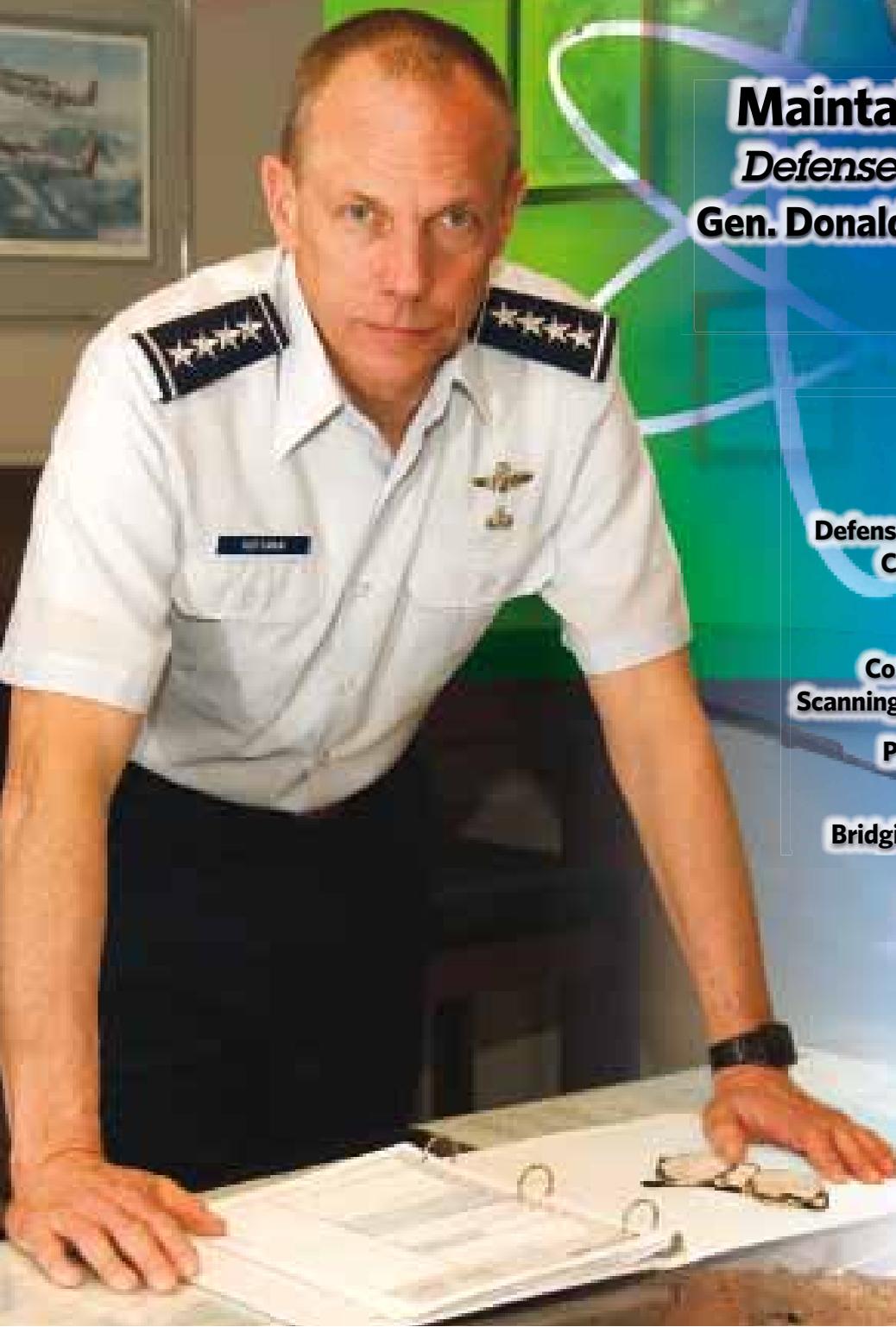


Defense **AT&L**

July-August 2009

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Maintaining the Edge *Defense AT&L interviews* **Gen. Donald J. Hoffman, USAF**

