager, Customer Support, Military Division, Parker Aerospace, and Lawrence "Buzz" Milan, Deputy Assistant Commander for Logistics, Naval Air Systems Command.

Co-chaired by Thomas Parry, Deputy Director for Systems Engineering, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, and Robert Rassa, Director, System Supportability, Raytheon Electronic Systems Co.

—Brad Gale

Director for Customer Initiatives
Lockheed Martin Aeronautics Co.

Co-chaired by Navy Rear Adm. Joseph Dyer, Commander, Naval Air Warfare Center, Aircraft Division/Assistant Commander for Research and Engineering, Naval Air Systems Command, and Vicky Armbruster, Deputy Program Executive Officer, Tactical Missiles, U.S. Army.

Chaired by William Mounts, Director of International and Commercial Systems Acquisition.

The breakout groups met for the rest of the first day, after which the chairs prepared summaries for presentation the next day to the entire workshop.

Evening Panel on Commercial Sustainment Processes

Following a no-host reception, the conference reconvened for an evening panel discussion of "Commercial Industry Sustainment Processes: Can They Be Ap-

plied to Support the Warfighter in Peace and War?" The panel moderator was retired Navy Vice Adm. William Hancock; other panel members included the following industry and government executives:

- Navy Rear Adm. Raymond Archer, Deputy Director, Defense Logistics Agency
- Harry Gregory, Vice President and General Manager, Collins Aviation Services
- Susan Hatchard Hough, Vice President, Marketing and Sales, Supply Chain Services, FedEx
- James Madden, Vice President for Operations, Farrell Lines
- John Marshall, Vice President for Safety, Delta Airlines
- Robert Rachor, Vice President, Planning and Business Operations, FedEx
- Ron Zieball, Vice President, Oshkosh Truck Corp.

Hancock opened the roundtable by observing that research and development (R&D) and production typically account for less than half of the life cycle cost of a defense system; 60 percent of the total cost is spent operating and maintaining that system. "If you can do dramatic things with that 60 percent," he said, "you can free up a lot of money." He stated that since retiring from the Navy, he had observed many commercial sustainment practices that could benefit DoD if applied more widely, and challenged both the audience and the panel members to approach the issue with an open mind.

The panel members who are involved in managing their own air, ground, or sea fleets agreed that their experiences in maintaining these fleets provided some lessons applicable to DoD. Certainly, they said, the logistics challenge they face in keeping fleets operating (worldwide operations, number of makes/models to maintain, ops tempo, potential cost of unscheduled or unanticipated downtime) is comparable in many ways to the challenge faced by the military services. In fact, in some respects (e.g., equipment utilization rates), civilian carriers present more of a challenge than DoD operations.

Harry Gregory of Rockwell Collins said that he was somewhat surprised when he joined Northwest Airlines after a 23-year Air Force career to discover that DoD's processes for financial management and sustainment planning in general were far more sophisticated than the systems in place at most companies. "Our [Rockwell] processes are really quite antiquated, not nearly as disciplined as DoD," he observed. "Where we have the advantage is in flexibility; we can commit money and get things done."

John Marshall of Delta Airlines agreed. "You [DoD] have processes far superior to industry. The advantage we have is our ability to be flexible in order to respond to market changes."

Air Force Brig. Gen. Frank Anderson, DSMC Commandant, underscored this point during the question-and-answer session. He asserted that, "In acquisition policy, we have a lot of flexibility. Lack of budget flexibility is our biggest problem. It impacts the way we think and the way we look at everything. When we look at acquisition reform, the biggest single limit we have is the budget process."

Other panel members addressed their experience in providing worldwide logistics support or supply chain services for their own fleets or for customers. Marshall noted that Delta has benefited from going to an all-Boeing configuration in its fleet, though he observed that the greatest benefit the airline achieves is in simplified training rather than in its supply chain.

Gregory stated that his company provides "power by the hour" contracting with airlines. "We guarantee availability of the system, manage the pipeline, own the spares, and maintain the fleet." He stated that his company had managed to reduce the pipeline and reduce backorders by going to a direct vendor delivery (DVD) contract with the U.S. Coast Guard for maintenance of C-130 transport aircraft and helicopters.

Gregory and Hough addressed the question from the viewpoint of managing the supply chain relationship for customers.

Gregory stated that, "What is growing is a partnership. The customer is demanding a total solution, and we recognize that we can't 'do it all.' To succeed, we must have partners." Hough agreed that, "To be successful, [the various participants in the supply chain] have to begin to trust each other."

Maintaining Competitive Sources In a Global Environment

Jeffrey Bialos, Deputy Under Secretary of Defense (Industrial Affairs), opened the conference's second day with a speech on "Maintaining Competitive Production Sources in a Globalized Economy." Bialos addressed two areas DoD acquisition managers should consider to ensure more effective competition: "... by shaping our acquisition strategies so that they consider the effects on future competition; and, second, by considering foreign sourcing, where appropriate, which is increasingly important in light of today's increasingly globalized defense industrial base."

Bialos reviewed recent structural changes in defense industry and stated that "Our challenge, then, is to maintain defense industrial competitive sources for cost, quality, and innovation benefits in an increasingly consolidated marketplace." Bialos stated that DoD is concerned about the potential anti-competitive impacts of exclusive teaming arrangements and subcontractor selection methods. He suggested that acquisition managers should examine both areas carefully and reject any contractor proposals that would reduce competition.

Bialos also stated that, "There are key changes in the global environment that support the need for greater defense industry linkages between the United States and our trans-Atlantic partners." Factors promoting increased linkages include the need for interoperability, U.S. and European defense industry consolidation, and the need to maintain competitive environments, both in the U.S. and internationally.

"The Department favors an evolution to a competitive trans-Atlantic model of defense industries characterized by in-

dustrial linkages of multiple firms, operating on both sides of the Atlantic, effectively competing in both the large European and U.S. markets." Otherwise, "we could end up with one or two pan-European firms and several large U.S. firms that have closed home markets and compete in the third world. A 'Fortress' mentality could also result in the separate evolution of U.S. and European military technologies, undermine competition and interoperability, and lead to sole source European firms selected as suppliers for political purposes."

Bialos argued that globalization will provide far greater benefit to U.S. firms through increased sales opportunities than any potential losses of domestic sales.

Panel on PPBS and Program Management

Dr. Nancy Spruill, Director of Acquisition Resources and Analysis, moderated a panel on "Program Management: How Can PPBS Help? (And Why at Times It Can't)." Other panel members included the following executives:

- Irv Blickstein, Assistant Deputy Chief of Staff for Naval Operations (Resources, Warfare Requirements, and Assessments)
- Retired Air Force Lt. Gen. Frank Campbell
- Army Brig. Gen. John Holly, Program Executive Officer, Tactical Missiles
- Robert Soule, Director, Program Analysis and Evaluation.

Panel members acknowledged the risk of controversy and disagreement between officials responsible for developing, managing, and advocating programs and those responsible for budget reviews. They stated that it is not the purpose of the PPBS process to erect barriers to prevent acquisition programs from accomplishing their purposes. Soule stated that "We're all trying to serve our customers,

who are the Secretary of Defense, the taxpayers, and the soldiers in the field."

The panel members acknowledged that funding instability is frequently a byproduct of budgeting decisions. Soule observed, "One of our main goals is to prevent program instability ... The reason these cuts occur isn't because people wake up with malicious intent; it's because we have bills to pay. And this is because we're trying to do too much."

—Brig. Gen. Frank Anderson Jr., USAF DSMC Commandant

The panel members asserted that errors in initial program estimates contribute to budgeting problems. Campbell stated, "There is too much content in the programs. The Services won't make hard decisions to cut programs; instead, they stretch things out, which raises costs." He characterized the problem as "... a sucking whirlpool. They want to keep programs alive in hopes that the next Congress will raise the topline or they can get more money."

The Re-engineered Interoperability Process

John Osterholtz, Director, Information Integration and Interoperability, spoke

on DoD efforts to promote interoperability, which is defined as "the ability of systems, units, or forces to provide services to, and accept services from, other systems, units, or forces and use the services to enable them to operate effectively together."

