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PM

PROGRAM MANAGER

Pentagon Live Fire Testing Director Proposes "MASTER"
— Modeling & Simulation Test & Evaluation Reform

James F. "Jim" O'Bryon
Deputy
Operational Test

ALSO IN THIS ISSUE:

ADA FINDINGS PROMPT B-2 RENAISSANCE

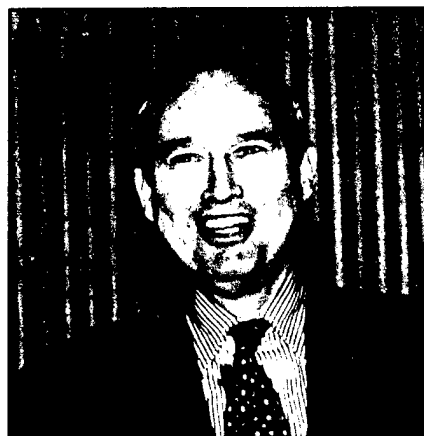**OPERATIONAL ACQUISITION — AN OXYMORON?**

MANAGEMENT COUNCILS

COACHING

"I must be able to assure Departmental leadership that the significant funding invested in education resources is receiving the highest quality return possible."

Dr. Jerome F. Smith Jr.
DoD Chancellor for Education and

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ALSO

PM Interviews DoD's New Chancellor for Education & Professional Development

Dr. Jerome F. Smith Jr. – Strong Advocate of Developing an Educational "Net Worth"

P. A. BARNES

I f it were up to Dr. Jerome F. Smith Jr., we would all have not only a rich financial portfolio, but also an educational portfolio that we invest in for life. That's just one of the ideas he brings to the table as DoD's new Chancellor for Education and Professional Development.

"I think it is important for people to have an educational portfolio much like a financial portfolio. As your financial portfolio has, hopefully, not minuscule holdings of stocks, bonds, or CDs [certificates of deposit], your educational portfolio would include similarly diverse investments: investments in formal schooling; investments in graduate education; investments in training courses; investments in seminars, experiences, and conferences; and investments in work experience.

"All of those," he contends, "would sum up to some kind of a net worth that reflects your ability and readiness to undertake the kinds of challenges you want to take on, much the same way that your financial portfolio tells you whether you can meet the expenses of retirement or buy a new home, or whatever it is you want to do."

SPEAKING AT THE DEFENSE SYSTEMS MANAGEMENT COLLEGE JAN. 28, SMITH TOLD THE STAFF AND FACULTY, "I UNDERSTAND THAT THE EMERGENCE OF ANOTHER NEW PLAYER ... CAN BE UNSETTLING TO MANY WHO HAVE SERVED IN THE DEPARTMENT'S EDUCATION BUSINESS FOR A NUMBER OF YEARS. MINE IS AN OPERATIONAL AND NOT A POLICY OFFICE. MY JOB WILL NOT BE TO IDENTIFY WHAT SKILLS ARE GOING TO BE EFFECTIVE IN THE NEW DEFENSE ORGANIZATION; RATHER, MY TASK WILL BE TO ENSURE THAT THE CURRICULA, FACULTY, AND ACADEMIC OPERATIONS OF INSTITUTIONS MEET QUALITY STANDARDS TO ENSURE THAT OUR CIVILIAN EMPLOYEES OBTAIN THE COMPETENCIES THAT THEY NEED."

Barnes is a professional journalist with over 26 years of military and civilian experience. She is retired from the U.S. Army Reserve, where she served in the Public Affairs and Communications Media career field. She is a past recipient of the Army's Keith L. Ware Award for Excellence in Journalism.

Photos by Army Sgt. Richard Vigue and C. Tyler Jones

Smith's value-based perspective, together with his outstanding military and educational "net worth" undoubtedly figured in his selection to be first Department of Defense (DoD) Chancellor for Education and Professional Development. He's a man who's been building his "educational portfolio" since his early days in the military education system, after signing up in 1957 as a midshipman. At his Oct. 1, 1998, swearing in ceremony, Smith gave the first indication of his No. 1 priority as Chancellor:

" ... One of the [best] things about the professional military education system [is that] it's a lifelong process ... I know just how much these folks [military] benefit from and value their opportunity for education, but I also know that few of our civilians get such a chance."

He believes that DoD absolutely can improve the quality of education for the civilian workforce, and ultimately make the civilian education system every bit as good as the military system.

In his words, Smith is "delighted" to be given the task of working with the educational and career development resources that the Department supports. He's not hesitant to assume responsibility and considers himself personally

- **"If you look at our system for the civilian workforce, it is not remotely equivalent to what we provide our military members or military dependents. Our civilian workforce is trained and educated in a variety of ways or not at all."**

SMITH (CENTER) MET WITH DSMC COMMANDANT, NAVY REAR ADM. "LENN" VINCENT AND ARMY COL. JOSEPH JOHNSON JAN. 28 DURING HIS FIRST VISIT AS DoD CHANCELLOR. ON THE SUBJECT OF LEARNING, HE HAD THIS TO SAY: "YOU JUST DON'T STOP LEARNING WHEN YOU COMPLETE YOUR FORMAL SCHOOLING. AND ALTHOUGH WE CAN PROVIDE MORE SCHOOLING, MORE EDUCATION, AND MORE TRAINING EXPERIENCES ALONG THE WAY OF A CAREER, IT IS REALLY THE WILLINGNESS OF THE INDIVIDUAL TO ENTERTAIN NEW IDEAS. WE LEARN FROM EVERYTHING — FROM OUR FORMAL EDUCATION EXPERIENCES, FROM OUR INTERACTION WITH OTHERS ON THE JOB, AND FROM THE LIFE EXPERIENCES WE ENCOUNTER EVERY DAY. WE NEED TO KEEP THE PROCESS OF FORMALLY ENTERTAINING NEW IDEAS ALL OF THE TIME."

accountable to DoD's senior leaders: "I must be able to assure Departmental leadership," he said at his swearing in, "that the significant funding invested in education resources is receiving the highest quality return possible."

Toward that end, he has already begun work in his Northern Virginia office and is assembling a staff and developing close working relationships with the leaders of many educational institutions and programs throughout DoD.

From DRI, A New Position Emerges

The position of Chancellor was established as a result of the November 1997 Defense Reform Initiative (DRI) report, which made specific recommendations for reducing DoD infrastructure and improving efficiency by adopting effective practices used in corporate businesses. Since his appointment as Chancellor on Oct. 2, 1998, Smith has addressed several groups to explain his role as the principal advocate for the quality and cost effectiveness of education for DoD civilian personnel.

This article, based on Smith's Jan. 28 speech to the staff and faculty of the Defense Systems Management College (DSMC) and his recent interview with a representative from *Program Manager* magazine, communicates the goals, challenges, and overall management philosophy of the man who will lead civilian education into the 21st century.

Civilian Education Falls Short

"Looking at the whole realm of education for the Defense workforce," says Smith, "we have a wonderful military education system. Our PME [Professional Military Education] system is world-class and clearly organized with authorities assigned. The Chairman of the Joint Chiefs of Staff gives the basic guidance for the system; the Services each

support components of the process in a very integrated fashion.

"Second, we have a dependents' education system [Department of Defense Dependent Schools] that is well organized, has standards, and accomplishes its job.

"But if you look at our system for the civilian workforce, it is not remotely equivalent to what we provide our military members or military dependents. Our civilian workforce is trained and educated in a variety of ways or not at all."

He points out that the quality of DoD educational programs is mixed. "If you're working in the acquisition area, there is a pretty systematic process to develop requirements for job areas or the classifications, to categorize them by Levels I, II, and III to develop the competencies required at each level, and then to task the schools with developing courses that will deliver those competencies to the members.
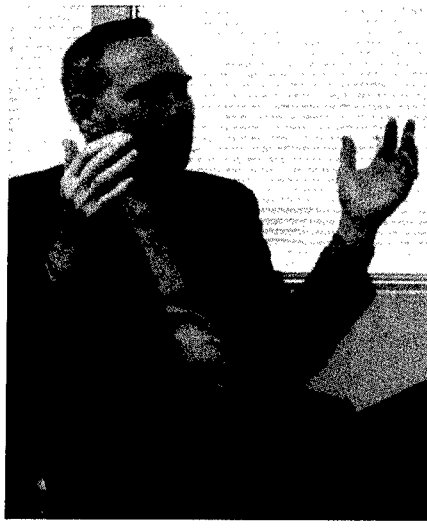
"Simply put, our workforce needs the types of skills that enable the American civil life to regenerate and relearn."

"But even so," he questions, "Are we sure that the right people go to school? Are we selecting the people who would most benefit the institution by being educated?" Those two questions are often asked of Smith.

He believes that in many areas, we haven't made enough headway to clearly lay out what competencies are required, because we haven't effectively defined the needs of the workforce. "Our No. 1 problem," according to Smith, "is that our civilian education system is not responsive to the needs of the civilian workforce."

He goes on to say that the problem [of defining the necessary competencies] is not a static one. What people need to know is changing all of the time. If we are going to accomplish what the leadership has directed and make a world-class support organization to back up our world-class military, Smith believes we need an infusion of new skills within

DR. JEROME F. SMITH JR.

Department of Defense • Chancellor for Education and Professional Development

Dr. Jerome F. Smith Jr., was named as the first Chancellor for Education and Professional Development by Secretary of Defense William S. Cohen and sworn in by Deputy Secretary of Defense John Hamre Oct. 2, 1998. In this position he serves as the principal advocate for the quality and cost effectiveness of education for civilian personnel in the Department of Defense.

Smith is a native of San Diego, Calif. He began a career in the U.S. Navy upon graduation from the U.S. Naval Academy in June 1961. He then attended Stanford University for graduate study under U.S. Navy sponsorship, where he earned an M.S. and a Ph.D. in Electrical Engineering. Smith went on to serve in research and development of sensors and information systems aboard the escort research ship, *USS Glover* (AGDE-1); in the Office of the Secretary of Defense; and as Executive Officer of *USS Downes* (FF-1070). From June 1974 to June 1976, he was commanding officer of *USS Marvin Shields* (FF-1066), an anti-submarine frigate homeported in San Diego.

After serving as C3I Program Analyst in the Office of the Chief of Naval Operations, Smith returned to sea duty as Commanding Officer of the guided missile cruiser, *USS Reeves* (CG-24), operating out of Yokosuka, Japan; and Chief of Staff, Battle Force Seventh Fleet, based in Cubi Point, Republic of the Philippines. After his selection to flag officer rank, Rear Adm. Smith assumed duties as Director, Politico-Military Policy and Current Plans Division

on the staff of the Chief of Naval Operations; followed by assignment as Commander, Cruiser-Destroyer Group Five. During this assignment, he deployed to the Western Pacific and Indian Oceans as Commander of the *USS Ranger* Carrier Battle Group, and later organized and commanded the *USS Missouri* Battleship Battle Group.

Smith next served as Deputy Commander-in-Chief, U.S. Southern Command, responsible for U.S. military forces in Central and South America, with headquarters in Panama. His final active duty position was Commandant, Industrial College of the Armed Forces, National Defense University, Fort McNair, Washington, D.C. He completed 34 years of commissioned service before retiring from active duty in August 1995.

Prior to his appointment to the newly created position of DoD Chancellor for Education and Professional Development, Smith was the civilian Dean of the Information Resources Management College, National Defense University. He is a member of several professional societies. He and his wife, Jill, live in Falls Church, Va. They have two adult children: Dorothy S. Bradley, an editor with the University Press of America; and Navy Lt. (select) Jerome F. Smith III, a 1995 graduate of the U.S. Naval Academy and naval aviator.

the Department, especially if we're going to adopt those business practices that have been successful in reengineering and revitalizing the American commercial sector.

"Simply put," says Smith, "our workforce needs the types of skills that enable the American civil life to regenerate and re-learn."

IMPORTANCE OF FUNCTIONAL LEADERS

All civilian education and professional development programs fall under functional leaders who retain the responsibility for ensuring that the civilian workers in their functional areas are being properly prepared and supported in their jobs by education and training programs.

Functional boards made up of representatives of the workforce and representatives of the policy community, he explains, meet and hammer out what the workforce should have in the way of skills, competencies, and levels of capability, and then pass those competencies onto the schools. The schools then develop curricula and teach courses to deliver education on the competencies.

For example, the Under Secretary of Defense for Acquisition and Technology is responsible for the proficiency of the acquisition workforce. He funds and directs the Defense Acquisition University to provide the required education and training. The President of DAU carries out that mission through the component schools.

He sees these functional leaders and boards as vital to the civilian-education system, and describes them as DoD's best means of "coupling what the workforce needs today to what the schools are teaching today."

NO "CZAR OF EDUCATION" FOR DOD

Smith stresses that the educational process does not change with the establishment of his position. He's concerned by the image conveyed by various media of the Chancellor for Education
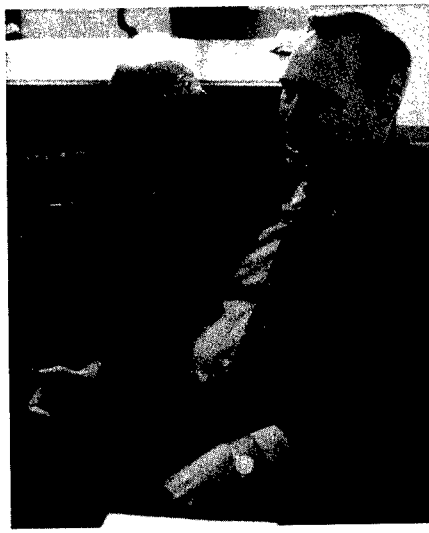
"We cannot attract and keep quality people if we bring them in with the view that they have learned everything they have ever needed to know, and from then on it's a matter of being a practitioner. We have to engage in what is called continuing education."

and Professional Development being a "Czar of Education" for the DoD.

"I understand that the emergence of another new player ... can be unsettling to many who have served in the Department's education business for a number of years. Mine is an operational and not a policy office. My job will not be to identify what skills are going to be effective in the new defense organization; rather, my task will be to ensure that the curricula, faculty, and academic operations of institutions meet quality standards to ensure that our civilian employees obtain the competencies that they need."

ACCREDITATION

According to Smith, his first task is to ensure that every DoD training institution is accredited or actively pursuing accreditation by Jan. 1, 2000. As noted in the DRI report, only one-fifth of OSD-sponsored educational institutions are accredited by a recognized academic accreditation association. Only five of 37 educational and professional development programs have at least some course certified for college credit by the American Council on Education.

CONTINUING EDUCATION AS A BENEFIT

With infrastructure reduction a primary goal of improving the way that DoD does business, how can it attract and keep top-notch personnel? Smith admits that's a tough one.

"Shaping the demographics of the civilian workforce is a complicated, tough problem that is staring us in the face right now. The military services carefully managed the recent downsizing process, reshaping their workforces to retain the proper balance of skills and experience levels, and continuing to admit new entrants.

"Downsizing the civilian workforce was a significantly different process. Consequently, our civilian workforce is not precisely the shape we would have it, and it doesn't include precisely the skills that we need. So we have a problem that has many facets in front of us.

Smith says that we can address this problem in two ways: *reshape* our workforce or *re-skill* our workforce.

"In a full-employment economy that is strong and vital," Smith predicts, "we are going to have to compete for people against that strong economy. So, we have to ask ourselves, 'What do world-class companies offer their workers?'"

In last year's DRI report, Defense Secretary [William S.] Cohen answers that question:

Among the lessons of corporate America is that every successful or-

ganization finds its people to be its most important asset, and reflects their importance in a strong, corporate-sponsored program of continuous training and professional development.

"The signal that I'm getting," says Smith "is that we will have to compete by providing training and education as a *benefit,* if that is the appropriate term, if we are going to have people capable of adopting new ways of doing business (and I'm not just talking about today's needs, I'm talking about future needs).

"They must repeatedly have new experiences in education or training," Smith emphasizes. "We cannot attract and keep quality people if we bring them in with the view that they have learned everything they have ever needed to know, and from then on it's a matter of being a practitioner. We have to engage in what is called continuing education."

The importance of continuing education, he explains, can be seen in the new policy on continuous learning for the defense acquisition workforce recently promulgated by USD(A&T) that clearly recognizes people's skills cannot remain static, and that experiences in training or education and application of those skills are both needed regularly to refresh students and educators alike — "to keep them alive and alert," as he puts it.

Determining Training Needs — Who Takes the Lead?

"How can we best develop the training needs of employees from different backgrounds and different Services? That question has no single answer," Smith observes. Part of the answer, he believes, is employee-driven —what employees want.

If employees want to grow in their positions or want to improve as individuals, they have their own sense of what they need to acquire in the way of specific skills or general knowledge, training, or education.

Supervisors, Smith explains, have another view — one that is equally important — of the skills they want to see in

"I would argue that the individual needs to take charge of his or her educational program by means of the Individual Development Plan [IDP]. Be a major player in putting it together; be a driving force in making sure something happens. Supervisors must look out for not only the institution's needs, but also the development of their individual employees, making sure that they have IDPs and that they have a role in preparing them."

employees. They have some idea of where they want to place or grow a particular employee through the organization. But even the supervisor's view is not enough, according to Smith, because it does not address the aggregated need of the larger workforce. Managers at higher levels may put more emphasis on the skills affecting the overall demographics of the workforce in determining training needs.

"I would argue that the individual needs to take charge of his or her educational program by means of the Individual Development Plan [IDP]. Be a major player in putting it together; be a driving force in making sure something happens. Supervisors must look out for not only the institution's needs, but also the development of their individual employees, making sure that they have IDPs and that they have a role in preparing them.

"Finally, through the functional boards, we have to communicate the aggregated requirements — that's the big "R" — of the institution, whether it be the DoD, the Army, the Navy, or wherever, to the employee and to the supervisor."

Smith looks forward to working cooperatively with the functional leaders — "the line leadership that has the command authority over the institutions and the programs — to ensure that we are doing the very best job we can of educating our civilian workforce. We want to ensure that we are doing as good a job of educating our civilian workforce as we do with our military workforce."

Technology and Course Delivery
Smith acknowledges that technology is having a *huge* impact on education. "I'm proud to say that DoD is at the leading edge in this area." He relates that in his trips throughout the United States to educational institutions run by DoD, he has found remote teaching via television, and has personally participated in, and put online, Web-based instruction.

He notes that many organizations are putting out instruction on CD-ROM. "There are countless ways that technology is influencing the delivery of in-

struction. That having been said, you still have to find the appropriate media to deliver instruction to the individual student."

He explains that this involves identifying the level of student, the complexity of the subject, the time the person has available to devote to that instruction, and the purpose for teaching the subject matter or skill. Technology, he believes, can assist in educating, but technology is not necessarily the answer to every question in education.

Smith notes that there are people at all ages who find technology difficult. When it comes to students, he prefers to measure *"brain* age, rather than *bone* age." He believes we have to give credit to people who keep their minds alive.

One of the hopeful things about education, he says, is that "We can take a worker who has been in the workforce for a long time, who has developed some *bone* age, but has a lively mind and is willing to consider new ideas, and expose the mind to education. We don't want to, in any way, disregard the wonderful life experiences this person had. We just want to add to that the flexibility of mind that education encourages."

Never Stop Learning

If he has a learning philosophy, it could be captured in three simple words: "Never stop learning." Smith believes it is vitally important for each individual to keep his or her mind engaged throughout their whole life.

"You just don't stop learning when you complete your formal schooling. And although we can provide more schooling, more education, and more training experiences along the way of a career, it is really the willingness of the individual to entertain new ideas.

"We learn from everything," he says. "From our formal education experiences, from our interaction with others on the job, and from the life experiences we encounter every day. We need to keep the process of formally entertaining new ideas all of the time.

"As I mentioned earlier, we need to keep an educational portfolio much like a financial portfolio. As individuals have to manage their investment portfolios, they likewise have to manage their educational portfolios. We ought to encourage people to do that, to have a sense of their educational net worth from accumulation of multiple experiences.

"If we in the Department can contribute to building individuals, the members of our workforce, through helping them with those investments, I think that is a valuable contribution we can make," says Smith. "It benefits the individual, but I'm absolutely certain that it benefits the DoD in a very, very direct way."

Meeting Challenges, Measuring Progress

Smith is excited about the new challenges he faces as Chancellor. "I left a job as head of an institution of education, a college where I truly enjoyed working, because I believe Secretary Cohen and Dr. Hamre [Deputy Secretary of Defense John Hamre] have a very good appreciation of the changes that Defense needs to make.

And part of that challenge, says Smith, will be measuring our progress. "As you're taught at DSMC, the process is not manageable without measurements. We'll be working cooperatively with all players to ensure we can breathe some new life or shed some new light on this rather under-organized process of civilian education, and *help it help us*," he concludes, "to deliver a more effective DoD education."

QUESTIONS ABOUT ACQUISITION?

If there is any information you need to know about Department of Defense acquisition, the place to look is the Defense Acquisition Deskbook located on the Web at **http://www.deskbook.osd.mil/**

WHAT IS DESKBOOK?
The Defense Acquisition Deskbook is an electronic knowledge presentation system providing the most current acquisition policy for all DoD Services and agencies. Deskbook's extensive reference material includes information on the various functions, disciplines, activities, and processes of the Department of Defense beginning with "User" requirements, flowing through concept development, program establishment, contracting, testing, production, sustainment, and ending with disposal.

Deskbook's database includes over 1000 mandatory and discretionary policy documents, DoD and component discretionary practices, software tools and descriptions,

front-line wisdom, and advice, formats, and samples.

Deskbook is sponsored by the Deputy Under Secretary of Defense (Acquisition Reform), and the Office of the Under Secretary of Defense (Acquisition and Technology)/Acquisition Program Integration.

The Defense Acquisition Deskbook originated from an acquisition reform initiative to reduce directives while assisting managers to make informed decisions.

Its capabilities include: complete text of documents, full-word search, and structured information grouped by subject matter and level of authority.

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• Ask A Professor – Accessible from Deskbook's toolbar as well as the World Wide Web, submit your acquisition-related questions and receive a response from a professor. You can also search previously asked questions and answers.
• Learn about upcoming events and training opportunities.
• View new policies and guidance.
• Obtain access to pertinent Web sites through acquisition links.

Meet "MASTER" — Modeling & Simulation Test & Evaluation Reform

Energizing the M&S Support Structure

JAMES F. O'BRYON

I n the following few pages, I discuss my personal thoughts on an issue of paramount importance not only to the Department of Defense, but also to the nation's defense. My hope is that this article will provoke serious thought and meaningful action to resolve the issues raised.

First, A Look Back

Since arriving in the Pentagon just over 12 years ago, and for more than a decade before that serving as a weapons analyst in the Department of Defense (DoD) infrastructure away from the Washington area, I have been witness to numerous and surprisingly similar technical and management discussions about the need to get the modeling and simulation capabilities of the DoD organized, incentivized, under control, and more efficient to better serve the weapons development and acquisition process.

These discussions included such issues as a common and meaningful model architecture, model inter-connectivity, language consistency, validation, model proliferation, and configuration control. They've also covered the problems of duplication, modeling "stovepipes," the lack of meaningful and up-to-date documentation supporting M&S, and of course, the lack of model realism.

O'Bryon serves as the Deputy Director, Operational Test and Evaluation, Live Fire Testing, in the Office of the Secretary of Defense, The Pentagon, Washington, D.C. His undergraduate degree is in Mathematics, and he also holds two graduate degrees: one in Operations Research from The George Washington University, and another through the Electrical Engineering Department of the Massachusetts Institute of Technology.

During an M&S conference hosted at a military installation last year, over 200 participants from the Services and the Office of the Secretary of Defense, including myself, gathered to again discuss these persistent issues and, in particular, attempt to implement an initiative promulgated some two years ago by Dr. Paul Kaminski, the former Under Secretary of Defense for Acquisition and Technology.[1] The initiative, called the Simulation Test and Evaluation Process or "STEP," was an attempt to make M&S more of an integral part of the test and evaluation process. To quote its charter, "STEP is an iterative process that integrates both simulation and test for the purpose of evaluating the performance, military worth, and effectiveness of systems to be acquired."

Along with many others, I attended conferences and listened to expressions of concern about 1) why more money isn't being invested in realistic models and implied simulations; and 2) why our models are not more reliable and realistic.

All of these issues now force me to personally rethink why DoD has made little progress in getting its arms around the M&S issue.

A Problem Growing Progressively Worse

As the defense community continues to discuss these significant and pervasive problems and, on occasion, to make small incremental progress, the underlying problem gets progressively worse. At the same time, our weapons systems continue to become more costly and complex. It is also becoming more difficult to anticipate and test all of the possible permutations of combat conditions and threats against which they might be deployed.

Simultaneously, program managers face increasing budgetary pressures to cut back on system-development costs while pushing to accelerate the acquisition process and Acquisition Reform.

In a nutshell, virtually everyone seems to believe that we must *do* something or *fund* something. But exactly *what to do,*

how to play, who will play, who will pay, who will be paid to do it, and *how much should be spent* have not yet been spelled out and, as importantly, not yet incentivized and resourced. Effective incentives are needed, as are workable mechanisms to ensure that resources are available.

Current Ground Truth

In order to have an idea of what could be done, first we need to acknowledge some ground truths.

No NEW MONEY.
Whatever solution we come up with, it is a near certainty that asking for and receiving new money will not be an option. It's no secret that the Department is struggling to keep adequate funding for the programs that are already on the table. Couple this with the growing threats and obligations around the world and it's easy to see that raising new money for M&S is a non-starter.

PMs AND PEOs CONTROL LARGEST FUNDING BLOCKS.
Program Managers (PM) and Program Executive Officers (PEO) control the bulk of the redirectable (discretionary) funding. A quick look at the DoD FY99 budget reveals over 200 defense programs with active funding, ranging from large Acquisition Category (ACAT) ID programs — some exceeding $50 billion — down to very small ACAT IV programs, which are in the low millions. These 200+ programs tip the scales at many billions of dollars.

Conservatively, hundreds of millions of dollars, if not several billion, are being spent annually (DoD expenditures were estimated at between $1.3 and $1.6 billion annually five years ago) on diverse efforts involving M&S across the DoD.[2] M&S investments have grown geometrically over the intervening five years since this estimate was made.

If one goes to the PMs themselves, what do they estimate spending on M&S? This question was informally posed to a few PMs and former PMs. While no PM had a firm estimate, the answers came back in a broad range, from a low

JAMES F. O'BRYON

Deputy Director, Operational Test & Evaluation Live Fire Testing, Office of the Secretary of Defense, Pentagon

James F. "Jim" O'Bryon accepted his current appointment as Deputy Director for Operational Test & Evaluation/Live Fire Testing — an appointment equivalent to a Deputy Assistant Secretary of Defense position – in March 1995.

O'Bryon began work in the Pentagon as a member of the Senior Executive Service in November 1986 as Assistant Deputy Under Secretary of Defense, a position created in response to legislation enacted by Congress that requires realistic Live Fire Testing be performed on DoD's major conventional weapons and an independent Live Fire Test Report be prepared and submitted to Congress before these systems enter full-rate production. Since that time, he has also served within the Office of the Secretary of Defense as Deputy Director, Test and Evaluation; as Director, Live Fire Testing; and as Acting Director, Weapon Systems Assessment.

O'Bryon has more than 25 years of leadership experience in weapon-system technology and survivability, and has testified before Congress on several occasions regarding weapons acquisition and testing. His technical experience includes work in the biophysics department at IBM's Thomas J. Watson Research Center; the Actuarial Department at the home office of New York Life Insurance Company; the Ballistic Research Laboratories; the Army Materiel Systems Analysis Activity at Aberdeen; and, since 1986, the Office of the Secretary of Defense at the Pentagon.

Born in Schenectady, N.Y., O'Bryon received his undergraduate degree in Mathematics. He also has graduate degrees from The George Washington University in Operations Research/Management Science and from the Massachusetts Insti-

tute of Technology (MIT) through the Electrical Engineering Department.

O'Bryon is also involved in many outside activities and interests: songwriter and recording artist with four albums to his credit; soloist and instrumentalist at various church and community functions; and conference speaker on mathematics, education, music, and the patent/copyright system.

In addition to building his own harpsichord, he worked as a radio announcer and newscaster for *WRBS* in Baltimore for 15 years, and served as music director for churches in three states. Currently, he serves on the Board of Trustees of a private college, maintains an active speaking and concert schedule, and is an active member of the MIT Education Council.

An author of over 60 technical publications and holder of several copyrights, O'Bryon's honors include Who's Who in America, Outstanding Young Men in America, Sigma Xi, and Distinguished Lecturer at the Defense Systems Management College. He is also a Fellow of the Center for Advanced Engineering Study at MIT and is Chairman of the T&E Division of the National Defense Industrial Association.

O'Bryon currently resides in Bel Air, Md., with his wife Adina. They have four children.

of 3 percent up to as much as 15 percent of the total budget controlled by the PM.

PMS AND PEOS WILL BENEFIT THE MOST.

Although M&S benefits the in-house labs, development houses, and other activities, PMs, by far, benefit the most from the efforts of the M&S community. These models assist them in R&D, allowing trade-offs between cost, weight, maneuverability, susceptibility, range, delivery accuracy, reliability, vulnerability, and a host of other factors. If VV&A'd properly, these models can yield multi-million-dollar savings on the resultant systems as well as shortening the acquisition cycle. Future PMs will also continue to reap the benefits as additional programs come along.

PMS HAVE SHORT TIME HORIZONS ON THEIR PROGRAMS AND HENCE, ON THEIR INVESTMENT DECISIONS.

Anyone familiar with the current PM system of weapon-system management would agree that the time that a PM serves is typically about three years, give or take a year or so. Under this management paradigm, the typical PM of a multi-billion dollar program is responsible for the overall management of his or her assigned program through only one milestone. Rarely is a PM involved in two milestones, let alone more.

Since PMs are so highly trained and motivated to meet their acquisition milestone and budgetary goals and to move on in their careers (having met these important and highly visible criteria), there is little motivation or incentive for them to invest in realistic M&S since the amount of time needed for the PM to see the benefit of any M&S investment has been historically beyond his or her tenure as PM. Furthermore, little incentive structure exists for a PM to invest in these models, especially when the funds could be used for other, more timely and visible investments in the program at hand.

Hence, in making investment decisions among M&S options, PMs are driven by

the short-term goals of getting their program through the acquisition milestone wickets while trying to minimize the risk of time delays and cost overruns. Nor does the current acquisition structure offer motivation to the PM to make significant investments in M&S on the basis that such investments may also mutually benefit other current or future programs.

Regarding the need for PMs to invest in M&S, the current Under Secretary of Defense (Acquisition & Technology), Dr. Jacques S. Gansler has made clear that he "expects programs to make the up-front investment in modeling and simulation application technology, and will be looking for evidence of that investment in program planning and execution."[3]

REALISTIC M&S IS NOT NECESSARILY VIEWED AS A BENEFIT BY THE PM.
This point is perhaps non-intuitive, so allow me to explain. Most weapon systems have a number of what are often called "Measures of Effectiveness" or MOEs. These may take any number of forms, such as probability of kill (Pk) given an engagement or radar cross-section.

History has shown that, typically, the simpler the models characterizing weapon-system performance, the more optimistic their results since they often fail to take into account the realities of the "dirty battlefield." Such things as battlefield obscuration, weather effects, false targets, mobility, jamming, C3I, terrain features, and a host of other factors can all be pivotal factors in lowering estimates of actual system performance in a realistic hostile and stressful combat environment.

To bring this discussion into focus, let me take an example case of a hypothetical fire-and-forget weapon with an MOE calling for a 60-percent probability of kill given a shot (Pk/s). Let's assume that this weapon is intended to be dropped from an aircraft, descend on a parachute while scanning the target area, sense the armored vehicle it is to attack and detonate, send a slug down onto the vehicle, and (hopefully) destroy it.

"I am requiring that the simulation, test, and evaluation process — let's call it STEP — shall be an integral part of our test and evaluation master plans [TEMPs]. This means our underlying approach will be to model first, then test, and then iterate the test results back into the model."

— Dr. Paul G. Kaminski, Former USD(A&T)
ITEA Convention, October 1995

Early estimates performed in support of the PM might show that the estimated Pk/s is approximately .91 — well above the .60 required. Shortly after this, someone notices that the terrain was assumed to be flat and does not represent the terrain of its expected combat theater. Following the addition of hilly and vegetated terrain to the model, estimates of Pk/s drop slightly to .86 due to terrain masking and intervisibility.

Shortly afterward, another "enhancement" is added to the model to account for wind. This increases the delivery error and also causes some sensor scanning gaps on the ground due to the parachute motion caused by the gusting wind. This drops the estimates to around .78.

By this time, the PM may be feeling somewhat concerned but still not enough to panic. Well, no panic until another M&S realism factor is added: the fact that the targets must be moving and not simply stationary targets waiting to be hit. Adding moving targets further

complicates the aiming algorithm and delivery error, further dropping the Pk/s to .62. By this time the PM has begun to wonder how much of this "M&S realism" he or she can really tolerate, let alone actually pay for.

But it's not over. The data start to roll in regarding the reliability of the sensor and aiming algorithm, further dropping the performance estimate, this time pushing the Pk/s below the required .60. As time goes by, additional model realism sets in as fratricide, countermeasures, false targets, and a host of other realism enhancements are added to the models supporting the PM.

One can readily conclude that realistic models can actually serve as a *disincentive* to PMs who might want to use an M&S tool for public relations rather than for greater understanding of the system. Why invest significant funds to build a model or simulation more complex and representative of real-world conditions, only to have it yield more realistic, and probably lower, estimates of performance. In other words, why spend more money for bad news?

THE GOLDEN RULE: THEM THAT HAVE THE GOLD MAKE THE RULES.
In the United States, the PM system has been purposely designed to place both great autonomy and heavy responsibility on each PM to get the job done. There is nothing innately wrong with this either. Because of this, PMs are driven to invest their time and energies in those areas where the return will match the short term of their PM tenure, all the while hoping not to create more problems than they solve.

I'm not blaming the PMs for this thought process since there is little incentive structure to do otherwise. It's a tough business trying to manage these multibillion dollar programs, balancing the numerous requirements placed on them by the Pentagon, Congress, the private sector and their career demands.

Since no clear incentive structure currently exists within the PM system to invest in realistic modeling for the long

term, PMs have made investments that, for the most part, have been disorganized across the DoD, with funding being "shotgunned" out to any number of contractors and/or in-house labs to answer shorter-term questions.

So what is the current M&S situation?
Significant funds are being spent reinventing models and sub-models as successive PMs arrive in support of various programs. And in some cases, these same models may possibly be resold back to the government under a new name.

Another situation may be that a model might be written from scratch, without the knowledge that the model may already exist. Or, the government may have already paid for a model under one PM's program that could meet the needs of another PM with little or no modification.
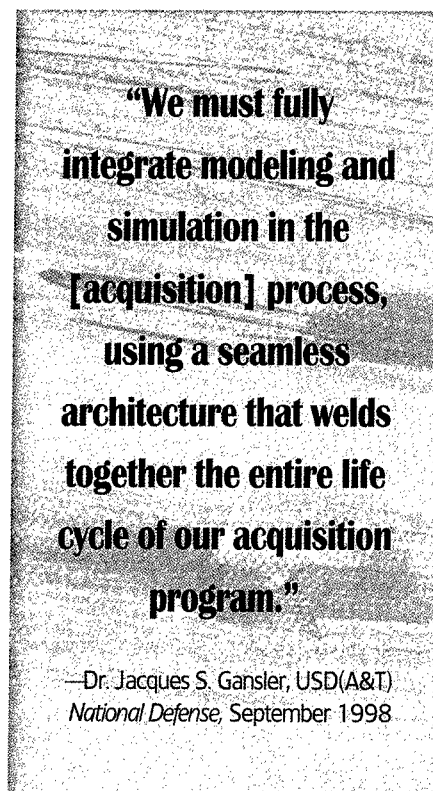
The proclamations of such policies as the STEP process and the Pentagon's Simulation Based Acquisition (SBA) Initiative, and other similar initiatives may well not rise to the levels of success originally intended and projected. As a result, *the people who are in the best position to fund and benefit from realistic M&S may not do so.*

Aim at nothing and you're sure to hit it. Is there a solution?
I believe that there is a solution to the current problem. But it will require some major shifts in the way DoD does business — shifts in the way we manage and fund M&S, test and evaluation — real reform. It will require change in the way we organize and oversee this process. Last, but certainly not least, it will also require a major shift in the way PMs think about funding M&S and how the defense infrastructure responds. The following concept recognizes and deals with all of these factors.

My Proposal — Meet "MASTER"
I call this change, "Modeling and Simulation Test and Evaluation Reform" or MASTER. This is not a small perturbation in the way M&S is managed. It in-

volves a significant shift in current procedures. It is not intended as a challenge to or substitute for SBA or STEP but rather as a means of helping to achieve the goals established by these two important initiatives.

The first action required would be to identify the characteristics of the M&S support historically needed to meet the needs of the acquisition community. I would call these "M&S Vectors," each vector being a specific category of technical modeling expertise. At this point, let me list a few possible M&S vectors. Such a list might include M&S expertise in:

- Terrain Modeling
- Weather Modeling
- Geometric Solid Modeling
- Aerodynamic Flow/Flight Modeling
- Target Signature Modeling
- Sensor/Fusing Modeling
- Smoke/Obscuration Modeling
- C3I Modeling
- Electronic Warfare Modeling
- Ballistic Modeling
- 1-1 Combat Modeling
- M on N Combat Modeling
- Vulnerability/Lethality Modeling

- Logistics Modeling
- Others

In-house government R&D centers would be identified (perhaps through the use of a Blue Ribbon Panel) to lead each M&S expertise vector. These centers would be responsible for assuring that the models in the technology vector for which they are responsible are verified and validated. This accountability would extend to those models and simulations within their own organizations as well as others outside their organizations that might possess other unique capabilities that the vector lead organization could also call upon. In each of these centers would reside state-of-the-art knowledge in each center's assigned technical vector, along with lead M&S responsibility for that same vector throughout DoD.