Commander, Air Force
Materiel Command

ALSO

Breaking the Camel's Back

**Defense Acquisition Human Capital
Challenges and Opportunities**

Acquisition as Deterrent

**Controlling Acquisition Risk via
Scanning for Emerging Contaminants**

**Program Management versus
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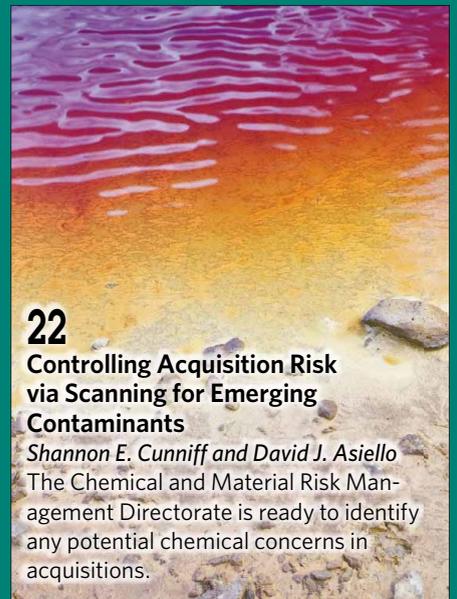


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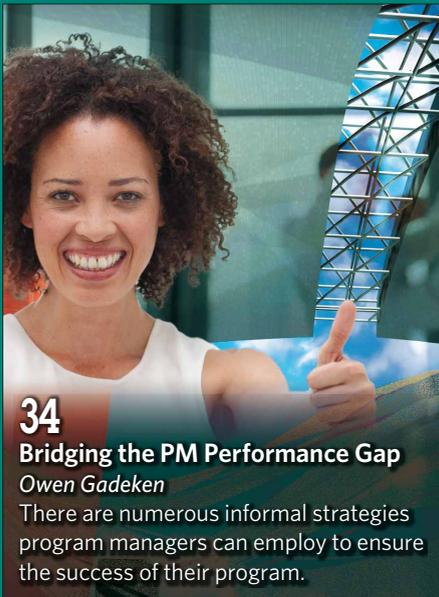