Osterholtz noted that it is becoming increasingly important to achieve interoperability, both across Service lines and with allied nations' forces, because of the increased frequency of multilateral forces and joint task forces. He stated that the current system to ensure interoperability among systems is paper-based and out of date. Rather than providing an ongoing means of evaluating systems design and performance, interoperability assessments are based on a rather static "pass-fail" checklist. The system, he pointed out, is not linked with the acquisition or resource allocation processes, with the result that there is no linkage between the identification of problems and the implementation of solutions.

Osterholtz stated that direction was received from Office of the Under Secretary of Defense (Acquisition, Technology and Logistics) (USD[AT&L]; Office of the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD[C3I])); and the Joint Staff to take the following actions to improve interoperability.

- Accelerate development of an outcome-based management strategy and process that results in tangible and significant improvement to interoperability among key DoD Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) capabilities, modeling and simulation (M&S) sustainment, and information technology resident within related weapons systems.

- Provide the implementation detail for this process to the Architecture Coordination Council (ACC) for approval and implementation across DoD (including DoD intelligence activities).
- Encourage collaborative solutions.

Interview with USD(AT&L) Dr. Jacques S. Gansler

Over the years, the PEO/SYSCOM Commanders' Conference has enjoyed strong support from Dr. Jacques S. Gansler, USD(AT&L), and from his predecessors in that office. Besides attending many of the conference and workshop sessions as a speaker or attendee, he has actively followed up on the issues raised at these conferences and ensured that conference recommendations were acted upon by OSD and Service decision makers.

To provide the most interaction with the audience, Gansler's appearance at this workshop was a question-and-answer session, rather than a more traditional speech. The session was moderated by Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform).

Gansler described his current concerns about the condition of the defense industrial base and discussed the findings of a Defense Science Board panel on this subject. "We've experienced a dramatic transformation of the defense industrial base in the past few years. Part of that is because we took a 'procurement holiday' for about 10 years, while part of it is also due to the changes that have taken place in technology and in the nature of warfare.

"We were increasingly concerned about some signs of financial problems. During the consolidation, in some cases they may have overpaid and taken on a heavy debt load. We decided to see if there were things we could do, and one thing we took a look at was progress payments. Cash flow is always a principal benefit of defense contracting, so we're looking at what we can do to speed them up."

Turning to the subject of R&D, Gansler stated that, "We also need to do something to make R&D more profitable. DoD is one of the few places anywhere that has a long-term focus on R&D, and we need to make sure that we maintain our R&D focus." Regarding S&T, he stated that "... my principal interest is how can we transition S&T work more rapidly into product?"

Transforming the industrial base was another topic he surfaced. "We also want to transform the industrial base into what we'll need for the 21st century," said

Dr. Jacques S. Gansler Under Secretary of Defense (Acquisition, Technology & Logistics)

Gansler. "In civil military integration, this doesn't just mean buying commercial items; instead, we need to change the way we specify requirements and processes so that DoD is just another differentiated buyer of the products of high-technology industries."

In reply to a question about the role of test in the acquisition process, Gansler observed, "There are still some on Capitol Hill and perhaps some in the Department who still think the purpose of testing is a final exam. That's not my view. The test community should be involved early, as part of the development process. The whole idea," Gansler said,

"is to get the operator involved early to see if the new system works." This view of the role of testing in the development process, he said, ties in well with a spiral development process.

Summary on Breakout Groups

During the morning plenary sessions, the breakout group chairs briefed retired Air Force Lt. Gen. Tom Ferguson on the conclusions reached by their groups. Within only a few hours after receiving these briefings, Ferguson had evaluated the breakout group presentations and presented his own summary report to the conference.

Ferguson noted that there was very substantial overlap in what the breakout groups identified as key issues, despite the wide variance in topics. Common themes included the following:

- DoD and contractors would be better able to manage Operations and Support (O&S) costs if better use were made of Information Technology (IT) tools. Integrated tools and systems are needed.
- Cultural change is still a major issue. Many of the groups reported that stovepiped organizational processes continue to impede progress. Not all Integrated Product Teams (IPT) have been effective, and there are too many adversarial relationships (both between government and contractors as well as among government organizations).
- There was substantial agreement that the budget process is the major single barrier to reform. "... You [breakout groups] are saying," said Ferguson, "our financing institution is in the way of the things we'd like to do. Financing and our budget process is an obstacle to reform."
- Establishing long-term relationships between government and contractors is the best path toward achieving many of our goals.
- Performance-based logistics is critical to logistics reform. This initiative appears to enjoy strong rank-and-file support.

- Evolutionary acquisition is the right concept to pursue.
- Logistics reforms targeted at legacy systems are best approached incrementally for now.

BREAKOUT GROUP 1 — SPEEDING TECHNOLOGY TRANSITION

This breakout group concluded that a technology transition “seam” exists between DoD’s S&T funding (Basic Research, Applied Research, and Advanced Technology Development), which is managed by DoD’s labs and research centers, and subsequent development funds, which are managed by system program offices.

Despite several current efforts to fund technology transition (such as Advanced Technology Demonstrations [ATD], ACTDs, Joint Warfighting Experiments, and Affordability Pilot Programs), the transition of technology out of the labs and into advanced systems is impeded by factors that include the following:

- Lack of transition funds.
- Lack of a defined technology transition process.
- Cultural differences between the S&T and acquisition communities, which obstruct communication of needs and capabilities.

The breakout group recommended the following actions:

- Establish a technology transition process — with interaction between warfighters, the acquisition community, and S&T managers — clear responsibilities, and resource mechanisms. (Action: Director, Defense Research and Engineering [DDR&E] with the Services).
- Increase awareness by training S&T managers in acquisition processes such as Integrated Product and Process Development Teams/Integrated Product Teams (IPPD/IPT) and by improving both the acquisition and S&T communities’ understanding of how the other operates.
- Establish metrics such as providing transition metrics in performance assessments of providing awards (e.g.,

“Laboratory Director of the Year”) for technology transition.

BREAKOUT GROUP 2 — EVOLUTIONARY ACQUISITION

Most participants in this breakout group believed that evolutionary acquisition was a good idea. The group concluded that key factors in deciding whether an evolutionary acquisition strategy was appropriate include the following:

- Requirements — the urgency of the need and the evolving threat.
- Technology — the readiness and availability of key technologies.
- Affordability of the objective capability.

All three factors need to be considered in developing an evolutionary acquisition strategy, and there needs to be close communication between acquisition, requirements, test, and budget communities.

BREAKOUT GROUP 3 — TEST SUPPORT TO THE PROGRAM MANAGER

The group agreed that test and evaluation (T&E) needs to be integrated more fully within the acquisition process. Currently, various forms of test (e.g., contractor test, developmental test, and operational test) are not integrated effectively, modeling and simulation capabilities are not always available, and manpower restrictions often prevent early participation by the operational test community. The group also believed that IPTs have not always been effective and that manning shortfalls often prevent effective participation by the T&E community in IPTs and other acquisition processes.

The breakout group believed that the T&E process could be modified to support evolutionary acquisition. The time-phased requirements that are part of the evolutionary acquisition process would drive the development of time-phased testing

BREAKOUT GROUP 4 — USE OF ECONOMIC INCENTIVES FOR EFFECTIVE PROGRAM MANAGEMENT
This group discussed means of developing an acquisition workforce (in both

government and industry) whose “first instinct is to search for the ‘win-win’ scenario.” The group identified the development of a “Handbook on Economic Incentives” as one tool to help in this transformation. After discussing a possible format for such a handbook, the group assigned responsibilities and tentative deadlines to complete the task.

BREAKOUT GROUP 5 — TANGLED SUSTAINMENT RESPONSIBILITY KNOTS

This breakout group’s objectives were fourfold:

- Understand the forces that contribute to tangled sustainment responsibility knots and the issues that have emerged.
- Discuss how to redefine the roles of multiple, powerful, and essential communities within and external to DoD.
- Identify who should implement new processes.
- Identify better models of innovative life cycle support structures.

The group concluded that a number of actions must be taken to untangle the knots. First, DoD should quit shifting the support burden to warfighters/users.

In addition, a number of financial problems must be resolved. These include Working Capital Funds, a host of “color of money” issues that limit what various funds can be used for, and lack of discretionary authority by PMs.