To provide needed M&S support to PMs in their respective vector disciplines, each center would also have the authority and responsibility to decide where model funding would best be allocated. In turn, these lead centers would be responsible for providing PMs timely support in the model vector for which they are responsible.

For example, when a PM is first assigned to a weapon system, the PM would approach the Consortium membership, explaining what the system is intended to do and what issues relate to its development and performance. The Consortium membership would then identify which M&S vectors are needed to support the PM, and assume responsibility for providing M&S support to the PM in those areas of responsibility, extending the edges of extant models and modifying others to meet the PM's needs. In some cases, Consortium members might even assign professionals to the PM's office to assist on an interim basis.

Why a Consortium?
The word "Consortium" is carefully selected since it carries with it the idea of an organism made up of a number of entities, bound together by a common purpose. It would not require the establishment of new entities, merely the

realignment of responsibilities of those entities that already exist. This "Consortium," an organization made up of personnel drawn primarily from the civilian sector of DoD, would have the following responsibilities:
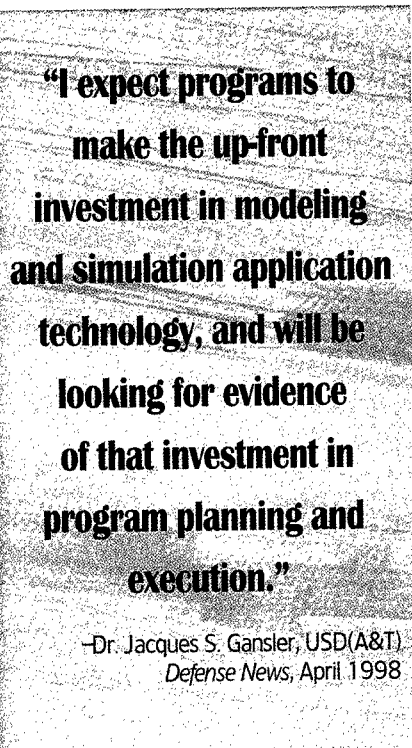
- Implement policy regarding established M&S architectures and codes.
- Assure that all codes under their oversight are verified and validated as well as accompanied by documentation explaining both the capabilities and limitations of each code to avoid misapplication.
- Maintain a repository of codes for access and application on behalf of other PMs, assuring that codes are not reinvented with each successive PM, but rather are upgrades, expansions, or modifications of those that already exist.

Does DMSO Have a Role to Play?

Absolutely! A very central, strategic, and critical role. The Defense Modeling and Simulation Office (DMSO) was created in 1992 "to both carry the mantle and promote the mantra of simulation's enormous potential for streamlining acquisition and development of new weapon systems, plus enhancing training effectiveness and readiness."[4] It was set up with the hope of bringing a certain degree of discipline and organization to DoD's M&S efforts.

In the early years, immediately after the creation of DMSO (1992-1994), the budget provided was executed through a mechanism called "focus call" — a broad range of, arguably, mostly disjointed M&S requests from a wide variety of sources. Since the development and publication of the DoD M&S Master Plan (1994-1995), the investments by DMSO were redirected toward establishment of the key enablers called for in the Master Plan.

The fruits of these investments are only beginning to be realized now with the establishment of the High Level Architecture (HLA) as the DoD M&S Technical Architecture standard in 1996, and its acceptance by the industrial Object

"I expect programs to make the up-front investment in modeling and simulation application technology, and will be looking for evidence of that investment in program planning and execution."

—Dr. Jacques S. Gansler, USD(A&T) *Defense News*, April 1998

Management Group (OMG) and the Institute of Electrical & Electronics Engineers (IEEE) as commercial standards.

The North Atlantic Council, in their approval of the first NATO M&S Master Plan, recently adopted the HLA in December 1998. Additionally, it is expected that 1999 will see the embracing of the Synthetic Environment Data Representation and Interchange Specification (SEDRIS) by key M&S development communities in the commercial and military markets.

While these steps show positive movement in development of key M&S infrastructure areas, there is much more Enterprise-level work that needs to be done.

To illustrate, let me use (for lack of a better analogy), the Professional Golf Association, the PGA or, perhaps, the United States Golfing Association (USGA).

If one views the M&S Consortium member organizations as "member golf courses," the PMs "as golfers," and the DMSO as the PGA, the PGA would set the rules, manage the "member golf

courses" and ensure fair play. Further, the PGA would adjudicate technical competencies (the "handicaps") and lead decisions on behalf of "member golf courses" on which tournaments would be scheduled, which "fairways" would need to be upgraded, where new "greens and sandtraps" would need to be built, and what the "purse" would be to meet needs of the "golfers."

In essence, DMSO would establish the set of rules within which the entire Consortium membership would be managed, and all play would be executed. They would serve as the DoD's "Windows" protocol establishers, architecture writers, and the qualifiers and disqualifiers when member organizations or individual members don't play by the rules.

Another key point is that DMSO would not write any code. DMSO would oversee development and provisioning of key infrastructure enabling software that is developed commercially or through other development members of the Consortium until such time as a viable commercial marketplace for the applications could be fostered and sustained.

The decisions on which M&S needed to be upgraded (and invented from scratch if needed) would be made by the technology vector members of the Consortium charged with the lead responsibilities for specific areas of M&S. Even then, the modeling would often not be done within that lead organization's facility, but would be funded at the facility that represented the state-of-the-art in that M&S technical area, even an organization outside of the DoD.

The recently strengthened Office of the Director, Defense Research and Engineering within the Office of the Secretary of Defense, would play a vital role in the success of this effort.

M&S — More Success on Training Side Versus Acquisition Side

Clearly, the Department has experienced more success in its M&S training activities than in support of its acquisition activities. In fact, Navy Capt. James Hol-

lenbach said recently that "Simulation has to prove its worth to protect its dollars. The consensus is [the M&S community] has had the most [M&S] success in the training realm, some in analysis, and the least penetration with acquisition-oriented M&S."[5]

Part of this success has been the close coupling that exists between the training community and those who build their trainers. The MASTER concept should help address this problem on the acquisition side by similarly bringing closer together the builders and users of these acquisition models and simulations.

"MASTER" and Its Benefits — A Brief Recap

MASTER is a management approach to M&S in support of DoD's policy of Simulation Based Acquisition and Acquisition Reform. It will ultimately provide critical mass funding to DoD's M&S efforts, add discipline to the development of M&S, ensure that the funds are expended to further the state-of-the-M&S-art, including its VV&A.

In addition, it would add consistency and efficient connectivity across various model vectors currently being developed, free up the PMs' time and concerns about realistic M&S support, and assure that realistic models and simulations are exercised in designing, testing, evaluating, training, fielding, and employing our defense systems in combat.

The benefits are many, but let me cite a few:

- MASTER would assure that PMs receive the best and most realistic model support for their programs.
- By establishing necessary Consortium protocols for model architecture, languages and other M&S characteristics, no funds would be invested in model development or upgrades unless such development or upgrades met established protocols, thereby facilitating interoperability. Rather than spending significant funds reinventing and re-buying codes that exist or exist in part, MASTER would direct
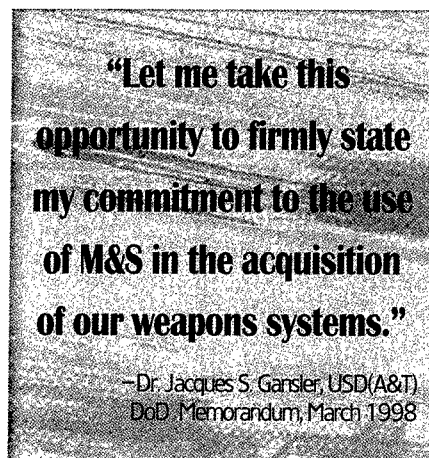
model investment funds toward extending the capability of extant models and simulations, in-house and out-of-house, where appropriate.
- The MASTER structure would provide an adequate source of funding to extend the state-of-the-art in the M&S base, versus a situation where the PM allocates M&S funds at his or her discretion in an attempt to maximize short-term return.
- MASTER would focus national expertise in each model discipline to assure that needed model investments are not only funded, but also directed at extending the edges of the best models currently available.
- MASTER would free up some of the PM's time and attention to other management responsibilities and let the Consortium provide the M&S support needed for their respective programs.
- MASTER would also help keep the government's in-house laboratories responsive to real-time needs and allow the government to retain its smart-buyer capability, which it has been losing over the past decade.

Strength in Numbers

The MASTER concept also benefits from the fact that, with so many acquisition programs ongoing, a small percentage of each of these many programs ends up being a large source of M&S funds. These funds constitute an investment critical mass sufficient to serve the DoD much better than the many disjointed investments now ongoing in a host of individual programs.

"Let me take this opportunity to firmly state my commitment to the use of M&S in the acquisition of our weapons systems."

—Dr. Jacques S. Gansler, USD(A&T)
DoD Memorandum, March 1998

Something to Think About, Something to Talk About

The thoughts I discuss in this article are presented to precipitate meaningful and open discussion. Clearly, they have some rough edges and need refining. For example, issues relating to the role of upgrades to private proprietary models, which are not owned or controlled by the DoD, need to eventually be addressed, but I don't think this is an insurmountable issue. Hopefully, these ideas will serve as food for thought and eventually, once sufficiently refined, provide a catalyst for action.

Dr. Gansler was recently quoted as saying, "The biggest hurdle in achieving Simulation Based Acquisition is getting people to pay for the modeling and simulation. No one program wants to pay for something that benefits many."[6]

The ideas set forth in this article might sound somewhat radical, but they do *incentivize* and *fund* the STEP and SBA concepts, which have become Pentagon policy in recent months and years.

We can't afford to continue to talk in hopes that new money appears or that the PM will do something significant in M&S. There must be an incentive and a plan. After all, *aim at nothing, and we're sure to hit it.*

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DoD Awards $19 Million For Science and Engineering Research

Deputy Under Secretary of Defense (Science and Technology), Delores Etter announced today Department of Defense (DoD) plans to award $19 million at 32 academic institutions in 18 states, including Puerto Rico, to perform research in science and engineering fields important to national defense. Sixty-seven projects were competitively selected under the fiscal year 1999 Defense Experimental Program to Stimulate Competitive Research (DEPSCoR). The DEPSCoR is to expand research opportunities in states that have traditionally received the least funding in federal support for university research. The average award will be approximately $284,000.

University professors in Alabama, Arkansas, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, North Dakota, Oklahoma, South Carolina, South Dakota, Vermont, West Virginia, Wyoming, and the Commonwealth of Puerto Rico were eligible to submit proposals under this competition.

The Air Force Office of Scientific Research, the Army Research Office, the Office of Naval Research, and the Ballistic Missile Defense Organization (Science and Technology Directorate) solicited proposals utilizing a defense-wide Broad Agency Announcement (BAA). The DEPSCoR BAA was published on the Internet and accessed by the Experimental Program to Stimulate Competitive Research State Committees, which solicited and selected projects for their states' proposals. In response, 19 proposals consisting of 244 projects were submitted requesting more than $77 million.

Editor's Note: This information is in the public domain. For a list of FY99 selected projects, see Jan. 21 OASD Public Affairs News Releases at **http://www.defenselink.mil/news** on the Internet.

CALL FOR AUTHORS

Advanced Concept Technology Demonstration Programs Announced

Under Secretary of Defense for Acquisition and Technology Dr. Jacques S. Gansler announced today 11 Fiscal Year 1999 Advanced Concept Technology Demonstration (ACTD) programs designed to mature technology to meet warfighter needs. The President's FY99 budget includes $89.83 million for ongoing and new FY99 ACTD programs. This amount leverages underlying Department of Defense, military services, and defense agency science and technology investments.

Numerous proposals were submitted by the military services, theater commanders, and joint staff. Review of the proposed ACTDs was conducted by the military services and unified commanders, with final reviews and recommendations from the Joint Requirements Oversight Council (JROC) and Office of the Secretary of Defense staff. The JROC also recommended prospective user sponsors and lead services/agencies for the programs. Eleven finalists were rank-ordered by the JROC, and have been approved for start in FY99.

Marrying new operational concepts with new technologies, ACTDs are aimed at fielding new systems within two to four years. The ACTD is DoD's approach to capturing and harnessing technology and innovation rapidly for military use at reduced costs. ACTDs are designed to directly foster alliance between the technologists and the warfighters, eliminating barriers and improving the management of these critical efforts.

Descriptions of the ACTDs selected for initiation in FY99 follow:

- Joint theater logistics visualizes the combat support system compared with executing operations plan and the common operations picture, to enhance the command and control of combat support at the Joint Task Force.
- Common spectral MASINT (Measurement and Signature Intelligence) exploitation applies emerging multi- and hyper-spectral imagery processing techniques to support targeting, sea-air rescue, counterdrug ops, etc.
- Theater Air and Missile Defense interoperability integrates the Patriot and Aegis theater air missile systems, resulting in an integrated air picture and extended engagement zones.
- Joint medical operations/telemedicine uses digital imaging devices and information technology to create "telemedicine teams" to enhance diagnosis and treatments, and reduce evacuations and size of medical teams.
- Human intelligence support tools use targeting, collection, and dissemination technologies to enhance human intelligence, force protection, and forensic intelligence missions.
- Battle damage assessment in joint targeting tools integrates automated combat assessment of fixed and mobile targets into the joint targeting tools system to produce physical, functional, and campaign-level assessments.
- Personnel recovery mission software integrates semi-automated image, intelligence, and passive detection tools to increase capabilities of joint search and rescue operations.
- Force medical protection/dosimeter uses personal sensors and field analyzers to detect chemical (and possibly biological) agents, resulting in casualty prevention and management through agent surveillance.
- Small unit logistics applies web-based, Internet, data-interface, and neural technologies to enable better command and control of tactical logistics forces.
- Compact environmental anomaly sensor uses advanced, miniaturized sensors integrated onto a defense-support-program satellite to provide warnings of dangerous space environment conditions.
- Coherent analytical computing environment provides decision management tools for aviation assets to support AV-8B and Joint Strike Fighter "autonomic logistics," thereby reducing total ownership costs.

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

Gore Pushing Privatization

"Transforming Governments in the 21st Century"

We are here at this extraordinary international gathering, the very first of its kind, to talk about a subject that lies at the very heart of economic growth and productivity – and even basic political legitimacy – for the 21st century: reforming and reinventing government so that it is smaller, smarter, and more responsive to change in this fast-changing Information Age.

first principle of 21st century government: economic prosperity demands political legitimacy.

I am exhilarated by the vision and passion for change in this room. I know the great sacrifices many of you have made to remake your governments. I want us to stand together, and forge a new global coalition for smaller, smarter governance. Over the next two days – and at a parallel conference I am convening in February, on ways to fight international corruption and cronyism – let us learn from one another, and make just, responsive, and responsible government a pillar of global strength and community.

Economic Prosperity Demands Political Legitimacy

Just a handful of years ago, it would have been impossible to hold this conference. Government reform was considered purely a domestic, internal topic – that is, when it happened at all. And back when our economies were defined by our political borders, it was far less of an economic imperative. After all, if our businesses had to battle a bloated bureaucracy, ever-rising taxes, and over-regulation, at least all of their competitors had the same disadvantage.

Today, so many forward-thinking nations have realized that they cannot make the most of the Information Age with the creaking governmental machinery of the Industrial Age. We cannot compete and thrive in the global marketplace if we are battling bureaucracy and apathy on our own shores. And we certainly cannot earn and sustain the faith of our people if we do not show them that self-government can work for them – that they can reap its benefits, and become full partners in its progress.

Reinvention and reform is not a way to scale back our ambitions, or tighten our belts for its own sake – as if sacrifice were a first principle.

It is, in fact, a recognition of this fundamental truth: that we cannot chase our highest ideals unless they are grounded in workable, practical, responsible self-governance.

We need governments that are as flexible, as dynamic, as focused on serving their customers as the best private companies around the world. We need to adopt the very best management techniques from the private sector to create governments that are fully prepared for the Information Age.

In this fast-moving, fast-changing global economy – when the free flow of dollars and data sustain economic and political strength, and whole new industries are born every day – governments must be lean, nimble, and creative, or they will surely be left behind.

Then there is the basic freedom that underlies free markets everywhere. When governments work for the people – when citizens receive good basic services, and have faith in the government that is providing them – when taxes are low, and government meets public needs without maddening bureaucracy – then a large measure of political and economic stability naturally follows. Let this be a

No Cookie-Cutter Model for Reinvention

We all know that there is no cookie-cutter model for reinvention. Nations have found different paths to reform – and for vastly different reasons. For many, the catalyst was economic crisis or calamity: crippling deficits, rising taxes, declining living standards, or international defaults.

That is why the first generation of reform in many nations focused on macroeconomic reforms and privatization of state-owned assets.

In the United States, we faced an economic crisis of a different sort – characterized by chronic large deficits. But we also faced a crisis of confidence from our citizens, and anger over government's rising cost and declining effectiveness.

In Europe, every government faced public-sector restrictions imposed by the

Maastricht Treaty, as well as the emerging demands of economic integration and the European Union.

In Eastern Europe and the former Soviet Union, the challenge was not to reinvent democratic self-government, but to invent it in the first place.

In South Africa, the historic challenge was to move beyond the evils and unfairness of the Apartheid era.

In Latin America, now that important progress has been made in economic reform and privatization, "la segunda generacion" of reform is underway —focused on building responsive, effective governments that earn people's trust and faith.

In all these regions of our world, we have seen some remarkably successful reforms: from New Zealand's performance-based management, to Australia's new focus on outcomes and results; from the greater transparency of nations like Hungary and Poland, to England's focus on what we call "customer service" — service to the citizen.

When President Clinton and I began what we call Reinventing Government, or REGO, we borrowed a great deal from other nations — such as the establishment of government-wide financial standards —personally recommended to me by New Zealand's Treasury Secretary, Graham Scott.

The question we should consider over the next two days is whether these different roads do indeed lead to the same destination: whether we can determine both the basic purposes of reinvention and reform around the world, and the basic tools and institutions we must strengthen to fulfill them.

Cultural Challenges

We know that many of us have faced, in varying stages, a singular cultural challenge: Industrial Age bureaucracies that have grown far beyond the professional classes they were envisioned to be, and at times seem to specialize in immobility and apathy, lacking the leadership
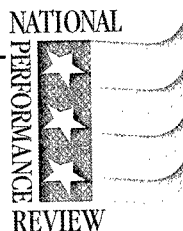
... Here in the United States, a common phrase used to be: "good enough for government work." We're working to change that.
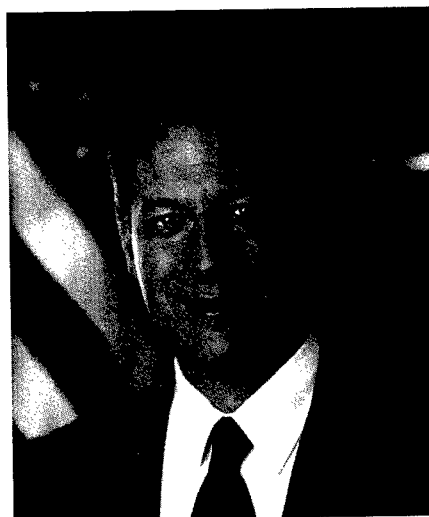
and also the freedom to change with the changing times.

This is not a new problem. Back in the days of Spanish rule in Latin America, when the viceroys were given commands by their King that they could not possibly fulfill, they answered with a phrase that still resonates through many bureaucracies today: "Obedezco pero no complo" —"I obey, but I do not comply."

In fact, we find that this sentiment is universal. In Turkey, there is a phrase that means: "I will obey the rules — regardless of what they cause."

In Germany, government workers used to use the phrase: "I will see what lets itself be done."

Of course, here in the United States, a common phrase used to be: "good enough for government work." We're working to change that. Clearly, all of us face the challenge of changing this culture, and leading and empowering employees to make the innovations we need. What, then, are the common imperatives as we seek to create that change? I believe there are four:

ECONOMIC COMPETITIVENESS
First, economic competitiveness. We all share a concern that government lay the foundation for economic prosperity, instead of being a drag on it — which means cutting deficits and wasteful spending. We all share an interest in the transparency of government operations —so that global investors have confidence in us, and are less prone to the rapid withdrawals of capital that we saw throughout Asia in the past year-and-a-half.

Some of you may be familiar with the term "red tape" — the ever-expanding rules and regulations that governments seem to love — and citizens hate. In a global economy where capital can be invested anywhere, red tape is like an economic noose that says: If you send your investments here, we're going to strangle them with bureaucracy, inefficiency, and forms, fees, and requirements you can barely even understand. That's why

so many of us are working on common-sense regulatory reform.

Korea is abolishing almost half its regulations. In the United States, we forced agencies to cut 16,000 pages of needless regulations, and 640,000 pages of internal rules. This is good for the people, too; those rules and regulations make government services slower and more expensive. In Costa Rica, decrees to eliminate barriers to entry in the pharmaceutical industry led to reductions in the price of life-saving drugs and medicine — 11 percent in only four months!

DOING MORE WITH LESS

Second, doing more with less. In the 70s and 80s, we saw a growing international frustration with rising tax rates — and the fact that they were paying not for better services, but for more bureaucracy and inefficiency. The "stagflation" of that time — with slower growth and high inflation eating away at family incomes — made rising tax rates even more of a burden. In America, we found that only through reinvention — which saved us $137 billion — could we cut taxes, balance the budget, and improve services all at the same time.

It's happening around the world: the *Canadian Programme Review* turned a budget deficit into a balanced budget, and cut the federal workforce by 25 percent. For 10 years now, Chile has run surpluses and reduced its government payroll.

BUILDING FAITH IN GOVERNMENT

Third, building people's faith in government. It wasn't only budget deficits that were trapping our governments in the past. Many of us faced performance deficits as well — a legitimate feeling that government wasn't doing what it said it was going to do. With so little faith in self-government at home, it is harder to build the faith of the world community that vibrant free markets and the free flow of capital and ideas will be sustained. That's why, in the United States, we started treating our citizens as "customers" — the way the best private businesses treat their customers. Great Britain pioneered this notion of service to the

citizen in the late 1980s. The Danish actually set maximum response times when citizens need help. The French define their goals as putting "the citizen in the core of public service" — for instance, they now can deliver passports in less than one hour!

Building faith also demands that we bring government closer to the people. Some countries refer to the principle of "subsidiarity"; other countries speak of decentralization or devolution. But the concept is the same: empower governments not in some distant national capital, but in the places where people live and work, so it can be more responsive to their needs. Countries as diverse as India, Mexico, Pakistan, Poland, and Thailand now talk about decentralization and the need to build local government as more power moves toward the people.

STRENGTHENING COMMUNITY AND CIVIL SOCIETY

Fourth and finally, strengthening community and civil society. In this way, reinvention and reform are about something far grander than the gears of government, or even the smooth workings of democracy. David Osborne, author of the landmark book "Reinventing Government," talked about the need to "steer, not row." A government that tries to fulfill every function itself — a government that tries to be an omnipresent welfare state — will only leave its people in a catatonic state. Smaller, more empowering government unleashes the energy of ordinary families and communities. That's what President Clinton and I tried to do with welfare reform — setting national standards for moving people from welfare to work, but then letting states and local communities shape the reforms that work best for them.

This kind of empowering government — government that sets goals, and provides the tools to reach them — leaves a vital role for communities, churches, civic institutions, families: the kind of vibrant civic life that is the very ideal of self-government. It's happening everywhere: the representative from Ghana wrote to us

about the importance of civil society to the reform process. Mongolia is shifting more governmental functions to its non-governmental organizations. This is far from an abdication of responsibility — it is really a call to responsibility, from all quarters.

If we accept that these are our common purposes — competitiveness, building faith, doing more with less, and strengthening civil society — and I hope this is a subject we can debate at this conference — then it is worth considering: does it take more than mere government reforms to achieve them? I believe it does.

More Than Mere Government Reforms

The fact that we can even gather here may be because we have come to a new point in history. No longer do nations divide themselves along the stark ideological divides of the old Cold War. Instead, more and more nations are committed to the common vision of democracy and free-market economies.

At the heart of these concepts one finds a set of institutions that allow people of different beliefs to peacefully resolve their differences. Democracy and market capitalism cannot thrive in societies that do not enjoy freedom of the press; an honest and impartial judiciary; an ability to check executive and legislative power; and a steadily expanding circle of dignity among different races and ethnic groups, women and men, different religious faiths.

These institutions are often frustrating and inefficient. But democracy and free markets work when we allow for the resolution of conflict. Too many nations are still lacking those basic institutions — and for them conflict is bloody and brutal. But for those of us engaged in administrative and institutional reform, these underpinnings of democratic society are cherished. I believe they are the basis of any serious reform effort.

I'll talk more about our experience with REGO in our first plenary session. But today, as we rededicate ourselves to reinvention and reform around the world, I

have the honor of making three important new announcements about our efforts to reinvent government here in the United States.

PAY FOR PERFORMANCE

If we want our government to be accountable for every taxpayer's dime, then we need a workforce that will be held accountable for real results. That is why we want to submit to Congress new civil service reform legislation, to significantly change the way many federal workers are hired, rewarded, and paid. Our civil service reform will be based on an insight that is common in private industry: you pay for performance. Instead of providing automatic pay increases based on seniority, managers in the federal government would have a significant portion of their pay determined by how well they do their jobs, and meet the people's needs. This won't cost taxpayers an extra penny, but it will ensure that today's tax dollars are far better spent. We plan to start working with our agencies and our employees' representatives to craft this proposal right away.

Of course, to truly change our culture, we must combine this legislation with the right kind of partnerships between labor and management. Partnerships which recognize the interests of both sides, but unite both front-line workers and managers in the common cause of improving government performance.

FOCUS ON RESULTS, NOT RED TAPE

Next, we must do even more to focus on results, not red tape and regulation. This year's budget will contain a major new initiative with a simple premise: the needs of our children first, the needs of bureaucracy last. Recently, through REGO, we began to collect statistics on children's health —immunization rates, the absence of teen pregnancy, child nutrition. Now we will start a pilot partnership with 10 cities or states that will commit to specific improvements in these areas. In return for their commitment to focus on results, we will give them unprecedented new flexibility in how they use federal funds to achieve the results they want. This new initiative, called Results For Our Children, will make a profound difference in hundreds of thousands of young lives.

LISTENING TO YOU, THE CUSTOMER

Finally, you cannot improve customer service unless you truly listen to the customer. This year, we will conduct the first-ever government-wide Customer Satisfaction Survey — to assess the progress we have made in the last five years. We have already established over 4,000 customer service standards, all published on our agencies' Web sites. Now we need to determine, from the people's perspective, how we are doing, and how we can do better.

My hope is that this conference will be the start of a new international coalition for competitiveness —one that seizes on our shared reforms to build governments that are as smart, as effective, and as dynamic as today's global economy and Information Age. That has been the heart of REGO in the United States — and I know we have a lot to learn from all of you.

As all of us know, this is hard, unglamorous work. But as much as REGO is about the nuts and bolts of government, it is also about the soul and spirit of self-government. By meeting this challenge together, we can create more than effective government agencies —we can create a global economic community that is strong and vibrant and equipped for the challenges of change. We can create a new trust and faith in our people, and in each other. That is the spirit in which I hope we will work these next two days, and in the years to come. Thank you.

DSMC Names Barnett
Enlisted Person of the Year

Navy Rear Adm. "Lenn" Vincent, DSMC Commandant, presented Navy Journalist 2nd Class Melanie Barnett the college's Enlisted Person of the Year Award for 1998 at a Jan. 28 ceremony at the college's Howell Auditorium.

In addition to the Joint Service Commendation Medal, Barnett received an engraved plaque, a $100 savings bond, a $100 gift certificate to the Post Exchange, a 96-hour pass, and a reserved parking space for one year. Assigned to the college in August 1997, she is a video services specialist in the Video Services Department, Division of College Administration and Services.

Photo by Army Sgt. Richard Vigue

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ACQ 201 Equivalency Examination
FY99 Schedule

Under the auspices of the Defense Acquisition Workforce Improvement Act (DAWIA), Defense Systems Management College (DSMC) course directors have administered over 20 Intermediate Systems Acquisition Course (ISAC) equivalency examinations since 1994 to DoD personnel seeking course validation. ISAC, or ACQ 201, is a certified Defense Acquisition University (DAU) Level II course offering, which meets mandatory or desired training requirements for DAWIA certification in six of 11 acquisition career fields. Over 300 members of the acquisition workforce have passed the exam.

In Fiscal Year 1999 (FY99) ACQ 201 will be offered at the main Fort Belvoir, Va., campus as well as our four DSMC Regional Centers. Equivalency examinations consist of two parts and are conducted over a two-day period.

Day 1

On the morning of Day 1, the on-site director fields questions from the examinees. In the afternoon, examinees complete Part I of the examination, consisting of 100 multiple-choice questions. At the end of Day 1, course directors post test scores; those examinees receiving a passing score of 70 percent or more may return on Day 2 for Part II.

Day 2

Beginning on the morning of Day 2, Part II consists of 10 essay questions from a choice of 12 possibilities. Part II will be collected on-site and mailed to the ACQ 201 course director, who will grade the essay portion and award diplomas to those who achieve a 70 percent or above passing score.

Success rates for the examinees are quite high. In FY 98 testing, 75 percent of all examinees achieved a passing score for Part I of the examination, and of those who went on to complete Part II, 80 percent attained a passing score.

Please note that a nominal number of textbooks are available at the DSMC Regional Centers for study and preparation prior to the examination. If you are interested in taking the ACQ 201 equivalency examination, please first contact your agency's on-site training and education coordinator, who will then facilitate your participation in the examination with the appropriate ACQ 201 course director/DSMC Regional Center director.

Should you have any further questions, please contact Air Force Maj. Art Greenlee, FD-AP:

Commercial: (703) 805-4987
DSN: 655-4987
E-mail: **greenlee_arthur@dsmc.dsm.mil**

ACQ 201 EQUIVALENCY EXAMINATION SCHEDULE FOR FY99

Date	Location	Organization/Region
April 13-14	Redstone Arsenal, Ala.	DSMC Southern Region Comm: (256) 842-9045 DSN: 788-9045
June 15-16	Los Angeles AFB, Calif.	DSMC Western Region Comm: (310) 363-8716 DSN: 833-8716

Operational Acquisition — An Oxymoron?

Combatant Commanders' Acquisition Requirements, Conceived on the Battlefield, *Can* Be Met

### LT. COL. JEFFREY E. SMITH, U.S. AIR FORCE

Many believe that our current acquisition system does not serve the needs of the operational commander, the rationale being that the extensive time typically required to produce and field new weapons systems precludes relying on acquisition to meet urgent wartime requirements. Our prior conflicts, however, have had several cases of new or modified weapon systems being introduced on the battlefield in an expedited manner.

The question then becomes, "What changes must be made to the present system to make it responsive to the operational commander?" Also, "What role should the operational commander play within the acquisition system in determining the requirements and deciding what programs are resourced?"

Historical Precedents — New Technology on the Battlefield

From World War II, Vietnam, and Desert Storm, you can find examples of acquisition efforts conceived on the battlefield whose delivery had a direct bearing upon the outcome of the conflict. The acquisition programs discussed in this article range in complexity from developmental to modification to Commercial Off the Shelf (COTS). What is noteworthy about these acquisitions is that none of them took more than four months to field.
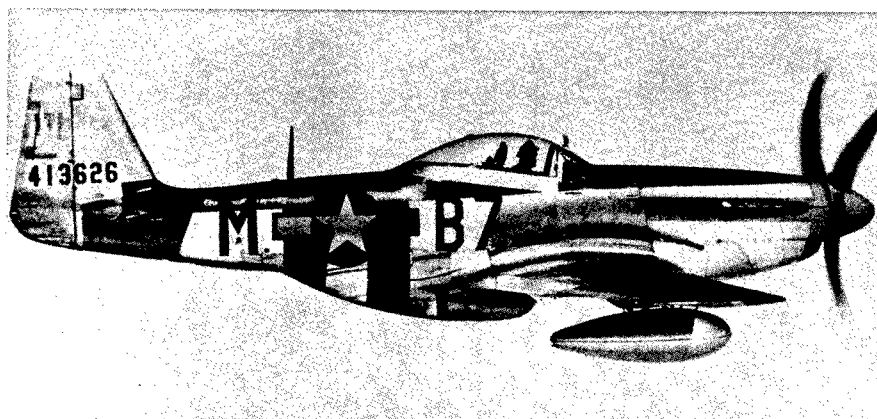
THE "CREEPING DEATH" — NORTH AMERICAN P-51D MUSTANG WORLD WAR II FIGHTER IN FLIGHT.

WORLD WAR II — THE P-51 MUSTANG

In 1939, the cornerstone of our Air Warfare Power Doctrine (AWPD), formulated at the U.S. Air Corps Tactical School, was the theory of strategic bombardment, which held that a well-planned and well-conducted bombardment attack, once launched, could not be stopped. So, when the United States entered the war against Germany, the AWPD-1 held that escort fighters were not necessary in conducting strategic bombardment, and that U.S. Army Air Force bombers, relying on speed, high altitude, rigid formations and interlocking defensive fire, could penetrate German airspace.

The folly of this approach soon became apparent in 1943 when U.S. bombers attacking the Reich proper, sustained heavy losses between August and October. During what was termed "Black Week," the Eighth Air Force lost one of every four aircrewmen in England, which resulted in daylight raids being suspended until 1944.

The Mustang was originally conceived in April 1940 when the British placed an order for P-40s with North American Aviation. The company recommended a new design incorporating a revolutionary low-drag airframe and the P-40's Allison engine. North American was given the daunting task of providing a prototype aircraft in 120 days, which it met with three days to spare.

The original P-51A Mustang, although it had twice the legs of a Hurricane or Spitfire, was limited to an operating radius of 300 miles. Further, the poor high-altitude performance of its Allison engine limited the Mustang to close air support, reconnaissance and dive-bombing missions. The aircraft was subsequently redesigned based on suggestions from the field to overcome these limitations.

In June 1942, an English test pilot suggested that a more powerful engine would improve the Mustang's high-altitude performance (that is, above 25,000 feet). The operational commander re-

Smith is the Commander, Detachment 1, Joint Task Force-Full Accounting, located at the United States Embassy in Bangkok, Thailand.
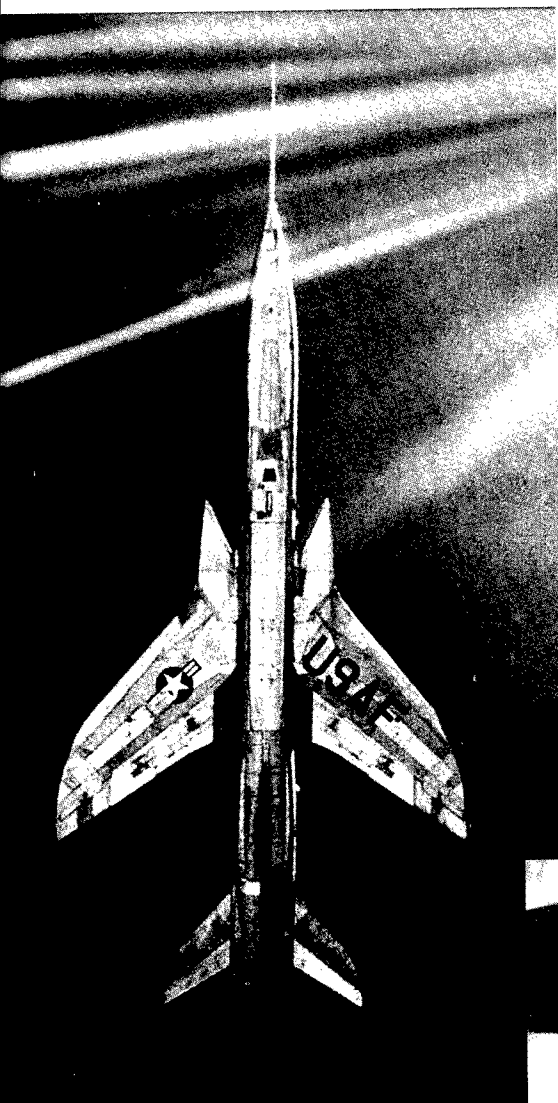
that the Communists would use the missiles only in the case of extreme provocation, such as an invasion of the North.

The belief that the missiles would not be used under the existing rules of engagement was shattered with the July 24, 1964, attack upon Leopard and Panther flight crews in which one F-4C was shot down and three were damaged by SA-2s.

In the following four months, eight more aircraft were lost and

THE F-105 WAS AMONG THE FIRST SUPERSONIC FIGHTER-BOMBERS AND WAS THE LARGEST SINGLE-SEAT COMBAT AIRCRAFT IN HISTORY. USED EXTENSIVELY DURING THE VIETNAM CONFLICT, THE F-105 FLEW DEEP PENETRATIONS INTO NORTH VIETNAM.

many others were damaged while attacking eight SAM sites. Even if the fighters were not directly damaged or destroyed by the SAMs, they were forced to fly lower, which brought them into range of antiaircraft artillery fire.

Clearly, the Air Force could not continue to trade an aircraft for a SAM site. The program developed to negate the SAM threat, dubbed the Wild Weasel, covered two types of acquisition: COTS and modification. Initially a team headed by Air Force Brig. Gen. Dempster recommended installing F-100Fs with COTS equipment that enabled the crew to identify the threat, determine the direction of the threat, and receive warning of a missile launch.