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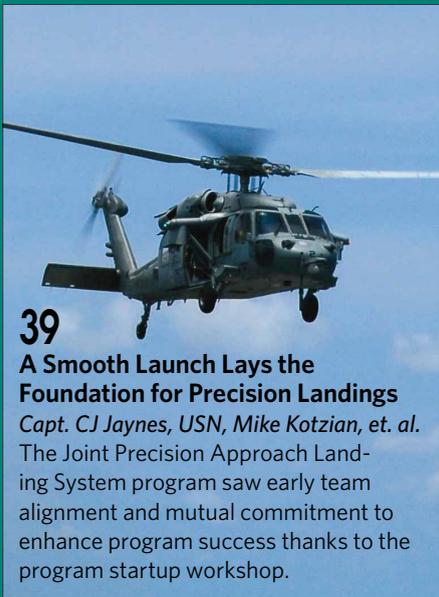
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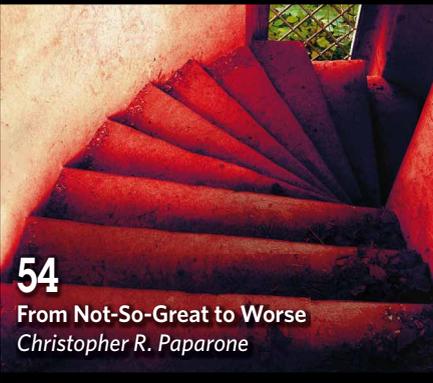
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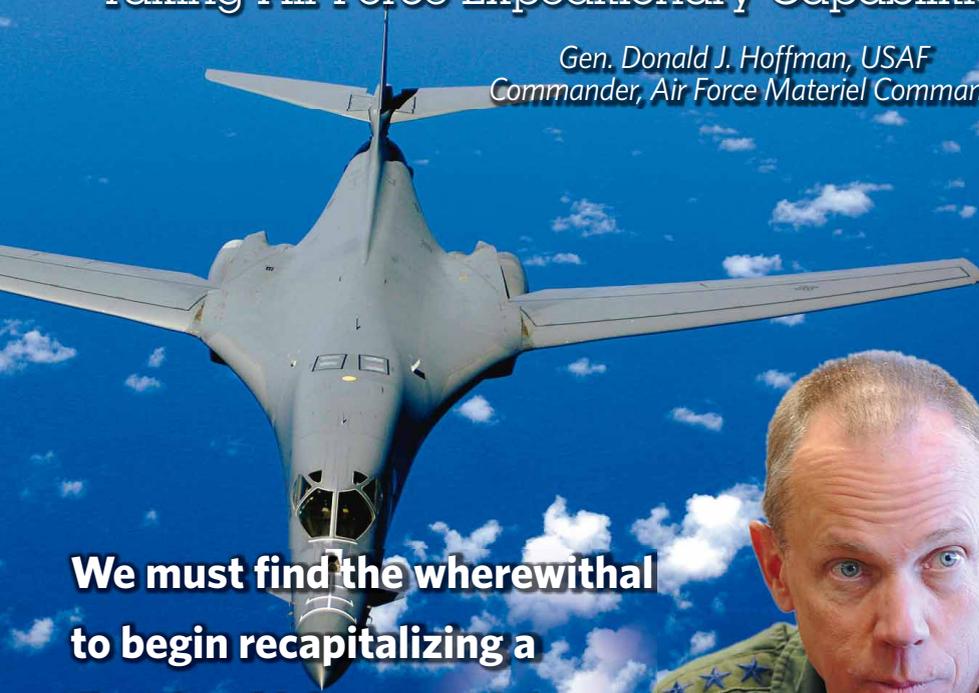
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Maintaining the Edge

Taking Air Force Expeditionary Capabilities to the Next Level

Gen. Donald J. Hoffman, USAF
Commander, Air Force Materiel Command



We must find the wherewithal to begin recapitalizing a fleet in which many of the aircraft are better suited for a museum than for current Air Force operations.



Gen. Donald J. Hoffman leads one of the most diverse and dynamic organizations in the Air Force. As the commander of Air Force Materiel Command, he is responsible for a workforce of 74,000 people—two-thirds of whom are Air Force civilians—as they engage in research, development, test and evaluation, acquisition management services, and logistics support for the Air Force. This breadth of responsibility is complex, but the AFMC mission is simply stated: deliver war-winning capabilities, on time and on cost. *Defense AT&L* caught up with Hoffman in April to discuss how AFMC is managing aging aircraft, workforce complexities, and sus-

tainment missions, all while continuing to produce cutting edge battlefield technologies.

Q What do you consider the most urgent requirements for the Air Force and AFMC, and how is the command meeting those requirements?

A Above all, we have to recapture excellence in the support AFMC provides the Air Force nuclear enterprise. No mission is more important than safeguarding our country's vital

nuclear capabilities and maintaining nuclear deterrence. The AFMC pieces of this enterprise are acquisition and sustainment, but we didn't have unity of command for those responsibilities until we established the Air Force Nuclear Weapons Center at Kirtland Air Force Base, N.M. We're implementing more stringent tracking and control systems for nuclear weapons-related materials. In fact, we're improving supply chain management processes across the board.

Our command's senior leaders established five command priorities in February. Your question was about urgent requirements, and I think those priorities certainly fit the bill. In addition to what I just mentioned—reinvigorating AFMC's role in the nuclear enterprise—the priorities are to implement effective and efficient integrated life cycle management to support the warfighter; to support the Air Force by recruiting, training, and retaining a high-performing workforce; to nurture and protect our people and families; and to be good stewards of government resources.