The breakout group also advocated a number of steps to “kill the snake”; that is, deal with massive, longstanding problems that inhibit change in the logistics support community. These steps include: Data Management and Ownership, Engineering Support Activity Authority, and National Stock Numbers (NSN).

The group also recommended that DoD should: 1) establish focal points and effective mechanisms for acting on innovative opportunities and commit senior management resources to support pilot programs; 2) develop a cost accounting system to capture life cycle costs; 3) de-

fine incentives for the logistics community to implement innovative strategies; and 4) develop consistent depot maintenance policy to facilitate communication with Congress.

BREAKOUT GROUP 6 —

COMPETITIVE PRODUCT SUPPORT

This group concluded that actions must be taken to enhance the competitive environment in order to achieve the benefits of competition in product support. There must be a credible perception that a replacement is available and meaningful performance incentives. Many barriers still exist that prevent effective competition, including outmoded financial systems, varying rules of engagement, legislative restrictions, and the threat that such actions will result in elimination or reduction of infrastructure.

The breakout group recommended that the aspect of head-to-head public/private competition should be de-emphasized. This approach creates a confrontational environment and forces industry into the difficult position of competing against its customers. Under the best circumstances, it is difficult to maintain a level playing field when the decision maker is also one of the competitors. The breakout group also recommended the following actions:

- Modify financial processes to facilitate product support.
- Streamline the processes for evaluating and implementing reform initiatives.
- Use incentives and performance measures to achieve the benefits of competition for both organic and commercial suppliers.
- Provide contracting guidelines for developing long-term, performance-based contracts.
- Pursue legislative changes that increase funding flexibility for reform initiatives.

BREAKOUT GROUP 7 —EARLY LOGISTICS PLANNING: HOW MUCH IS ENOUGH WITH EVOLUTIONARY DEVELOPMENT?

This breakout group recommended a joint DoD-industry effort to develop advanced analysis tools, which are needed

for supportability and affordability trade-offs.

- Current tools are archaic, incomplete, and cumbersome. The group argued that new tools are fundamental to making supportability a KPP or other viable factor in procurement and evaluation.
- It is important to identify the user early and maintain continuous user involvement in acquisition decisions. Involving the user promotes co-evolution of technology and the requirement.
- Contractor logistics support (CLS) decisions should be based on program-by-program life cycle cost effectiveness. The breakout group believed that the rapidly evolving design would point toward more contractor involvement, but that the specifics of this involvement would depend on the nature of the program.

BREAKOUT GROUP 8 — PROGRAM STABILITY FOR O&S ACTIVITIES

This breakout group recommended a number of actions related to funding as well as a number of other management actions. Funding related actions included four areas:

- Eliminate excess/aged inventory and establish O&S planning reserves with funds saved/obtained.
- Encourage Services to migrate sustaining engineering management toward program channels.
- Incentivize PMs/contractors to increase priority for TOC reduction initiatives over other competing priorities by allowing portion of savings to be retained by program.
- Establish Service (or DoD for joint programs) fund for "TOC" reduction initiatives/investments without imposing new "taxes."

Management recommendations also included four areas:

- Increase "gain" on O&S cost management decisions that occur early in program cycle.
- Encourage each Service to establish an integrated data environment.

- Encourage active and cooperative effort among requirements communities, operating commands, acquisition/logistics organizations, and comptroller to implement realistic, synergistic planning for system O&S.
- Increase flexibility to move \$\$ across multiple formalized investment programs (e.g., Reliability, Maintainability and Supportability [RMS]; Operations and Support Cost Reduction [OSCR]; Commercial Operations and Support Savings Initiative [COSSI]; or Modernization Through Spares [MTS]).

BREAKOUT GROUP 9 —

ACCELERATING REFORM INTO ACTION AND RESULTS WITH RAPID IMPROVEMENT TEAMS (RIT)

This group constituted itself as a "mini-Rapid Improvement Team" and addressed the issue of improving mission-capable rates. After this experiment, the group concluded that the RIT process provides a good structure to address key issues and a good framework for organizing team personnel. Establishing an RIT can improve and simplify the focus on a key issue and provide a step-by-step process for dealing with the problem. The breakout group noted that commitment from a sponsor is necessary for an RIT to have any prospect of success.

Ferguson closed out his presentation by complimenting all of the panel chairs and members. "I was enormously impressed by the dedication and by the thought that went into these presentations. The breakout groups obviously all worked very hard and developed outstanding recommendations."

Luncheon Speech by Dr. Sheila E. Widnall

Dr. Sheila E. Widnall, former Secretary of the Air Force and Institute Professor at the Massachusetts Institute of Technology, closed the workshop and looked to the future with a luncheon address on "Acquisition Reform: Where We've Been and Future Challenges." She reviewed the progress of acquisition reform efforts since the publication of a

1990 Carnegie Commission report, "New Thinking and American Defense Technology," from a panel chaired by former Secretary of Defense Dr. William J. Perry.

These recommended reforms, according to Widnall, encompassed "a set of acquisition reforms directed toward commercial practices in procuring defense systems. Both large-scale and small-scale reforms were begun. The small-scale reforms were directed toward clearing out the thicket of acquisition regulations that prevent DoD from using smart business practices and act as a barrier, preventing efficient commercial firms from competing for defense business.

"The large-scale reforms developed pilot programs containing innovative contract incentives to demonstrate success with big programs. The goal was to recognize that the work of reform would never be finished, but focused on changing enough and getting enough momentum and system knowledge that the system could not, would not, go back to its earlier practices.

"It also included," said Widnall, "a set of incentives to encourage greater efficiency in the defense industries. Efficiencies that could only be realized through the use of competition and the structuring of incentives."

Widnall noted that "acquisition reform was as much a technology-management strategy to ensure that DoD would have access to fast-moving technologies, as it was a strategy to promote reform of the bureaucracy that defense procurement had become with its associated inflated costs.

"The changes in practices to encourage an integrated defense-commercial base," she said, "were the dramatic reduction in MILSPECs [Military Standards and Specifications], the single process initiative whereby commercial and defense products could be made on the same production line, and changes in regulations related to business practices. The hope was that these moves would en-

courage and enable commercial firms to enter the defense market and defense firms to participate in the commercial market."

Despite significant progress, she noted, "The results of several years of effort on this transformation of the defense procurement enterprise are mixed. Although DoD has made great strides in removing regulatory barriers, —and there have been stunning success stories — much remains to be done.

"For example," said Widnall, "DoD is very far from dealing with the defense industrial base using commercial practices. There are few opportunities to 'win' no matter what increases in 'value' are provided to the warfighting customer: and there are few opportunities to 'fail' no matter how ineptly a defense program is carried out.

"So what?" asked Widnall. "It could mean," she pointed out, "that DoD is paying more and working with a set of less efficient producers, because these producers are willing to work for lower margins than their counterparts in commercial industry. And whoever decided that defense companies should be shielded from the consequences of bad business decisions by being able to load their indirect costs onto healthy programs?"

Concluding, Widnall said that, "The last few years have been enormously productive for acquisition reform. We have launched on an agenda that would have seemed impossible in the late 80s. We have reaped substantial benefits and uncovered at least a few of the basic principles needed to operate in this new industrial climate."

Editor's Note: The author welcomes questions or comments on this article. Contact him at LReed@ida.org.

For information on past or upcoming PEO/SYSCOM conferences or workshops, refer to the Defense Systems Affordability Council (DSAC) Web site at www.acq.osd.mil/dsac/.

DAU PUBLISHES

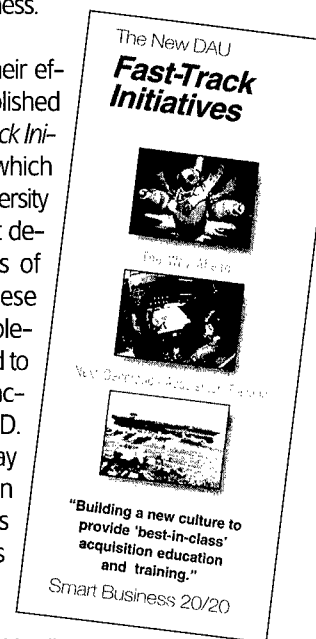
The Defense Acquisition University (DAU) is restructuring and building a strategic plan to rethink DoD's business processes, reduce costs, improve efficiency, and prepare the Acquisition, Technology and Logistics Workforce for new ways of doing business.