In December 1965, only four months after the mission need had been identified, the Wild Weasel I system was operational. In its initial test period, the system proved to be very successful, destroying nine SAM sites and freeing strike packages from the SAM threat by forcing the SA-2s off the air.

Despite the program success, areas for improvement were identified. While it was expedient to install the equipment into an F-100F, this airframe did not have the speed of other aircraft in the strike package. To fly as a group, the strike aircraft had to slow down to the F-100F Wild Weasel's maximum speed, which put them at greater risk. Decreased speed means that you are a target longer, you cannot evade as easily and you take longer to "get out of Dodge." In air combat, speed is life.

The program was then modified to specifically meet the SA-2 threat.

quested that external tanks be added to improve its flight range. By June 1943 production had begun on the P-51B, adding external tanks and replacing the Allison engine with a Rolls-Royce Merlin 61, which had a two-speed, two-stage supercharger. The Eighth Air Force now had a fighter that was capable of escorting the bomber raids. Thereafter, strategic bombing, enabled and protected by escort fighters, led to the collapse of the German economy.

VIETNAM — THE WILD WEASEL
In the mid-1960s, U.S. intelligence officials were aware that Soviet SA-2 surface-to-air missile (SAM) systems had been deployed to Vietnam. However, crews were not allowed to attack the sites because of the fear that the Soviet Union would be provoked if Soviet technicians were killed, and because it was believed
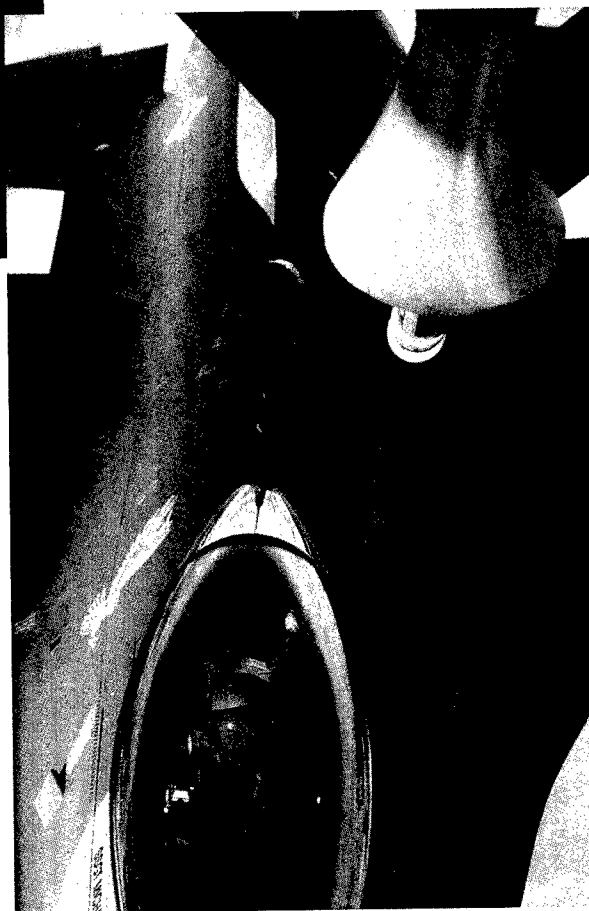
FUEL PROBE FROM A KC-135 STRATOTANKER APPROACHES AN F-16CJ WILD WEASEL FIGHTER 35,000 FEET OVER THE PACIFIC OCEAN.

The result was the Wild Weasel III, an F-105 with updated original equipment and an AZ-EL system to provide both bearing and elevation information on the target. These changes resulted in an improved Weasel. The greater speed provided by the F-105 airframe enabled the Wild Weasel to keep up with the other aircraft in the strike package. The Weasel also now had the avionics to more precisely locate the SAM site. The Wild Weasel's effectiveness is attested to by its destruction of 89 SAM sites and its suppression of hundreds of sites, which allowed U.S. strike forces to proceed to the targets.

GBU-28 PAVEWAY III, AIR LAUNCHED CRUCIFORM-WING GLIDE BOMB WITH LASER GUIDANCE, MOUNTED ON F15E#188, ASSIGNED TO THE 46TH TEST WING, EGLIN AFB, FLA.

DESERT STORM — THE GBU-28 BUNKER BUSTER

During Desert Shield, the premier hard-target munition in the Air Force inventory was the BLU-109, which carried a 2,000-lb. warhead. This weapon did not have the penetrating capability to destroy Iraqi command and control bunkers. Therefore, Central Command requested development of a weapon that could target these vital command and control facilities.

As a result, the Secretary of the Air Force initiated work on a new munition in January 1991. The resulting 4,700-lb. munition, dubbed the GBU-28, was capable of penetrating 100 feet or more of earth or 20 feet of concrete.

The GBU-28 development program is an excellent example of how the program manager can contribute to the combatant commander's efforts. These laser-guided bombs were built and fielded in 17 days. More importantly to the operational commander, the time from his initial request until the delivery of the munitions to his storage facility took only six weeks. Nor did this expedited effort incur exorbitant costs. The program office was able to procure 30 weapons for less than $10 million. This cost compares very favorably with the standard cost of $1 million for a precision-guided munition. Most significantly, these weapons gave the operational commander the capability that he previously did not have to destroy Iraqi hardened leadership bunkers.

Streamlining the Process — The Rapid Response Process

Prior to the onset of the Persian Gulf conflict, senior-level officials recognized that the checks and balances necessary to the everyday acquisition process did not allow the process to respond with alacrity to the time-critical needs of the battlefield. Navy Adm. David Jeremiah, [then] Vice Chairman, Joint Chiefs of Staff, described the acquisition system as a "product of the Cold War ... designed to give us large numbers of advanced systems." He observed that the system had become "risk averse" over time and "loaded down with checks and audits," resulting in the loss of "technological agility."

To give the operational commander a means to meet urgent wartime requirements, DoD implemented the Rapid Response Process (RRP), which was designed to streamline the acquisition process by reducing the layers of bureaucracy, thereby delivering a capability more rapidly. The RRP objective was to submit, assess, approve, and fund a validated Combat Mission Need Statement (C-MNS) within 24 days and implement procedures to field the desired capability in less than six months. Issuing the Program Management Directive (PMD) for the acquisition organization to meet the requirements of the C-MNS was to take one week or less. This response time was in dramatic contrast to the period that issuing a PMD took dur

ing peacetime, typically one year or more.

In a Sept. 29, 1990, message to all U.S. Air Force major commands, the Air Force vice commander stated that RRP would be used for Desert Shield requirements. His directive altered the phases of the acquisition process as follows:

- The operating command (Central Air Force) issues a Combat Mission Need Statement (C-MNS) describing the operational deficiency.
- An ad hoc Special Action Team (SAT) is formed and prepares a feasibility assessment within four days of receipt of the C-MNS.
- Within 5 days after completing the feasibility assessment, the SAT briefs the Desert Shield General Officer Steering Committee, which then recommends the program to the Air Force vice-commander for approval as an RRP program.
- If approved, a PMD is issued the next day (to the Air Force Materiel Command).

The RRP proved to be a resounding success during Desert Shield. RRP projects supported a wide variety of mission areas, including search and rescue, munitions, navigation, C3I, mission planning, NBC defense, electronic combat, explosive ordnance disposal, weather forecasting, aeromedical evaluation, and

improvements to night-fighting capabilities. Of 30 approved projects, 23 were fielded within five months, well within a time frame to support combat operations, at a dollar cost of just under $100 million.

Limits of the Rapid Response Process

The RRP was a good first step toward bringing the combatant commanders into the acquisition process. However, the RRP is based on the exigencies of conflict. Currently, equipping the forces is the mission of the Service chiefs. The role of the warfighting commanders-in-chief (CINC) in determining force ac-

LOCKHEED F-22 ADVANCED TACTICAL FIGHTER.

quisition needs is peripheral; they merely provide review and comment. The impact of this on acquisition can best be summed up by the aphorism, "Where you stand depends on where you sit."

For example, the Air Force has the lead for the C-17 that is critical to strategic lift capability, yet the Army is the Service that is most dependent on this lift. When it comes to a question of choosing between the F-22 and the C-17, the Air Force, without malice aforethought, most likely will favor the system geared to its primary mission — air superiority.

This is also true of the Navy, which has the acquisition responsibility for amphibious ships that are the lifeline of the Marines. In choosing between carriers and amphibious shipping, the Navy

likely will favor carriers because they are geared to power projection, which is central to the Navy's mission. The CINCs' positions on acquisition, however, differ according to their warfighting missions. Consequently, they are more focused on joint needs than the Service chiefs.

This discussion is not intended to malign the Service chiefs. Rather, it is intended to point out what should be readily apparent: Whenever individuals with different missions are tasked with identifying acquisition needs, they will likely view the same situation from differing perspectives and reach different conclusions.

Shifting Control to the Combatant Commanders

Every one of the United States military's conflicts, particularly those in recent years, has demonstrated the need to clarify the chain of command, to strengthen cohesion, and to put authority in the CINCs' hands. During Vietnam, the Services ran five autonomous air wars. The 1980 Desert One fiasco, in which the Army, Air Force, Navy, and Marines each insisted on a piece of the action, prompted Representative Bill Nichols to launch reform. Senator Barry Goldwater, a retired Air Force Reserve General, added his influence to support the bill.

While the Goldwater-Nichols legislation was being debated in Congress, Operation El Dorado Canyon once again highlighted the need for change. The unified commander, Army Gen. Bernard Rodgers, disgruntled with the concurrent and sometimes conflicting operations, snapped, "If you are going to make me responsible, you have got to give me the authority and you have got to let me run the show without other people short-circuiting me and telling my troops how to do it." His complaints were not

Photo courtesy Lockheed Martin

AIR FORCE C-17 GLOBEMASTER III FROM THE 17TH AIRLIFT SQUADRON, CHARLESTON AFB, S.C., TAXIS OUT TO THE RUNWAY AT POPE AFB, N.C.

enough to sway enough lawmakers to favor the Goldwater-Nichols reform.

Substantial opposition to extending control of military operations to a single combatant commander was not overcome until Grenada provided the proverbial straw that broke the camel's back. During this conflict, as a result of the coordinates on Marine Corps maps not matching those on Army maps, a Marine air strike hit a U.S. Army command post. This incident demonstrated that inter-Service chaos was so incontrovertible that even the most stalwart Service supporters could no longer delay a change in the process.

By fall 1986, about five years after the first congressional hearings on reform, control of military operations was shifted from the Services to a single, independent field commander. The aim of the Goldwater-Nichols Act was to ensure that the combatant commanders were free to build their forces however they thought best for any particular task requirement. The result of the legislation was that during the Gulf War, the Service chiefs essentially were banished from the prosecution of a major war for the first time.

Changes in the Acquisition Process

The Goldwater-Nichols legislation also recognized the need to give the warfighters more of a say in the acquisition of the weapon systems with which they would fight. The legislation provided for the Joint Chiefs of Staff (JCS), acting on behalf of the combatant commanders, to influence procurement through the Joint Requirements Oversight Council (JROC), the Chairman's Program Assessment (CPA), and the Integrated Program Priority List (IPPL).

JROC
The JROC assists the Chairman of the JCS (CJCS) in making decisions and recommendations about which weapon systems and other military equipment need to be developed, bought, modified, or canceled in order to meet the potential combat requirements of the CINCs.

C-5 STARLIFTER TAXIS OUT TO THE RUNWAY FOR TAKEOFF FROM ROBINS AFB, GA. ON BOARD THE C-5 ARE AIRMEN, SOLDIERS, AND CIVILIAN CONTRACTORS FROM NORTHROP GRUMMAN CO., ALL OF WHOM WORK FOR THE JOINT SURVEILLANCE TARGET ATTACK RADAR SYSTEM (JOINT STARS).

CPA
The CPA provides the CJCS with a vehicle to influence the Services' Program Objective Memoranda. Through the CPA, the CJCS communicates to the Secretary of Defense where the Services are not meeting the requirements of the CINCs.

IPPL
The IPPL provides a means by which the CINCs communicate their priorities related to acquisition programs currently in the Planning, Programming, and Budgeting System (PPBS). Each of these steps has paid dividends; however, experience has shown that the process needs to be further defined for the CINCs to be active participants in, rather than observers of, the process.

One example, the Joint Surveillance Target Attack Radar System (Joint STARS) program, highlights how the current process falls short. Joint STARS is credited with allowing the Army to target the Iraqi ground forces before their military might could be brought to bear during the Persian Gulf conflict. On one occasion, 80 percent of a unit forming to attack allied VII Corps troops was disabled before it could get into action.

The effect for Air Force units was just as telling. The Airborne Warning and Control System with an upside-down radar allowed close air support and airborne intelligence units to attack forces when

they could do the most damage. In another incident, two A-10s and an AC-130 directed by Joint STARS destroyed 58 of 61 vehicles in a single convoy.

At the time of its development, Joint STARS had a number of detractors who said that the capability it provided was not needed and that the program cost too much. In order to garner support, the program manager decided to market his weapon system directly to the operational community. When Army Gen. Norman Schwartzkopf became aware of the system's capabilities during a demonstration conducted in Europe, he personally requested that Joint STARS be deployed to the desert.

Had the program manager not promoted the system, the Joint STARS program may have been canceled. Thus, the trip was beneficial; however, program office personnel used up time and resources that could have been put to better use in developing and fielding the system.

How did the revised acquisition process fail in this case? The PMD for Joint STARS accurately identified the system capability: a long-range airborne sensor system for standoff wide-area surveillance that could locate moving and stationary ground targets, rotating antennas, helicopters, and slow-moving fixed wing aircraft in support of battle management. Joint STARS was to provide target up-

dates to aircraft and standoff missiles designated against these targets.

The next steps in the acquisition process — JROC, CPA, and IPPL, which, ironically, were additions to the acquisition process aimed at giving the CINCs a more integral role — did not address the CINCs' priority for the capability afforded by Joint STARs. The JROC merely validated that the system could be used jointly. The CPA did not address the issue of priority because CINCs were not clamoring for a system that had yet to demonstrate its potential on the battlefield. Likewise, the IPPL tended to focus on known shortfalls, such as airlift, logistics, and communications.

Special Operations Command

A good example of the logic of giving designated commanders the ability to influence the equipping of their forces is the Special Operations Command (SOCOM), which was established in November 1986 by Public law 99-661. SOCOM is a unified combatant command responsible for developing the strategies, doctrine, tactics, and equipment requirements related to special operations forces.

The need for the command was highlighted by several special operations missions in the 1980s that culminated with the failed rescue attempt of the Iranian hostages in April 1980. The Holloway Commission report on Desert One cited several inadequacies that all stemmed from the lack of an integrated perspective with respect to special operations.

When Public Law 99-661 was passed, it created a major force program category for special operations forces and required the command to budget for the development and acquisition of special operations-peculiar equipment. In September 1988, Public Law 100-456 was enacted to clarify that SOCOM was to have sole responsibility for preparing and submitting the Program Ojectives Memorandum for all special operations forces. Before the enactment of these laws, special operations forces had inherent problems: Each Service focused on its own forces and capabilities to support these forces, giving limited attention to the contribution of other Services or to interoperability requirements.

Giving SOCOM acquisition authority has worked! It now acquires systems tailored to its mission and its forces.

Proposed Process for Combatant Commanders

Five unified combatant theater commanders in the Atlantic, Pacific, Southern, Central, and European geographic areas are confronted with the same problems that used to face SOCOM. The solution is not to create a separate major force program for each unified command but to give the operational commanders, that is, the CINCs, a more direct influence on how their forces are equipped. The same logic and wartime tragedies that pointed to the need to give CINCs authority over their forces points to the need to make them direct actors in deciding upon the equipment to be used on the battlefield.

Combatant commanders must be intimately familiar with, and have an influence upon, those weapon systems being developed and those being considered for development. In this way, doctrine and strategy will not be a slave to the available technology. Rather, doctrine and strategy will be pushed forward by advancements in technology, while technology will be pulled to support new concepts in doctrine and strategy.

The proposed process for combatant commanders will require a number of recommended changes, including the following:

- *Place an acquisition professional on the combatant commander's staff.* This will provide the CINC with the expertise to perform a number of functions: develop an MNS for an operational deficiency, scrutinize applicable programs to ensure they will meet the particular requirements of the area of operations, and act as the action officer for identifying future technologies needed on the battlefield.
- *Give the CINC authority to input an MNS directly.* The RRP recognized the need to do this during a conflict. Making this a peacetime practice would remove the major command filter in communications between the warfighter and the acquisition community.
- *Mandate that after-action reports for exercises and conflicts include appropriate mission area analyses.* The need for updates, modification, and new systems is most evident to the warfighters when they reflect on what could have been better, what they needed, and what they wished they had had during battle.
- *Allow the combatant commands to advise on the Critical Technologies Plan,* which sets the battlefield of tomorrow vision.
- *Allow the CINC's staff to prepare or to coordinate on the Cost and Operational Effectiveness Analysis, Operational Requirements Document, and Requirements Correlation Matrix.* Such a change would brings those who are currently "in the arena" to the table.
- *Time test schedules to coincide with exercises.* The Joint STARS development schedule was advanced by years based on operational experience. Exercises would approximate this effect.
- *Use JWCA as the foundation for MNSs.* This is the JROC process to identify shortfalls in capabilities. The JCS would then identify requirements that the Services would act upon.

History is replete with examples where technology has changed the face of war. Indeed, the United States has long been reliant on the use of technology as a force multiplier. When it comes to fighting, the unified commanders run the show. We must ensure that they are not denied the ability to employ superior weaponry. These recommendations would make the unified combatant commanders an integral part of the acquisition process, giving them a direct role in deciding what weapon systems they will have available on the battlefield.

Editor's Note: The author has prepared a 25-item bibliography to accompany this article. Contact him at **ltcolje-smith@hotmail.com** to obtain a copy.
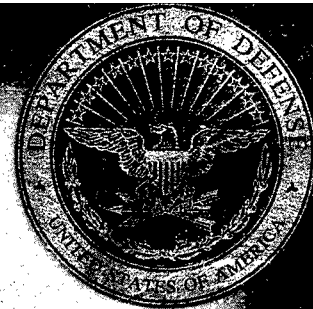
MURI AWARDS ANNOUNCED

Deputy Under Secretary of Defense for Science and Technology, Delores Etter announced today plans for the Department of Defense (DoD) to award $7.9 million in FY99, and up to $13.5 million per year starting in FY00 over three years to 17 academic institutions to conduct multidisciplinary research in 13 topic areas of basic science and engineering. These grants will be made under the FY99 DoD Multidisciplinary University Research Initiative program (MURI), a program designed to address large multidisciplinary topic areas representing exceptional opportunities for future DoD applications and technology options.

Subject to the successful completion of negotiation between DoD and the academic institutions, the 19 awards will provide long-term support for research, graduate students, and the purchase of equipment supporting specific science and engineering research themes vital to national defense.

The average award will be $3 million over a three-year period. Two additional years of funding will be possible as options to bring the total award to five years. This option would be subject to the availability of appropriations.

Today's announcement is the result of a seven-month competition under the DoD MURI program. The competition for the awards drew 176 white papers, from which 58 full proposals were encouraged. Sixty-five full proposals were submitted for the final competition phase, and 19 of those were found to be suitable for funding.

Editor's Note: This information is in the public domain. A complete copy of the awards list is at **www.defenselink.mil/news/Feb1999/muri-awards.html** on the World Wide Web.

36TH GOVERNMENT-INDUSTRY DATA EXCHANGE PROGRAM (GIDEP)

Workshop and Information Sharing Conference

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May 3 - 6, 1999 • Toronto Hilton • Toronto, Canada

The 36th Government-Industry Data Exchange Program (GIDEP) Workshop and Information Sharing Conference is scheduled for May 3-6 in Toronto, Canada, at the Toronto Hilton. This years's keynote speaker will be Navy Rear Adm. Gwilym H. Jenkins Jr., Deputy for Acquisition and Business Management, Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition.

Room rates for the period May 1-8 will be $140.00 (priced in Canadian dollars). Please call 1-800-267-2281 to make hotel reservations. Registration fees for the workshop are based on the following rates (U.S. dollars), and include all workshop proceedings, workshop meals (two lunches, one awards banquet), "get acquainted" reception, and breaks/refreshments.

Payment will be accepted at the door. Please make check payable to **GIDEP/IAG**. Participants may pay by cash, personal check (U.S. funds drawn from a U.S.-affiliated bank), or travelers checks. All fees must be paid before attending the Workshop Sessions. *Please note that credit cards, purchase orders, vouchers, or requisitions will not be accepted.*

For more information, we invite you to visit the GIDEP Web site at **http://www.gidep.org**.

This workshop is sponsored by the GIDEP Industry Advisory Group. GIDEP/IAG is a non-profit corporation – Federal Tax #953403656. Attendance by foreign nationals must be cleared by the GIDEP Program Manager. Use of audio/visual equipment requires Program Manager approval prior to conference.

Register and pay by April 8	**$425.00**
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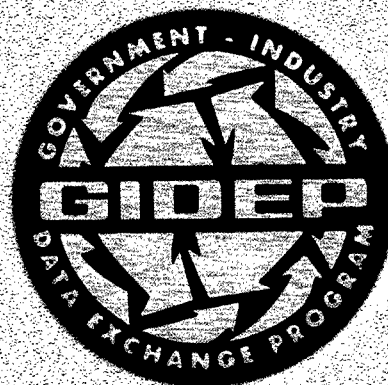
"FASST" Folks Deliver Results

Defense Contract Management District East's Primary Mission is Helping People

DANIEL HOOD
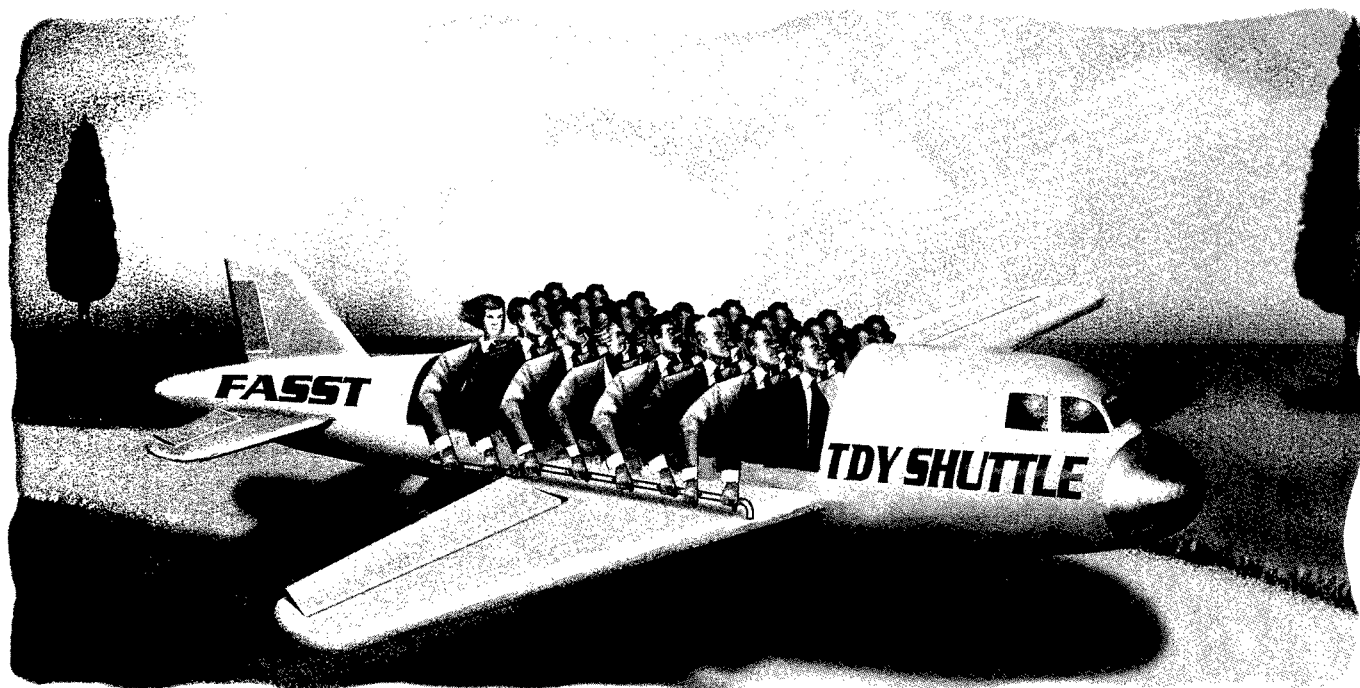
When asked what best describes a member of the Defense Contract Management District East (DCMDE) Functional and Systems Support Team (FASST), Bart Hogan, a Boston FASST member, responded with a riddle. "What has 62 legs and travels in the air at 600 miles per hour? The FASST on TDY."

FASST folks lead the district in miles traveled. Position descriptions require 60 percent travel, but it's not uncommon for travel to significantly exceed that percentage. Being away from home is a way of life for many members, who participate in a wide variety of meetings, Information Resource Management (IRM)

application testing, and subsequent deployment and training efforts.

As DCMC progressed through early stages of development in the early '90s, an overwhelming need for functional specialists proficient in automated applications was identified. However, it proved challenging to divert enough personnel from the district and Contract Administration Offices (CAO) to support all the efforts under way, particularly since many assignments required extended travel.

The command decided to address this issue by establishing the FASST in July 1995. Danny Schuster, the district's FASST lead, said, "Our initial charter

leaned heavily on the concept of supporting our primary IRM system — Mechanization of Contract Administration Services (MOCAS) — but that quickly changed." Schuster explained that FASST members found themselves playing a key role in the migration from legacy mainframe applications such as MOCAS to client/server applications such as Alerts and the Shared Data Warehouse (SDW)."

Consisting of 36 members, the district's FASST is made up of four multi-functional teams located in Atlanta, led by Kathy Jenkins; Boston, led by Bart Hogan; Cleveland, led by Fred Sinur; and Philadelphia, led by Lillian Leone. Tom Endler, officially a member of the

Hood is an Air Force veteran currently working as a public affairs specialist for the Defense Contract Management District East. A highlight of his career was working for Channel five, the ABC news affiliate in Boston.

Boston team, is duty stationed, and supports the DCMC test lab, in Manassas, Va. From clerical or procurement-technician-support roles to specialists in contracts, production, property, quality assurance, and computers, the FASST is prepared to deal with any contingency. The West district has similar teams in Los Angeles and Chicago.

District employees have interacted with FASST personnel for one or more of DCMC's corporate IRM applications. Schuster said, "The FASST's primary mission, despite all the technospeak in our charter, boils down to one thing, helping people. We are responsible for representing and insuring proper coverage of all functional elements during development and deployment of IRM systems in DCMC."

Schuster said the extreme pressure to field these applications sometimes puts FAAST members between a rock and a hard place as they try to insure people's needs are met in the district, while still meeting budget, schedule, and technological constraints imposed by DCMC and other higher-level DoD offices.

"Our biggest customer is the person in the field trying to get his or her job done in the most efficient manner. To accomplish that we are continuously interacting with the Defense Finance Accounting Service, DCMC Headquarters, our central design activity, developers, and buying-command personnel. It isn't always easy, and we are not always as successful as we would like to be, but I believe people in the district know we are doing all we can to help."

Members frequently participate in policy-issue development on DoD or DCMC working integrated process teams, process action teams, and other groups. Demands on their time by so many diverse groups leave little time for anything else.

Typical FASST involvement in new applications includes participation in functional development requirements, application testing, and training during and after deployment.

> "EDW is a change that will assault the present paper-bound environment. However, successful EDW deployment and other applications like Alerts Phase II will only posture the command for the biggest change to come — deployment of the Standard Procurement System (SPS) — which will replace MOCAS and other legacy systems."

During post-deployment, the FASST supports functional users by serving as the focal point for questions, application problems, and training. Members often provide data required by DCMC Headquarters and the district for use in making command decisions on policy and personnel issues.

With the current emphasis on moving into a paperless environment, completion of development and deployment of Alerts Phase II and Electronic Document Workflow (EDW) are the FASST's current priorities.

Beginning in January, 11 FASST members, led by Bart Hogan, will devote most of their time to EDW deployment. These people will assist the contractor in all classroom-training phases and will become the first line of defense for the district. At the same time, six to 10 other FASST members will conduct final testing of Alerts Phase II for three to four weeks in Columbus, Ohio. These team members will support other applications when possible.

"EDW is a change that will assault the present paper-bound environment. However, successful EDW deployment and other applications like Alerts Phase II will only posture the command for the biggest change to come — deployment of the Standard Procurement System (SPS) — which will replace MOCAS and other legacy systems," Schuster said.

What does the future hold? Members will have their hands full supporting a variety of projects. Development and deployment of EDW and Alerts Phase II, each impacting thousands of people in the DCMDE/DCMC workforce, along with the migration to SPS, will consume most of the FASST's time during the next one to two years.

"There is a demand for support that exceeds our on-board strength, and we must continue to support legacy systems, such as MOCAS, until they are replaced," Schuster said. "We will, out of necessity continue to rely on support from the field in application testing and deployment. CAO assistance over the years is a major reason for the successes we have had. The 'real world' perspective these folks bring to application development can never be replaced and cannot be underestimated."

Schuster said no matter what we do, there are difficult and challenging times ahead. He's convinced that DCMC cannot continue to function effectively without increased performance from ever-more efficient IRM-corporate applications. "The very reason the FASST exists is to help make that happen and we will do everything in our power to make these efforts a success for everyone."

What's DoD Testing For Theater Missile Defense?

DOUGLAS J. GILLERT

WASHINGTON — With deployed U.S. forces increasingly threatened by medium-range missile attacks, Defense Secretary William S. Cohen announced Jan. 20 that DoD will step up development of an expanded theater missile defense capability.

While DoD will continue to fund the Army's Theater High Altitude Area Defense system, Cohen said, the Navy Theater Wide system could become the lead program. He said DoD will increase funding for the Navy system by more than a half-billion dollars through fiscal 2001. Meanwhile, the Pentagon will review both systems in 2000, with the goal of fielding one of them as early as 2007.

The Navy Theater Wide and Army THAAD systems are designed to counter threats above the atmosphere from the sea and ground, respectively. The Ballistic Missile Defense Organization, DoD's missile defense agency, also will continue developing lower-tier systems, including the Patriot Advanced Capability-3 missile and the Navy Area Ballistic Missile Defense System.

Each of these defensive systems is briefly described below. For more information about DoD missile defense programs, visit the BMDO Web site at www.acq.osd.mil/bmdo. More information on the Air Force's airborne laser program is available at the Air Force Research Laboratory Web site at www.de.afrl.af.mil/abl/index.html.

DoD Theater Missile Defense Systems

Navy Theater Wide

System: Upper-tier (above the atmosphere) ballistic missile defense capability from Aegis missile-equipped surface combatant ships.

Mission: Provide intercept capability against medium- and long-range theater ballistic missiles.

Advantages: Capitalizes on inherent mobility of Navy ships. By positioning a ship closer to the threat launch point, a significant increase in the defended area can be realized. Placement near enemy launch sites provides ability to intercept targets at various descent phases, and offers an additional layer of defense for lower-tier systems.

Theater High Altitude Area Defense

System: Land-based, upper-tier defensive missile system with long-range and high-altitude intercept capability. Consists of four principal elements: truck-mounted launchers; interceptors; radar system; and battle management command, control, communications and intelligence system.

Mission: Defeat tactical theater ballistic missiles; intercept missiles inside and outside the atmosphere; engage at long ranges and high altitudes; and give U.S. and allied forces multiple opportunities to intercept incoming missiles.

Advantages: Ability to intercept missiles at long range and high altitude would give U.S.

forces best chance to shoot down incoming missiles far enough out to avoid harm from post-intercept debris. Battle management command and control system would link with other missile and air defense systems. All components can be airlifted.

Patriot Advanced Capability

System: Designed to provide the lower tier of ballistic missile defense architecture. Consists of four basic components: radar set, engagement control station, launching station, and interceptors.

Mission: Defend troops and fixed assets against short- and medium-range ballistic missiles, cruise missiles and other air-breathing threats, such as fixed- and rotary-wing aircraft. Designed for hit-to-kill accuracy in the terminal phase of the threat missile's flight.

Advantages: High maneuverability and hit-to-kill accuracy; interoperable with other Army and joint systems; and air-transportable to support rapid deployments.

Airborne Laser

System: Modified Boeing 747-400F aircraft with multiple laser modules to create a megawatt-class chemical laser.

Mission: Shoot down theater ballistic missiles shortly after they're launched. Protect civilian and key military assets from attack

by missiles such as the Scuds used by Iraq during the Persian Gulf War.

Advantages: Provides means to destroy theater ballistic missiles when they are most vulnerable — in their boost phase; will become deterrent against weapons of mass destruction by confronting adversary with the prospect those weapons will fall back on its own territory. Will provide aerial dominance combined with other airborne weapon systems — specifically, the F-22 and Joint Strike Fighter.

Navy Area

System: Aegis cruisers and destroyers equipped with a modified Aegis combat system.

Mission: Defend U.S. and allied forces and areas of vital national interest against theater ballistic missiles. Detect and track short- to medium-range theater ballistic missiles and engage them with the SM-2 interceptor.

Advantages: Protect U.S. forces deployed to crisis areas; provide early engagement and defense in depth to reassure allies; enable reinforcements by protecting debarkation ports, airfields and staging areas; ease strain required for timely airlift and sealift; and deter conflict.

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

1998 MALCOLM BALDRIGE
NATIONAL QUALITY AWARDS PRESENTED

President Clinton once again participated in the Malcolm Baldrige National Quality Award ceremony, his fifth year of participating in what he called a chance to show "that there are American companies who are operating at world-class levels ..."

The 1998 ceremony was held Feb. 4 at the Grand Hyatt in Washington, D.C. Three companies — Boeing Airlift and Tanker Programs, Long Beach, Calif; Texas Nameplate Co. Inc., Dallas, Texas; and Solar Turbines Inc., San Diego, Calif., were honored for their achievements in performance excellence.

Congress established the Malcolm Baldrige National Quality Award in 1987 to enhance U.S. competitiveness by promoting quality awareness, recognizing quality and business achievements of U.S. companies, and publicizing the winners' successful performance. Starting in 1999, non-profit educational organizations and health care providers will be eligible to apply for the award. The program is managed by the Commerce Department's National Institute of Standards and Technology in conjunction with private industry. Screening of applications for the award is conducted by leading U.S. quality and business experts.

"Boeing Airlift and Tanker, Texas Nameplate, Solar Turbines," said Clinton, "You're showing the world that you can enhance competitiveness and make companies better places to work. You're showing the world that you can be good at what you do and happy while you do it. The employees are true stakeholders in the progress not only of their companies, but of our country, with new ideas and sharing in results."

Boeing Airlift and Tanker won in the Manufacturing Category; Texas Nameplate Co. Inc., won in the Small Business Category; and Solar Turbines Inc., also won in the Manufacturing Category.

Editor's Note: For further information on the Malcolm Baldrige National Quality Award, contact Jan Kosko (**janice.kosko@nist.gov**) at the National Institute of Standards and Technology, (301) 975-2762.
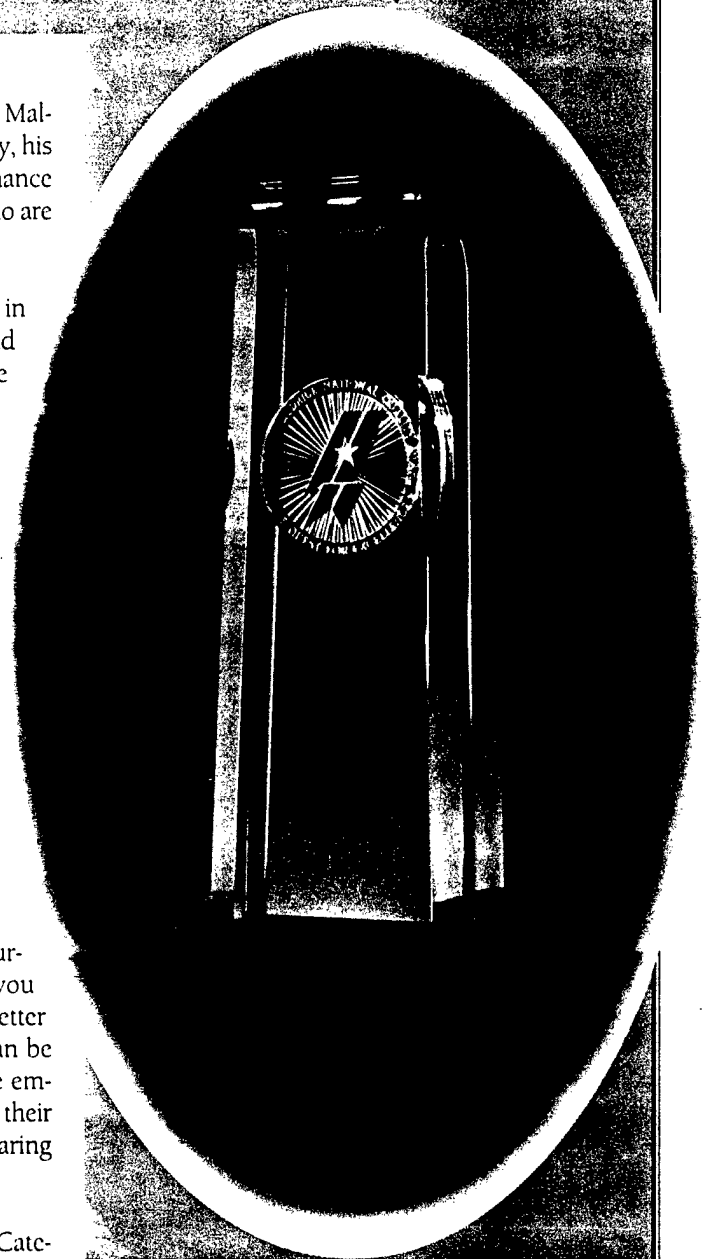
THE MALCOLM BALDRIGE NATIONAL QUALITY AWARD WAS ESTABLISHED BY CONGRESS IN 1987 TO PROMOTE QUALITY AWARENESS, TO RECOGNIZE QUALITY ACHIEVEMENTS OF U.S. COMPANIES, AND TO PUBLICIZE SUCCESSFUL QUALITY STRATEGIES. THE AWARD IS NOT GIVEN FOR SPECIFIC PRODUCTS OR SERVICES. IN COOPERATION WITH THE PRIVATE SECTOR, THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY DEVELOPED AND CONTINUES TO MANAGE THE AWARD PROGRAM.