I've charged our senior leaders with focusing on those priorities every day. If we're successful, we'll be supporting the Air Force as it tackles its overarching priorities. But it won't be easy. To meet the priorities, we have to overcome some long-standing challenges—including cultural and process changes related to nuclear sustainment and operations, the current high-operations tempo that's challenging both our troops and our aging fleets, and resource constraints that make it imperative we reassess our requirements and set priorities accordingly. On top of all that, we must find the wherewithal to begin recapitalizing a fleet in which many of the aircraft are better suited for a museum than for current Air Force operations.



We need to ensure we create a future force—I'm talking about 2030 and beyond—that can effectively fly, fight, and win in that environment.

Q *What do you see as AFMC's strongest points in supporting the Air Force and the warfighter? What are some of your biggest challenges?*

A I am extremely proud of our acquisition workforce—military, civilian, and contractors—who work at our product centers, air logistics and test centers, and at the headquarters at Wright-Patterson Air Force Base, Ohio. Their contributions are critical to delivering capabilities to the warfighter, so I'm focusing intently on institutionalizing changes required to fully support our commitment to acquisition excellence.

Over the past year, we've strengthened the acquisition source-selection process by making changes to the three source-selection mandatory processes: training, reviews, and governance. We're also working with the secretary of the Air Force on improving the requirements-generation process throughout the entire weapons system life cycle.

And we're working to recapitalize the acquisition workforce itself. I'm personally committed to filling existing vacancies and creating additional billets. Then, we must properly assess whether we need to shift members of the workforce into different specialties—such as systems engineering, contracting, or cost pricing—to meet our acquisition excellence goals. Recapitalizing our acquisition workforce is a long-term, multi-year effort to rebuild, incentivize, and reward our professional workforce. And we must make sure the right people get promoted to senior and executive levels.

Q *If I could follow up on that point, Secretary of Defense Robert Gates has said that the Air Force acquisition workforce is seriously undermanned, which has contributed to some of the acquisition challenges seen over the last few years. You just mentioned shifting members of the workforce into different specialties—workforce shaping. Could you elaborate on how AFMC is handling that need?*

A It's a priority, no question about that. We can't consistently provide acquisition excellence if we don't solve the workforce-shaping puzzle. I've asked leadership to fill their civilian employee vacancies to the maximum extent possible. Whether we're hiring from the outside or picking from a list of internal candidates, we must hire the best-qualified people.

The civilian workforce is an integral part of the Air Force's and AFMC's capability. AFMC is the only major command in which a majority of the workforce—a very large majority at that—is civil service. The active-duty member has a vital but different role. Researchers, systems maintainers, program managers, test and development experts, and business managers have helped secure our nation's freedoms, too. AFMC needs to retain a core of experts to teach and mentor a new generation of civil servants. And AFMC is looking for that next generation of employees. During the next five years, the command plans to add positions throughout many organizations and provide opportunities for career development and progression.

Q You've said the Air Force needs to step up its purchases of new aircraft rather than continue to spend millions maintaining older planes with outdated technology. Other senior leaders say the aging fleet is a critical problem. Is it really that bad?

A Well, I wish you could put that question to some of the airmen I talked to last February when I visited several locations in the AOR [U.S. Central Command's area of responsibility, including Iraq and Afghanistan]. I sat in the cockpits of different aircraft, and it's fair to say they are all vintage aircraft. They have steam-driven gauges and round dials. The airmen over there who are operating and sustaining these weapons systems are keeping them in the air, sometimes through sheer force of will and ingenuity; but we, as a nation, owe them better. Providing our airmen with better weapons systems takes resources and modernization, and those are challenges right now.

It's maybe easier to appreciate the problem when you realize the Air Force has been in sustained combat operations for

I tell our troops to treat every dollar, every taxpayer's dime, as if it were their own, because it is.



more than 19 years. The average age of our aircraft is more than 25 years, with bombers averaging 33 years and tankers more than 44 years. Parts of the Air Force fleet are more than 40 years old; and some 2,000 of the 6,000 airplanes in the Air Force are now under some sort of a flight restriction, mainly because of aging. The urgency of recapitalizing the tanker fleet, I think, grows every day. Flying and sustaining this aging force has resulted in a 17-percent decrease in readiness across the board, even though flight-line and depot-maintenance crews work magic to keep many of our legacy aircraft flying.