To communicate their efforts, DAU has published a new *DAU Fast-Track Initiatives* brochure, which details how the University intends to go about developing new ways of doing business. These initiatives, once implemented, should lead to better business practices throughout DoD. Viewed as "The Way Ahead for Acquisition Training," the DAU's Fast-Track initiatives include:

- Headquarters, DAU collocation with the Defense Systems Management College at Fort Belvoir, Va.
- Revision of PM Training Curriculum
- Critical Thinking and Case-Based Curriculum
- Faculty Development and Currency
- Budget Reassessment and Realignment
- Functional Integrated Process Team/Overarching Integrated Process Team (FIPT/OIPT) Jump-Start
- Supporting the new "5000" Changes
- Knowledge Management
- Change Management Center
- Strategic Alliances

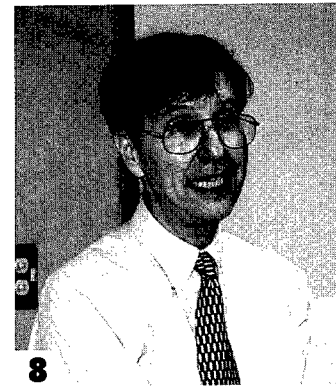
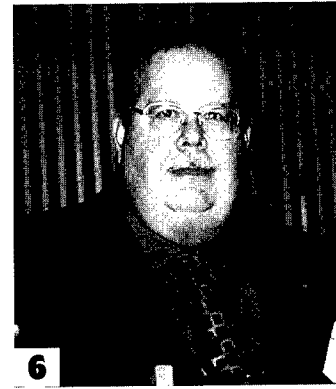
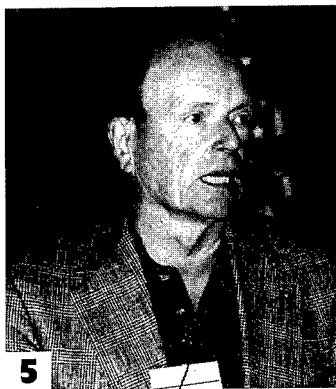
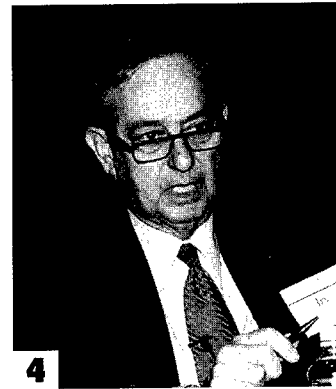
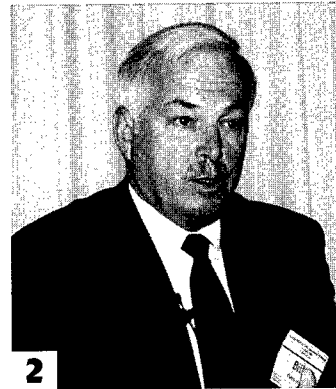
Through improved acquisition training and reorganization of DAU staff functions, DAU will offer the DoD acquisition community an acquisition education, training, and career development program that meets their educational needs well into the 21st century.

For Fast-Track Initiatives progress, visit our Web site at www.acq.osd.mil/dau or call Army Col. Joe Johnson: (703) 805-2140; DSN 655-2140.



SECOND ANNUAL PEO/SYSCC

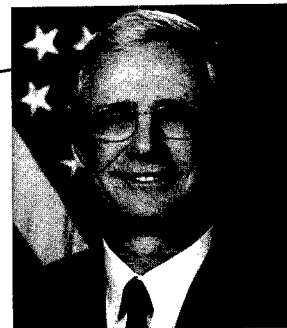
1. Susan Hatchard Hough, Vice President, Marketing and Sales, Supply Chain Services, FedEx, discusses the relevance of commercial supply chain management practices to the military.
2. Retired Navy Vice Adm. William Hancock chairs an evening panel on commercial sustainment processes.
3. John Marshall, Vice President for Safety, Delta Airlines.
4. Irv Blickstein, Assistant Deputy Chief of Staff for Naval Operations (Resources, Warfare Requirements, and Assessments), addresses PPBS policies and practices.
5. Retired Air Force Lt. Gen. Thomas Ferguson presents a summary of the Breakout Group presentations.
6. John Osterholtz, Director, Information Integration and Interoperability.
7. Marty Evans, U.S. Air Force Acquisition Career Management and Resources Division, presents a tutorial on "The Acquisition Workforce and the Role of Acquisition Support Teams."
8. Martin Meth, Director of Industrial Capabilities and Assessments, presents a tutorial on "Strategic Planning for Industrial Capabilities."
9. Panel on "Commercial Industry Sustainment Processes: Can They Be Applied to Support the Warfighter in Peace and War?" From left: Ron Zieball, Vice President, Oshkosh Truck Corp.; retired Navy Vice Adm. William Hancock; Navy Rear Adm. Raymond Archer, Deputy Director, Defense Logistics Agency; Harry Gregory, Vice President and General Manager, Collins Aviation Services; James Madden, Vice President for Operations, Farrell Lines.
10. Jeffrey Bialos, Deputy Under Secretary of Defense (Industrial Affairs) and Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform).
11. Dr. Nancy Spruill, Director, Acquisition Resources and Analysis, leads a panel on "Program Management - How Can PPBS Help?"
12. Air Force Maj. Gen. Claude Bolton, Program Executive Officer for Fighter and Bomber Programs, SAF/AQ, questions a speaker.
13. Army Brig. Gen. John Holly, Program Executive Officer, Tactical Missiles, co-chairs Breakout Group on Test and Evaluation.
14. Louis Kratz, Assistant Deputy Under Secretary of Defense for Logistics Architecture, co-chairs the Breakout group on "Tangled Responsibility Knots."
15. Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform) interviews Dr. Jacques Gansler, Under Secretary of Defense (Acquisition, Technology and Logistics) on progress in acquisition reform and the state of the industrial base.
16. From left, Vicky Armbruster, Deputy Program Executive Officer, Tactical Missiles, U.S. Army, and Navy Rear Adm. Joseph Dyer, Commander, Naval Air Warfare Center, Aircraft Division/Assistant Commander for Research and Engineering, Naval Air Systems Command, co-chair breakout group on program stability.



COMMANDERS' WORKSHOP



Gansler Directs Pilot Authority for Commercial Services, Beginning Immediately



ACQUISITION,
TECHNOLOGY AND
LOGISTICS

THE UNDER SECRETARY OF DEFENSE
3010 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-3010

MEMORANDUM FOR SERVICE ACQUISITION EXECUTIVES DIRECTORS, DEFENSE AGENCIES

SUBJECT: Pilot Authority for Commercial Services

Section 814 of the National Defense Authorization Act for Fiscal Year 2000, P.L. 106-65, authorizes the Secretary of Defense to carry out a pilot program to treat procurements of commercial services as commercial items (attached). Further, it directs the Secretary to issue guidance to procurement officials to execute such contracts. The following categories of services are covered by the pilot authority: 1) utilities and housekeeping services, 2) **education and training services**, and 3) medical services. Responsibility for the operation and oversight of this program has been delegated to my office.

In accordance with Section 814 of P.L. 106-65, each organization (Service or Agency) is requested to select and conduct candidate commercial item procurement pilot programs within the stated categories. Particular emphasis should be placed on ensuring that negotiated prices for designated services, including prices negotiated without competition, are fair and reasonable. Each organization should ensure that a single item manager or contracting officer is responsible for entering into all contracts from a single contractor for commercial services.

The pilot authority shall commence immediately and extend through the end of Fiscal Year 2003. My office will submit a report to Congress within 90 days thereafter in accordance with the requirements of the program. In support of this, each participating organization should submit a separate report on the impact of their pilot program(s), due to my office no later than 60 days after termination of the pilot authority period. Each organization's report should address the impact on prices paid under contracts for commercial services, the quality and timeliness of the services provided under the pilot program contracts, and the extent to which competition was maintained. Price trend information used to assess the impact on prices paid should be collected and analyzed in accordance with existing policies.