DSMC ALUMNI ASSOCIATION INTERNET FORUM

NOW OPEN FOR BUSINESS!

The DSMC Alumni Association (DSMCAA) is pleased to announce its brand-new Internet bulletin board. Our bulletin board provides a forum for defense acquisition professionals and their industry counterparts to comment on and discuss topics relevant to acquiring, supporting, and managing DoD weapon systems, and other issues of professional interest. It also allows users to post questions and others to respond.

As it grows, it will provide you with a means of communicating across all the Services, while also including industry, to explore and define problems, discuss ideas, and research solutions relevant to today's acquisition professionals.

We're now beginning the build-up phase of our forum. Currently, we have several categories pertaining to Acquisition Reform, topics for each of the Services and industry, and one for suggestions. Our forum will change to meet your suggestions — just let us know what you need.

You can access our Internet bulletin board at the following Web site:

http://www.cais.com/dsmcaa/bb

Users may also access the site through a link on the DSMCAA Home Page:

http://www.dsmcaa.org/dsmcaa/

Although anyone can read bulletin board messages, posting is limited to DSMCAA members. To register, you will need your member number, which can be found in the latest edition of the DSMCAA Membership Directory. You can also send an E-mail to **dsmcaa@cais.com** requesting your member number.

See you online!

DSMC Alumni Assocition Internet Bulletin Board - Netscape

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DEFENSE SYSTEMS MANAGEMENT COLLEGE ALUMNI ASSOCIATION INTERNET BULLETIN BOARD

Welcome to the DSMC ALUMNI ASSOCIATION Bulletin Board

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Coaching in a Teaming Environment

A Big Challenge, A Bigger Reward

ROBERT F. HALLE

I n today's acquisition reform environment, more and more people are realizing the value of coaching in a team-oriented setting. This article is the story of how the U.S. Army Tank-automotive Research, Development, and Engineering Center (TARDEC), in Warren, Mich., underwent a significant reorganization in 1994, from a top-down management structure to an organization based on teaming. It describes several coaching theories that, in my opinion, are equally applicable to coaching the individual employee.

From Top-Down to Teaming

Since its creation in the 1950s, TARDEC's managerial chain was defined by a traditional top-down structure. This organizational structure worked well for many years. As new missions were built, TARDEC hired the technical, administrative, and managerial personnel required to "get the job done." This "mission-hiring" process continued through the 1980s to the point where TARDEC had grown to become one of the leading ground vehicle research and development facilities in the world.

The downside of this "mission-hiring" process was that TARDEC's formal organization had grown into a rather large and cumbersome structure that was very expensive to maintain.

In the 1990s, faced with shrinking technology-based funding, Army downsizing, and base closures, TARDEC recognized that it must radically change the way it conducted business or cease

to exist. Specifically, TARDEC needed to become a fast-moving, creative organization that could respond *quickly* to the evolving requirements of the user while simultaneously responding to their own downsizing problems.

TARDEC's solution was to abolish their top-down management structure and replace it with an organization based on teaming. TARDEC's managers believed that this new structure could employ the combined creative force of the entire organization to meet the emerging requirements of the Army of the 21st century.

Inevitably, a number of difficulties were associated with such a radical reorganization. For TARDEC this was a completely new way of doing business. Restructuring removed the many levels of supervision, eventually leaving only six directors to lead the straight-lined organization of over 1,000 people. Managers believed that empowering teams to conduct TARDEC's day-to-day business activities would leverage and maximize the creative influence of the entire organization. This change, however, made the lower levels of supervision redundant and obsolete.

Most of the non-supervisory employees in TARDEC embraced the reorganization because empowerment presented them with a greater challenge to broaden their opportunities for creative and professional fulfillment. Where reorganization hit the hardest was the supervisors who would not be supervisors anymore.

Many believed it would reduce, if not remove their authority, leaving them with little to do. They could not have been more wrong.

Change is Hard

The ex-supervisors at TARDEC underwent the greatest career change during the reorganization. They had to change from being supervisors of subordinates to coaches of empowered teams who were tasked to figure out how to produce TARDEC's products and services. It was this change that was the hardest for the ex-supervisors because they had to learn how to do a completely new job.

A direct relationship exists between change and learning. The proverbial wisdom of "You can't teach an old dog new tricks," really doesn't hold true, and a person *can* change by learning.

Generally speaking, if your situation changes, you have to change with it. Your first response is to apply what you have learned in past experiences to cope with the change. For example, if you are standing in a road in front of a speeding bus, you know you should get out of the way. This perfectly normal response is something you learned in the past. You've learned that if that bus hits you, it will hurt!

But what if you are faced with a completely new situation that you never experienced before? You have no choice but to learn new responses, skills, and capabilities to survive. People have certain personality traits that facilitate (or

preclude) their response to learning. The ability to respond to change with learning can be described in four Response Factors (R-Factors): The Overwhelmed, The Entrenched, The BSer, and The Learner.[1] The R-Factor will determine whether they will be able, or willing, to excel in the changing organization. It should be noted that no matter how firmly dug into a particular R-Factor people are, they can change. They just have to learn how to change.
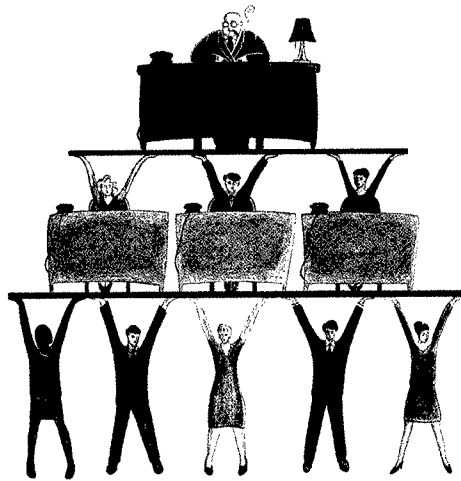
THE OVERWHELMED

Overwhelmed Employees withdraw from change although they often take potshots from the sidelines. They avoid the necessary learning and personal change, hoping — without a lot of faith — that somehow things will return to normal. In order to improve, people must learn to deal with their frustration, either personally or through counseling, and not let it overshadow the need to change. People must take control of their situation by taking small, success-oriented steps that will gradually build up the confidence that they can actually survive in this new environment.

THE ENTRENCHED

Unlike the Overwhelmed, those who cope with organizational change with R-Entrenched behavior patterns are often productive. However, they severely restrict their own personal potential. They can change but are uncomfortable with it. They will frequently perform work that is useful to the organization, though they usually do it in ways that are narrow and limiting. At the same time, they expend much more energy than is necessary.

When our environment changes and we need to do things differently, Entrenched people have a natural response to work harder at the way they did things before the change. Like the Overwhelmed, Entrenched people must understand it is natural to be frustrated with change. They must seek feedback, encouragement, and support during their difficult transition. They must be made aware of the necessity for the change so that they can more easily cope with the change. In executing their new duties, they must

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TARDEC's solution was to abolish this management structure and replace it with an organization based on teaming.

be able to leverage on the aspects of their old duties that they do perform well, while gently phasing in the new capabilities required to be effective in the new environment.

THE BSER

BSer's have a high comfort level with change, and this is what others see and at least initially admire. While the Entrenched know what to do (high capacity for change) but have an extremely difficult time making it happen, the BSer's have no problem making something happen — often anything — but have no idea how to learn or have any desire to change (low capacity for change). They have a need to press for action and activity without any grounding in theory or understanding of why they are doing it.

The BSer's are probably the most dangerous people in the organization. Because of their ability to persuasively sell an action, they can easily lead the Overwhelmed and the organization down a path of change, often the wrong path. The BSers should be carefully monitored until they finally "get it." Their transition will be slower than most since they have a deep difficulty with learning. They should be provided with long-term developmental assignments that gently push them into the learning program.

THE LEARNER

The Learners are the primary drivers of change. They respond actively to change, engaging the issues and challenges and growing as people. They are the champions that energize and drive the organization to change. They are in a sense the adhesive, or "glue" that holds the organization together. The Learners are the ones who mark the distinction between organizations that will grow and those that will die. Without a critical mass of people who have the ability to learn from experience, a changing organization will fall apart.

Back to the Ex-Supervisors

Which leads us back to the ex-supervisors [now referred to as "coaches"] and

their difficulty with the changing environment at TARDEC. They expected to lose responsibility and power — *they were wrong*. They had actually been promoted to levels of *greater responsibility* and, ultimately, were to become the glue that would hold the TARDEC organization together. In essence, they had to become the "learners" and lead the change.

Before the reorganization, they were responsible only for their individual branch, division, or directorate. Now they were responsible for the entire TARDEC organization and, most importantly, coaching the teams that made up TARDEC. If they didn't take the reorganization seriously, neither would the teams they coached. If they embraced the reorganization and approached it as a unique challenge and opportunity to improve TARDEC, so would the teams. In a sense, the coaches had become, perhaps the most important people at TARDEC.

Coaching

What is a coach?[2,3,4,5] The term "coach" can be, and usually is, defined in many different ways. Probably the most traditional definition of a coach in a business environment is: a person who is a counselor, a mentor, and a tutor. In my personal opinion, a coach is "a person who inspires another person to improve and remain challenged."

How can someone become a coach? Coaching can really be divided into three interrelated focuses: leading by example; supporting and mentoring; and driving organizational objectives that will focus the efforts of the team.

LEADING BY EXAMPLE
Coaches are role models whom others can respect. It is this respect that will open their team's minds to learning. If coaches are not respected, then teams and individuals will not learn from them. The old saying, "Do as I say, not as I do," does not hold true for coaches. They will be watched and emulated by those being coached. This is especially true when it comes to ethical conduct in and out of the office. If coaches leave work a few minutes early each day, so will others.

After all if the coaches are doing it, it must be all right.

Coaches must establish high standards of performance. Working hard is contagious, and others will learn from their coach's example: that to excel in an organization one must work very hard. Continuously seeking out new challenges and meeting those challenges is the only way to succeed in a changing environment [remember the traits of a "Learner"?]. Everyone in the organization must take on the challenges if that organization is to be a success. Only through their coaches' example will others increase their own, personal contributions.

Coaches must be accountable. Often through empowerment, coaches can play a detached role when it comes to their team's success or failure. After all, if teams are empowered to accomplish a task, then they should be responsible for any mistakes or failures. While this is certainly true, coaches, likewise, should also feel accountable for their team's mistakes or failures, and use failure as a learning experience from which to improve upon their own coaching methods. Once coaches learn from mistakes and failures and discern where their team

The Overwhelmed — "I don't know what it is, but I hate it!"

failed or erred, they can then use the information to develop improved coaching methods, further improving their team's performance.

Coaches must be the glue that holds the organization together. The optimism demonstrated by coaches will be reflected by most of the people they come in contact with. If coaches think the new organization will succeed, so will those around them.

SUPPORTING AND MENTORING
Coaches will find that supporting and mentoring their teams consumes the single greatest portion of their time. As a result, a critical goal for coaches is to increase the independence of their team. In effect, coaches have one clear-cut objective that stands out: *to put themselves out of a job.* While this is never possible due to the constantly changing environment and the turnover in personnel, the ability of coaches to minimize their mentoring frees them to focus on broader, organizational-level challenges.

The efforts of coaches to mentor/support their teams can be divided into eight areas:

- Inspire Continuous Growth
- Provide Focus
- Be Flexible When Working With Different Teams
- Realize and Minimize Mistakes
- Motivate
- Continually Reevaluate
- Identify Weak Performers
- Listen

Inspire Continuous Growth
A changing environment requires continuous learning. Coaches must stimulate the team to continuously seek new competencies and skills to deal with the changing environment. Coaches should work closely with the team and with individuals to identify strengths and areas that require improvement. Coaches should get heavily involved in preparing Individual Development Plans (IDP) with each employee and define a mechanism by which they can track the individual's progress
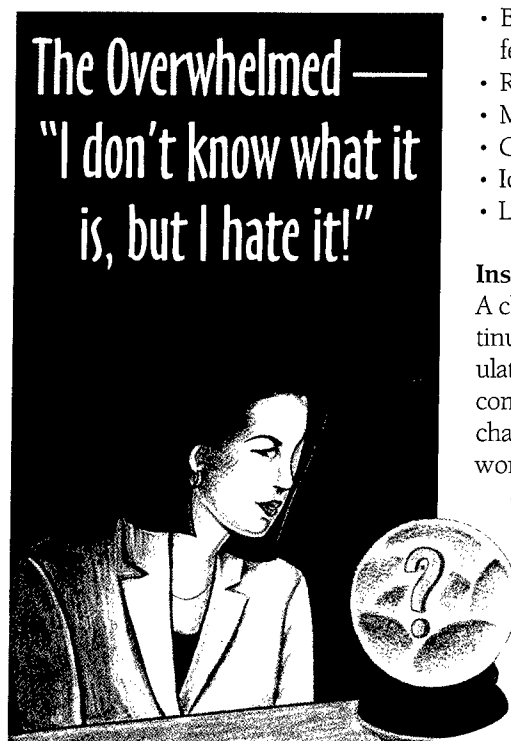
and failures. Coaches should help the team or individual overcome obstacles or failures. As improvements are demonstrated, have individuals update their IDPs to incorporate new challenges.

Provide Focus

Coaches should define the problems for the team and help them remain focused on those problems. Caution should be taken by coaches, in that they should not try to solve problems for the team while simultaneously describing them. Solutions to team problems are the responsibility of each team and one of the primary reasons for the transition to a teaming environment.

Often teams can get distracted when working on a problem, particularly large problems. Coaches should help teams define their priorities and stick with them.

Be Flexible When Working With Different Teams

Coaches should recognize that no two teams are the same. Different teams will be at different levels of maturity in their teaming development, each requiring a different level of mentoring. Firmly established teams require very little assistance, while newly formed teams might require almost constant support. In either case coaches should take care not to impede their team's progress by overcompensating in their coaching and support. Coaches should remember the critical coaching goal is to increase their team's independence This can be done only by providing teams the opportunity to solve their own problems — and yes, sometimes make mistakes.

Realize and Minimize Mistakes

Coaches must realize that mistakes will happen. In many cases mistakes can be our best teachers. Coaches must convey trust in their team's competence by allowing teams to do their jobs. When mistakes do occur, coaches must make sure not to place blame, but instead look for what caused the mistake and help their teams avoid the same mistake in the future. Coaches must realize that all tasks undertaken by their teams are re-

ally development tasks, which build team confidence and competence in the performance of their duties. Coaches must also realize that people master tasks in small steps. Coaches can help build their team's competencies by continuously challenging them with problems that increase in difficulty.

Motivate

One of the most critical duties of coaches is to motivate their teams. Often teams will become despondent when difficulties arise. Coaches must motivate their teams by reminding them of past accomplishments. They must also assure their teams that they, the coaches, have the utmost confidence in their team's ability to solve their present dilemmas. Coaches must stress the importance of their team's work and that no one else could do it any better.

The Entrenched —
"I'll just work harder and maybe it will go away."

In some cases, coaches may have to become more forceful in motivating teams. As for what is meant by being "forceful," to put it candidly, coaches might "have to kick a few posteriors" by stressing that it is their team's job to work the problem, and they have no choice but to do so. While doing this, coaches must stress that they are there to help solve the problem by removing whatever roadblocks (i.e., organizational, administrative) that may stand in their team's way.

Also, while coaches are providing this forceful motivation, they must also fight against what could be termed, providing "negative motivation." Criticism can be devastating to team confidence and erase months of progress. Coaches must ensure that teams know that this "forceful motivation" is for their own good. When criticism is necessary, it must be provided in the most constructive manner possible to avoid the possibility of losing their team's respect.

Continually Reevaluate

Coaches must continually reevaluate the strengths and weaknesses of their team to capitalize on strengths and minimize weaknesses. They must meet with individuals to discuss their specific career goals and help them meet those goals. Coaches must also define how individuals can get feedback on their performance. Individuals must be assured that coaches have an open door policy and are always available to talk.

Identify Weak Performers

One of the most difficult tasks will be to identify and help weak performers in an organization. Ideally, in a teaming organization individual team members will help motivate those who are contributing less than their fair share. When poor performers are unresponsive to this internal team motivation, coaches must step in and confront them. If this is not done, poor performers can jeopardize the progress being made by the entire team. After all, if the poor performers can gain the same benefits and rewards as the hard
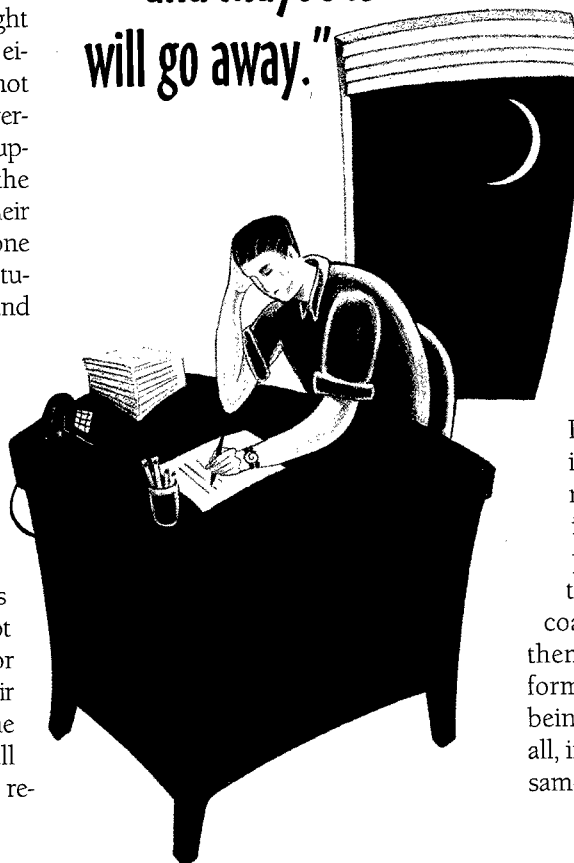
workers on the team, why should anyone on the team have to work hard?

These poor performers will require extensive mentoring to motivate them to do their fair share. If barriers surface (i.e., training or difficulties at home), coaches must do their best to work with poor performers to overcome any such barriers.

Listen

The most simple and probably most overlooked tool coaches can use to mentor teams is to "listen more and talk less." As with poor performers, it would be very easy to forcefully motivate them to work harder. This approach, however, would not reveal why they were poor performers and would probably alienate them for good.

Only through listening would coaches be able to identify the underlying barriers poor performers face. Also, teams are more likely to seek the opinions of their coaches if they are sure their coaches will actually listen to what they have to say before responding.

Driving Organizational Objectives That Will Focus Team Efforts

Efforts by coaches to drive organizational objectives serve two purposes. First, they provide focus for teams by ensuring they know why they are producing a particular product or service. Second, leaving organizational-level efforts for coaches to work frees teams to concentrate on producing their product or s forts by coaches to drive orga objectives can be divided into :

- Provide link/common fram ence between the leadership
- Discourage "We vs. They" th
- Build an environment condi to teamwork.
- Define user requirements.

Coaches must provide a linl between the leadership and th team. An organization's lead ers define the vision of the organization; they are the ones who must be made aware of

the accomplishments and progress of their teams toward that vision. Coaches, along with the leaders, must ensure their teams know and support the vision of their organizations. Why? It is the vision that defines the purpose and values of the organization. It fuels the passion of the teams and individuals to keep focused on what they are ultimately trying to achieve. Coaches must be able to communicate to teams the current and future organizational needs and how those needs relate to their team. As with the organizational vision, teams must know why and how their product or service contributes to the overall goals of the organization.

Coaches must also provide an additional link between all of the teams in the organization to ensure that everyone is aware of how all of the organization's team products or services are being brought together to support the goals of the organization. This communication between teams is also critical to avoid any duplication of effort between teams.
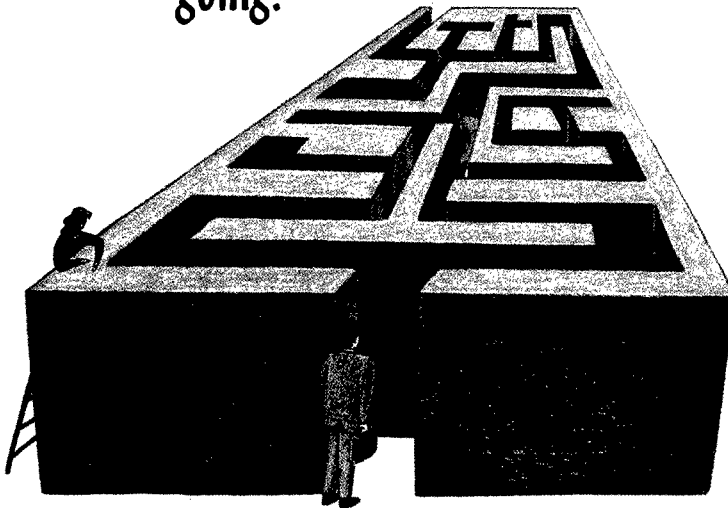
Discourage "We vs. They" thinking. Teaming organizations are based on

The BSer —
"Follow me, everyone! I know where I'm going."

teams working toward a common organization vision. Even with that vision, usually an underlying competitiveness exists between teams. In the world of constantly shrinking resources (i.e., funding, facilities, personnel), all teams realize that the success of their team weighs heavily on resources they receive in the future.

A certain amount of competitiveness between teams can be healthy and even improve the quality of the products produced. However, coaches must guard against this competitiveness becoming destructive. When this happens teams can actually start to work against each other, trying to gain more visibility and resources than the other teams. Competitiveness taken too far results in not only failure of the coaches, but also failure of the entire teaming organization concept. Coaches must constantly remind teams of the greater good — that the success of the individual team is a success for everyone.

Build an environment conducive to teamwork. As previously discussed, coaches must ensure that all teams are working toward a common vision. Coaches must try to create an enjoyable work environment for teams. This is necessary since people will be more productive in a comfortable versus uncomfortable work environment. This comfort level is not related to physical comfort per se; it relates to the comfort of the interrelationship between individuals and teams. This camaraderie is critical if teams are ⟨ closely together.

ɪis camaraderie can be ɪle or difficult, dependɪhe types of individuals ed. It could be as simas organizing social ɪctions (perhaps a community lunch held once a month) or by holding joint team meetings to allow the teams to interrelate. More difficult cases may require a greater focus or counɪeling of an individual ɔr team to ensure they

know they are part of the group and that the saying, "The more the merrier," in this respect, is true.

Define "user" requirements. One of the most critical responsibilities of coaches is to get "users" involved in the teaming process. If at all possible, users should become a part of the team delivering their product or service, or at least counselors to that team. This is important because each team has to know who the customers are and what is required from their team to support the customers. Often users are too busy to participate in the teaming process. When this happens, coaches, along with team leaders and selected representatives of the teams, must go to the users to provide periodic updates, get clarification of issues, and assure users that the team and organization continue to be focused on providing the best product or service possible.

The Most Important Component — Coaching

I stated at the beginning of this article that many of the ex-supervisors at
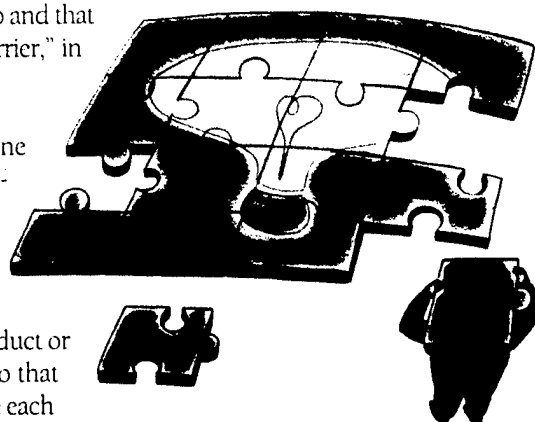
The Learner —
"We Can Do It!"

TARDEC felt that the transition of the organization into a teaming organization "... would reduce, if not remove their authority, leaving them with little to do." This article presents a sound argument that quite the opposite is true: Coaches are, in fact, one of the most critical components in the organization. Their work-

load has increased in quantity and in importance. Their focus has changed from the management of the production of a product or service to the coaching of the people, the most important component of the organization.

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ANNOUNCING

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DoD Speeds Navy Theater Missile-Defense Project

DOUGLAS J. GILLERT

WASHINGTON – To defend against the growing threat of missile attacks on foreign-based U.S. forces, DoD will accelerate development of a sea-based theater missile-defense system.

A perceived medium-range missile threat and past test failures of the Army ground-based Theater High Altitude Area Defense system provoked DoD into moving up the scheduled fielding of the Navy system from 2010 to 2007, according to Air Force Lt. Gen. Lester Lyles, Ballistic Missile Defense Organization director.

DoD will continue funding the Army's THAAD system despite its repeated flight test failures. However, the Pentagon will pit it against the Navy Theater Wide system to determine which of the upper-tier defenses can be deployed first.

"Tier" refers to a strategy of layered U.S. defenses. "Upper-tier" systems would intercept incoming long- and medium-range missiles during their flight in or above the outer atmosphere. "Lower-tier" systems defend at short to medium ranges against missiles in their late or final flight stages.

"Because of the urgency in fielding an upper-tier system, we are going to continue flight-testing the THAAD interceptor missile and other elements of the system such as the radar," Defense Secretary William S. Cohen said at a Pentagon press conference Jan. 20. "Continued flight tests are going to provide data important for the upper-tier systems beyond the THAAD program."

DoD will increase program funding of the Navy Theater Wide system by more than $500 million from fiscal 1999 to fiscal 2001, including funds added to the program by Congress last fall.

The Pentagon will review both systems in late 2000 to assess costs, schedule, technical performance, and risk, the secretary said. DoD then will determine the lead program.

"Our goal is to have the lead system postured to deploy in the year 2007. Depending upon the results of the review, the other system might continue to be developed but at a much slower pace," Cohen said.

RELEASED

Feb. 4, 1999

The BMDO also will continue developing lower-tier defenses, including the Patriot Advanced Capability 3 and Navy Area missile systems. PAC-3 and Navy Area should be fielded by early fiscal 2001 and 2003, respectively, Lyles said.

Both upper- and lower-tier systems work in conjunction with space-based sensors — the same sensors that will be used for surveillance and early warning against missiles targeted at the United States, Lyles said. An airborne laser program, funded by the Air Force, adds to the array of defenses DoD wants to field. Battle management command, control, and communications provide "the critical glue that holds all this together," Lyles said.

"These lower-tier systems will provide effective defense capabilities against the shorter-range missile threats," Cohen said. "The threat to our forces is already extensive and growing, making it imperative that we field these important upgrades as soon as possible."

The Pentagon also will reallocate $150 million originally slated for the Medium Extended Air Defense System, or MEADS.

"We needed to focus initially on technologies that are relevant to the maneuver force protection that MEADS would have provided," Lyles said. That could be the PAC 3 or some other system already in the defense inventory, he said.

The restructured MEADS money also could fund development of a mobile, 360-degree fire control radar and a mobile launcher, Lyles said. "We'll also make sure that we have the right kind of capability to address advanced threats like cruise missiles that the MEADS program was intended to address," Lyles said.

"We need to have lower-tier systems, we need to have upper-tier systems, and we need to have multi-platforms on the land, from the sea, and also from air," Lyles said. "We need to make sure that all of these systems work together and can be interoperable. That's formed the heart of our program for theater missile defense.

"What has changed over the last year, however, is the growing urgency of making sure that we have an upper-tier capability to counter the growing medium-range threat," he said. Lyles said this threat comes from offensive missiles like the North Korean No Dong, Iranian Shahab III, and Pakistani Ghari. "We need to make sure that we have the capability to negate those threats."

Editor's Note: This information is in the public domain at **http://defenselink.mil/news** on the U.S. Department of Defense Web site.

Acquisition Reform —
Accelerating the Journey

"The Pentagon Has Finally Learned How to Shop"

EVOLVED EXPENDABLE LAUNCH VEHICLE (EELV). THE INTENT OF THE EELV PROGRAM IS TO DEVELOP 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 THE U.S. AIR FORCE, IS DEVELOPING A COST-EFFECTIVE, HIGHLY RESPONSIVE FAMILY OF LAUNCH VEHICLES TO MEET ALL DoD OBJECTIVES.
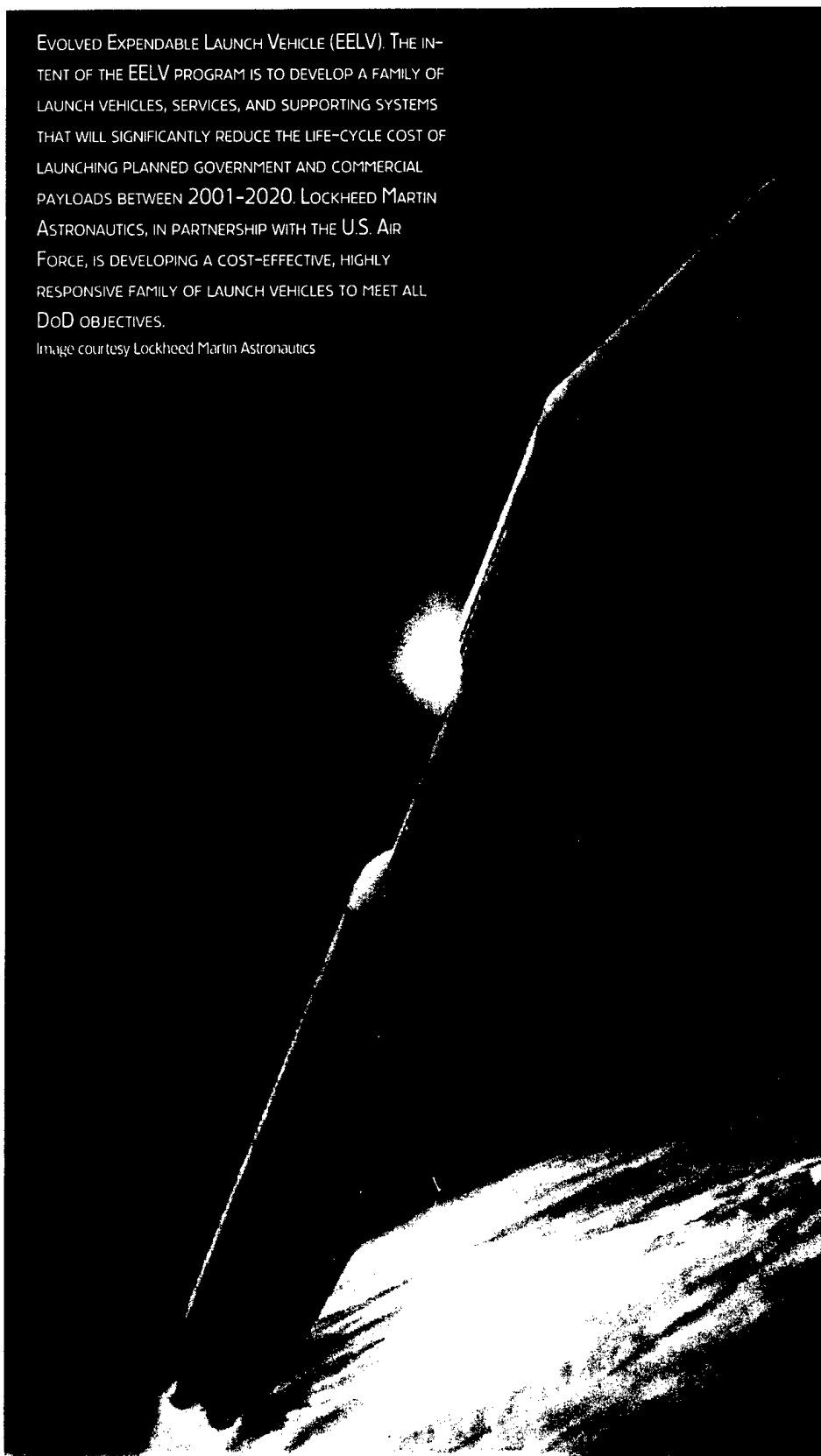Image courtesy Lockheed Martin Astronautics

A lot has changed since I spoke to you at my first AIAA forum last year. But one thing that has not changed is our continuing commitment to the Revolution in Military Affairs and the Revolution in Business Affairs. This morning, therefore, I would like to take a few minutes to bring you up to date on our progress in achieving these dual revolutions – both in what we buy and how we pay for it: our successes: our lack of success in some instances; some areas where we have special concerns; and our vision for the future. Overall, I am pleased that, while we have certainly not reached the full potential of these dual revolutions, we are making steady progress toward that goal. However, what I hope to impart to you this year is the **urgency** of accelerating that progress, due to the extremely dangerous international environment.

Time Is No Longer On Our Side

The organizers of this year's executive forum have chosen the theme "Accelerating the Journey" to capture the essence of our current acquisition philosophy, as well as our overall DoD strategy. The reason we must accelerate our efforts to accomplish the Revolution in Military Affairs and the Revolution in Business

Affairs is simple: time is no longer on our side. Not too long ago, we could refer to "future" or "predicted" threats emerging in the early years of the 21st century. Events of the past year — the North Korean missile launch, the attacks on our embassies, the nuclear explosions in India and Pakistan, the repeated cyber attacks on DoD information systems — all these have made us painfully aware that those threats are with us now. We are reminded daily that we are living in a very dangerous world — full of both unpredictable emerging events and an uncertain future.

Preparing for that uncertain future is certainly no easy task. Given the nature of the likely threat we face, our acquisition and technology goals focus on three vital priorities: first, to equip the **warfighter** to assure our security and withstand any potential threat; second, to **accelerate, broaden, and institutionalize acquisition reform** in order to improve our ability and resources to provide those weapons; and, third, to **modernize our logistics** to cut costs, infrastructure, and cycle time in support of our 21st century forces.

Each of these three objectives must, in turn, meet essential requirements of our national security: maintaining short-term readiness (we might be at war at any time); providing for long-term readiness by modernizing our warfighting capability for likely future conflicts; reducing the time it takes to accomplish both; and doing all this at significantly lower cost.

Facing Reality

As we address these challenges, we must, first of all, face the reality that, for the next decade, the vast majority of the systems we will use are those that are already deployed. At the end of the Cold War, we stopped modernizing — allowing our procurement account to plummet by around 70 percent (only recently allowing it to start creeping back up). Thus, today we are spending tens of billions annually to maintain our aging and overworked equipment. Some of our existing Chinook helicopters, for example, although upgraded, are more than 30

THE CURRENT AVERAGE AGE OF OUR AIR FORCE AIRCRAFT FLEET IS 20 YEARS — MANY OF THEM WERE DESIGNED FOR NO MORE THAN 15 YEARS OF SERVICE. NOW, EVEN IF WE INCLUDE OUR PLANNED PROCUREMENTS, BY 2015 THE AVERAGE AGE WILL GROW TO 30 YEARS.

years old — many of them saw service in Vietnam.

The current average age of our Air Force aircraft fleet is 20 years — many of them were designed for no more than 15 years of service. Now, **even if we include our planned procurements,** by 2015 the average age will grow to 30 years.

The most serious short-term readiness challenge, therefore, is to improve the reliability of the equipment in the field. It's relatively easy to obtain budget priority for performance improvements on current systems — extending the range of a radar, for example. Yet, it's very difficult to get priority treatment for reliability improvements. We need to give reliability enhancements to current systems a higher priority and begin to set aside

funds for such improvements. It's difficult, because it requires up-front money. But it will have a three-fold benefit. Increased reliability will have a direct effect on lowering our future maintenance costs while simultaneously increasing readiness. And it will create added dollars to shift into modernization.

The longer we delay reliability enhancements, the more it will cost to support our aging weapons and equipment. If we fail to act now, we will never be able to come out of what I have described as the "death spiral" of escalating support costs and deteriorating equipment. Failure to act now will not only mean delays in fielding new systems, but also cancellation of some programs, due to the requirement to allocate these scarce funds to existing weapons and equipment. Reliability enhancements of our current systems, therefore, are key to our long-term modernization efforts.

Some Relief in Sight

The president has announced that we will get some relief in our budgeting top line this year. He will propose a $12 billion increase in defense spending, most of which will go to finance our involvement in peacekeeping operations in Bosnia, near-term readiness, and pay adjustments. This will help us to solve some of our **near-term** problems, but not all. To ensure long-term readiness, we must cut costs and improve performance, **regardless** of any short-term increase in budget top lines. We have no choice. We cannot and should not assume that we can expect significant budgetary allocations to provide both the funds we need to maintain our current readiness **and** those required to modernize our aging equipment in order to sustain long-term readiness. There is no doubt that we must continue to embrace proven cost-reduction practices as we seek to generate additional funds for modernization and combat.

The need to cut costs makes it essential that we keep up the momentum to convince the Congress that we need two more rounds of BRAC [Base Realignment and Closure]. By doing so we can achieve savings of $20 billion by the year 2015.

I realize that our congressional oversight committees have warned us not to come up to the Hill pleading for additional BRAC authority — stating that "we are simply beating the proverbial dead horse." **But we must and we will.** We will request new BRAC authority from the Congress this year.