Beyond the immediate needs, we have to reverse this trend. I think the nation has to make a renewed commitment to investing in the best technology the aerospace industry has to offer our armed forces. If we don't, the airmen—and really, all servicemembers of tomorrow—will inherit institutions that don't arm them with the best tools to do their jobs. We need to ensure we create a future force—I'm talking about 2030 and beyond—that can effectively fly, fight, and win in that environment. The rate of change in technology is increasing. Combine that with the dynamics of the modern world, and you get a very high-stakes game.

Q *If defense budgets are reduced, how will this affect AFMC's sustainment mission?*

A The short answer is the sustainment mission will become more challenging than it already is. Over the last several years, our air logistics centers have shown a remarkable capacity to improve their processes and meet more challenging production goals. I hope we don't have to find out where that ceiling is, but regardless, we must avoid strategic or irreversible mission failure. Whatever our limitations, some things can never go on a backburner. We need a heightened emphasis on protecting, conserving, and responsibly consuming our resources to successfully accomplish our mission, not only now, but over the long haul. I tell our troops to treat every dollar, every taxpayer's dime, as if it were their own, because it is.

As we recapitalize, we have to acquire and develop cost-effective weapons systems. We know we can make combat-effective weapons systems, but they also need to be cost-effective in today's environment. We also have to sustain those new weapons systems while still sustaining—for decades, in some cases—the legacy weapons we have. We can't replace everything as fast as we'd like, so there's no choice but to figure out new and creative ways of sustaining our existing aircraft.

Q *You mentioned that the air logistics centers over the last few years have improved their processes significantly and have met increasingly challenging production goals. Could you give some examples?*

Gen. Donald J. Hoffman, USAF

Commander, Air Force Materiel Command

Gen. Donald J. Hoffman was commissioned into the Air Force in 1974. He has served in various operational and staff assignments in Europe, the Middle East, and United States. Previous assignments include serving as chief, Aviation Section, Office of Military Cooperation, U.S. Central Command, Cairo, Egypt; executive officer to the commander, Headquarters, Air Education and Training Command, Randolph Air Force Base, Texas; commander, 14th Operations Group, Columbus Air Force Base, Miss.; special assistant to the supreme allied commander, Europe, Supreme Headquarters Allied Powers, Europe, Mons, Belgium; and assistant chief of staff for operations, Headquarters, Allied Air Forces Northwestern Europe, NATO, Royal Air Force, High Wycombe, England, and deputy commander for NATO affairs, Headquarters, 3rd Air Force, Royal Air Force, Mildenhall, England.



Hoffman has commanded at the flight, squadron, group and wing levels. Previous command assignments include serving as the commander, 52nd Fighter Wing, Spangdahlem Air Base, Germany; commander, 31st Fighter Wing and 31st Air Expeditionary Wing, Aviano Air Base, Italy; director of requirements, Headquarters Air Combat Command, Langley Air Force Base, Va.; and military deputy, Office of the Assistant Secretary of the Air Force for Acquisition, Washington, D.C.

Hoffman received his Bachelor of Science degree in electrical engineering from the U.S. Air Force Academy; and his Master of Science degree in electrical engineering from the University of California, Berkeley. He is a graduate of the Air Command and Staff College, the National War College, and the National Security Management Course.

Hoffman is a command pilot with more than 3,400 flying hours in fighter, trainer, and transport aircraft. His awards include the Distinguished Service Medal with oak leaf cluster, the Defense Superior Service Medal, the Legion of Merit with oak leaf cluster, the Defense Meritorious Service Medal, the Meritorious Service Medal with three oak leaf clusters, and the Combat Readiness Medal with oak leaf cluster.

A

The command has had several significant successes in the logistics arena.