As I stated in my April 5, 2000, policy memorandum on Performance Based Service Acquisitions (PBSAs), services are becoming an increasingly significant component of what the Department buys, and we must ensure that we acquire them effectively and efficiently. The new PBSA policy requires that in order to maximize performance, innovations, and competition, often at lower cost, a minimum of 50 percent of all service acquisitions must be performance-based by 2005. This pilot program represents an important opportunity and is a natural complement to the PBSA policy. As such, I strongly urge your participation.

Request the names of the selected pilot programs and overall points of contact be provided to Mr. Craig Curtis, Office of the Deputy Under Secretary of Defense (Acquisition Reform), (703) 697-6399, curtisc@acq.osd.mil.

Attachment
As stated

cc:
DUSD (Installations)
Dir, Defense Procurement
Dir, Acquisition Resources and Analysis
Dir, Washington Headquarters Services
Dir, Defense Contract Management Agency
Dep GC (A&L)



Editor's Note: This information is in the public domain. To download the attachment to Dr. Gansler's memorandum, go to the Defense Acquisition Reform Web site at www.acq.osd.mil/ar/#sat1.



Oct. 4-6, 2000 • Versailles "Palais des Congrès"

ABOUT THE CONGRESS

The International Society of Logistics (SOLE), a non-profit international professional society composed of individuals organized to enhance the art and science of logistics technology, education, and management, will focus its 16th International Congress on the increasingly complex topic of Information Technology (IT).

During the last 20 years, corporations were managed through their internal information systems. Now, as international members of the "Cyber-Business" era, they find themselves driven by the logical linkages of their businesses, reducing interchange costs, exploiting existing networks, and applying available information technologies.

More and more within our industrial societies, executives must manage emerging technologies that are not designed with an open systems architecture, do not "speak" to one another, or require different platforms for different operating systems. The job of information technology management grows increasingly untidy, at times diluting or obscuring the overall strategic view.

During the Versailles three-day Congress, members from the International Society of Logistics – academics, industrial researchers, logistics engineers, and many others – will present a panorama of major trends and best practices in the field of information technology today. Structured technical sessions will

focus on the three digital information life cycle views – E-procurement, E-manufacture, E-support – and will deal with logistics applications supporting business operations.

Participants can expect to enhance their overall understanding of the international business environment; learn about streamlining product processes; explore open automation (tile by tile) of core business; and contribute to a shared high-level logistics model, thereby creating more value-added and more jobs throughout the international community.

POINT OF CONTACT INFORMATION

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CONFIRMED SPEAKERS

To Be Announced.

SOLE-France uses a part of its proceeds for re-planting trees in the "Parc du Château de Versailles"

Out of Balance Workforce Could Impact Future Readiness

STAFF SGT. CYNTHIA MILLER, USAF

OSSLYN, Va. — The current civilian workforce is not meeting Air Force needs, which could lead to future readiness problems, said Air Force officials at a civilian workshop held here in June.

During the three-day workshop top civilian managers discussed force-shaping strategies and other issues facing the Air Force civilian workforce.

"Our civilian workforce is out of balance," said David Mulgrew, Chief of the Air Force Civilian Force Management Division. "Our acquisition, scientific, and technical workforce is not being sustained with an adequate influx of new employees with current, state-of-the-art skills. The Air Force needs force-shaping legislation, allowing the use of voluntary early retirement authority and voluntary separation incentive pay without position abolishment or reduction in force."

According to Mulgrew, in the past 10 years there has been a 62 percent drop in the number of civilian employees with less than eight years of service, and 11 percent of all career employees are currently eligible for retirement.

"In five years, more than 45 percent of all civilian employees will be eligible for either optional or early retirement," he said.



The Air Force is seeking better incentive tools in the form of expanded voluntary early retirement authority and voluntary separation incentive pay to help balance the civilian workforce.

Photo by Sue Sapp

Past reductions, made through a combination of loss programs such as early retirement authorities, separation incentive pay, and limited hiring practices were not balanced across the civilian workforce.

"We used voluntary early retirement authority and voluntary separation incentives to trim the senior year groups and to minimize involuntary actions such as reductions in force, which are so devastating organizationally and individually," Mulgrew said.

Reductions due to changes in hiring and retention negatively affected the profile of an increasingly senior civilian workforce. The drawdown was accomplished, in part, through limiting the number of new hires and offering incentives to junior and senior employees to separate, thus leaving a

high percentage of employees who are rapidly approaching retirement eligibility.

The Air Force has developed a three-pronged strategy — which includes accession planning, force development, and separation management — to address the need for force shaping and sustaining a quality civilian workforce; however, help from Congress in the form of legislation is also desired.

"Better tools in the form of expanded VERA and VSIP are needed to stimulate and manage sepa-

rations," said James Carlock, Air Force Civilian Workforce Shaping Program Manager.

Congress has responded by introducing legislative initiatives addressing the problem. An amendment sponsored by Ohio Sen. George Voinovich and attached to the National Defense Authorization Act proposes expanding VERA and VSIP, and allowing broader authority for tuition reimbursement.

"Separation incentive pay and early outs are currently authorized for force reduction situations to reduce the number of involuntary separations," Carlock said. "Expanding these tools will help to balance out the workforce by giving incentives to workers in targeted occupational series resulting in vacancies for trainee-level positions.

"This helps us move toward our objective of a balanced civilian force made up of the right mix of entry-, mid-, and senior-level employees in our most needed skills," he said.

Allowing broader authority for tuition reimbursement will help the Air Force sustain the knowledge and skills needed in the civilian workforce, Carlock added.

The Department of Defense workforce realignment initiative proposed by Voinovich would be effective Oct. 1 through Sept. 30, 2005. Under his proposal, employees may be offered VSIP up to \$25,000 each in either a lump sum payment or annual equal installments. Under current rules VSIP is offered only in a lump-sum amount.

A separate bill sponsored by Ohio Reps. Tony P. Hall and David L. Hobson provides a pilot program for temporary authority to offer VSIP and VERA to a maximum of 1,000 Air Force employees annually from Oct. 1 through Dec. 31, 2003, and offers a lump-sum payment option only.

"Both of these bills allow us to shape portions of the workforce," said Leif Peterson, Director of Civilian Personnel for the Air Force Materiel Command, which projects nearly 40,000 civilian employees will be eligible for early or optional retirement within the next five years. "The Senate version is a little broader and has better application for us because the coverage period is longer and the costs to the agency appear to be less, but they are both a step in the right direction."

But according to Peterson, the Air Force also needs legislation to streamline hiring practices.

"The one instrument I need most, and has the broadest application, is a streamlined hiring authority," he said. "We have dated hiring authorities now that are time-consuming and cumbersome. We need one that addresses the competitive marketplace, but still complies with public policy requirements, and is responsive to the competition we now face [from civilian companies]."

Editor's Note: Miller is with Air Force Print News. This information is in the public domain at www.af.mil/news.

Roadblocks to Effective Team Dynamics in the IPPD Environment

STEVEN THOMAN

A Word From the Author

This article was written while I was a student attending the Advanced Program Management Course (APMC) at the Defense Systems Management College (DSMC), Fort Belvoir, Va. My assignment was to choose a topic and write a paper in the area of program management/leadership. Having occasionally participated in some sub-optimal work teams during my career, I chose to investigate some of the root causes of difficulties teams encounter in the Integrated Product and Process Development (IPPD) environment.

This article attempts to explore six roadblocks to effective team dynamics likely to be encountered by a PM. Published articles from periodicals and journals, reports, books, videotapes, audiotapes, and lectures on team dynamics formed the basis of the article.

I sincerely hope that some of this information may prove useful in improving the effectiveness of *your* Integrated Product Team (IPT).

In today's DoD systems acquisition environment, integrated multidisciplinary teams are essential to manage procurements for the armed services. A multidisciplinary team consists of people whose backgrounds are, by definition, quite diverse and who often have significant differences in how they think, communicate, problem solve, and work. When diverse teams effectively leverage their differences, they make higher-quality decisions because their synergism allows realism, increased complexity, and the ability to better recognize an outsider's view.

Assembling the Right Team

This high-performance state does not come without considerable thought, ef-

fort, and foresight by the Program Manager (PM). Simply gathering a multidisciplinary team of qualified people does not guarantee the team will be effective.