The savings from the initial four rounds of BRAC have already been spectacular and well documented. Through FY'01 (the last year of implementation for the fourth round of BRAC), we will have gained a net savings of $14 billion and can expect an additional $5.6 billion per year thereafter. In fact, independent studies have shown that the costs of these rounds of BRAC were overstated; the savings underestimated; and that, when the communities involved stepped up to the task, recovery was much greater and faster than had been expected. There is **no doubt** that we can generate additional, significant savings from two more rounds. There is **no question** that, by becoming more competitive and eliminating our excess capacity, the DoD can support our warfighters much more efficiently and yet much more effectively — providing optimum performance at much lower cost.

No. 1 Priority — Weapons and Equipment

All this talk of cutting infrastructure and reducing costs is not just another "budget drill." It is part of a blueprint designed to assure our present and future national security and absolutely essential to meet my **No. 1 Priority** — providing the weapons and equipment our combat forces and our allies will need to meet our strategic objectives in 2010 and beyond. One of the difficulties of my job is that I must always be looking with one eye to the day ahead and another eye to the distant future — 10 or 20 years down the line. What do we need to serve the warfighter now **and** ensure our national security well into the 21st century?

There are five weapons-oriented goals we are working to address:

First, in the information area, to achieve an interoperable, integrated, secure, and "smart" Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (**C4ISR**) **infrastructure** that encompasses both strategic and tactical needs.

Second, in the "strike" area, to develop and deploy — in sufficient quantities — long-range, all-weather, low-cost, precise, and **"brilliant" weapons** for both offensive and defensive use.

Third, to **achieve rapid force projection,** global reach, and greater mobility for our forces. With uncertainty over where they will be required, and the need for extremely **rapid response** to a crisis anywhere in the world, this capability — when combined with the first two elements — will provide us with overwhelming military superiority.

Fourth, to develop and deploy credible deterrents and, if necessary, military defense against projected, **less traditional early 21st century threats** — which include: biological, chemical, and nuclear weapons; urban combat; information warfare; and large numbers of low-cost ballistic and cruise missiles. These threats represent priority issues for our resources — even if it means impacting some of our more traditional areas.

Fifth and finally, to achieve not only **inter-Service jointness,** but also **interoperability with our allies.** This is essential for coalition warfare and even more important given the realization that coalition-driven operations will become the norm, rather than the exception, in the future. We must ensure that their technologies complement those of our forces. To accomplish our goal of information superiority, we are taking steps to make certain that the C4ISR systems and advanced weapons — such as theater missile defense systems — are fully interoperable.

These five working priorities form the backbone of the Revolution in Military Affairs. Our warfighters must have the weapons they need, when they need them. Our job is to provide those systems and to make sure they are "affordable." To pay for these new systems, as you know, we are engaged in an equally important Revolution in Business Affairs.

No. 2 Priority — Acquisition Reform

My second priority goal, as Under Secretary of Defense for Acquisition and Technology, is the vital challenge of acquisition reform — in its broadest context — for all the Services, and for the Department of Defense, as a whole.

There is no question that DoD is a much different place today than it was five years ago and even one year ago. As *Fortune Magazine* put it in a December issue: the Pentagon has finally learned how to shop. We still have a long way to go and, as I noted earlier, some serious concerns about our ability to sustain long-term readiness due to the demanding short-term maintenance and repair needs of our aging equipment. But, on most fronts, we can report progress and substantial successes in transforming the way the Department does its business: in areas such as use of commercial practices and distribution systems to satisfy materiel acquisition and support requirements; more competitive sourcing of current in-house work; and greatly expanded purchase of common-use, commercially available, goods and services.

In the cost area, two of our specific objectives are to achieve, or under run, the lower targets set (under "Cost As An Independent Variable") for at least half of the weapon systems programs undergoing acquisition by the Year 2000, and to reduce the annual support cost per fielded weapon system by 20 percent by the year 2005 (as compared to the 1997 baseline).

To achieve these targets, we are seeking increased competition in both development and support. Let me give you just two programmatic examples of how we are completely transforming the way we are doing business. I will start with an Air Force program: the EELV.

The Air Force has used creative-business approaches to ensure very impressive savings while modernizing the way we

launch vehicles into space using an Evolved Expendable Launch Vehicle, or "EELV." Instead of using traditional sole-source acquisition after a down selection of competitors, and subsequent procurement of separate production and launch operations, we have awarded Lockheed Martin and Boeing competing development contracts and subsequent "launch service" contracts. This continuous competition for the life of the program and the purchase of "launch services" will bring both lower costs and increased producer expertise. Significant cost efficiency will also come from interface standardization that will provide the EELV with the ability to carry both military and commercial payloads. Because of the commonality, with the commercial flights expected to be two-thirds of the total, the contractors will be investing two-thirds of the development costs. And, since the EELV will reduce the cost of launching by at least 25 percent over current Delta, Atlas, and Titan systems, there will be DoD savings of $6 billion in launch costs between 2002 and 2020.

Let me give you one more example.

The Navy's DD21 program has not only showcased a new way of doing business for our surface ship acquisition community, but it has also put several key ideas for reforming acquisition to work in a "real world" laboratory.

Significant DD21 program reform initiatives have included an acquisition approach that leverages industry competition and innovation. Breaking up the so-called "dream team" of Bath Iron Works, Ingalls, and Lockheed Martin and, instead, requiring competition in the initial concept phase of the program between teams of shipbuilders and system integrators, assures us the best of weapon-system ideas at the lowest future production and support costs – the award criteria. Allowing the teams to enjoy maximum design flexibility has allowed us to mitigate risks and future costs while optimizing systems' capabilities. Then, requiring shipyard competition on the winning design, between the two remaining yards, will provide us

with assured competitive production procurements.

As a result of Defense Reform Initiative directives, we have been and will continue to evaluate our entire acquisition process to determine which functions are commercial in nature (that is, not inherently governmental) and can therefore be subject to public/private competition – financial functions, personnel services, housing, disposal of surplus property, drug testing laboratories, various installation services, much CONUS maintenance, and lots more.

All of this will be a difficult cultural change for the Department. Yet, it is absolutely necessary. We have many lessons to learn from you in the private sector and valuable insights to gain into the practices of modern, world-class companies. This does not mean that the DoD should become a business. It means that we want to do our job better by using appropriate lessons learned from the private sector. We are the world's largest buyer. And we must – in a world of level defense budgets and growing procurement needs – achieve much better performance at greater savings.

Another major objective, as we engage in a Revolution in Business Affairs, is to operate on much faster cycle times in order to make the best use of continuing advances in technology. Shorter cycles also reduce costs dramatically. Our goal is to reduce the average acquisition cycle time (measured from program start to initial operating capability) for all program starts in FY 1999 and beyond by 50 percent over historical averages.

The Department of Defense is not, as I have said, a business, but in those areas where our efforts mirror private-sector initiatives we must examine, adapt, and learn. Those examinations, and the lessons learned, are already bearing fruit. The Defense Logistics Agency has experimented with a program through which more than 5,000 Defense Department items are stocked at Federal Express' 120,000-square-foot warehouse

in Memphis, Tenn. The coordinated efforts of DoD and FedEx have brought about the following significant improvements: 24 hours for domestic delivery, 48 hours for overseas delivery, 99.9 percent accuracy, 98 percent on-time delivery, and total asset visibility.

This example is just one way in which we can improve our logistics system.

No. 3 PRIORITY – MODERNIZING DEFENSE LOGISTICS

Modernization of our defense logistics is my third priority goal – it can have a dramatic, positive performance impact while literally saving billions of dollars annually. At the present time, more than one-third of the U.S. Department of Defense total budget is earmarked for logistics.

Almost 50 percent of our 2.1 million DoD personnel are in logistics. (In fact, military logistics support personnel outnumber active combat forces by two to one.) Here, as has been clearly demonstrated by world-class commercial logistics organizations, modern technology can come to our aid – dramatically reducing inventory, personnel, and response times. During the past year, we have put in place the expert staff and planning designed to begin a massive transformation of our entire logistics system. That process will remain a top priority and an essential complement to our acquisition reform efforts.

A major logistics objective is to bring about reductions of order-to-receipt time from the current 36-day average – with wide, unpredictable, variations – to under 18 days by the end of FY 2000 (a 50-percent reduction), with far fewer military and civilian personnel and significantly lower inventory levels, and with much greater confidence levels. This means that our warfighters can have confidence that, once ordered, essential items needed for planning, preparing, and participating in operations will actually be there when expected. Information technology and rapid transportation are the keys to improved logistics performance at much lower cost.

It will be difficult to transform defense logistics (some say from a 1950's model) into the modern era, but the potential performance improvements and the cost savings are so spectacular that the effort is clearly worthwhile.

Efforts Are Well Underway

As I noted at the beginning of my remarks, when I took on the responsibilities of this office, I described my goals and priorities for Acquisition and Technology: what I thought was needed to "accelerate the journey," to expand our role in bringing about the Revolution in Military Affairs and paying for it with the Revolution in Business Affairs. Today, a little more than one year later, I am pleased that this effort is well underway. We have had many successes; some failures; and a lot of hard work yet to do. But I am optimistic that we can succeed.

Transformation of the Department of Defense is not an easy job. And to accomplish it, we also need the commitment and support of you in industry. Defense modernization is the key to our nation's ability to meet the challenges posed by emerging threats. Secretary Cohen has made a personal commitment to this effort. Successful industry restructuring has given new vitality to America's world-class commercial enterprises. Our reforms and restructuring – in both DoD and the defense industry – must be equally energetic. We pledge to work closely with you in industry to accelerate and institutionalize acquisition and system modernization reforms.

I might also add that, when we talk about major world-class companies, we should also acknowledge the contribution of small business as a key player in our overall defense mission. The small business community today provides 20 percent of our prime contract requirements and accounts for more than 40 percent of our subcontracting requirements. It is extremely important, as we move through each discussion panel of this conference, that we reflect on how the topic relates to small business.

Government Needs Industry's Help

In conclusion, I repeat my earlier statement about the need for a sense of urgency in accomplishing needed reforms: The threat to the United States by the forces of terrorism and from rogue nations is not an illusion or even a possibility. It is real and it is with us now. That is the message of our recent decisions, for example, concerning the National and Theater Missile Defense systems and our commitment to increased funding for them.

Our overall objective is to pursue a policy that has the compelling force to enable us to act strategically before the forces of terrorism and lawlessness compel us to do so. The industry-government partnership we foster at forums such as this are designed to facilitate our ability to reach that goal. I know that I can count on each and every one of you to help us.

Reserve Forces Policy Board Sponsors Education Summit

Secretary of Defense William S. Cohen has directed the Reserve Forces Policy Board (RFPB) to sponsor an education summit to "achieve a more Total Force approach for all military education programs." The initiative is another important step to integrate the military active and Reserve forces into a "truly seamless Total Force."

The summit will convene May 5-6 at the Army War College, Carlisle, Pa., and will bring together the top education leaders from each of the Services' active and Reserve components. Their charge will be to report back to Cohen by Sept. 30 with specific recommendations for changes to professional education policy, course content, curriculum structure, and methods for instruction.

"The conditions in today's world demand that we seek nothing less than the power and professionalism of the Total Force," Cohen said. "The education summit will focus on developing a professional military education system that will ensure our leaders throughout the Department of Defense have a genuine understanding of the role and contributions of the National Guard and Reserve to our national security."

All levels of officer, noncommissioned officer, and Department of Defense civilian professional education curricula will be considered.

"This type of summit has never been done before," said Terrence M. O'Connell, RFPB chairman. "We hope to structure an 'outside-of-the-box' type of meeting which will allow participants the freedom to be as innovative as possible in formulating ideas."

"I am pleased that the RFPB has been directed to undertake this very important initiative," said Charles L. Cragin, acting Assistant Secretary of Defense for Reserve Affairs. "It represents a significant step forward in our shared efforts to build and educate a Total Force that truly represents the increased role of the Guard and Reserve in the post-Cold War world."

For more than 50 years, the RFPB has advised the Secretary of Defense on all matters relating to the Reserve forces. Its 24-member board evaluates proposals for changes to existing laws or policies, then recommends appropriate actions. The board represents a wide range of industrial, business, professional, and civic experience, in addition to its military expertise.

For more information about the education summit, call Lt. Col. Terry Jones at the Office of the Assistant Secretary of Defense for Reserve Affairs, (703) 695-3620, or visit the RFPB link on the Reserve Affairs Web site at **www.ra.osd.mil.**

Editor's Note: This information is in the public domain at **http://defenselink.mil/news** on the U.S. Department of Defense Web site.

Management Councils Emerge as Valuable Asset in the Program Manager's Tool Kit

DCMC-Led IPTS Are Thriving
Under the Management Council Concept
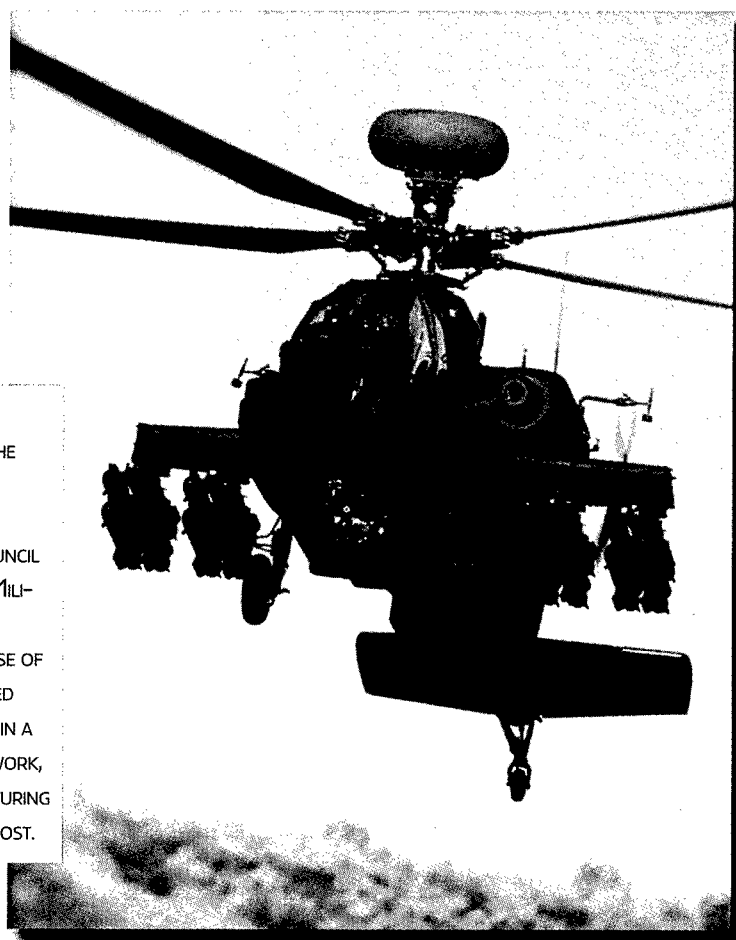
MAJ. GEN. TIMOTHY MALISHENKO, U.S. AIR FORCE

"Civil-military integration ... is critical to meeting our future military, economic, and policy objectives. ... My objective is for the Single Process Initiative (SPI) to achieve [this] integration," wrote Under Secretary of Defense (Acquisition and Technology) Dr. Jacques Gansler in a June 3, 1998 memorandum. "Several defense contractors recently have initiated corporate management councils designed to expedite reform and facilitate best practices across the entire corporation. I encourage the expansion of this concept."

As more defense contractors participate in management councils, it's essential that program managers understand and use these councils as tools to implement acquisition reform and to reduce costs of their programs.

DCMC-Led IPTs

Management councils are Defense Contract Management Command (DCMC)-led Integrated Process Teams (IPT) consisting of representatives from the contractor, Defense Contract Audit Agency (DCAA), and the military services that serve as a forum for program managers to effectively voice and resolve their concerns. As such, management councils are an important management and acquisition reform tool, integral to the success

AT BOEING MESA WHERE THE APACHE LONGBOW IS PRODUCED, THE MANAGEMENT COUNCIL SWITCHED FROM MILITARY STANDARD 1528A TO THE USE OF BOEING-PRODUCED TOOLS RESULTING IN A REDUCTION IN REWORK, SCRAP, MANUFACTURING VARIANCES, AND COST.

Malishenko is the Commander, Defense Contract Management Command and the Senior Procurement Executive for the Defense Logistics Agency's Procurement Operations.

of DCMC's ongoing efforts to implement SPI throughout its contracting practices and processes. In fact, management councils can, and should be used to resolve issues that reach beyond SPI.

The value of a management council as a cost-saving tool for the program manager is far reaching — encompassing all military services and DoD agencies. Ultimately, program managers who participate in management councils benefit not only their particular program, but also the entire Department of Defense.

A Team Effort

While DCMC may lead the management council, every organization affected by

the decisions made through the council is a partner in the process. In other words, DCAA, the contractor, and the military services all actively participate on the management council. For a program manager, representation on the management council is especially beneficial because the decisions made through the council can directly impact the cost, schedule, and performance for which the program manager is responsible.

Integral to SPI Success

To date, most management councils are identifying and implementing improvements wrought under acquisition reform and all it embodies, particularly the SPI. The importance of helping industry convert from military-unique processes to commercial processes cannot be overstated. By combining commercial and military industries, industry can reduce the cost of defense products, passing the savings on to DoD. Moreover, industry is "incentivized" to use newer, more efficient technologies, and DoD gains increased flexibility in meeting warfighter needs.

In many situations, DoD and industry gain welcome relief from multiple military specifications and standards once they transition to SPI and commercial specifications and standards. In a few cases, the management council has settled on a company specification, which is often rooted in a commercial standard. The advantage of such an approach emerges when a change to the company specification is required. Under SPI, such a change may be undertaken without a block change. Essentially, this gives the company the same flexibility as if provided with a performance standard.

For example, at Boeing Mesa where the Apache Longbow is produced, the management council switched from Military Standard 1528a to the use of Boeing-produced tools resulting in a reduction in rework, scrap, manufacturing variances, and cost. The result was $18 million in cost savings and $40 million in cost avoidance in future contracts for the Longbow aircraft. Boeing Mesa's management council also used SPI to reduce

MAJ. GEN. TIMOTHY MALISHENKO
U.S. AIR FORCE
COMMANDER, DEFENSE CONTRACT
MANAGEMENT COMMAND

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the number and types of wires required for the aircraft-wire harness. This SPI alone resulted in a $5-million-per-year cost avoidance and a reduction in aircraft weight of 70 pounds.

Not content to stop there, the Boeing Mesa Management Council continued searching for cost savings and found opportunities beyond SPI. Using the effective teaming approach developed on the council, Boeing Mesa successfully

implemented DCAA's cost-saving parametric-pricing technique. This method of cost estimating analyzes costs over time, helps move the government from a cost-based system to a price-based system, and reduces overhead costs associated with proposal preparation and cost and pricing data for both the contractor and the government. Once again, with management council involvement, it's a win-win situation for everyone involved.

Use beyond SPI

Just as with the management council at Boeing Mesa, other government/contractor teams are successfully elevating management councils to new heights. While continuing to mine the single-process arena, they are using the management council as a forum to share information, to improve contractor processes, and to provide overall performance feedback to the contractor.

Herein lies the greatest potential of the concept. If a contractor has a system that requires improvement, the management council is a perfect forum to voice customer concerns, allow the contractor to announce plans for improvement, and monitor implementation of corrective actions. Thus, a program manager who finds contractor performance in a particular area to be less than adequate can leverage his or her concern with that of other customers.

Potential topics for the management council might include earned value management systems, integrated digital environment, configuration management, property management, value engineering, integrated logistics support, software development, and a variety of other initiatives that can positively impact the program manager's program.

Customer Forum

Finally, and most importantly, the management council is a highly effective forum to provide customer feedback to the contractor and to DCMC. World-class organizations are extremely interested in customer priorities. The program manager's voice is clearly heard when a management council is in place.

DoD photo
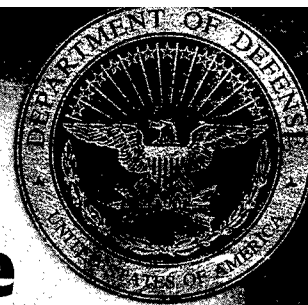
Cohen Announces Plan To Augment Missile Defense Programs

Secretary of Defense William S. Cohen announced today that the Defense Department plans to allocate additional funds to National Missile Defense (NMD) and Theater Missile Defense (TMD) programs to meet the growing ballistic missile threats from rogue states to U.S. forces deployed overseas and potentially to U.S. territory.

The new budget will request additions of $6.6 billion to current NMD funding levels for a total of $10.5 billion for NMD through Fiscal Year 2005. No decision to deploy a national missile defense system will be made before 2000. In theater missile defense, the new budget will continue flight testing of the Theater High Altitude Area Defense (THAAD) program and add money to the Navy Theater Wide program in order to allow accelerated deployment of an upper-tier system by 2007.

"The Department of Defense has long worked to ensure that our NMD development program was properly funded. But until now, the Department has budgeted no funds to support a possible deployment of a limited NMD system," Secretary Cohen said.

"Since we intend to make a critical decision in June 2000 regarding deployment, the budget we will submit in February will increase NMD by $6.6 billion, including the cost associated with NMD deployment over the Future Years Defense Plan. This includes $800 million provided by Congress in the FY99 supplemental appropriations bill and nearly triples, to $10.5 billion, the amount we are budgeting National Missile Defense," he said.

Last summer, the Department of Defense embarked upon a ballistic missile defense program review that assessed the evolving missile defense environment. The review addressed both the expanding threats from medium-range ballistic missiles and the emerging threat from long-range missiles.

"We are affirming that there is a growing threat and that it will pose a danger not only to our troops overseas, but also to Americans here at home," said Cohen. "Last spring, a commission chaired by former Secretary Donald Rumsfeld provided a sobering analysis of the nature of the threat and of limitations on our ability to predict how rapidly it will change. Then, on Aug. 31, [1998], North Korea launched a Taepo-Dong 1 missile. That missile test demonstrated important aspects of intercontinental missile development, including multiple-stage separation, and unexpectedly included the use of a third stage. The Taepo-Dong 1 test was another strong indicator that the United States will, in fact, face a rogue nation missile threat to our homeland against which we will have to defend the American people."

A Deployment Readiness Review is scheduled for summer 2000 in order to assess the NMD program's progress and to provide information for a deployment decision.

"Our deployment readiness program has had two key criteria that must be satisfied before

we could make a decision to deploy a limited National Missile Defense: There must be a threat to warrant the deployment, and our NMD development must have proceeded sufficiently so that we are technologically ready to deploy," Cohen said. "What we are saying today is that we now expect the first criterion will soon be met, and technological readiness will be the primary remaining criterion."

If deployment requires an amendment to the Anti-Ballistic Missile Treaty, the United States will negotiate with the Russians in good faith. "While our NMD development program is being conducted consistent with the terms of the ABM Treaty, our deployment may require modifications to the treaty, and the administration is working to determine the nature and scope of these modifications," Cohen said. "We have already begun environmental site surveys for potential basing sites in both Alaska and North Dakota, and we have briefed Russian officials on these activities," Cohen said.

Secretary Cohen also announced steps to advance the Theater Missile Defense program, which is designed to protect our troops and allies from short- and medium-range missiles. The Department recognizes the critical importance of both land-based and sea-based upper-tier systems in the overall TMD architecture.

Money will be added to the Navy Theater Wide program to move it from the development to the acquisition phase. The land-based Theater High Altitude Area Defense program will continue flight testing. However, recognizing the development problems associated with THAAD,

and the very difficult task inherent in ballistic missile defense technology, both Navy Theater Wide and THAAD will be examined after initial flight testing to determine system progress. Based on this assessment, the Department will be prepared to reallocate upper-tier program resources to focus on the most successful program. To meet the existing and emerging threat, our objective is to field an upper-tier system capability by 2007. This would be an acceleration for either system. Currently, THAAD is scheduled for deployment in 2008 and NTW in 2010.

In addition, the Department will propose to restructure the Medium Extended Air Defense System (MEADS) program — a cooperative program with our German and Italian allies — to develop the essential technologies for critical maneuver force protection requirements.

"These new initiatives will help to ensure that we will meet existing and rapidly emerging ballistic missile threats as quickly and effectively as possible, and in a manner that is integrated with our overall defense requirements," Cohen said.

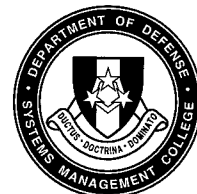**Editor's Note:** This information is in the public domain at **http://www.defenselink.mil/ news** on the Internet.

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THE DEFENSE SYSTEMS MANAGEMENT COLLEGE
A MEMBER OF THE DEFENSE ACQUISITION UNIVERSITY CONSORTIUM

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Civil-Military Integration Creating a Revolution in DoD's Packaging Processes

DUSD (AR) Teams with DUSD (L) to Conduct Three-Year Pilot Program

SHAWN R. HAWKINS

Since the early 1900s, the Defense Logistics Agency (DLA) and each branch of the armed forces have been faced with the challenge of packaging and shipping their unique wares through a variety of environments. This challenge continues today.

Because the military-distribution system does not provide complete visibility into end-item-distribution points and allocated time in transit and storage, DoD recognized the need for reform.

To address this issue, on Oct. 1, 1996, DoD created a new standard for packaging, MIL-STD-2073-1C, which provides the foundation for the maximum use of commercial-type packaging and represents a key first step toward achieving Civil Military Integration (CMI).

MIL-STD-2073-1C requirements are applied by procurement activities to provide adequate protection for items entering the military-distribution system. In some applications, where severe environmental conditions or long-storage times are not encountered, these requirements may be over-specified.

The CMI objective is to eliminate military-unique packaging processes and routinely apply commercial practices even for items entering the military-distribution system. In so doing, CMI eliminates the distinction between doing business with the government and other

> **The CMI objective is to eliminate military-unique packaging processes and routinely apply commercial practices even for items entering the military-distribution system.**

buyers and is critical to meeting future military, economic, and policy objectives.

The Deputy Under Secretary of Defense (Acquisition Reform) and Deputy Under Secretary of Defense (Logistics) will conduct a three-year pilot program with General Electric (GE) and AlliedSignal to

implement a commercial packaging process and test its performance within the military distribution system.

The program will also expand application of commercial packaging for items intended to enter the military distribution system, develop lessons learned to improve the integration of commercial-military packaging requirements and, develop, monitor, and review government and industry benefits, risks, and cost savings.

GE and AlliedSignal will apply best commercial-packaging practices except in rare circumstances. Through cross functional collaborations, a comprehensive block-change-clause language will be modified to existing contract language. This contract modification, combined with world-class commercial packaging systems and practices, will assure product integrity and GE and AlliedSignal accountability.

This three-year pilot program will help determine how much the Defense Department can save by shifting from its current, and cumbersome military packaging specifications, to more efficient commercial standards. Both GE and AlliedSignal believe they can substantially reduce costs by shipping to DoD the same way they ship to commercial customers. The contractors will essentially guarantee that the end item is packaged appropriately and they will replace it should damage occur in shipping.

Hawkins is the Systems Acquisition Project Officer, Office of the Deputy Under Secretary of Defense (Acquisition Reform). He is currently serving an 18-month developmental detail assignment with ODUSD (AR) supporting the Defense Packaging Pilot Program.

The pilot should help determine whether commercial standards, not only provide cost savings, but also satisfy critical military requirements. This pilot program will also improve partnership with industry to make optimal use of commercial packaging and full implementation of revised packaging specifications.

Ideally, the pilot program will strive to achieve the premise of faster, better, and cheaper by: simplifying requirements, lowering mutual costs, and identifying opportunities for DoD to apply commercial packaging for specific applications. This will support the goal of achieving greater integration of commercial/military processes, and improve open communication and understanding of packaging requirements between the military services, DLA/DCMC, and industry.

The enhanced use of commercial packaging practices will reduce government oversight, reduce packaging costs, provide industry flexibility to use best practices, and establish full industry accountability for packaging integrity.

The Department will track the achievements of the pilot through the use of performance metrics. These metrics will be established to track packaging discrepancy reports and cost reductions achieved. Special project codes have been assigned to evaluate the use of commercial packaging shipped from specific GE and AlliedSignal plants through the military-distribution system. The OSD Pilot Program Consulting Group (PPCG) will provide metrics oversight, lessons learned, and reporting. A packaging Integrated Product Team will help monitor the activities within the pilot program and report the status to the PPCG.

Finally, a plan will be developed to educate and train government and industry personnel concerning the use of commercial and military packaging and implementation of this pilot program. The first review of the program will come in 12 to 18 months when preliminary performance is thoroughly analyzed.

IN MEMORIAM

Catherine Gill "Katie" Clark, a retired writer–editor and former managing editor of DSMC's flagship periodical, *Program Manager* magazine, died of cancer Feb. 18 at her home in Clifton, Va.

A Northern Virginia resident since 1969, Clark was a newspaper reporter and editor in her native St. Joseph, Mo., before moving to Arkansas to work as an Army public information specialist during the Korean War. She was the only woman writer and public information specialist during the Korean Conflict (1951–53) on the staff of the commanding general of the 5th Armored Division, Camp Chaffee, Ark., which had been reactivated as a basic training camp.

After years as a homemaker, she returned to journalism in 1974, working as a writer–editor for the U.S. Army Research Institute for the Behavioral and Social Sciences and the U.S. Army Corps of Engineers.

Clark came to the Defense Systems Management College in 1985, and was managing editor of *Program Manager* at the time of her retirement in 1993.

Understanding OCCAR – Organization for Joint Armament Cooperation

## Potential Tool in New Era of European Arms Procurement

LT. COL. HELMUT REDA, U.S. AIR FORCE

A s Europe enters one of the greatest economic transitions in history, governments and defense industries are struggling to determine the best way to manage large multinational-defense procurements. Driven by criteria set forth in the Treaty of Amsterdam and Maastricht, the European Union is integrating portions of its economies and changing over to a single currency. This will reap tremendous benefits and open up new venues for conducting international business.

Although national-economic benefits are derived from participating in multinational-defense programs, they are costly and inefficient. A complex web of sovereignty, unanimity, reciprocity, and varying political agendas converges to stymie them. The political environment is now ripe for productive change. OCCAR is just one tool being explored by Western Europe to overcome the political realities and inertia associated with multinational-defense programs.

What is OCCAR?

Created in 1996, OCCAR stands for Organisme Conjoint de Coopération en matière d'Armement, or in English, Organization for Joint Armament Cooperation. Its purpose is to manage collaborative multinational-defense programs across a broad spectrum of programs and activities within OCCAR's domain. Its goal is to reduce defense costs, increase competition, and maximize economic benefits. OCCAR is an evolved form of collaborative manage-
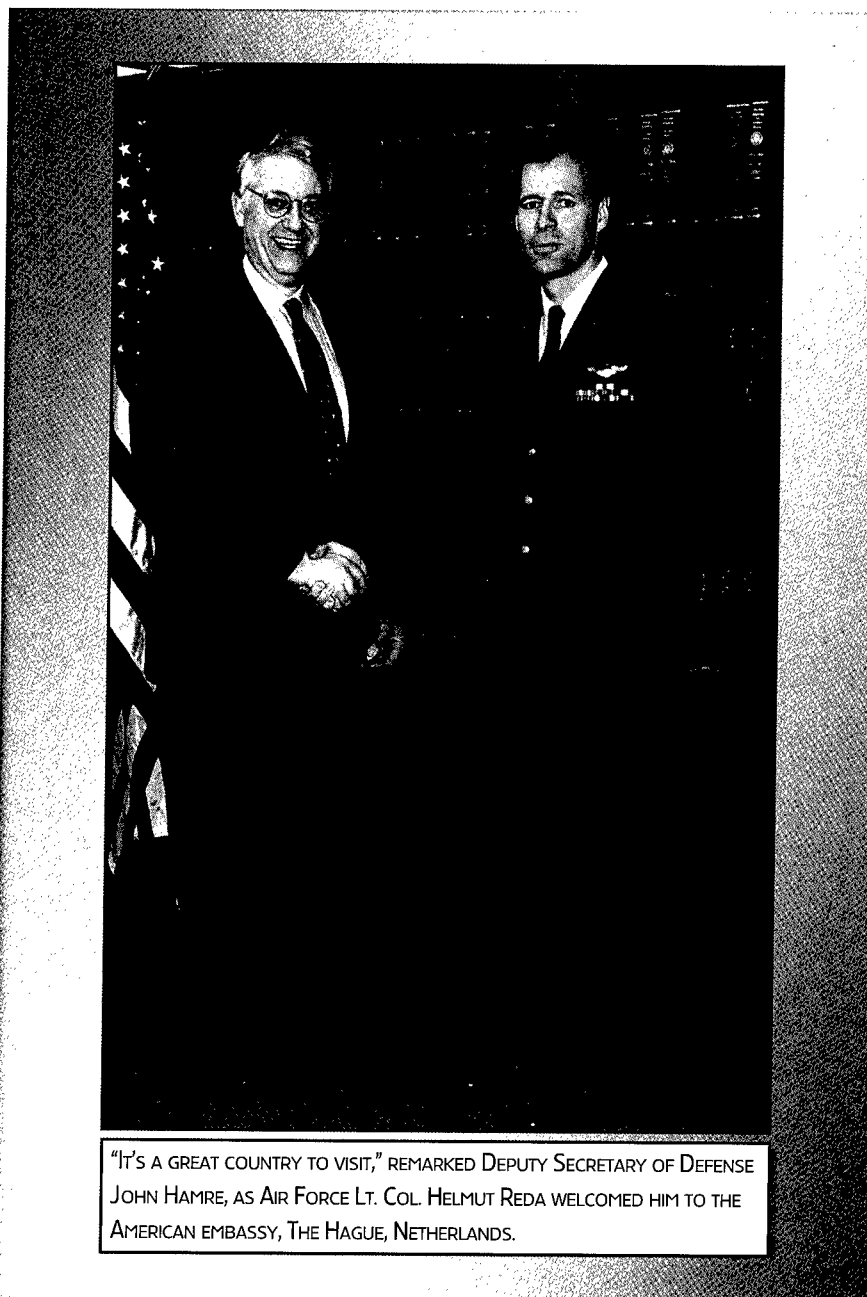
"IT'S A GREAT COUNTRY TO VISIT," REMARKED DEPUTY SECRETARY OF DEFENSE JOHN HAMRE, AS AIR FORCE LT. COL. HELMUT REDA WELCOMED HIM TO THE AMERICAN EMBASSY, THE HAGUE, NETHERLANDS.

Reda is the Air Force Section Chief at the Office of Defense Cooperation, American Embassy, The Hague, Netherlands. He has a master's degree in business administration and bachelor's in Aeronautical Engineering from Embry-Riddle Aeronautical University and is a graduate of the U.S. Air Force Test Pilot School. Reda has 16 years of acquisition experience.

ment that challenges the traditional-European paradigms concerning consensus decision making, worksharing, rationalization, and procurement authority.

Current Status
France, Germany, the United Kingdom, and Italy provide about 90 percent of the European-defense-industrial base and are the initial partners in OCCAR, with The Netherlands and Belgium contemplating membership in the light-armored vehicle facet of the program. OCCAR formally commenced work Feb. 4, 1997, and established offices in Bonn, Germany, staffed with about 100 people. Thus far, they have integrated the following multinational-defense programs into the OCCAR structure and domain: MILAN, HOT, ROLAND, BREVEL, and TIGER. The COBRA, TRIMILSATCOM, FSAF, TRIGAT, and PzH2000 are in the process of being integrated. Meanwhile, they are awaiting an EU decision to accredit their legal identity to issue contracts by the year 2000.

Origin and History
Perhaps the greatest obstacle to the formation of OCCAR began with the creation of the European Union in 1957 and the Treaty of Rome. Article 223 allowed EU laws to exclude defense companies from competition or mergers as the sovereign right of each nation to protect its defense industry. Article 223 became the "Holy Grail" of governments, and it was used to monopolize their defense industries – stifling collaborative cross-border procurement of defense items.

After 1976, European thinking started to drift toward more open collaborative programs. In 1991, the Maastricht Treaty planted the initial seed for a pan-European arms-procurement agency for the Western European Union nations of Belgium, France, Germany, Greece, Italy, Luxembourg, The Netherlands, Portugal, Spain, and the United Kingdom. This initiative was known as the Agence Européenne de l'Armement.

In 1995, the Baden-Baden summit established an initial set of principles for

> **If OCCAR obtains legal status, it will become the initial seed for a pan-European arms procurement agency and potentially serve as the template for the next generation of European procurement organizations for other industries as well.**

efficient collaborative-management practices. The Baden-Baden principles also established the initial framework for OCCAR. In 1996, a quadrilateral memorandum of understanding was signed in Strasbourg, France, creating OCCAR.

A Unique Approach
Through the years, European managers developed a unique portfolio of effective collaborative skills and techniques. These ideas were canonized in the Baden-Baden principles. Offering European nations an alternative means of breaking away from traditional, and often inefficient, collaborative management and procurement practices, OCCAR incorporates new techniques on decision making, work share, rationalization, and procurement authority.

OCCAR is also exploring a more flexible decision-making process. The principle of unanimity still stands for existing programs and partners, but there is a move away from consensus decision making. New decision-making methods

that are more quantitatively oriented, using weighting factors and Pareto concepts, are being explored. Although specific details have not been revealed or executed, if successful, these new quantitative tools will be a monumental step in the democratic decision-making process with applications to other forums and industries.

The concept of work share is also being refined to expand the scope and flexibility of reciprocity. OCCAR renounces "juste retour" for each individual program and tries to achieve fair equity between partners over a wider spectrum of programs, activities, and time. Work will be allocated over several years based on competition, best value, and globalized return.

In 1998, the European defense industry began consolidation and rationalization of its industrial and technology base. One of OCCAR's objectives is to obtain a more efficient and integrated industrial process. To achieve this, OCCAR will selectively exploit, leverage, and rationalize leading industrial positions of partner nations to promote efficient supranational industrial groups.