AFMC stood up the Air Force Global Logistics Support Center in March 2008. The center is now integrating supply-chain processes into one end-to-end enterprise, helping the Air Force reduce annual operating support costs by as much as 10 percent and increasing equipment availability. That center has been working closely with major commands, AFMC's air logistics centers, and the Defense Logistics Agency to make sure we have the most current data and standard processes to identify warfighter repair requirements.

Throughout this past year, integrated process teams of specialists from the logistics support center and DLA have tackled a whole range of improvements in processes, roles, and responsibilities for joint support of distribution planning,

enterprise-level metrics, inventory reduction, a collaborative planning process for consumable items, and sourcing strategies. The whole list is longer.

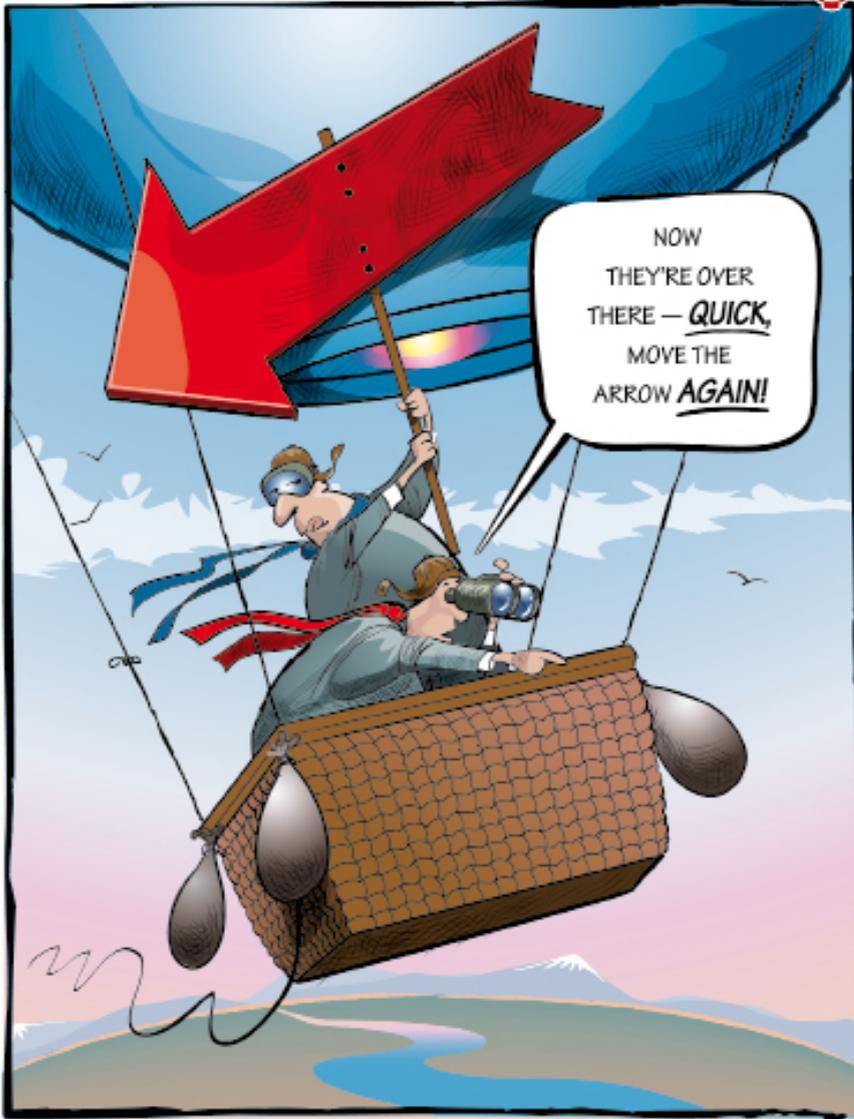
A few years ago, the command started what we call Centralized Asset Management, and that has proven its value. It centralizes programming, budgeting, and execution for Air Force weapons system sustainment within AFMC instead of having it spread out among the operational commands. With CAM, we've fundamentally refocused how the Air Force manages weapons system sustainment requirements and funding at the logistics enterprise level. The CAM process saves time and money by eliminating multiple-requirements reviews. The money saved has gone right back into funding other high-priority requirements.