The first roadblock to assembling and maintaining a high-performing team is the failure to establish a firm foundation. Diverse teams need a foundation upon which a working relationship is built. Ideally, a team establishes this foundation from the beginning, and continues to periodically discuss and modify elements of the team foundation throughout the duration of its efforts. A team's foundation consists of several components: mission clarity, stated values, em-

powerment limitations, and defined processes.

Some experts in the field of team dynamics point to an unclear team mission as the *single largest reason* for a team's failure to perform at optimal levels. A team's mission may seem obvious, but it is vital that each member understands the team's purpose, vision, and goals in the same way. To achieve this common understanding, a PM must provide a shared purpose; short-term, long-term, and end-game goals; measures for goal achievement; and a timeline for goal achievement.

Next, team members must generate and believe in a shared value system of team interaction. Clear ground rules must be formulated by the team and accepted by each team member. These ground rules form the rules of engagement, a framework for team conduct when interacting with one another and externally to the team. Behaviors to be included under the rules of engagement are those that are important to team members such as conduct for meetings, keeping promises, timely communication of information, mutual respect, conduct for customer interaction, and speaking with one voice on settled issues. The rules of engagement should be established and then periodically reviewed. They should be modified any time the team believes it necessary, and the rules can be used as a compass to help find common ground when team conflict arises.

The term "empowerment" seems to be overused and misunderstood in seg-

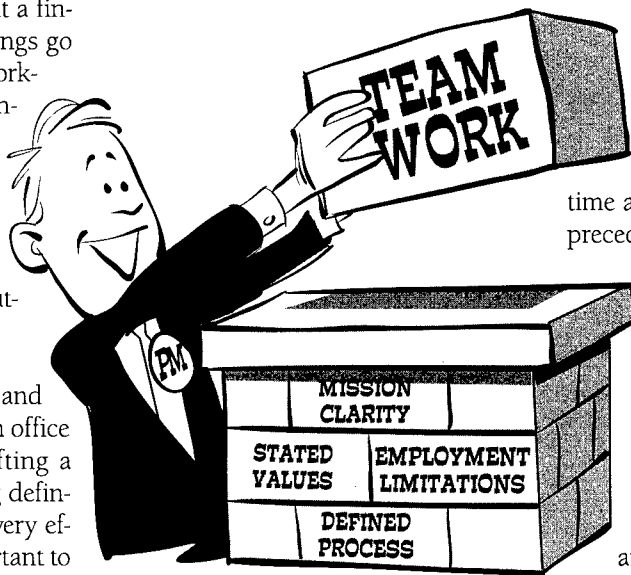
Thoman is a member of the Naval Air Systems TEAM. A civilian Navy employee since 1984, he currently works in the Air Vehicle Department, Naval Air Station Patuxent River, Md., supporting both the Joint Strike Fighter and V-22 programs. Thoman holds an M.S. in Mechanical Engineering and Mechanics from Drexel University, a B.S. in Mechanical and Aerospace Engineering from the University of Delaware, and is a recent graduate of the APMC 00-1, DSMC.

ments of today's DoD acquisition workforce. Empowerment is not a ticket for management to exclude themselves from the working level and then point a finger of accountability should things go awry. Nor does it provide the working level unlimited authority. Instead, when managed appropriately, empowerment is documented with well-defined limits that are understood by team leaders, individual team members, and functional area managers outside the program.

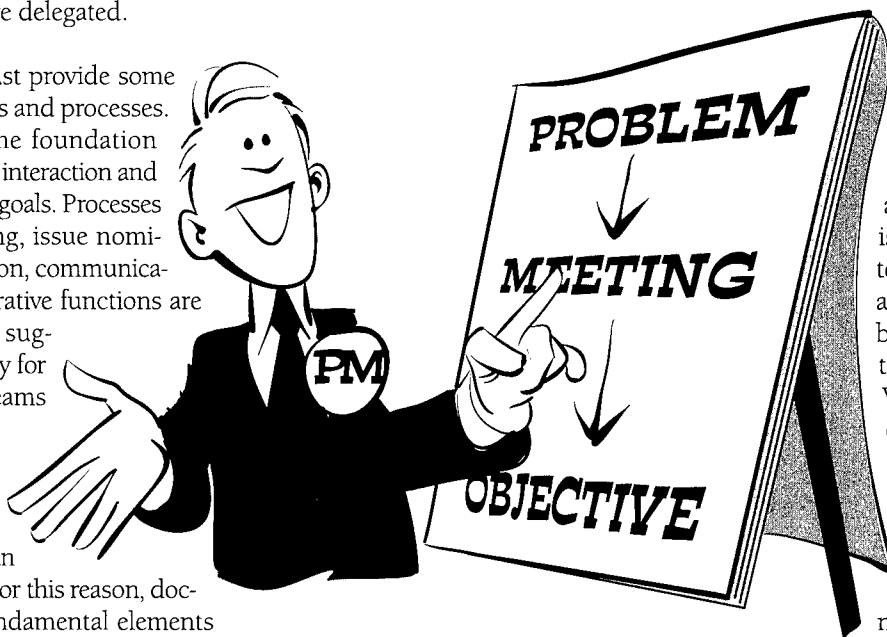
For instance, to help clarify roles and ease any issues between program office and functional managers, drafting a memorandum of understanding defining limits of the team has been very effective. This is particularly important to ensure IPT members have authority to make most decisions regarding their functional area without having to constantly check with superiors. In addition, by assigning team and individual responsibilities, problems can be avoided that might otherwise arise when authority is perceived or unduly assumed. The delegation of authority must be visible to the entire team and can be shown via letters of authority or introductions at staff meetings. Team empowerment, when appropriately applied, provides a sense of mutual accountability, and is vital to the long-term health of the team. Equally important is the PM's support of decisions that are delegated.

Finally, the PM must provide some overarching policies and processes. This element of the foundation helps facilitate team interaction and accomplishment of goals. Processes for decision making, issue nomination and resolution, communication, and administrative functions are some examples suggested as mandatory for high-performing teams to meet their goals.

The importance of a firm foundation for team behavior can not be overstated. For this reason, documenting these fundamental elements



is valuable for both current and future team members. Once documented, they can be provided to (and response solicited from) new team members as the IPT makeup changes. However, PMs should be wary of overstepping the limits of guiding principles and processes to an overly restrictive set of rules. Rigid IPT charters dictated from above can create stovepipes with the undesirable consequence of IPTs that are too bureaucratic with too many teams and too many meetings.



In the heat of the business day, it can be easy to fall into a mode of ineffective communication. To avoid this roadblock, the PM must practice and facilitate effective communication techniques. Effective communication takes time and planning by the PM, and the precedent he or she sets will determine the tone for IPTs. Most team communication occurs during meetings. Ineffective meetings can be a tremendous drain on team productivity because the number of team members at the meeting multiplies any wasted time. Effective meetings provide read-ahead information including an agenda, data to be discussed, and the meeting objective (status meeting or decision meeting).

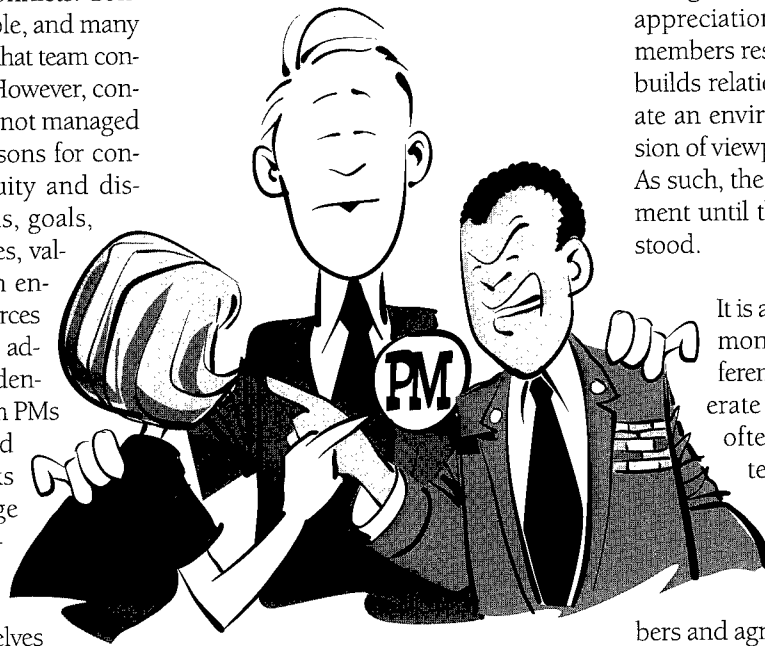
While not always possible or reasonable, sticking to the agenda topics and time limits should be a common practice and prevents overassessment of less-than-critical issues. Teams that act like committees, where each member defends his or her own constituent interests, will not promote the environment of a common team purpose. This does not mean that all team members should be encouraged to agree. Leaving time on the agenda for candid discussions saves time later when conflicts would otherwise arise.