To manage collaborative programs efficiently, OCCAR seeks to acquire a unique legal identity with the authority to establish procurement procedures, award contracts, and manage programs. OCCAR requested a legal status with the Western European Union, but it was resisted by Spain and Greece over the requirements to eliminate "juste retour." France, Germany, the United Kingdom, and Italy still seek to establish OCCAR's legal status with the European Union.

Who Can Join?
OCCAR is founded on the principle of an open structure to efficiently manage many projects for many countries. The aim is to open OCCAR to other nations once they achieve stability. Currently, no nations are excluded from joining OCCAR, as long as they:

- Provide significant contribution to the overall effort.

- Agree to the principles of OCCAR.

- Agree to grant OCCAR the freedom to efficiently manage programs and select prime contractors.

- Are not a security risk.

Non-Western European Armaments Organization nations must have unanimous agreement from all OCCAR partners before joining. This opens up the window for trans-Atlantic opportunities, but probably not before OCCAR proves itself to European leaders. Currently, the United States does not participate in any OCCAR projects and would require unanimous approval from OCCAR members to join.

Ensuring Survival of European Defense Industries

As national-defense budgets decline and Europe's global-market share is threatened, European leaders are looking for ways to ensure survival of their defense industries. This challenge calls for a new organizational entity that can delicately balance sound business principles with political realities. The leaders of France, Germany, the United Kingdom, and Italy believe the solution lies with OCCAR.

Legal identity is a serious limitation to OCCAR's autonomy and efficiency. If OCCAR obtains legal status, it will become the initial seed for a pan-European arms procurement agency and potentially serve as the template for the next generation of European procurement or-

ganizations for other industries as well. That's worth taking note of!

What's the impact to the U.S. Defense Industry? It's too early to tell, but it has already limited U.S. access to initial OCCAR projects and has set a bad precedent toward future involvement. OCCAR's future remains uncertain as European leaders concentrate on reassessing the roles of current-government institutions like EU, Western European Union, and NATO. Although these institutions do not directly compete with OCCAR goals, they are closely coupled and pursue similar agendas. As European defense consolidation hastens, some question the need for OCCAR and further government intervention.

Eleventh Annual International Acquisition/Procurement Seminar – Atlantic
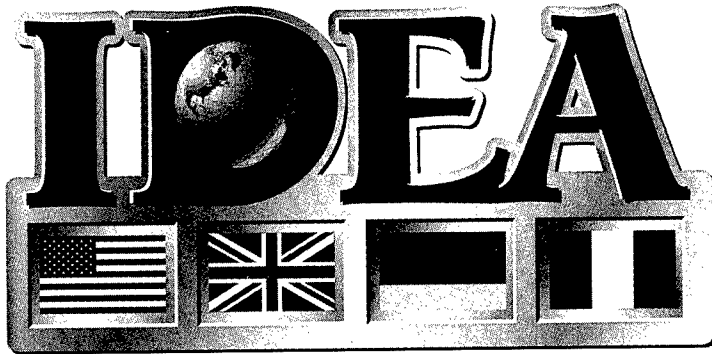
IDEA

June 28 – July 2, 1999

Sponsored by the
International Defense Educational Arrangement (IDEA)

at the
Defense Systems Management College (DSMC)
Fort Belvoir, Virginia

Keynote Address
Honorable Jacques S. Gansler
Under Secretary of Defense for
Acquisition and Technology

Topics
- Comparative National Acquisition Practices
- National Policies on International Acquisition/Procurement
- International Program Managers: Government and Industry
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http://www.dsmc.dsm.mil/international/international.htm

This seminar on international cooperative acquisition and national acquisition practices is sponsored by the **International Defense Educational Arrangement (IDEA)** between defense acquisition educational institutions in the United States, the United Kingdom, Germany, and France.

The Eleventh Atlantic Seminar is by invitation only. Those desiring an invitation, who have not attended the previous seminar in Paris, France, should submit a Letter of Request on government or business letterhead to **DSMC** by fax. Invitations, confirmations, and joining instructions will be issued after May 1, 1999.

Those eligible to attend are Defense Department/Ministry and defense industry employees from the four **IDEA** nations who are actively engaged in international defense acquisition programs. Other nations may participate by invitation. The last day of the seminar (July 2) will be optional for those interested in the educational aspects of international acquisition.

IMPORTANT NOTICE: While the seminar is unclassified, all foreign nationals must obtain facility clearance for **DSMC**, Fort Belvoir.
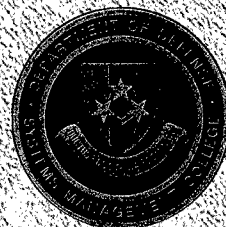
For more information, visit the **DSMC** Web site on the Internet, or contact an **IDEA** Team member:

- Prof. Richard Kwatnoski, Director, International Acquisition Courses
- Prof. Don Hood
- Sharon Boyd, Seminar Coordinator

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DSN: 655-3175

Software Surprise

Three Invisible Problems of Weapon System Software Development

LT. COL. L. D. ALFORD, U.S. AIR FORCE

With technology advancing at a rapid pace, yesterday's state-of-the-art software is outdated today. If this were the only problem facing the development of DoD weapon systems software, it would be enough. But more problems lie ahead — at least three other critical software issues cause major problems for program managers, testers, and ultimately customers.

These three problems are software-induced workload, software system complexity, and software systems costs. Even though these three problems have an enormous impact on the overall system, they are given little visibility because program managers rarely realize they exist.

All three of these problems are program-invisible. What I mean by this, is that they are rarely tested or even thought about until after they have become a serious difficulty for the program. The dilemma is that these software/integration problems are one of the foremost reasons for customer dissatisfaction and increased systems costs.

Software-Induced Workload

Software-induced workload is what a program is attempting to reduce or avoid by adding software to the system. With the complexity of current hardware systems and the missions they support, software is used, primarily, to integrate and consolidate systems so the equipment operators can accomplish the mission with decreased workload and increased mission effectiveness. The only problem is, no one has discovered a way to measure workload.
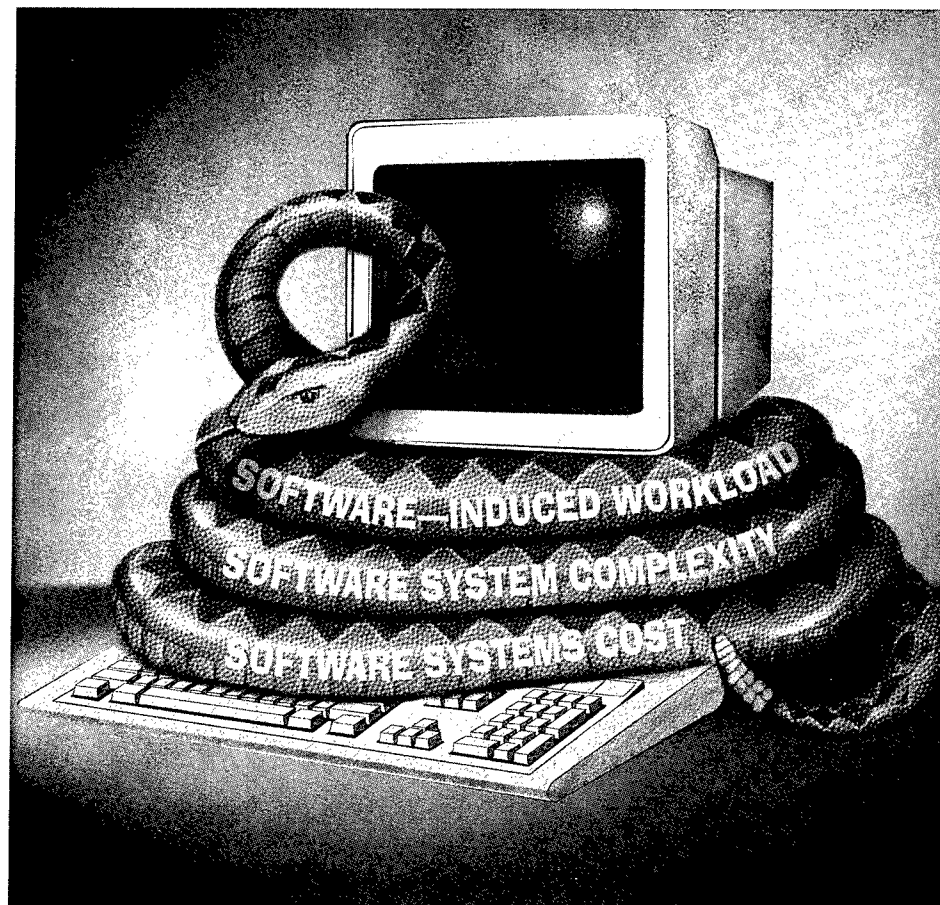
Specifically, all the measures we currently have for workload are qualitative and not quantitative. In the past, engineers tried to use quantitative measures such as altitude and airspeed capture to measure workload. Unfortunately, these measures have nothing to do with workload. For instance, using a digital altimeter, a test pilot can fly an aircraft 10 feet. The workload is extremely high and even a test pilot can't accomplish this task for long, but according to engineering measures, the workload would not be that great because the event can be achieved. This

train of engineering analysis resulted in the tape altimeters on the C-5, C-141, and F/FB-111 aircraft. Aviators who have flown these aircraft will testify to their "low" workload after they have become proficient in the systems; however, analytical tests with other aviators always prove them wrong.

In spite of this, because there is no usable measure for workload, when we try to measure workload, data from such analyses are always suspect: the sample size is rarely large, the statistical confi-

Alford is the Chief of the Test & Evaluation Division, Special Operations Forces, System Program Office. He is a graduate of APMC 98-2, DSMC.

dence is low, and no method exists to quantitatively measure the workload. What this means is, when we try to evaluate whether, for instance, we want to reduce the number of crewmembers in the cockpit, our decision is not based on analysis and tests, but rather a hope based on politics and cost of the additional crewmembers.

The best examples of this are the MC-130H and the current Air Force glass cockpits and heads-up displays (HUD). The MC-130H is one of the best-missionized aircraft in the world. The pilot puts the cue on the dot and can fly any terrain-following profile programmed by the navigator and the aircraft system. On the other hand, it is a poor instrument aircraft. The tape digital displays make it extremely difficult to fly.

In like fashion, the glass cockpits and HUDs of Air Force aircraft are based on similar tape displays. These displays are great for civil aircraft, which are flown literally from takeoff to touchdown on autopilot, but become burdensome "workload sinks" for military tactical flights. This workload problem will continue to be an obstacle until we discover a method to quantitatively measure workload. Fortunately, research toward this end is ongoing, but a majority of fielded and future systems have been or are being designed without any clue to the workload involved.

Another example is radio frequency changes in aircraft that use digital integrated radio systems. Changing a frequency using the old analog dial paradigm is relatively simple. The pilot inputs the frequency by turning a dial on the console. In a software display, the pilot must first find the page for frequency entry, then select the proper place for the entry, and finally, input the digits from a touch-pad. This is at least 10 times greater workload than the analog dialing system, yet the new paradigm appears to demand it. Multiply this example times the number of system inputs the pilot must make to accomplish any mission. These examples have just touched the periphery of the problems associated with workload. Suffice it to

say that software/integrated systems generally have significantly increased workload without a proportional increase in mission effectiveness.

Software Complexity

Software complexity is the second great hidden problem in software development. Because software affects so many systems and is so intrusive, it has become impossible to fully test even the safety-related effects of the software.

When a new software build is installed in an aircraft, unknowns are rampant, and the "bugs" are rarely fully discovered even during flight tests. Some problems lie dormant until the systems are well deployed.

One example was an Operational Flight Program (OFP) release on the MC-130H. This release was supposed to affect only the terrain-following system of the aircraft. The aircraft was released for flight under the assumption that it was okay as long as the terrain-following system was not engaged. In the middle of a training flight, during an engine-out approach, the crew noticed that the "ball" (primary flight coordination instrument) was indicating the opposite of the correct direction. If this OFP had made it into the fleet, or a test crew had not been flying the aircraft, in all likelihood a smoking hole would have appeared where a multimillion-dollar aircraft had once been. Although this example may appear extreme, hundreds of others, in and out of flight tests, abound. Software/integrated systems increase this risk, and the risk is proportional to increasing code and increasing integration complexity.

The C-21 (Lear 35) is another example. In this aircraft, if an oil pressure circuit breaker was pulled/popped, certain engine control settings would result in a fire light on an engine. An operational crew discovered this problem. Because of it, they shut down a good engine and landed short of their destination. They happened to get two fire lights, one on each engine. Luckily, they realized the indicating system was the source of the problem before they shut down both en-

gines. The circuit breaker had popped due to a faulty circuit problem. A sneak circuit caused the fire warning in the indicating system. The crew and passengers were placed at risk due to the malfunction of a $10 piece of equipment. This has been fixed since the incident, but who knows how many other similar problems wait to be found? Software and integration complexity increases risk.

Software Systems Costs

The third problem is related to the first two. Software always requires future improvements and rewrites. Complex software invariably comes with "bugs," and the "bugs" are never entirely discovered. Modifications and fixes add their own "bugs" resulting in future modifications and fixes.

Because of software integration and complexity, the cost of fixes, modifications, and improvements is high. Rarely are software systems provided with sufficient life-cycle funding for these fixes, improvements, and modifications. Software has become so intrusive that the simplest components, on many aircraft, incorporate some software. In fact, even such things as the clocks, circuit breakers, and pressurization systems in most modern aircraft incorporate or are dependent on software for correct indication and operation. Most aircraft are now to some degree fly-by-wire and engine control-by-wire. This trend in controls and systems shows no sign of decrease or change.

Funding must be provided for any software system until the decommission of the system. This is a given that most services and program offices have yet to acknowledge. For example, numerous electronic warfare systems are not adequately funded for software changes, yet are currently going through major changes. This has resulted in serious program problems such as multiple OFPs in multiple versions being accomplished by more than one agency. The resulting costs are much more than they would have been if software changes had been programmed for the life of the system. The examples of the MC-130H and the

C-21 resulted in cost increases, which were not planned and which could have radically affected the safety of the aircraft if the funding had not been made available.

## Lessons Learned Simple, Solutions Complex

The lessons to learn from these three invisible software/integration problems are simple. Their solutions are not. First, try to evaluate workload when developing a system. Attempt to use nonintegrated systems when possible and especially when workload studies indicate a problem. The DoD must fund research and development to discover effective quantitative workload measures. Second, plan and test for as much as possible and be ready, during all program phases, for software problems to "rear their ugly heads." Do not be content with minimal software testing even when risk is low. Finally, fund software for the life of the system.

These three issues, software-induced workload, software system complexity, and software systems costs are critical, rarely visible program problems. They should be primary considerations during all program phases. They may be invisible now, but unless tamed, they will drive your program and the capability of your weapon system.

DOT&E RELEASES ANNUAL REPORT

The Department of Defense Director of Operational Test and Evaluation, Philip E. Coyle, announced Feb. 11 the release of his 1998 Annual Report to the Congress and the Secretary of Defense. The report describes the operational and live-fire testing performed on 160 military systems in 1998 and provides an assessment of the contribution each weapon system makes to *Joint Vision 2010*, the conceptual framework for how U.S. forces will fight in the future.

The report reviews the state of test and evaluation capability within the Department and makes recommendations for investment at major test and training ranges. The report is at **http://www.dote.osd.mil** on the World Wide Web.
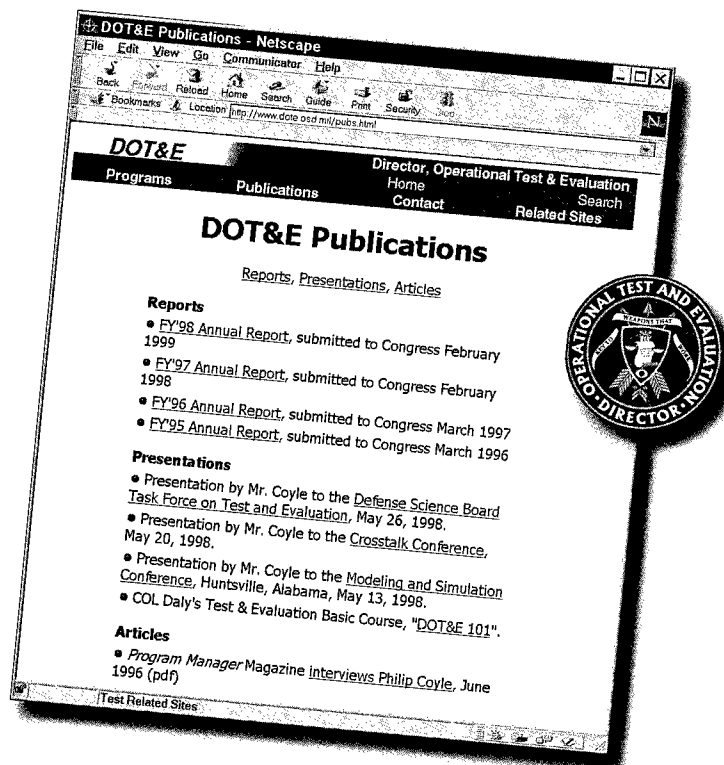
DoD Names 1999 Mentor-Protégé Nunn-Perry Award Winners

Nine pairs of large Department of Defense contractors and their small business proteges [were] honored when Under Secretary of Defense for Acquisition and Technology Dr. Jacques S. Gansler [presented] each team the 1999 Nunn-Perry Award at a March 2 luncheon during the DoD Mentor-Protégé Conference at the Ritz-Carlton Hotel, Pentagon City, Arlington, Va.

The Nunn-Perry Award is named in honor of former Senator Sam Nunn, who sponsored legislation to create the DoD Mentor-Protégé Program, and in honor of former Secretary of Defense William Perry for his commitment to its implementation.

The recipients of the Nunn-Perry Award are selected on the basis of how well each mentor-protégé team worked together to achieve cost-efficiencies, enhance the small business protégé's technical capabilities, and increase new business prime contracting and subcontracting opportunities with DoD.

The Department's Mentor-Protégé Program started in 1991. It is a national initiative to encourage large defense contractors to develop the technical capabilities of small disadvantaged business firms and qualifying organizations that employ the severely disabled allowing them to compete more effectively for defense-related work.

The following DoD mentor-protégé teams will receive the 1999 Nunn-Perry Award:

- Abacus Technology Corp., Chevy Chase, Md., and Comnet Sciences Corp. Jersey City, N.J.

- CH2M Hill, Greenwood Village, Colo., and Wendy Lopez & Associates Inc., Dallas, Texas.

- The IT Group, Martinez, Calif., and Innovative Technical Solutions Inc., Walnut Creek, Calif.

- Jacobs Engineering Group Inc., Pasadena, Calif., and Scientific Sales Inc., Oak Ridge, Tenn.

- Northrop Grumman Corp., Integrated Systems and Aerostructures Sector, El Segundo, Calif., and Mandaree Enterprise Corp., Mandaree, N.D.

- Owens & Minor, Glen Allen, Va., and Kerma Medical Products Inc., Chesapeake, Va.

- Raytheon Systems Co., Dallas, Texas, and The Choctaw Nation Finishing Co., Hugo, Okla.

- Raytheon Systems Co., Naval and Maritime Systems, Fullerton, Calif., and Kuchera Defense Systems, Windber, Pa.

- SAIC, Abingdon, Md., and Science and Technology Corp., Hampton, Va.

Practical Application of Acquisition Reform in the ICBM System Program Office

Early Industry Involvement, Paperless Acquisition Emerge As Two Key Initiatives

LT. COL. SANDRA J. LUDWIG, U.S. AIR FORCE • LT. COL. MICHAEL J. MOCHEL, U.S. AIR FORCE

As the DoD continues to strive for improved ways of doing business in today's era of acquisition reform, success stories are becoming more available. Sharing these stories provides a major benefit to those of us just starting down the road to faster, better, cheaper.

This article examines one such success story by looking at the practical application of two separate but related experience-based acquisition reform initiatives: the involvement of industry in the pre-Request for Proposal (RFP) process; and effective implementation of "Paperless Acquisition" during the competitive process. Specifically, we discuss the recent award of the Intercontinental Ballistic Missile (ICBM) Prime Integration Contract by the ICBM System

Program Office (SPO) at the Ogden Air Logistics Center, Hill AFB, Utah.

Model for Change

The concept of establishing a single ICBM prime integration contractor evolved during a dynamic period (1995-97) when the Air Force was introducing "Lightning Bolts" to jumpstart acquisition reform initiatives. "Insight vs. Oversight" and "Faster, Better,

Cheaper" were powerful slogans driving significant change. The long-established management process for ICBM weapon system development, acquisition, and sustainment became a model for change.

Ever since the 1954 Secretary of the Air Force decision to develop and field ICBM weapon systems, the management structure for ICBMs centered on a SPO that functioned as the weapon system integrator. Consisting of both government personnel and an in-house Systems En-

GIVEN THE LIMITED RESOURCES AVAILABLE TO COMPLETE THE ICBM WEAPON SYSTEMS PROCUREMENT IN A TIMELY MANNER, THE TEAM DECIDED TO "GO PAPERLESS" TO THE MAXIMUM EXTENT PRACTICAL, UP TO AND INCLUDING THE CONDUCT OF THE SOURCE SELECTION.
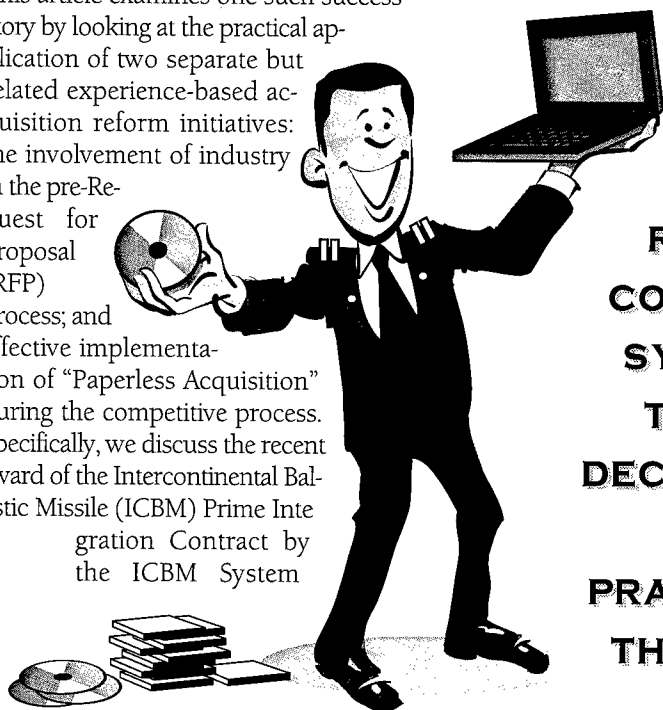
Ludwig is an International Political-Military Affairs Officer, U.S. Arms Control/Disarmament Agency, Washington, D.C. As Director, Intercontinental Ballistic Missile (ICBM) Programs for the Air Force Program Executive Officer for Space, she was the principal liaison between the Office of the Secretary of the Air Force (Acquisition) and the System Program Office throughout the Prime Integration Contract acquisition planning and source selection. Mochel is a Professor of Program Management and Leadership, Faculty Division, Defense Systems Management College (DSMC), Fort Belvoir, Va. Prior to his DSMC assignment, he was the ICBM Prime Integration Contract Program Manager from the program's inception in October 1995 until September 1998. In preparing this article, the authors wish to acknowledge the contributions of Charlotte Dayton. Dayton is the Prime Integration Contract Procuring Contracting Officer, assigned to the ICBM System Program Office, Ogden Air Logistics Center, Hill AFB, Utah.

- **1954 SECAF Memo**
  - Begin ICBM Development
  - Contracted Engineering Support
  - Involve Best Minds
    - Rocketry
    - Guidance & Control
    - Nuclear Weapons
  - Direct Contracts
- **End Result = ICBM Management 1954–1998**
  - 20 Major Aerospace Firms
  - >150 Separate Contracts
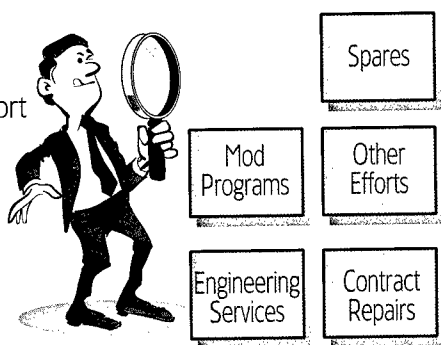
Result:
- 43-Year Success Story, But
  - Manpower-Intensive
  - Becoming Unaffordable

FIGURE 1. **Where We Were**

gineering/Technical Assistance (SE/TA) contractor, the SPO contracted directly with individual Associate Contractors (ASCON) providing the hardware and software pieces of the weapon system.

Besides contracting, the SPO also integrated the individual portions, sometimes with the support of a systems integration contractor. This resulted in a large number of SPO-managed contracts (in excess of 150), not only for the hardware and software items, but also for sustaining engineering support over the life of the system.

While this was a management process that worked extremely well, as evidenced by the 40-year safety record and on-alert rate of ICBMs, this was also a manpower-intensive way of operating (Figure 1) and was becoming unaffordable.

The Air Force looked into other ways to manage the ICBM acquisition and sustainment process. In December 1996, the Air Force Acquisition Strategy Panel headed by the Secretary of the Air Force (Acquisition) approved an acquisition strategy for selecting a prime integration contractor. On Dec. 22, 1997, the Air Force awarded the first ICBM Prime Integration Contract. The prime contract places Total System Performance Responsibility (TSPR) on a single prime contractor, TRW, who now functions as the weapon-system integrator.

With the change in acquisition strategy the SPO, in effect, was empowered to eliminate the SE/TA contract, place future hardware and software buys on the prime contract, and also bring all sustaining engineering support under the purview of the prime (Figure 2).

The Prime Integration Contract is a contracting vehicle for managing ICBM weapon system acquisition, modifications, and support, including Acquisition Category (ACAT) programs. It is not, in itself, an ACAT program. The prime contract with TRW, a one-year basic contract with 14 one-year options, has a potential value of $3.4 billion. This is $1.5 billion less than the government budget estimate of $4.9 billion included in the RFP. Setting a threshold for proposal consideration, we required that offerors come in 10 percent below the budget estimate, with a goal reduction of 20 percent. (The $4.9-billion budget estimate was based on straight-line projections past the Program Objective Memorandum years for the engineering services that made up the bulk of the contract, and reflected the work that would be on contract at the time of award. The projected addition of modification programs will increase the contract cost over the 15 years beyond the $3.4-billion award value.)

Applying Acquisition Reform at the Working Level

In December 1996, the Air Force approved an acquisition strategy to begin a source selection process for a prime integration contractor. Specifically, the acquisition strategy directed a full and open competition. The effort being competed would be complex; potential offerors included the long-time SE/TA contractor and other contractors from the industry.

Within that framework, the Assistant Secretary of the Air Force (Acquisition) and the Air Force Program Executive Officer for Space provided top-level support for forward-thinking, "out-of-the-box" solutions to challenges, while empowering the SPO Director, the Prime Integration Contract Program Manager, and the Prime Integration Contract Procuring Contracting Officer to proactively implement the effort.
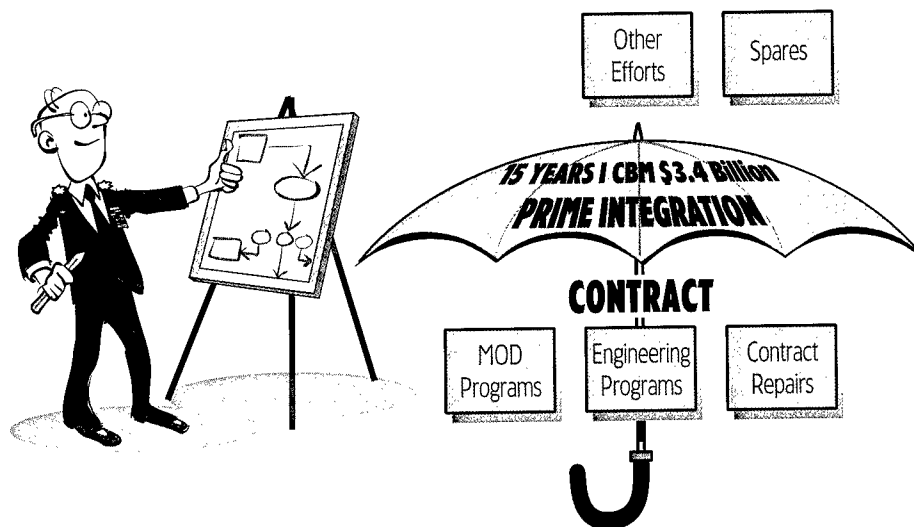
FIGURE 2. **Where We Are**

CONTINUOUS OPEN, HONEST COMMUNICATIONS WITH POTENTIAL OFFERORS ENHANCED THE PRE-RFP DIALOGUE BETWEEN INDUSTRY AND GOVERNMENT — AND ELECTRONIC PROCESSES AND PRODUCTS WERE KEY TO FACILITATING THIS OPENNESS.

Thus empowered, the SPO team targeted two areas in particular as crucial to the success of the procurement.

First, given the complexity of the effort to be contracted, the team viewed continual dialogue with industry as essential to ensure complete understanding of the requirements (Figure 3). This was particularly critical to ensure that weapon system operational requirements would not be impacted at contract start; i.e., the switchover in management structure had to be transparent to the SPO's customer, Air Force Space Command.

Additionally, given the limited resources available to plan the effort and the need to complete the procurement in a timely manner, the team saw a need to "go paperless" to the maximum extent practical, up to and including the conduct of the source selection.

The effective implementation of these two key acquisition reform initiatives was instrumental to the SPO's ability to successfully overcome challenges, which included level-playing-field concerns, organizational conflict of interest mitigation for the SE/TA contractor, and industrial base issues. The implementation proved to be so intertwined and synergistic, it allowed our team and senior Air Force acquisition leaders to set the tone for continuous open, honest communications with potential offerors, and ultimately enhanced the pre-RFP dialogue

between industry and government. Electronic processes and products were key to facilitating this unprecedented level of openness.

As a team, we took specific, deliberate steps to resolve the source-selection challenges:

- Several "one-on-ones" with industry took place during acquisition strategy development to encourage dialogue and industry involvement. These one-on-ones were followed by Industry Days and a session at the Air Force Innovation Center in the Pentagon for electronically enhanced strategy sessions. (The Air Force Innovation Center is similar to DSMC's Management Deliberation Center, providing anonymous, electronic means to obtain feedback on proposed plans and strategies.)

- Advance planning, training and scheduling resulted in the successful use of the Hill AFB Electronic Source Selection Center. Prior to the source selection, the program-office team checked out the facility and equipment, tested the software, and invited the potential offerors to tour the facility and provide sample electronic data to test the software for compatibility. Additionally, the week before final proposal submission, the offerors were allowed to bring their proposals into the facility to check formatting, coloration, and

readability on the government's equipment.

- During the pre-RFP process, contractor representatives met weekly with the SPO and maintained near-daily contact by phone and E-mail. To facilitate the process, the SPO program team made available to potential offerors, extensive documentation and resources. Likewise, potential offerors briefed the SPO team on their interpretation of various RFP requirements, thus providing invaluable feedback on the clarity and completeness of the draft RFP.

- The Ogden Air Logistics Center's RFP Support Organization (now the Acquisition Support Division) Web site, accessible by industry, became the primary vehicle for "paperless acquisition" during the competition process. The draft RFP, industry questions answered by the SPO, two updated draft RFPs incorporating industry comments, and the official RFP were released on the Web.

- Proposals were submitted on CD-ROM. The resulting electronic source selection saved several days of effort and reams of paper, while providing a highly effective and efficient process. The Source Selection Evaluation Team

generally adapted quickly to the new process.

- Finally, the contract itself was awarded and distributed on CD-ROM.

Lessons Learned

Our experiences yielded a few valuable lessons learned that program managers and teams may wish to consider in their own programs:

- Senior-level support was critical to the successful implementation of these initiatives.

- Other program office model processes and documents, electronic source selection software, and lessons learned were invaluable to the "start-up."

- Don't underestimate the amount of information the potential offerors may request.

- For consistency of information, ensure the SPO program team participates during the pre-RFP government-industry dialogue, and also ensure everything goes through the Procuring Contracting Officer.

- Pre-RFP dialogue with industry — good communications — was a critical factor in obtaining competition and probably contributed to the protest-free award.

- Provide potential offerors the opportunity to run a sample document (proposal) on the source selection facility computer prior to source selection. This allows them an opportunity to check out the software compatibility, format, colors, or any other automated features that might affect their presentations.

- "Up front and early" planning and teaming *really work!*

Results and a Few Kudos

The ICBM SPO initiated the Prime Integration Contract on-schedule in January 1998, meeting every program goal: transparency to the weapon system user, maintenance of operational perfor-

mance, and significant savings to the Air Force and taxpayers.

Darleen Druyun, Principal Deputy Assistant Secretary of the Air Force (Acquisition & Management), named the ICBM program team the 1997 Secretary of the Air Force (Acquisition) Team of the Year, citing its effort as "... a watershed event" that "... demonstrated the meaning and dynamic of leadership, professionalism, teamwork, and innovation" for its acquisition reform initiatives.

The Air Force Program Executive Officer responsible for the ICBM program and the ICBM System Program Director attest to the ongoing success of the contract and the key role of two acquisition reform initiatives — early industry involvement and paperless acquisition.

Brent Collins, Air Force Program Executive Officer for Space, credits " ... the numerous acquisition reform initiatives implemented as part of this effort" as instrumental to achieving the " ... projected savings of $1.5 billion in life-cycle costs, with no reduction in weapon-system performance or readiness."

In the words of Air Force Col. Ben Overall, the ICBM System Program Director, "The basic reason the Air Force went to a prime contractor was to save money. Early industry involvement allowed us to clearly articulate that goal to potential offerors. Going paperless gave us an almost continuous review by industry of each draft RFP update. The result exceeded our expectations — we saved 30 percent."

Now, after more than a year of operating under the new paradigm, the ICBM SPO attests to the contract's success and the value-added role of these two acquisition reform initiatives. We believe they have beneficial applications throughout the acquisition community.

Editor's Note: For additional information on the application of these and other acquisition reform initiatives within the ICBM SPO, please contact Air Force Lt. Col. Rakesh "Rocky" Dewan at DSN 777-9159; Commercial: (801) 777-9159. General information on the ICBM SPO is located at **http://www.hill.af.mil/icbm/lmpage/** on the SPO Web site.

- Industry Days
- One-on-Ones
- AF Innovation Center
- Daily Contact

- One-on-One DRFP Reviews
- Pre-RFP Reqts Rvw
- Daily Phone Calls/ E-Mails
- Pre-Proposal Access to Electronic Source Selection Facility

- Oral Discussions
- Shared MPC Data

- Unsuccessful Offeror Debriefed Using Final Decision Briefing Given SSA
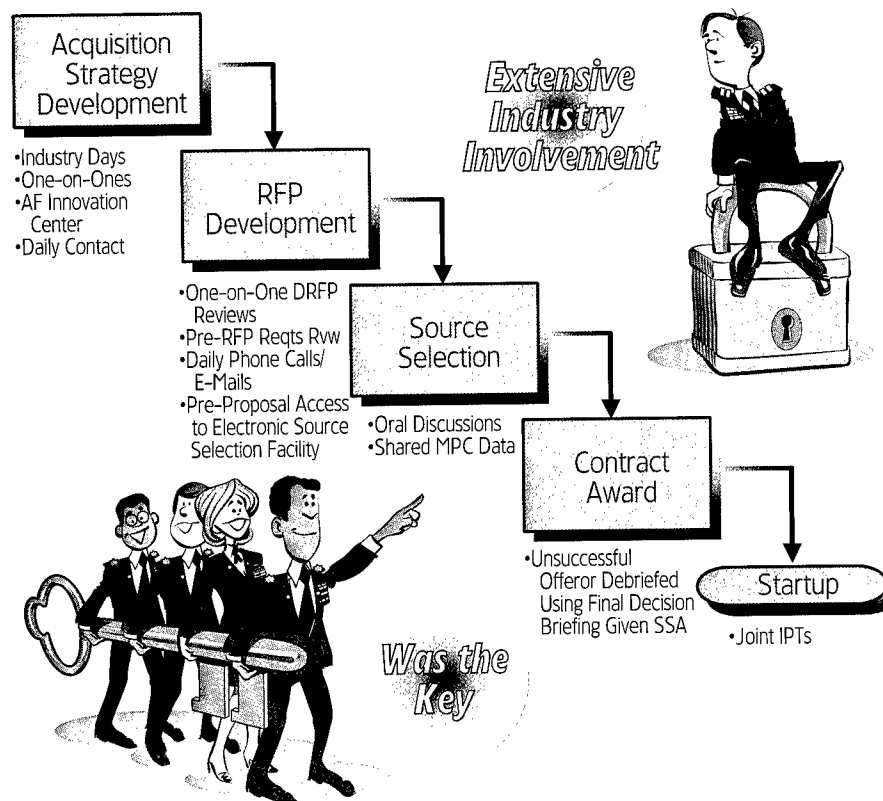- Joint IPTs

FIGURE 3. **How We Got There**

USD (A&T) Sets Goals
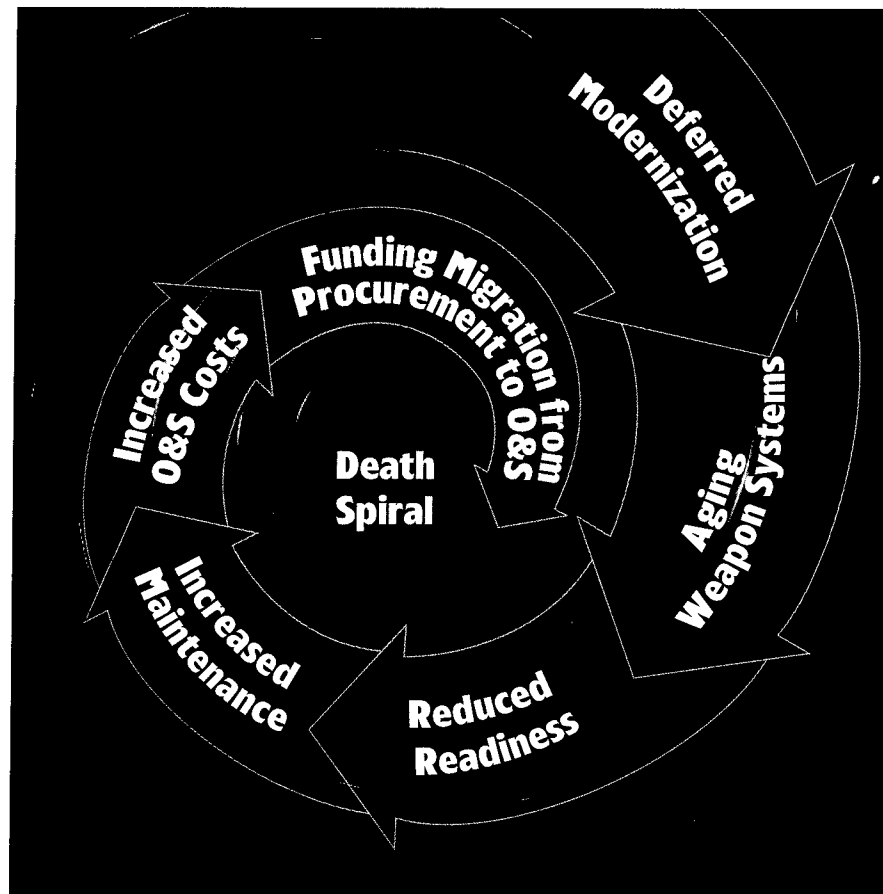# for Total Ownership Cost

DSAC Challenges DoD Research, Development, Acquisition, and Support Community to Reduce TOC

The Defense Systems Affordability Council (DSAC) has challenged the Department of Defense research, development, acquisition, and support community to reduce the total ownership costs, referred to as R-TOC, of defense systems.

The goal of this R-TOC initiative is to free up funding for modernization and recapitalization of weapon systems. The DSAC, chaired by Dr. Jacques S. Gansler, Under Secretary of Defense (Acquisition & Technology), makes decisions based on a consensus of its members — the Service Acquisition Executives and other senior policy makers from the acquisition, logistics, comptroller, programming, and requirements communities.

Until recently, each Service had a slightly different interpretation of what comprised total ownership cost (TOC). In his Nov. 13, 1998 memorandum defining TOC and the responsibilities of the program manager, Gansler provided the DoD acquisition community a clear understanding of what is meant by TOC in its broadest context. The memorandum also provided a definition of defense systems TOC that directly impacts program managers and the acquisition workforce. This definition is consistent with Life Cycle Cost (LCC). The responsibility of program managers in support of reducing DoD TOC is the continuous reduction of LCC for their systems.

DoD TOC is the sum of all financial resources necessary to organize, equip, sus-

tain, and operate military forces sufficient to meet national goals in compliance with all laws, all policies applicable to DoD, all standards in effect for readiness, safety, and quality of life; and all other official measures of performance for DoD and its components. DoD TOC is comprised of costs to research, develop, acquire, own, operate, and dispose of weapon and support systems, other equipment, and real property; the costs to recruit, retain, separate, and oth-

erwise support military and civilian personnel; and all other costs of business operations of the DoD.

Defense Systems TOC (consistent with the DoD 5000.4M) is defined as Life Cycle Cost (LCC). LCC includes not only acquisition program direct costs, but also the indirect costs attributable to the acquisition program (i.e., costs that would not occur if the program did not exist). For example, indi-

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rect costs would include the infrastructure that plans, manages, and executes a program over its full life and common support items and systems.

The DSAC believes that costs in all TOC categories are too high and can be reduced substantially through better emulation of the best practices of the public and private sectors. They have set demanding TOC top-level objectives for the Department.

While Navy Total Obligational Authority (TOA) is no longer increasing, the Department of Navy is faced with increasing operation and support (O&S) costs for their aging weapon systems. Says Gansler, "The dilemma we face right now involves competing and seemingly unlimited demands for limited resources. We simply cannot afford all that we would like to do and, on our present path, even all that we must do. With fixed resources, we have resorted to 'robbing Peter to pay Paul'; taking from future investments in modernization to maintain current readiness."

During the 1990s, constrained resources forced the Department of Navy to defer modernization. This deferment resulted in an aging fleet requiring increased maintenance, which, in turn drives O&S costs up and readiness down. With TOA fairly constant, increased O&S costs draw more funds from procurement accounts, resulting in more deferred modernization.

Gansler goes on to say, "Unfortunately, we are trapped in a 'death spiral.' The requirement to maintain our aging equipment is costing us much more each year in repair costs, down time, and maintenance tempo. But we must keep this equipment in repair to maintain readiness. It drains our resources — resources we should be applying to modernization of the traditional systems, and development and deployment of the new systems. So, we stretch out our replacement schedules to ridiculous lengths and reduce the quantities of the new equipment we purchase — raising their costs and still further delaying modernization."

The Navy's TOC efforts are directed toward breaking out of this cycle by facilitating cost reduction across the Service and reinvestment of the savings into force modernization.

DSAC TOC Objectives

- For systems in acquisition, surpass or achieve aggressive "Cost as an Independent Variable" unit cost and total ownership cost targets that are 20 to 50 percent below historical norms for at least 50 percent of programs by FY 2000.
- For fielded systems, reduce the logistics support cost per weapon system per year compared to FY 1997 baselines as follows: 7 percent by FY 2000; 10 percent by FY 2001; and a stretch target of 20 percent by FY 2005.

Joint Mission Acquisition — An Idea Whose Time Has Come

BMDO's Role As Champion of Interoperability Crucial to Future of Missile Defense

REAR ADM. RICHARD D. WEST, U.S. NAVY
DR. DONALD R. BAUCOM

Victor Hugo's comment that nothing is so powerful as an idea whose time has come certainly seems true of ballistic missile defense. The Gulf War of 1991 witnessed the advent of missile defenses as a major operational concern and brought with it a profound change in the requirement for interoperability between Service-operated systems. Without complete integration of these systems, effective missile defenses are impossible. As *Joint Vision 2010* put the matter:

Simply to retain our effectiveness with less redundancy, we will need to wring every ounce of capability from every available source. That outcome can only be accomplished through a more seamless integration of Service capabilities. **To achieve this integration while conducting military operations we must be fully joint: institutionally, organizationally, intellectually, and technically.** It is not enough just to be joint **when conducting future operations. We must find the most effective methods for integrating and improving interoperability with allied and coalition partners.**

This revolutionary increase in the requirement for interoperability has

West is the Deputy Director, Ballistic Missile Defense Organization (BMDO). A 33-year surface warfare officer with four previous command assignments, he holds master's degrees in management and national security. Baucom is the BMDO Historian.
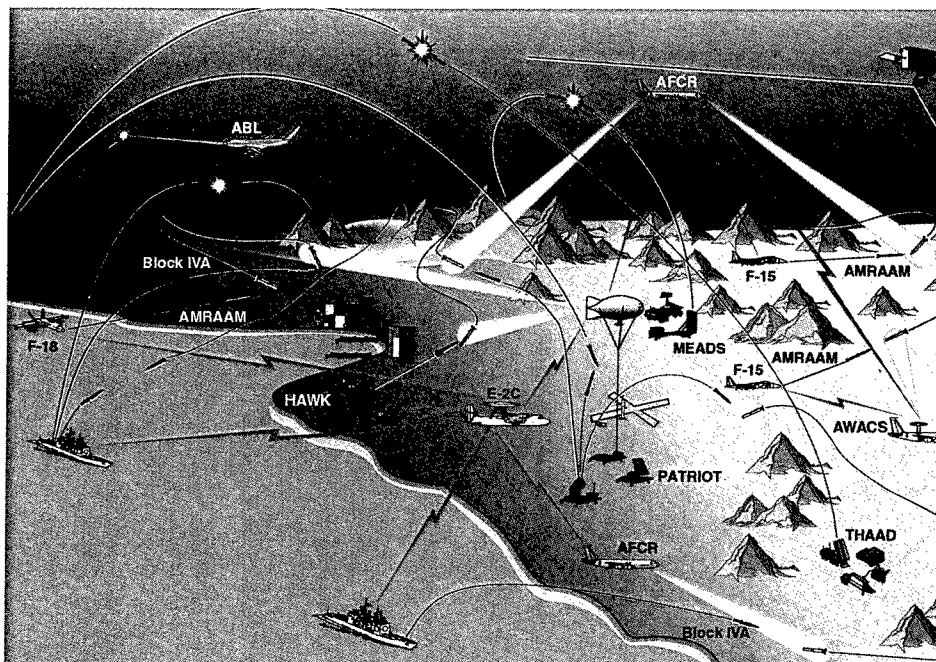
JOINT THEATER AIR AND MISSILE DEFENSE. THE TMD BATTLESPACE IS THE VOLUME OF AIR AND SPACE DEFINED BY THE TRAJECTORIES OF ATTACKING MISSILES AND THE PERFORMANCE PARAMETERS OF DEFENSIVE SYSTEMS. HERE, TRADITIONAL DOMAINS OF WAR (LAND, SEA, AND AIR) MERGE, CREATING A REQUIREMENT FOR COMPLETE INTEROPERABILITY BETWEEN SERVICE-DEVELOPED SYSTEMS IN THE TMD ARCHITECTURE. INTEROPERABILITY IS CRUCIAL TO EFFECTIVE THEATER MISSILE DEFENSES AND CENTRAL TO THE CONCEPT OF JOINT MISSION ACQUISITION.

spawned a new approach to acquisition management: Joint Mission Acquisition.

Commonality, Interoperability, Cost Reduction

Historically, improving interoperability has often been a goal in joint development programs, but the primary reason for such undertakings before Desert Storm was to reduce the cost of the force structure by eliminating unnecessary duplication in the development of weapons and support equipment. We

see this point illustrated in the current Joint Strike Fighter (JSF) program. While this program does seek to enhance interoperability between three of our nation's four air arms, cost reduction is the principal reason DoD has charged the Air Force, Navy, and Marine Corps to work together with U.S. allies to develop "three different [strike fighter] designs" that "have in common the key high-cost components — engines, avionics, and many of the high-cost structural components. The idea here really is build-
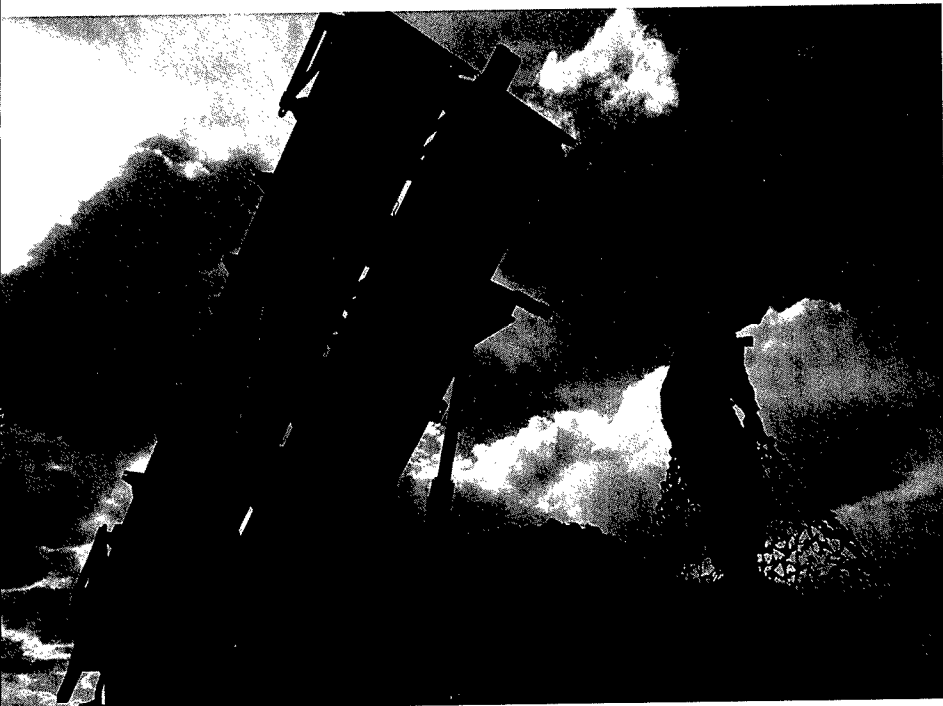
PATRIOT MISSILE CREWMEMBER WITH THE 35TH AIR DEFENSE ARTILLERY, FORT LEWIS, WASH., PULLS CAMOUFLAGE NETTING OVER A PATRIOT MISSILE LAUNCHER, DURING EXERCISE ROVING SANDS '97. THE PATRIOT PROVIDES MISSILE DEFENSE AGAINST ENEMY FIGHTER STRIKES AND SCUD MISSILE LAUNCHES.

Without a joint mission acquisition agency like BMDO to incorporate interoperability requirements in the architecture for the theater missile defense family-of-systems and to champion these requirements in the Joint Requirements Oversight Council process, interoperability will not survive the program scrubs that inevitably occur in times of constrained Service budgets.

ing different structures out of a common family of building blocks."

In the past, the Defense Department's principal approach to joint procurements like JSF has been to name a lead Service, which then appointed a program manager who headed a Joint Program Office (JPO) that included representatives from the other Service or Services involved in the program. In spite of a somewhat mixed performance, the JPO concept has been adequate to satisfy relatively limited requirements for commonality and interoperability that were largely of secondary concern.

One reason for this approach to joint procurement may have been that prior to the Goldwater-Nichols Reorganization Act of 1986, considerable authority was vested in the Services by Title 10. However, the 1986 act strengthened the Secretary of Defense, assuring him "full power over every facet of the Department of Defense." The act further specified that the "Secretary has sole and ultimate power within the Department of Defense on any matter on which the Secretary chooses to act." This has opened the door on a new approach to acquisition that has been dictated by the technological realities of modern warfare that became apparent in early 1991.

The opening days of the Gulf war witnessed history's first missile-versus-missile battles and heralded the birth of a major change in the significance of interoperability. Saddam Hussein's Scud missiles disrupted the economic and social lives of civilians in allied countries, killed 28 Americans in one incident, and narrowly missed a Navy munitions ship in another episode. In the next theater operation, the United States and its allies will surely face missiles that are much more formidable than the Scud.

A New Way of Thinking — Battlespace

When it comes to designing effective defenses against the improved long-range missiles the United States and its allies will face in future operations, traditional boundaries between land, sea, air, and space operations are virtually meaningless. Instead, we think in terms of battlespace — the volume of air and space defined by the trajectories of attacking missiles and the performance parameters of defensive weapons that can be brought to bear on the attackers.

In some future contingency in the Middle East, a barrage of Shahab-3 and Shahab-4 missiles might be launched from the interior of Iran and traverse the Persian Gulf, en route to allied cities and bases on the Arabian Peninsula. During their boost phase, some of these missiles might be within range of Air Force airborne lasers orbiting over southern Arabia. Later, while still in their ascent phase and then during mid-course, these missiles would be vulnerable to Navy Theater Wide missiles deployed aboard ships in the Persian Gulf.

Still later in their mid-course, as they approach their targets, Army Theater High-Altitude Area Defense missiles on the

DoD photo

peninsula and Navy Theater Wide missiles aboard ships in the Red Sea might take them under fire. Then, as the survivors of earlier interceptor attacks draw nearer their assigned targets, Patriot PAC-3 and Navy Area missiles would attack the leakers.

In this scenario, the battlespace includes the entire trajectory of the missiles from a few thousand feet over their lift-off points to the sky immediately over defended areas, and the multiple systems that defend against the attackers constitute the layered defense that is essential to achieve a high kill probability against missiles that might well be carrying weapons of mass destruction.

Since the entire battle described above might encompass only 15 minutes, we should perhaps add time as a critical fourth dimension to our battlespace. Fifteen minutes is just about enough time to play a par five! Yet in this same amount of time, space- and ground-based sensors must detect and establish tracks on perhaps 15 to 20 missiles. They must relay this information to the battle management system that must already know the availability of defensive systems, regardless of which Service is operating them.

This battle management system must then establish its battle strategy. It will know that each type of defending missile has its "sweet spot" — that part of the battlespace in which it is most effective. As a result, the battle management system will lay each weapon against each target to achieve optimal results, holding other missiles in reserve in case the first shots fail to find their targets.

The sensors must be watching as these first defenders meet their targets so they can provide the data needed to determine the outcome of each engagement. The battle management system must then issue orders for second and perhaps third shots to ensure destruction of all attacking missiles, following each target until it is destroyed. This is what we call "fighting smart," and fighting smart is a *sine qua non* for success in the missile battles of the future.

This battlespace example makes it clear that interoperability specifications are as important as any other performance parameter associated with the development of a missile defense system. Yet, DoD faces a difficult task in acquiring interoperable systems.

To begin with, interoperability is an abstract quality that resides principally in the system architecture and its embodiment, the communications links and computers of the battle management system. From the architecture flows the specifications that must be built into Service-developed components to ensure interoperability when they are deployed. The Services are developing these components under tight fiscal constraints and are primarily concerned, understandably, with hard-performance criteria that they believe will guarantee adequate protection for their own forces. Given these conditions, how does DoD ensure the battlefield interoperability of Service systems?

Warfighting CINCs Need Family-of-Systems

The first answer is a new approach to acquisition. This new approach begins with the recognition that developing effective missile defenses involves a qualitatively different set of battlefield requirements. Furthermore, under this new approach, the warfighting Commanders in Chief (CINC), not the Services, constitute the principal constituency for the systems developed to satisfy these requirements.

Traditionally, each Service has developed its own unique suite of weapons, the mainline systems that allow it to carry out operations in its particular domain. To conduct joint operations, we meld together elements provided by the Services and place these elements under the command of a warfighting CINC.

Today, as the battlespace example cited earlier shows, it is no longer technically sound to think in terms of Service-oriented, stand-alone systems that are simply brought together under a CINC to provide theater-wide missile defenses. This is because effective operational missile defenses do not exist unless Service-developed components come to the field already integrated into a single, coherent missile defense family-of-systems. And it is this integrated family-of-systems that CINCs must have if they are to protect theater forces and civilian populations from missile attacks.

DoD has already made important institutional arrangements to see that CINC requirements for effective theater missile defenses are met, to include making the U.S. Atlantic Command (ACOM) responsible for consolidating theater missile-defense requirements. Additionally, the Under Secretary of Defense for Acquisition and Technology and the Vice Chairman of the Joint Chiefs of Staff established the Joint Theater Air and Missile Defense Organization (JTAMDO) to develop an operational architecture based upon the requirements supplied by ACOM. These two officials also directed the Ballistic Missile Defense Organization (BMDO), the "chief architect" for theater air and missile defense, to work closely with JTAMDO to see that these requirements are reflected in missile defense systems developed by the Services under the guidance of BMDO.

In its capacity as chief architect, BMDO becomes the champion of interoperability in the missile-defense community. Without a joint mission acquisition agency like BMDO to incorporate interoperability requirements in the architecture for the theater missile defense family-of-systems and to champion these requirements in the Joint Requirements Oversight Council process, interoperability will not survive the program scrubs that inevitably occur in times of constrained Service budgets. This connection between interoperability and effective missile defenses and their dependence on the independent role played by BMDO suggest that joint mission acquisition, like missile defense itself, is an idea whose time has come.

Editor's Note: A shorter version of this Op-Ed appeared in *Defense News*, August 1998, under the title "The Future is Interoperable."

HOEPER VALIDATES FIRST CHEMICAL DEMILITARIZATION PROGRAM SITE CONTRACTOR

Paul Hoeper, Assistant Secretary of the Army for Acquisition, Logistics and Technology, presented an official letter of certification for a validated Earned Value Management System (EVMS) to Fred Hissong, President of Raytheon Demilitarization Company, Nov. 2, 1998, at the Pentagon. The ceremony was held to recognize Raytheon for implementing EVMS at Johnston Atoll Chemical Agent Disposal System, a demilitarization facility built to destroy lethal chemical agents and munitions stored on Johnston Atoll. Johnston Atoll is one of nine chemical weapons stockpile sites where chemical weapons slated for demilitarization are being stored. Raytheon's EVMS is accepted as compliant with Department of Defense/Industry EVMS Guidelines, and is the first of the Chemical Demilitarization Program's site contractors to be validated.

PICTURED FROM LEFT: JAMES BACON, PROGRAM MANAGER FOR CHEMICAL DEMILITARIZATION; THEODORE PROCIV, DEPUTY ASSISTANT SECRETARY OF THE ARMY FOR CHEMICAL DEMILITARIZATION; HOEPER; HISSONG; SHAY ASSAD, PRESIDENT AND CHIEF EXECUTIVE OFFICER OF RAYTHEON ENGINEERS AND CONSTRUCTORS.

DoD to Field New Travel System

LINDA D. KOZARYN

WASHINGTON — Doin' the TDY checklist. Request orders. Call travel. Make rental car, hotel and airline reservations. Get a cash advance. Pick up tickets. Pack. Go. Come back. Save receipts. File voucher. Check mail for travel pay. There is relief in sight.

The Defense Department's new temporary duty travel system, slated to be fielded worldwide by 2001, is "quicker, easier and better" than the current system with all its forms and vouchers, according to Army Col. Albert E. Arnold III.

Arnold, head of the Defense Travel System Project Management Office here, said the new computer-based system streamlines the entire travel process. Everything from getting orders to making hotel and airline reservations to filing reimbursement vouchers is done electronically.

In keeping with efforts to reinvent government, defense finance officials have revamped the military's $3-billion-a-year travel system. They've cut the joint TDY travel regulations down to about 20 pages of simple English. They've developed what they call a "seamless, paperless system," which will be field-tested later this year in one of DoD's 19 travel regions.

Less Paperwork

"Everyone will love it," Arnold promised. "Travelers will be able to make reservations right from their desktops. Where today you talk to the travel agent by phone or in person, you'll be able to see all your choices right on your desktop." Travelers with no access to a computer at work will be able to make their travel arrangements and file their travel vouchers at their unit's administrative center.

Getting reimbursed for travel expenses will also be faster and easier, he said. "You'll just file your voucher straight from your desktop without inputting travel data a second time."

Currently, the trip destination and other information are first entered onto a DD Form 1610 travel order. Travel specialists create an itinerary with the same information. Once the temporary duty is com-

plete, the specific travel details are entered onto a DD Form 1351-2 voucher.

With the new system, the information will be entered into a database once. Some information, such as accounting classifications, will be preloaded into the program to be selected from pull-down menus. Returning travelers will have to update only changes to their itinerary, Arnold said.

Once the voucher is complete, the traveler will electronically forward it to one of his direct supervisors for approval. "The beauty of the system is that it will be a completely paperless process from end to end," he noted.

The new system also eliminates the need for filing receipts for travel expenses. The receipts must be maintained, but they need not be filed with the voucher. Travelers must keep receipts for all lodging costs and for expenses over $75, Arnold said. "The honor system now covers expenses under $75.

"You will keep your own receipts, much the same way you file your income taxes today," he said. "You send in your IRS Form 1040, but you don't send in your shoebox full of justification. The same thing will happen for this. You'll send in your voucher electronically, and by law, keep your receipts for six years and three months.

"Should somebody want to see them in the future — the authorizing official, your boss, a reviewer or auditor — then you'll need to produce them, much the same as you do for your income tax. If you get audited by the IRS and you can't produce a receipt, you lose. The same thing will be true for the defense travel system."

Honesty's the Best Policy

The new system is based on the premise that both travelers and supervisors are honest and responsible, Arnold said. In revamping the system, defense officials eliminated layers of approval authorities, giving supervisors authority to approve temporary duty travel and travel vouchers. Each agency and organization will determine where this authority will be vested, but it should go to the lowest-level supervisor that has the responsibility and resources (time,

people, and travel budget) to perform the given mission.

"The person who's now going to review your claim for payment is going to be your first-line supervisor," Arnold said. "He or she knows how much he or she can trust you. They're going to look at your claim, much the same way the Defense Finance and Accounting Service does today."

There will, however, be random- and post-payment voucher audits. This is a change from the current system, where each voucher is checked prior to payment, he said. "Because we've simplified the entitlements, the computer system can now make all the computations and check everything to make sure it's right."

Another change to the system eliminates the need to certify official telephone calls, a requirement dating back to 1939. Under the new system, he said, official telephone calls will be listed as a separate reimbursable expense on travel vouchers.

Easy-to-Use Software

Defense officials are planning an extensive training program to acquaint travelers with the new procedures, Arnold said. "Our office will train trainers in different units around the world who will then train their units. They can then incorporate any local procedures that might be necessary." Online help will also be available, he added.

"The system is going to be very easy to use. If you use Word or WordPerfect today, you'll be able to use the defense travel system tomorrow," he said. Field tests will ensure the system works for everyone in all the Services, he added.

Defense officials conducted pilot tests at 27 sites throughout the Services. Results included a 65-percent drop in administrative costs and a 31-percent cut in reimbursement time. Customer satisfaction improved dramatically.

"We started testing the system at Fort Huachuca, Ariz., at the Joint Interoperability Test Command in November," Arnold said. Feedback was positive, but there were some glitches. "We're tweaking those things to make sure the system we provide is exactly what we want."

DoD's POW/Missing Personnel Affairs Office in Washington was another of the pilot test sites. Budget officer Angela M. Talaber there praised the new electronic system, particularly the speed with which people are paid — in some cases, within a day or two.

"If finance pays the voucher in the afternoon, most times the money goes to the Federal Reserve Bank the next day," Talaber said. "Within two days the money is direct-deposited in the traveler's bank account. I've had folks who filed a voucher at 7 a.m., and it was processed and paid the same day." Compared to the old ways of doing business, this is a dramatic improvement, she said.

"Before, it was a frustrating, time-consuming paper process," Talaber said. "You filled out a seven-page carbon form and attached all the little bits of trash paper you saved during your trip — receipts for everything. Then you sent it to finance, where it sat in an in-box until somebody got ready to look at it. Then two weeks to three months later, you got a check in the mail."

The travel system is being lab-tested to ensure all the technology works, Arnold said. "We're really kicking the tires to make sure the system works the way we want it to work before we field it to anyone else."

Early this year, the system will go to Whiteman Air Force Base, Mo., for further testing, he said. After testing ends by early summer, about 200,000 servicemembers and defense civilians will begin using the new travel system in Iowa, Illinois, Indiana, Kentucky, Michigan, Minnesota, Missouri, North Dakota, Nebraska, South Dakota, and Wisconsin.

By 2000, defense officials expect to put the system at bases overseas. They expect to employ the system throughout the Defense Department by 2001.

"We'd love to be able to give it to everybody tomorrow morning," Arnold said. "Just flip the switch and you're up and running. But, because of the cultural and process changes involved, there's a significant amount of training that we want to provide so that people know how to use the system. It will take some time to get to all three million people in the Department of Defense."

Editor's Note: This information is in the public domain at **http://www.defenselink.mil/news.** For more information about the new system, visit the Defense Travel System Project Office Home Page at **http://www.dtic.mil/travelink/** on the Internet.

Antideficiency Act Findings Prompt B-2 Renaissance

Stealth Bomber Emerges From Domestic Flak

CAPT. JUAN COMMON, U.S. AIR FORCE

Some of us in contracting, and other functions, are not aware of or do not quite grasp certain aspects of the Antideficiency Act (ADA) or the benefits to be derived from strict compliance. This article relates the Oklahoma City Air Logistics Center's experiences in identifying and resolving ADA violations incurred in the B-2 Program. As in most of life's experiences, we learn by our mistakes or those of others.

ADA, Provisioning Contracts, Investigation

The Air Force is required by law to establish and operate a system of administrative controls over appropriated and non-appropriated funds. Air Force Instruction (AFI) 65-608, *Financial Management: Antideficiency Act Violations*, states that these controls are designed to regulate the quarterly rate of obligation, the management approval levels for obligations according to timing of individual contract actions, cumulative program dollar values, and the purposes for which the funds are used. AFI 65-608 also states:

The Antideficiency Act (ADA) is codified in Sections 1341(a) and 1517(a) of Title 31, United States Code (U.S.C.). Funds are available to support contract obligations only if previously authorized and appropriated by Congress. The legislative process of authorization and ap-

propriation creates different types of funds, with resulting limits on their use as to purpose, time, and amount. If those limitations are exceeded, corrective entries in the accounts are required upon discovery. A shortfall in unobligated funding authority in the proper account or subdivision of funds, whether occurring as of the time the liability was incurred, or at the time the obligation is properly posted, may result in a reportable violation of the ADA. The receipt of additional funds before the end of the accounting period does not necessarily mitigate the violation or eliminate the reporting requirement. However, such over-obligations are not the only source of violations. By law, violations must be reported to the President through the Office of Management and Budget (OMB), and the Congress.

The Stealth Bomber Program has used three provisioning contracts to procure initial spares. The value of these contracts exceeds $800 million. Since its inception in the early 1980s, the program has issued over 20,000 Provisioning Item Order(s) (PIO). Contract F33657-87-2001 with Northrop Grumman is the largest provisioning with over 9,000 contract modifications. Contract F33657-87-C-2004 with the General Electric Aircraft Engine Company has approximately 500 contract modifications. Finally, contract F33657-87-C-2005 with Boeing has approximately 95 contract

modifications. The number of contract modifications alone serves as a good indication of the magnitude and complexity of this program. These three contracts were the focus of two ADA investigations.

First Investigation

The first ADA investigation for the B-2 program at the Oklahoma City Air Logistics Center (OC-ALC), Tinker Air Force Base, Okla., occurred in 1994. It involved an illegal procedure referred to as bulk funding. Bulk funding, as implemented in B-2 provisioning, deviated from standard procedures of obligating funds for each PIO on the contract. It replaced the standard procedure with obligating large amounts of funds to the contract with no firm, specific requirement(s), and later allocating these obligated funds on the contract to spares requirements as they developed.[1]

Second Investigation

In May of 1997, the second ADA investigation was initiated to review funding procedures for the B-2 program at the OC-ALC. Unique funding procedures that transferred previously incurred obligations for the provisioning of initial spares from one funding classification (fiscal year/appropriation) to another (fiscal year/appropriation) were under review, according to the 1997 B-2 Provisioning ADA Investigation Report (F97-07B-2).

Common is the Deputy Chief, Base Contracting Division, Tinker AFB, Okla. Previously, he served as the Provisioning Procuring Contracting Officer in the B-2 System Program Office (SPO) at Tinker. He is a Certified Associate Contracts Manager and Certified Professional Contracts Manager. Other contributors to this article include Air Force Col. David Gothard, System Support Manager, B-2 System Program Office, Tinker AFB; Air Force Col. Steven Kahne, Chief, Directorate of Aircraft, Oklahoma City-Air Logistics Center (OC-ALC), Tinker AFB; Air Force Lt. Col. Bryan Daly, Chief, B-2 Financial Management, B-2 SPO, Tinker AFB; Darrell Davis, Procuring Contracting Officer, B-2 Contracting, Directorate of Aircraft, OC-ALC, Tinker AFB; Portia Rush, B-2 Security, Tinker AFB; Cheryl Sandberg, HQ AFMC/FMB, Wright-Patterson AFB, Ohio; Jeff Pehl and Luke Chapman of PricewaterhouseCoopers (PwC), Fairfax, Va.; LeVena LeDay, Art Willis, and William "Bill" Brennan of Northrop Grumman, Pico Rivera, Calif.
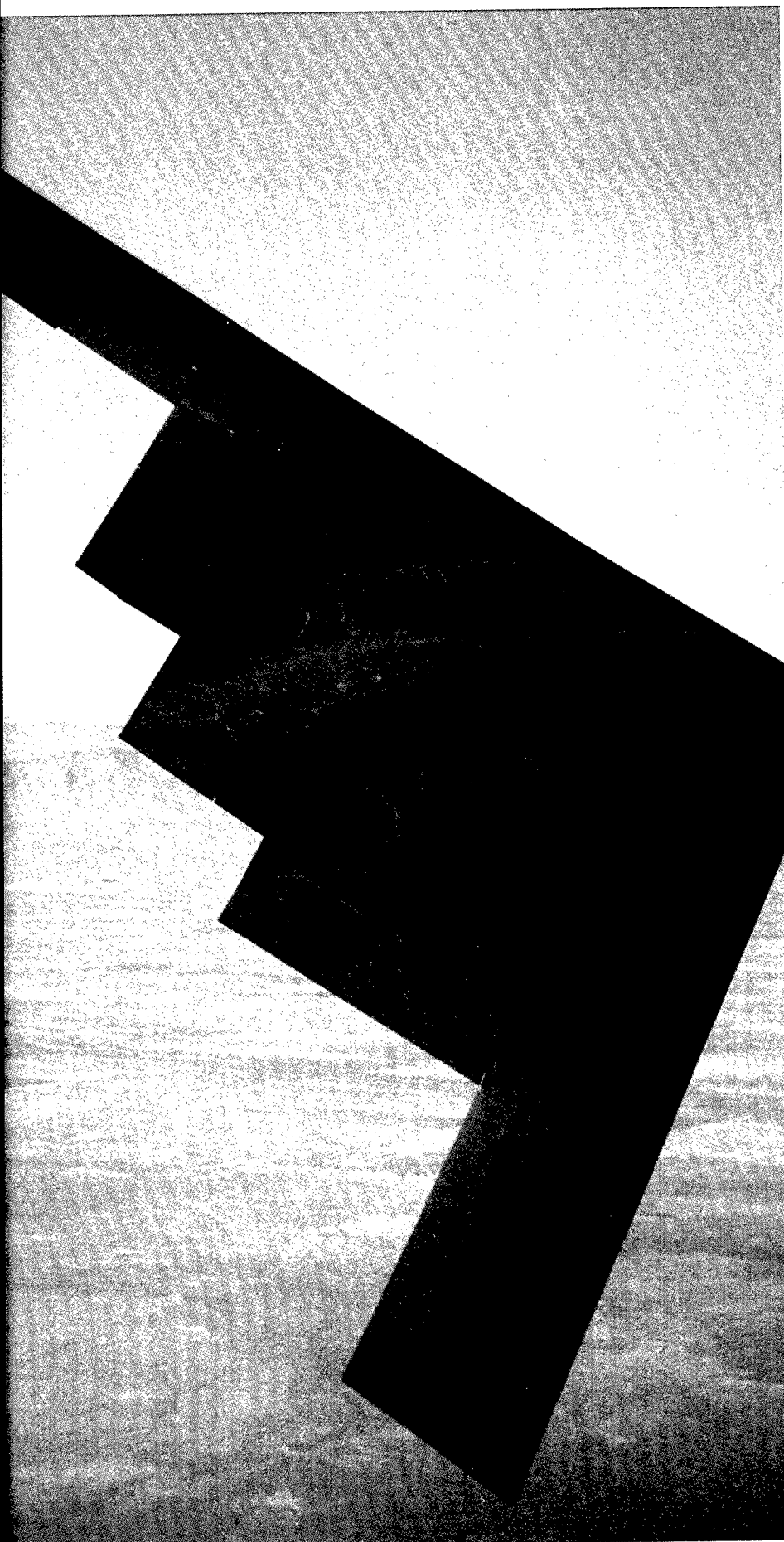
The B-2s are not only ready, they are *combat-ready.* Today, all B-2s operating with the 509th Bomb Wing at Whiteman AFB, Mo., are capable of delivering a large number of heavy, precision bombs. The B-2 has outdistanced the domestic flak leveled against it. With its high-tech construction and weaponry, the B-2 should be able to strike a variety of targets anywhere in the world with minimal support.

Photo courtesy The Boeing Company

Air Force Materiel Command Instruction 23-101, *Air Force Provisioning Instructions* (Dec. 1, 1996), describes provisioning as follows:

> Provisioning is the process of determining and acquiring the range and quantity of support items necessary to operate and maintain an end item throughout an initial period of service. Provisioned items include, but are not limited to, spares, repair parts, and other support equipment. These initial stocks are to be acquired by means likely to support the end item at the least cost to the government until normal replenishment can be effected.
>
> The primary objectives of provisioning include: 1) assuring timely availability of initial stocks of spares at all levels of supply and maintenance in time to meet the operational need date; 2) buying spares at fair and reasonable prices and minimizing life-cycle costs; 3) maximizing the use of items already in the Department of Defense (DoD) inventory; and 4) minimizing development and use of nonstandard parts.

The acquisition of spares must be integrated with other elements such as support equipment, technical manuals, training, and facilities. Successful provisioning depends on early planning to develop cost-effective logistics support and attain maximum readiness. Provisioning is a team effort and requires the active participation of all personnel in the acquisition office, provisioning office, contractor, and the using command.

The B-2 Program

The B-2 Program began as the Advanced Technology Bomber development program early in the 1980s. The B-2 stealth bomber brings to areas of threat and conflict all the attributes that increase the Air Force's potential for successful missions — long-range, large-payload, flexibility, lethality, precision, and survivability.[2] Further, the B-2 is a multi-role bomber capable of delivering nuclear as well as conventional munitions. Its primary mission is to penetrate the most sophisticated defenses and threaten an enemy's most valued targets.

Now the B-2 was thrust into a major cultural change as it began to operate with geographically separated program management ... The program was now faced with the full range of Integrated Weapon System Management and Program Executive Office-related challenges.