Periodic status meetings that provide face-to-face communication are a must; E-mail-only is insufficient and leads to miscommunication and confusion. Finally, beware of communication that is too rapid. With today's technology and the emphasis on empowerment, rapid communication can lead to a problem if a customer knows problems/issues that management does not.

The third roadblock to effective teaming is the inability to resolve conflicts. Conflict in any team is inevitable, and many successful managers agree that team conflict is healthy, even vital. However, conflict becomes unhealthy if not managed appropriately. Typical reasons for conflict include role ambiguity and disagreements over methods, goals, procedures, responsibilities, values, or facts. The PM can ensure the most prevalent sources of conflict are avoided by addressing the roadblocks identified in this article. Yet, even PMs who carefully plan to avoid the principal roadblocks must still actively manage conflict. The PM best manages conflict by providing team members the tools to resolve conflicts themselves and by quickly addressing issues when self-resolution approaches are not successful.

One method of turning team conflict into synergy is to teach team members to recognize conflict and then reinforce self-resolution. Team members need to be trained in conflict resolution methods to enable problem solving without finger pointing. The lack of training can result in a failure to understand differences and may increase the conflict level. Once trained, team members in conflict must first agree that there is a problem, agree on exactly what the problem is, search for a solution, agree on what each must do to mitigate the issue, and then follow up. Individuals learn to resolve differences by acting early to acknowledge conflict, directly engaging the other party with whom the conflict exists, responding rationally and without emotion, and by dealing with each other honestly and directly.

At times, management needs to recognize when self-resolution approaches are not effective and intervene in the situation. In such



cases, the PM should resolve conflict with all parties present. The first step is to hold a meeting for the sole purpose of resolving the conflict. The PM needs to get those in conflict to recognize a problem exists and allow them to define the problem. Technology should not be used to avoid uncomfortable issues; face-to-face meetings work best. Initially, the



PM should strive to mediate, not judge. This is best achieved by being open minded and actively listening. Active listening fosters feelings of acceptance and appreciation, saves time, keeps team members responsible for the issue, and builds relationships. The goal is to create an environment of healthy discussion of viewpoints and to foster candor. As such, the PM should withhold judgment until the situation is fully understood.

It is a good idea to focus on common goals without stifling differences, but the PM can not tolerate destructive disputes. It is often helpful to refer to the team's foundational guidelines as a point of common ground and mutual objectives. Explore alternatives with the team members

and agree on a course of action for the future. Actual behavior must follow dialogue, so always schedule a follow-up session to ensure the conflict has been properly resolved.

Gender differences need to be recognized and understood to avoid this roadblock. If left unchecked, these differences can lead to misunderstandings, reduced morale, and ultimately poor team performance. Some of the common sources for differences between men and women include differences in listening behavior, interaction skills, and linguistic styles.

When listening, men and women often exhibit different behaviors that can, at times, be misunderstood by the other gender. Women often exhibit steady eye contact, use "listening noises," smile, and nod to cue the other person that they are actively engaged. Men, on the other hand, usually do not smile, use non-steady eye contact, and often exhibit additional physical activity while listening. One common misinterpretation a man might have when speaking to a woman is that he assumes she is agreeing to what he is saying when in reality

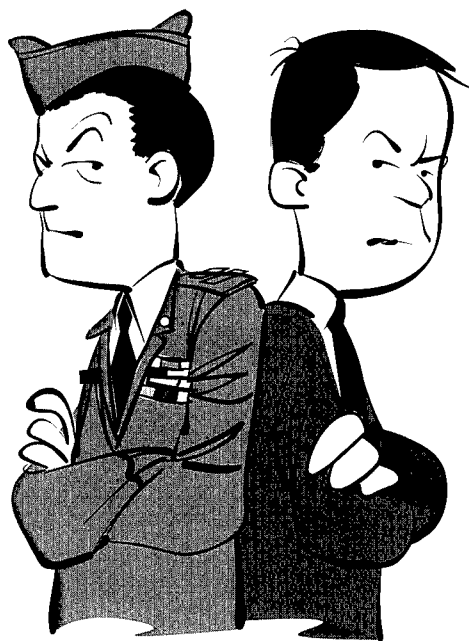
she is simply acknowledging that she has heard what he said. Men also sometimes misinterpret that the female listener is very interested in what he is saying when she is simply actively listening. When women are speaking to men who exhibit typical male listening behavior, they can mistakenly believe that they are not being listened to or that the listener is trying to undermine and distract the speaker.

Men and women often use different methods of interruption during group interactions. A typical male behavior is to jump in and interrupt the speaker, while on the other hand females frequently wait for a pause in the discussion. These differences can lead men to mistakenly believe a woman is not participating. Women can misinterpret the situation as well, believing that men are "bulldozing" them and stifling their inputs.

Men and women also have different linguistic styles. Linguistic differences can lead men to not always recognize women's ideas or to fail to give women credit for ideas generated in a team discussion. For example women often include the use of an add-on question in their speech. The comment, "Normalizing the data shows a trend, doesn't it?" can make men think a woman is unsure of her conclusion when in reality the add-on question is simply a speech mannerism. Another example of linguistic differences is that men will often use the pronoun "I" while women will often use the term "we." This too, can lead men to misinterpret a woman's statements and vice versa.

A final example of linguistic differences that can lead to miscommunication is the common use of qualifiers in women's speech. Men are not as prone to tag qual-

ifiers such as "probably" on to ends of sentences, and this stylistic difference can add to confusion and misinterpretation.



Another challenge facing the PM is making teams function efficiently when they are composed of civilians and military members. While this situation is often not a significant issue, it sometimes can hinder team capability. Issues can stem from perceptions, biases of the other group or differences in organizational backgrounds, cultural backgrounds, and power interests.

For instance, due to their job assignment rate, the military tend to hold a shorter-term focus while civilians often have a longer-term focus. This difference can result in differing priorities and conflict. When conflict exists, civilians tend to think military personnel treat civilians as second-class citizens; however, the military team members are often unaware of the perception. Military IPT members also sometimes perceive that civilians are less motivated and are driven more by money than by doing the right thing for the Service. Further, civilians are sometimes perceived as clock-watchers (implies lack of commitment to cause), so it is a good idea for the PM to set guidelines for schedule adherence.

Power plays can also become a factor when civilian "rice bowling" is used to protect territory or a power base. In general, military participants are considered better leaders because they are good at caring and coaching, but they can often overlook coaching of civilians and apply these skills only to military subordinates.

Should this type of conflict creep its way into an IPPD environment, the PM



would be well advised to take time to train both groups about the other's culture. Dictate and take-charge service-members will be most effective when they recognize and alter their leadership style from the field to the corporate setting. Each group needs to recognize the benefit of both functional expertise and operational experience.

Insufficient team recognition is a roadblock that keeps a high-performing team from sustaining long-term performance. PMs must place emphasis on the importance of team accomplishments and should take every opportunity to celebrate team accomplishments. In addition, a reward system must be generated to provide rewards to teams, not individuals. From a near-term standpoint, collective work products can help lead to collective recognition. However, from a longer-term standpoint, a team type of reward approach is, and will continue to be, a challenge.

Civilians from functional organizations typically staff IPTs, and the historical career track for those employees has traditionally been ascension through the functional management chain. Bregard and Chasteen recognized this issue in an article about the PM's perspective of the IPPD environment when they wrote, "We have created career tracks for employees that use the hierarchical functional organization as the centerpiece of career aspirations. What is the logical career track for IPT members?" In the long run, DoD must address this issue to ensure high performance of IPTs.