According to the Investigation Report, F97-07B-2, the B-2 Program was designated a highly classified, Special Access Required (SAR) program. SAR programs are normally managed in a separate Air Force organizational structure to preserve secrecy. The B-2 was managed in a similar streamlined environment and received program and management oversight by senior-level DoD officials.

Despite the B-2's streamlined management practices, all the normal rules embodied in public law and administrative program management were still applicable. Relief from such requirements required a specific waiver or deviation, provided by the proper authority. This was and still is the case,

particularly for use of appropriated funds. The investigating officer, James McGinley, noted that, "no evidence of any special waivers or deviations granted by the Congress to the B-2 Program was found."

As is the case with any other program, management is one of the most critical factors affecting the program's success. The B-2 Program's management structure was originally established in accordance with the [then] current Air Force program management philosophy. It consisted solely of a System Program Office (SPO), located at Wright-Patterson AFB (WPAFB), Ohio, under Air Force Systems Command (AFSC). The Investigation Report, F97-07B-2 also states:

> The B-2 Program Director and SPO staff were responsible for all aspects of the system's development and acquisition. The SPO staff included a Deputy Program Manager for Logistics (DPML), whose primary focus was developing and integrating the program's logistics support requirements as the program matured throughout the acquisition process.
>
> The logistics support planning assumed that, at some time, Program Management Responsibility Transfer (PMRT) would occur between AFSC and Air Force Logistics Command (AFLC). This was a formal process established to transfer program management responsibility as the program progressed from system acquisition to an operational logistics and sustainment environment. This process was the Air Force standard for fielding new weapons systems until the merger of AFSC and AFLC occurred in 1992, forming what is now known as Air Force Materiel Command (AFMC).

As the program matured from development through production, workload associated with sustainment activities increased to include provisioning of initial spares.

The standup of AFMC brought on many changes and challenges throughout the acquisition world. McGinley points out that the emergence of Integrated Weapon System Management (IWSM) was a

major system management change. This management philosophy for developing and acquiring technically evolving and sustaining products became the guiding principle for the new command.

IWSM provides for cradle-to-grave weapon system management through a single program manager. This is a drastic change from the previous PMRT transition approach of AFSC and AFLC. IWSM established a single System Program Director (SPD) and a System Support Manager (SSM) who works directly for the SPD and not for another command.

Thrust into a major cultural change, the B-2 now began to operate with geographically separated program management. The SPD's location is WPAFB, Ohio, and the SSM is located at OC-ALC, Okla. The program was now faced with the full range of IWSM and Program Executive Office-related challenges.

A number of events (e.g., bulk funding, funding irregularities, and other potential funding violations) dating back to January 1994, are cited as potential causes for the inquiries and investigations regarding the B-2 Program. All said, the B-2 represented not only a technical challenge beyond any aircraft development program to date; it, too, was faced with major hurdles (e.g., command reorganizations, classified vs. unclassified environment, changes in funding laws, staffing, and innovative approaches before their time) that further complicated matters.

"Stealthy Hurdles" for the Stealth Bomber

The B-2 Program faced a number of challenges from inception. It represented technological challenges far greater than normal aircraft development programs. The Investigation Report, F97-07B-2 cites the following:

> The program was plagued with multiple quantity revisions and threats of cancellation by Congress, which caused significant upheaval and pricing instability. Overall program cost and escalating unit-cost-per-aircraft clouded the program's

future as it emerged from the classified environment. Threats of program cancellation, constantly changing quantities, and new design requirements mounted at the same time the DoD budget was being reduced.

In addition to its political and technological challenges, the provisioning method also generated major program hurdles that required managerial dexterity. The B-2 Program employs Spares Acquisition Integrated with Production (SAIP) to meet the provisioning requirement. SAIP allows for certain support items intended for use as spares and repair parts to be manufactured or purchased along with the manufacture or purchase of like items intended for contractor installation on the end item during production. The intent is to reduce the overall cost of acquiring spares by identifying the total aircraft part requirement early in the process so the contractor can obtain better production efficiencies and lower prices through quantity discounts and economic production lots.

Engineering changes have and continue to create complexities for the provisioning effort. Initial spares are ordered to support fully operational air vehicles. However, as the fleet continues to go through production and modification phases, design configurations change. As a result, funding requirements change, and in most instances an increase in funds is needed.

Funding and the use of funds (e.g., fiscal integrity and bulking) for the provisioning contracts have been cited as primary drivers for the inquiries and investigations brought against the B-2 Program. The final ADA Investigation Report provides thorough insight into the program's previous financial management shortcomings. It identifies changes in organizational structure not conducive to the proper flow and interchanges of financial information. These breakdowns hindered management's ability to make sound decisions.

Miscoding of financial transactions impeded the requirement for fiscal integrity

required by public law. The Logistics Support Management Information System (LSMIS) was another source of intrigue for the program. The B-2 Program developed LSMIS in conjunction with the prime contractor, Northrop Grumman, to enable the program to operate in their closed, classified environment. The Investigation Report, F97-07B2 cites the following:

> The LSMIS provided a state-of-the-art, integrated program information system designed to streamline program management and reduce manual operations. It was not only to provide a classified provisioning process in place of the standard provisioning system, the D220 system, but to also improve information retrieval and delivery processes via a paperless environment.

> The use of the LSMIS created added internal problems. The organization that was providing financial management support for the B-2 doggedly maintained the Personal Computer Accounting & Finance (PCAF) system, which was the Air Force's officially approved accounting system to support SAR programs. When the use of the LSMIS was proposed as the primary accounting and funds control system, it created friction among staff members and differing opinions as to which system was, in fact, the right financial accounting system.

This breakdown may have contributed to the flaw in the funds certification process. Effective management of appropriated funds has become one of the most important aspects of a program. The B-2 experience further supports the notion that this responsibility rests with the entire program, meaning all functions (e.g., program management, finance, and contracting).

In 1991 the B-2 Program, like all other programs, was faced with another major hurdle. Congressional concern developed over the large merged surplus account balances ("M" account). DoD's use of these funds for modifications and changes, which in some cases caused program outlays to substantially exceed the cumulative amount appropriated in

all the program-specific line items, exacerbated Congress's concern and desire to take action. The Investigation Report, F97-07B-2 further adds:

As a consequence, the National Defense Authorization Act for Fiscal Year 1991 (Public Law 101-510) implemented fundamental changes to the life cycle of appropriations. Most notably, it phased out the "M" account and extended the expired status of funds (3010-procurement funds) to five years. At that point, the funds cancel and are no longer available for any purpose. The Act also established specific criteria that DoD must follow in recording or adjusting expired or canceled obligations. Adjustments to obligations properly chargeable to the original appropriation are charged to the expired account during the five-year period.

A major fiscal albatross prompted by this legislation is that once the account cancels, unliquidated obligations and upward adjustments to the original funding appropriation are charged against current year appropriations of the same type.

How did these changes ultimately affect the B-2 Program and, more specifically, the provisioning process and its contracts? The Investigation Report, F97-07B-2, points out that official implementation guidance was slow in flowing down from higher headquarters, primarily due to the drastic nature of these changes and their far-reaching implications for program management.

The change in funding life cycle and limited high-level guidance created concern within the B-2 Program regarding the provisioning process and the lengthy delays already being experienced in definitizing many PIOs. As a matter of record, the program was grappling with a serious backlog of undefinitized PIOs, which was a focus of management and contractor attention.

The emphasis by the B-2 staff on overage undefinitized PIOs was now intensified by the probability that obligated funds from the earlier fiscal years of the program would be lost to cancellation before

The B-2 Program has been challenged by internal and external events that have added to its complexity. The issues cited in the ADA Investigations are not just the concern of program management, contracting, or finance. In the new acquisition environment, they should be the concern of everyone involved. ADA violations stress the core of program success.

the government's liability could be fully determined, let alone liquidated. This issue was foreseen by the B-2's Chief of Contracting, who spearheaded an effort to obtain Air Staff recognition of the perceived impact on the program and guidance for managing these fiscal problems.

When SSM management concluded that this issue was not receiving the appropriate level of attention, unique B-2 SSM Program initiatives to rectify the problem(s) resulted. These included the "bulk funding" process (1992-93) and efforts to "re-code" funds on various spare-parts orders that would not likely be delivered before the funds canceled, probably re-

quiring the eventual substitution of limited current year funds ....

The B-2 Program has been challenged by internal and external events that have added to its complexity. All of the issues have not been presented here. The intent is to bring to light some of the issues that have plagued one of DoD's most touted weapons systems. The issues cited, primarily funding, and their impact are not just the concern of program management, contracting, or finance. These issues, especially in the new acquisition environment, should be the concern of everyone involved. ADA violations stress the core of program success.

What to Look For

According to AFI 65-608, ADA violations generally may occur by taking one or more of the following actions:

- Authorizing or creating obligations before funds become available.

- Authorizing or creating obligations in excess of the amount available, including quarterly allotments, suballotments and allocations of appropriated funds, or other administrative controls.

- Exceeding a statutory ceiling on the amount of funds that may either be obligated or expended for a specific purpose, even if otherwise available for obligation.

- Distributing funds in excess of the amount available.

- Exceeding the amount available in an administrative subdivision of funds.

- Failing to comply with statutory or regulatory limits or prohibitions on the use of an appropriation or fund.

- Accepting voluntary service, or employing personal services, in excess of that authorized by law, except in case of emergencies involving the safety of human life or the protection of property.

- Augmenting available appropriations by retaining and expending earned re-

ceipts or reimbursements from outside sources without either a DoD charter as a revolving fund activity or a statutory exception to 31 U.S.C. 3302(b) (Miscellaneous Receipts).[3]

Another ADA and fiscal law pertinent issue is the Bona Fide Needs Rule. The essence of the Rule is that an appropriation may be validly obligated only to meet a legitimate need existing during, or in some cases prior to (but continuing to exist in), the fiscal period for which the appropriation was made. The Bona Fide Need Rule has a statutory support in the ADA, 31 U.S.C 1341(a) and the Adequacy of Appropriations Act, 41 U.S.C 11.[4]

As noted earlier, the B-2 Program underwent a preliminary ADA review and a formal investigation. What is the difference?

AFI 65-608 defines the difference:

> Preliminary review is performed to determine whether a potential ADA violation has occurred and often forms the foundation for a formal investigation. Preliminary reviews develop the facts and circumstances that are used in deciding whether to commit further resources to a formal investigation. Such review includes checks for duplications or other errors in reviewing, and recording commitments and obligations to ensure they are valid and properly chargeable against the funds involved. The resulting facts and circumstances are also used in verifying actual fund status in the correct account at the time the transaction creating the problem occurred.

A preliminary review does not attempt to identify responsible individuals, recommend corrective actions, or collect other information required during a formal investigation. Formal investigations are performed when the preliminary review determines that a potential ADA violation has occurred or a formal investigation has been requested by the Under Secretary of Defense (Comptroller) (USD[C]) or the Assistant Secretary of the Air Force (Financial Management

and Comptroller) (SAF/FM). Also, when appropriate (e.g., possible fraud or collusion exists), formal investigations should be coordinated with the local Air Force Office of Special Investigations (AFOSI) to determine if an AFOSI investigation is required.

Responsibility for an ADA violation is fixed at the moment the improper activity occurs (e.g., over-obligation or over-expenditure). A responsible party is the person who has authorized or created the overdistribution, obligation, commitment, or expenditure in question or was in a position to prevent the violation. Generally, the responsible party may be or will include the highest-ranking official in the decision-making process who had either actual or constructive knowledge of precisely what actions were taken and the impropriety or questionable nature of the actions.

The formal investigation should be completed and the results reported to the Director for Audit Liaison and Follow-up (SAF/FMPF) no later than six months from the start of the investigation. SAF/FM may approve an extension of six months on a case-by-case basis. However, any extension requires written justification and shall not exceed 45 days.

The ADA violations committed by the B-2 Program initially included violations of 31 U.S.C. 1341 and 31 U.S.C. 1517. The former citation was for improper transfer of funds. The latter was for having insufficient funds to reverse improper obligation transfers. The violations were reviewed again, and ultimately the 31 U.S.C. 1341 violation was changed to reflect another 31 U.S.C. 1517 violation.

The Renaissance

George Santayana, the poet, wrote "Those who don't remember the mistakes of the past are doomed to repeat them." The B-2 management has recognized this and implemented the following procedures to bring about positive change:

• Stopping the Bulk Funding.

• Training all SPO personnel (e.g., Fiscal law, ADA Violations, Provisioning).

• Performing an outside review by a reputable private auditor (PricewaterhouseCoopers).

• Reconciling program records and accounting records.

• Reconciling program records and contractor records.

• Implementing Management Control Plans, Standard Operating Procedures, and internal controls.

• Increasing teaming processes.

• Increasing use of electronic media (e.g., E-mail and videoconferencing) to facilitate problem solving and decision making.

• Implementing prompt, proactive measures to address the circumstances cited in the preliminary ADA review.

• Responding promptly to the formal ADA investigation findings and implementing corrective actions.

Aggressively implementing these procedures and measures has already contributed to better management of today's B-2 Program.

The B-2 Today

The B-2s are not only ready, they are *combat-ready*. Today, all B-2s operating with the 509th Bomb Wing at Whiteman AFB, Mo., are Block 30 (final) configurations. This means each is capable of delivering a large number of heavy, precision bombs.[5] The B-2 has outdistanced the domestic flak leveled against it. With its high-tech construction and weaponry, the B-2 should be able to strike a variety of targets anywhere in the world with minimal support.

As the system matures, however, the often forgotten contributions of the support functions (Wright-Patterson AFB, Tinker AFB, and Northrop-Grumman) will become that much more important. These professionals on the support side are comparable to the offensive lineman on a football team – all guts, no glory. They work hard to support the weapon

system and get it to its full operational capability. Yet, their efforts are seldom mentioned in the success stories.

The need for more spares, low observables, avionics hardware and software support, environmental shelters, and maintenance will also rise as the system matures. To meet these requirements, additional funds will be required.

The latest General Accounting Office (GAO) report (June 1998) on the B-2 Program cites $44.3 billion as the cost estimate to complete development, procurement, and modification of the B-2 Program. The GAO also points out that other requirements, yet to be identified, may require further effort and funding. Regardless of how accurate this figure may be, it is still a very large sum of money. As a result, in this deeply constrained budget environment, proper program, contract, and funds management have as great an impact on the B-2's success as those who actually fly the aircraft. It will take a concerted effort by all parties to bring the entire fleet (21) to full operational capability.

As program managers, contracting officers, and finance officers we should not take our responsibilities lightly; nor should we exceed our authority in performing our duties. The B-2's ADA experience was just that — "experience." In the face of a changing environment, decisions were made. Ultimately, a number of those decisions were questionable. However, the experience, bad as it was, has provided some valuable lessons for the future.

Learning — Sometimes Painful, Always Necessary

Program changes continue to evolve. The lessons gleaned from these experiences are priceless. The B-2 management, as a whole, has sought to instill the following cultural changes throughout the program:

- Communication cannot be overemphasized; contracts and funds management must not be done in a vacuum; and effective/efficient business management practices must be implemented.

Cross-fertilization must be promoted. Contracting must be knowledgeable of fiscal law/funding; finance must be knowledgeable of provisioning and contracting; and program managers/supply support personnel must be aware of fiscal law/funding.

- Procedures for transitioning a program from a classified to unclassified environment must be established.

- Cross-fertilization must be promoted. Contracting must be knowledgeable of fiscal law/funding; finance must be knowledgeable of provisioning and contracting; and program managers/supply support personnel must be aware of fiscal law/funding.

- Expiration/cancellation of funds must be properly managed; tracking and forecasting procedures must be established.

Such actions are not B-2-specific. When in doubt, bring in the lawyers! Consult with legal for fiscal law advice. Based on our experiences with the B-2 Program , we also recommend that you keep in mind a few broad guidelines for ensuring fiscal integrity of your program:

- Establish clear lines of authority and responsibility of funds certification.

- Train your personnel continuously to enhance knowledge and build experience.

- Provide tools to help your personnel exercise prudent judgment.

- Ensure sufficient funds are available in proper appropriations.

- Ensure adequate internal controls (i.e., management control plan).

- Follow established upward obligation process, as required.

- Exercise proper planning/implementation when transitioning from Special Access Required (SAR) status — removing SAR status (DESAR) — (i.e., coordination, reestablishing security evaluation procedures, remarking of parts/packages, etc.).

- Finally, remember that information must flow to facilitate sound decision making. In this new acquisition environment, *communication is king.*

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Legislation Pending for Federal and National Y2K Test Days

Government Looks to Head Off Effect of "Millennium Bug"

DAISY BHAGOWALIA

To help avoid any devastating complications from the "Y2K bug," Congressman Harold E. Ford Jr. introduced legislation on a National Y2K Test Day in early March.

The bill calls for a Federal Y2K Test Day June 1 and a National Y2K Test Day July 1. The bill would give agencies approximately six months to fix any Y2K-related problems that surface and will clearly show the nation's Y2K status since the actual "D-day" of Jan. 1, 2000, is quickly approaching.

The Government Reform Committee's grading of federal agencies Feb. 22 showed that 13 of 24 agencies are still not Y2K-compliant, resulting in an overall grade of C+. The president has set a deadline of March 31 for all federal agencies to be Y2K-compliant.

The bill has received much interest from the House and Senate. The Government Affairs Committee on the Senate Side and the Government Reform Committee on the House side are reviewing the bill. Congressman Ford's office and the committee are also working with the President's Y2K Council on the bill, and the Congressional Budget Office is currently doing a scoring for a cost estimate.

For the benefit of agencies and all the military services, this article serves as a heads-up of the proposed June 1 Federal Y2K Test Day. Numerous questions regarding cost and disruption to the government are being posed, but the United States has already spent $7.2 billion as of November 1998 on Y2K costs, according to the Government Accounting Office's testimony at the Y2K hearing Jan. 20.

During the U.S. Postal Service testimony at the Y2K hearing in February it became apparent the postal service is lagging dangerously behind in its efforts to assure that its complex system of computers will function properly.

John Koskinen, chairman of the President's Y2K Council, stated at the Jan. 20 hearing that he believes the greatest Y2K risks are small businesses, small-government entities, and the international arena. He said he expects local problems, like power outages, to occur.

The bottom line is Y2K is coming with an unstoppable deadline of Jan. 1, 2000, and Congressman Ford's bill is merely a trial run. A U.S. city did a Y2K test in September 1998 and many unexpected problems occurred. The Y2K problem is real; its consequences are serious; and the deadline remains unstoppable.

Editor's Note: For more information on the pending Y2K legislation, contact:

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Bhagowalia is an Army Civilian currently on a congressional fellowship with the Government Affairs Institute at Georgetown University. She is working in Tennessee Congressman Harold Ford's office for 1999 and handles his government reform committee work, defense issues, foreign issues, and science and technology issues. She is employed by the Army Digitization Office, Deputy Chief of Staff for Operations and Plans (DCSOPS) in the Pentagon and was the lead engineer for Joint Technical Architecture – Army Compliance before starting her fellowship. She has a bachelor's degree in computer science from Louisiana State University and has partially completed coursework toward a master's degree in computer science from the University of Alabama at Huntsville. She is a DSMC APMC 98-02 graduate, and learned of this fellowship while taking the Capitol Hill elective at DSMC last summer.

Getting to Know You

DSMC Commandant Shares Life Experiences, Inspires, Motivates High School Students

NORENE L. BLANCH

I t is 10:05 a.m., Feb. 25, and the scene is typical as the students of the Bryant Adult Alternative High School in Alexandria, Va., file through the double doors and enter the school library to listen to a guest speaker from the Defense Systems Management College (DSMC).

The students glance at the Navy Admiral dressed to military perfection, but they soon discover that this is not going to be a typical school program, and this is no ordinary visitor.

Navy Rear Adm. "Lenn" Vincent, DSMC Commandant, visited Bryant School in connection with a partnership that DSMC has had with the alternative school since 1993.

The purpose for his visit was to tour the school and address the students. "The Admiral's visit helps him to get a feel for our school and will allow us to get to know him better," explained Jan McKee, Principal, Bryant School.

"I feel that it is very important that we reach to our community and our community reaches out to us, and that is what this business partnership is about," said McKee.

The partnership with DSMC helps Bryant students meet their academic needs by providing opportunities for job shadowing, mentoring, and tutoring.

In addition, DSMC has assisted Bryant by designing brochures and producing a video about the school, as well as donating excess computer equipment.

Technical support, training, and consulting is provided in the areas of computer automation, library services, and the school-fitness program.

The partnership also makes provisions for meeting the student's personal needs by donating food, winter coats, and professional clothing resulting from DSMC's fall and winter clothing and food drives.

"We try to help the students to get past tomorrow," said McKee. "If we make any impact, we have to start from today and move forward."

The program offered through the Bryant Alternative School achieves this and al-

PRESENTATION OF THE DSMC PARTNERSHIP PLAN FOR THE 1998/1999 SCHOOL YEAR TO BRYANT ADULT ALTERNATIVE SCHOOL. PICTURED FROM LEFT: NAVY REAR ADM. "LENN" VINCENT, DSMC COMMANDANT; JAN MCKEE, PRINCIPAL, BRYANT SCHOOL; ARMY COL. JOSEPH JOHNSON, DEAN, DIVISION OF COLLEGE ADMINISTRATION AND SERVICES, DSMC.

lows a diverse population of more than 450 students who reside in Fairfax County to earn their high school diploma outside of the traditional school setting, according to McKee.

The success of the program is its ability to help the students build workplace

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Blanch is an editor with the Visual Arts and Press Department, Division of College Administration and Services, DSMC.

Photos by Richard Mattox

skills on a firm academic foundation, while allowing them to take advantage of flexible scheduling in an accelerated setting.

Students attending Bryant need alternative education due to extenuating life circumstances. Some students are dealing with illness in their families, and

DSMC COMMANDANT, NAVY REAR ADM. "LENN" VINCENT, SPEAKS TO STUDENTS AT BRYANT ADULT ALTERNATIVE SCHOOL, FAIRFAX, VA., FEB. 25. VINCENT TOLD THEM, "MAKE YOUR LIFE AN ADVENTURE, SET GOALS, AND WORK TOWARD THEM. YOU CAN DO ANYTHING ... DON'T GIVE UP!"

others are taking advantage of educational opportunities for pregnant and parenting young women, according to McKee.

Vincent had no trouble establishing a common ground with these students. He commended them for taking advantage of the opportunities offered to them through the Bryant program.

He shared with the students his own challenges as he grew up in a single-par-

ent home. But he stressed how continuing his education and accepting help from people who took an interest in him contributed to his success despite his circumstances.

Although Vincent's military career has required him to move 22 times in 33 years, he explained to the students how he was able to keep his focus, which has led to his success.

"Every time I went to a new job, I focused on the job that I was assigned to. And I focused on the people because it's really the people working together that get things done.

"If I can leave you with one thought, this may be it: work with people, enjoy them, enjoy what you do, and you will be a success."

For DSMC, focusing resources, mentors, and energy into the DSMC/Bryant Alternative High School partnership has led to a success story involving people working together and contributing to the future success of a unique group of students as they prepare to make their mark on the surrounding community.

Getting Word Out on Defense Reform Initiative

JIM GARAMONE

WASHINGTON – The Defense Reform Initiative will be successful if all DoD workers understand what it's about, Defense Secretary William Cohen said during a March 1 news conference.

Getting the word out about the initiative is tough, however. Defense reform is not a glamorous subject, but it is crucial to the long-term success of the Defense Department and has a direct impact on the jobs of thousands of DoD civilians and service-members.

Stan Soloway, Deputy Under Secretary of Defense for Acquisition Reform, took the reform message directly to DoD military and civilian employees through an electronic town hall meeting March 4. The "meeting" took place in a large television studio here with a studio audience of about 150 people. But audiences around the world also watched and could interact with the principals via E-mail, phone, or fax.

The meeting featured an interview with Deputy Defense Secretary John Hamre followed by a panel of DoD experts answering questions from the studio and electronic audience. Officials estimate a global viewership of about 20,000 people. Those who missed the show can still view it, because the program is available at **http://www. acq.osd.mil/ar/**.

The Defense Acquisition University sponsored the town hall meeting. Held at a commercial studio here, the broadcast was beamed around the world. A news release went out electronically and via message to installations, telling them where to aim satel-lite receivers to obtain the signal. In addition, the broadcast was digitized and placed on DefenseLink, DoD's Web site. Web viewers using a common streaming-video plug-in could watch and hear the program without moving from their computers.

Broadcasting a program worldwide is no big deal, but making it interactive is. To encourage viewer participation, an 800-number and an E-mail address flashed on the screen during the broadcast. The Web site also had the contact information.

Soloway's acquisition reform office has made many such broadcasts in the past. This one, however, was the first to specifically address the Defense Reform Initiative and to feature the Deputy Defense Secretary.

In the past, receiving broadcasts sometimes required ingenuity, Soloway said. One installation in California did not have a satellite dish. Members of an office there went to a local sports bar and persuaded the barkeep to aim his dish at the correct satellite so they could watch the show from his restaurant.

Others didn't need to go to such extremes. The Armed Forces Radio and Television Service piped the broadcast to overseas locations, and the broadcast ran on the Pentagon's closed circuit television network.

The production was a joint venture between Soloway's office and the Defense Reform Initiative office.

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

ACQUISITION REFORM

An Internet Listing Tailored to the Professional Acquisition Workforce

Surfing the Net

DEPARTMENT OF DEFENSE

Under Secretary of Defense (Acquisition and Technology) (USD[A&T])
http://www.acq.osd.mil/
ACQWeb offers the Defense Federal Acquisition Regulation Supplement online, a library of USD documents, and jump points to many other valuable sites.

Deputy Under Secretary of Defense (Acquisition Reform) (DUSD[AR])
http://www.acq.osd.mil/ar
Hot topics in AR; reference library; *AR Today* and *AR Now*; DUSD(AR) organizational breakout; "Ask a Professor" assistance.

Acquisition Systems Management (Defense Acquisition Board [DAB] Executive Secretary)
http://www.acq.osd.mil/api/asm/
Documentation, including Department of Defense Directives 5000.1 and 5000.2-R, Major Defense Acquisition Programs List, and more.

Director, Test, Systems Engineering, & Evaluation (DTSE&E), USD(A&T)
http://www.acq.osd.mil/te/programs/se
Systems engineering mission; Defense Acquisition Workforce Improvement Act information, training, and related sites; information on key areas of systems engineering responsibility.

Defense Acquisition Deskbook
http://www.deskbook.osd.mil
Automated acquisition reference tool covering mandatory and discretionary practices as well as procurement wisdom.

Defense Acquisition University (DAU) and Acquisition Reform Communications Center (ARCC)
http://www.acq.osd.mil/dau
DAU course and schedule information; consortium school links; acquisition documents and publications. ARCC provides Acquisition Reform training information, including satellite broadcast information!

Army Acquisition Corps (AAC)
http://www.dacm.sarda.army.mil
News; policy; publications; contacts; training opportunities.

Army Acquisition
http://www.acqnet.sarda.army.mil
Documents library; training and business opportunities; past performance; paperless contracting; labor rates.

Navy Acquisition Reform
http://www.acq-ref.navy.mil/
Information on Industrial Base Integration, World-class Practices, the Acquisition Center of Excellence, and training opportunities.

Navy Acquisition, Research and Development Information Center
http://nardic.nrl.navy.mil
News; announcements; acronyms; publications and regulations; technical reports; "How to Do Business with the Navy."

Naval Sea Systems Command
http://www.navsea.navy.mil/sea017/toc.htm
Total Ownership Cost (TOC); Background and Documentation; Reduction Plan; Implementation Timeline; Process; TOC reporting templates.

Air Force (Acquisition)
http://www.safaq.hq.af.mil/
Reducing TOC; career development and training opportunities; library; links.

Air Force Materiel Command (AFMC) Contracting Laboratory's Federal Acquisition Regulation (FAR) Site
http://farsite.hill.af.mil/
FAR search tool; *Commerce Business Daily* Announcements (CBDNet); Federal Register; Electronic Forms Library.

Headquarters, Air Combat Command (HQ ACC) - Contracting Division
http://www.acclog.af.mil/lgc/lgc.htm
Business opportunities; acquisition regulations; policy guidance and technical assistance in areas such as: performance measurement, International Merchant Purchase Authorization Card (IMPAC); commercial practices; outsourcing and more.

Defense Systems Management College (DSMC)
http://www.dsmc.dsm.mil
DSMC educational products and services; course schedules; *Program Manager* magazine and *Acquisition Review Quarterly* journal; job opportunities.

Defense Advanced Research Projects Agency (DARPA)
http://www.arpa.mil
News releases; current solicitations; "Doing Business with DARPA."

Defense Information Systems Agency (DISA)
http://www.disa.mil
Structure and mission of DISA; Defense Information System Network; Defense Message System; much more!

National Imagery and Mapping Agency (NIMA)
[Formerly Defense Mapping Agency (DMA)]
http://www.nima.mil
Geospatial and imagery information; publications; business opportunities.

Defense Modeling and Simulation Office (DMSO)
http://www.dmso.mil
DoD Modeling and Simulation Master Plan; services; resources; activities.

Defense Technical Information Center (DTIC)
http://www.dtic.mil/
Scientific and technical reports; products and services; registration with DTIC; special programs; much more!

Joint Electronic Commerce Program Office (JECPO)
http://www.acq.osd.mil/ec/
Policy; newsletters; Central Contractor Registration; Value Added Networks; assistance centers; Electronic Commerce/Electronic Data Interchange (EC/EDI) Handbook; EC training.

Open Systems Joint Task Force
http://www.acq.osd.mil/osjtf
Open Systems education and training opportunities; studies and assessments; projects, initiatives and plans; reference library.

Government Education and Training Network (GETN)
(For Department of Defense Only)
http://atn.afit.af.mil/schedule.htm
Schedule of distance learning opportunities.

Government-Industry Data Exchange Program (GIDEP)
http://www.gidep.corona.navy.mil
Federally funded co-op of government and industry participants that provides an electronic forum to exchange technical information essential during research, design, development, production and operational phases of the life cycle of systems, facilities, and equipment.

ACQUISITION REFORM

An Internet Listing Tailored to the Professional Acquisition Workforce

Surfing the Net

FEDERAL CIVILIAN AGENCIES

ARNET (Joint Effort of the National Performance Review and Office of Federal Procurement Policy)
http://www.arnet.gov/
Virtual library; federal acquisition and procurement opportunities; best practices; electronic forums; business opportunities.

Federal Acquisition Institute (FAI)
http://www.faionline.com
Virtual campus for learning opportunities as well as information access and performance support.

Federal Acquisition Jump Station
http://nais.nasa.gov/fedproc/home.html
Procurement and acquisition servers by contracting activity; CBDNet; Reference Library.

Federal Aviation Administration (FAA)
http://www.asu.faa.gov
Online policy and guidance for all aspects of the acquisition process.

General Accounting Office (GAO)
http://www.gao.gov
Access to GAO reports, policy and guidance, and FAQs.

General Services Administration (GSA)
http://www.gsa.gov
Online shopping for commercial items to support government interests.

Library of Congress
http://www.loc.gov
Public laws; legislation; vetoed bills; Congressional Internet services.

National Performance Review (NPR)
http://www.npr.gov/
NPR inititatives; "how to" tools; customer service; newsroom; online resources; accomplishments and awards.

National Technical Information Service (NTIS)
http://chaos.fedworld.gov/ordernow/
Online service for purchasing technical reports, computer products, videotapes, audiocassettes, and more!

Small Business Administration (SBA)
http://www.SBAonline.SBA.gov
Communications network for small businesses.

U.S. Coast Guard
http://www.uscg.mil
News and current events; services; points of contact.

TOPICAL LISTINGS

DoD Acquisition Workforce Personnel Demonstration Project
http://www.crfpst.wpafb.af.mil/
Federal Register and Waivers Package; documents and briefings; reference material; Frequently Asked Questions (FAQ); links to related sites.

DoD Specifications and Standards Home Page
http://www.dsp.dla.mil
All about DoD standardization; key POCs; FAQs; Mil-Spec Reform; newsletters; training; non-government standards; links to related sites.

Joint Advanced Distributed Simulation (JADS) Joint Test Force
http://www.jads.abq.com
JADS is a one-stop shop for complete information on distributed simulation and its applicability to test and evaluation and acquisition.

Risk Management
http://www.acq.osd.mil/te/programs/se/risk_management/index.htm
Risk policies and procedures; risk tools and products; events and ongoing efforts; related papers, speeches, publications, and Web sites.

Earned Value Management
http://www.acq.osd.mil/pm
Implementation of Earned Value Management; latest policy changes; standards; international developments; active noteboard.

Fedworld Information
http://www.fedworld.gov
Comprehensive central access point for searching, locating, ordering, and acquiring government and business information.

GSA Advantage
http://www.fss.gsa.gov
Go to "GSA Advantage" for assistance in using the government-wide IMPAC Card.

INDUSTRY AND PROFESSIONAL ORGANIZATIONS

Commerce Business Daily
http://www.govcon.com/
Access to current and back issues with search capabilities; business opportunities; interactive yellow pages.

Electronic Industries Alliance (EIA)
http://www.eia.org
Government Relations Department includes links to issue councils.

National Contract Management Association (NCMA)
http://www.ncmahq.org
"What's New in Contracting?"; educational products catalog.

National Defense Industrial Association (NDIA)
http://www.ndia.org
Association news; events; government policy; National Defense Magazine.

International Society of Logistics
http://www.sole.org/
Online desk references that link to logistics problem-solving advice.

Computer Assisted Technology Transfer (CATT) Program
http://catt.bus.okstate.edu
Collaborative effort between government, industry, and academia. Learn about CATT and how to participate.

Electronics Manufacturing Productivity Facility
http://www.empf.org
Includes research publications and resources for electronics manufacturing and packaging technology.

If you would like to add your Web site to this list, please call the Acquisition Reform Communications Center (ARCC) at 1-888-747-ARCC. DAU encourages the reciprocal linking of its Home Page to other interested agencies. Contact the DAU Webmaster at:
dau_webmaster@acq.osd.mil

1999 ACQUISITION RESEARCH SYMPOSIUM

Theme: **"Acquisition for the Future: Imagination, Innovation & Implementation**

Subtheme: **"Acquisition Reform – A Revolution in Business Affairs"**

Special Focus: **Civil/Military Integration**
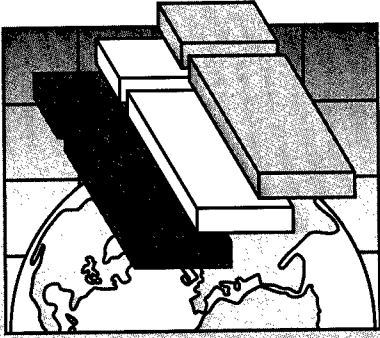
June 21-23, 1999 · DoubleTree Hotel · Rockville, Maryland

SYMPOSIUM

The 1999 Acquisition Research Symposium is sponsored by the Deputy Under Secretary of Defense for Acquisition Reform (DUSD[AR]) and co-hosted by the Defense Systems Management College (DSMC) and the Washington, D.C., Chapter of the National Contract Management Association (NCMA).

CONFERENCE INFORMATION

The Symposium begins at 8:00 a.m., on Monday and Tuesday, June 21-22, and at 8:30 p.m. on Wednesday, June 23. The Symposium will adjourn at noon on Wednesday. A continental breakfast will be offered daily, and lunch will be served on Monday and Tuesday. A reception will be held at the hotel on Monday evening, and an Awards Dinner with a guest speaker will be held on Tuesday evening. Latest program information can be found at www.dsmc.dsm.mil

HOTEL INFORMATION

The DoubleTree Hotel is located at: 1750 Rockville Pike, Rockville, Maryland 20852. Room rates are $115.00 per night. Please contact the hotel at (301) 468-1100 before 5:00 p.m., May 28, to receive these rates. Indicate that you are attending the Acquisition Research Symposium and use Code A209.

KEYNOTE SPEAKER

Jack S. Gordon, President, Lockheed Martin Skunk Works

PLENARY SPEAKERS

Honorable David R. Oliver, Principal Deputy Under Secretary of Defense (Acquisition & Technology)

Honorable Stan Soloway, Deputy Under Secretary of Defense (Acquisition Reform)

Honorable Daniel S. Goldin, Administrator, National Aeronautics & Space Administration [Invited]

Honorable Deidre A. Lee, Administrator, Office of Federal Procurement Policy/Office of Management and Budget

Honorable Arthur L. Money, Senior Civilian Official, Office of the Assistant Secretary of Defense (Command, Control, Communications & Intelligence) and DoD Chief Information Officer

Clayton M. Jones, President, Rockwill Collins, Inc.

PANELS

DoD Service Acquisition Executives: Looking Ahead
Joint Government & Industry Perspective on Acquisition Reform: Civil/Military Integration
Civilian Agency Acquisition Executives – Innovation Outside of DoD
Congressional Perspective

RESEARCH PAPERS

Look for the latest research in the field of acquisition! Papers addressing the most innovative acquisition reform ideas are presented during 24 concurrent sessions on topics such as: Acquisition Reform Successes and Lessons Learned; Civil-Military Integration; Leveraging Technology in Acquisition; International Acquisition Issues; Organizational and Cultural Change; and Outsourcing and Privatization.

REGISTRATION FORM

Pre-Registration: $250.00
(Before 5:00 p.m., May 28)
Late Registration: $300.00
(After 5:00 p.m., May 28)

Mail this registration form (or a copy) and payment to:

Acquisition Research Symposium
NCMA, Attn: Administration Department
1912 Woodford Road
Vienna, Va. 22182
703-448-9231 or 1-800-344-8096 or
Fax 703-448-0939 (For Credit Card Payment)

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