No Magic Formula

While this list of roadblocks is not comprehensive, the roadblocks identified in this article are the principal reasons teams fail to reach and sustain a high performance level. There are, of course, other sources of inefficiency. An unskilled workforce, racial bias, cultural misunderstandings, and generational differences are some additional areas that can have a negative impact. Nor are the suggestions presented here guaranteed to produce favorable results.

There simply isn't a magic formula that will work in all cases; every PM must endeavor to address the unique set of problems he or she faces with creativity, respect for those involved, and sincerity. While there are factors that affect team performance outside of the PM's control, the most effective teams are cultivated by minimizing the principal roadblocks to high performance.

Editor's Note: The author welcomes questions or comments on this article. Contact him at thomansj@navair.navy.mil.

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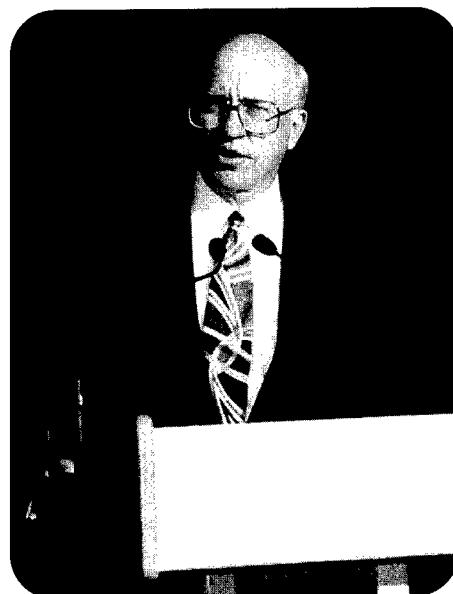
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KALLOCK NOMINATED

In May 17, the President nominated Roger W. Kallock of Ohio, currently serving as Deputy Under Secretary of Defense (Logistics), to be Deputy Under Secretary of Defense (Logistics and Materiel Readiness). Kallock's nomination is now before the Committee on Armed Services for Senate confirmation.



ROGER W. KALLOCK, DEPUTY UNDER SECRETARY OF DEFENSE FOR LOGISTICS, HOSTS LOGISTICS REFORM FOCUS DAY AT THE PENTAGON, OCT. 1, 1998.
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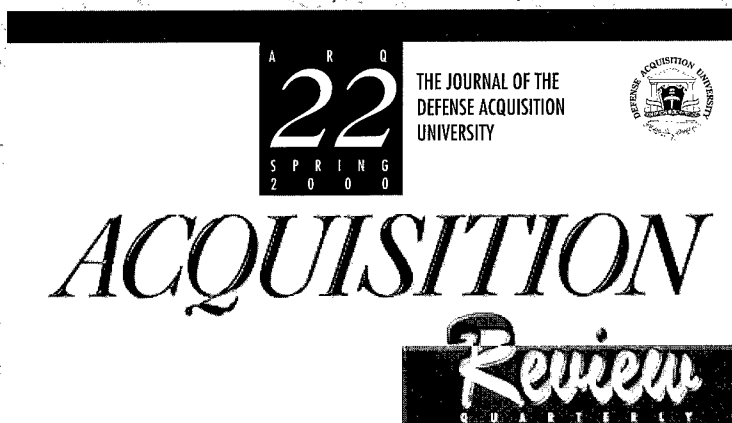
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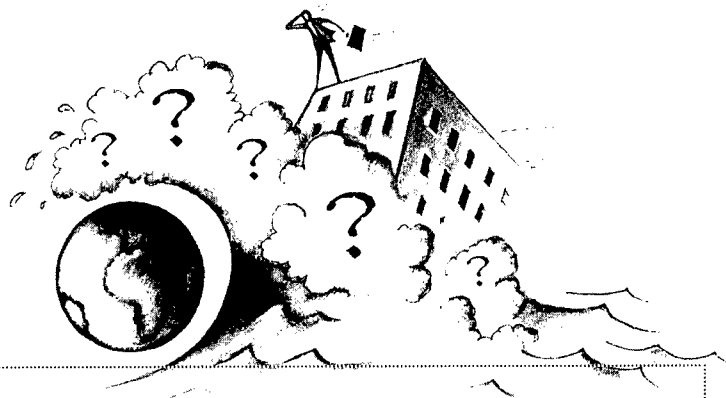
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<https://e-commerce.spawar.navy.mil>
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<http://www.safaq.hq.af.mil/>
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<http://farsite.hill.af.mil/>
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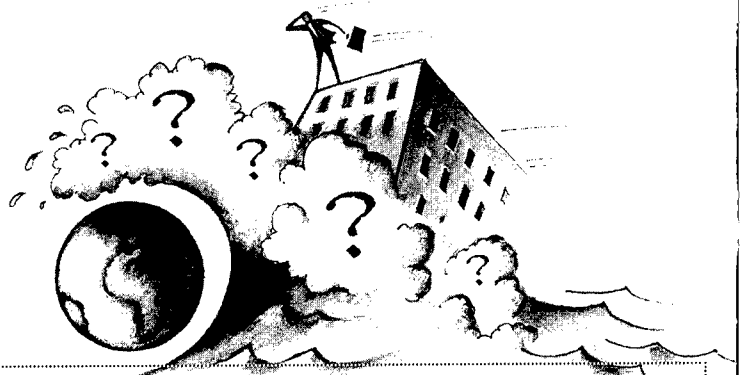
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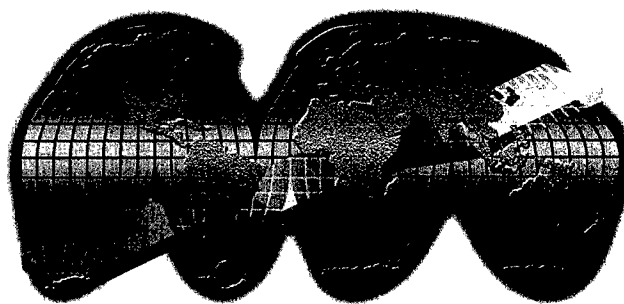
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TOPIC AREAS

Acquisition Logistics Reform

Business-based Cost and Resource Management

Commerciality

Competitive Acquisition Strategies

Information Technology in Acquisition

Globalization

Integrated Product Teams' Successes

Outsourcing and Privatization

Partnerships

Performance Basing

Small Business Issues

Workforce Issues

PAPER SUBMISSION

Submit three publishable (edited and formatted) copies of your paper and electronic media on a 3-½" disk **not later than Jan. 31, 2001**. Submit to: *Alberta Ladymon, DSMC Program Chair ARS 01, 9820 Belvoir Road, Fort Belvoir, Va. 22060-5565 or E-mail to ars01@dsmc.dsm.mil*. If you have questions, please call (703) 805-5406/2525 or DSN 655. Include the *Title, Topic Area, Point of Contact's Name, Business Address, Telephone Numbers, and E-mail Address* on a cover sheet to accompany your paper. All correspondence will be communicated with the point of contact listed.

The *Book of Proceedings* will be published on a CD-ROM. Therefore, all research papers **MUST** be submitted on a 3-½" disk using the format and guidelines listed here.

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RTF — Save your paper using Rich Text Format. (Provide graphic files in original format, i.e., PowerPoint.ppt.)

GUIDELINES

- 1" top, bottom, and side margins
- Title of paper centered on top of the first page
- Name(s) of author(s) centered under title; Business name(s) of author(s) centered under name(s) of author(s)
- The rest of the paper should have 2 columns of equal width.
- **Limit your paper to 15 pages or less.**
- Graphics and/or charts can either be whole page, half page, or quarter page.
- The font should be Times New Roman with a font size of 12.
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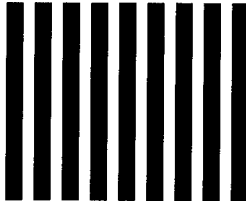


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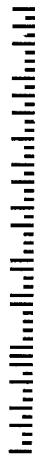


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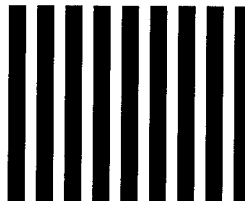
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