We've begun final planning for the Expeditionary Combat Support System, which is a critical component of the Air

We're even looking toward using bio-based fuels. For a guy who believes that conservation of resources and green technologies are important to national defense, that's pretty exciting news.



GREAT MOMENTS IN ACQUISITION HISTORY



1862: Early aerial targeteering technology

Force's eLog21 initiative [see <<http://www.af.mil/library/eLog21.asp>> for more information on eLog 21]. The ECSS is based on a commercial software technology. It will merge base-level and wholesale logistics systems into an enterprise-level approach, replacing more than 250 legacy computer systems while giving us real-time visibility of assets worldwide. What's significant is that ECSS will give decision makers a single source of authoritative information.

We've also piloted High Velocity Maintenance at all three of our air logistics centers, which allows us to shorten an asset's total down-time for maintenance. And it gives us a lot more predictability in the work we need to plan and the materials we need on hand.

Our researchers and scientists have made excellent progress with technology that will allow us to anticipate, find, fix, track, target, engage, and assess enemy activity anytime, anywhere. We're developing new technology for today and tomorrow's fight, modernizing and acquiring weapons systems, including everything from the combat uniforms worn by our airmen to the manned and unmanned aerial systems and subsystems they fly and maintain. When I see what our scientists and engineers are doing, I'm optimistic about the Air Force's—and really, the nation's—ability to maintain our technological edge.

Q Gen. Hoffman, we thank you for your time.

To me, the most gratifying success has been the significant progress in certifying our fleets to fly synthetic fuel blends. We're on track to have all engines approved to use a 50-percent synthetic jet fuel blended with JP-8 by 2011. And now, we're even looking toward using bio-based fuels. For a guy who believes that conservation of resources and green technologies are important to national defense, that's pretty exciting news.

Q What new technologies are on the horizon that might help on the battlefield?

A Our Air Force Research Lab is heavily involved in aircraft design. For example, it's investigating the use of carbon fiber for aircraft use. The benefit would be a stronger, perhaps lighter, and less-costly aircraft, but with greater range and endurance. If successful, it may lead the way to put less demand on international sources for rare metals.

NASA is providing test data from the X-43A aircraft to enhance our understanding of hypersonic flight dynamics to be used in the Air Force's own hypersonic, hydrocarbon-fueled flight program, the X-51. Our collaborative research with NASA on high-altitude, long-endurance technology will result in a lighter-weight, gust-tolerant wing design. These are all technologies I want the Air Force to lean forward on.

Breaking the Camel's Back

If Only DoD Operated as a Business

John Krieger ■ Roy L. Wood





f the Department of Defense could operate more like a commercial business, weapons systems would be cheaper, on time, and meet the needs of the battlefield commanders. That is a recurring theme in the dozens of acquisition reform studies over

Krieger is a professor of contract management for DAU's School of Program Management. He has 29 years of government experience in contracting and acquisition, and is a former assistant commander for contracts at the Marine Corps Systems Command. **Wood** is the dean of DAU's School of Program Managers. He is a former assistant deputy under secretary of defense and retired Navy engineering duty officer.

the past several decades. Most recently, a Defense Science Board report noted almost wistfully that DoD should adopt “commonplace tenets of good management practice that abound in the commercial sector” (Defense Science Board 2008 report, “Defense Imperatives for the New Administration”). While no one we know has the chutzpah to defend many of DoD’s more notorious business blunders, comparing DoD with commercial business is a faulty analogy. While “making DoD work more like a business” makes for a good soundbite, it grossly oversimplifies the situation and can inadvertently drive discussion away from realistic solutions. To apply a quote from H.L. Mencken: “There is always a well-known solution to every human problem—neat, plausible, and wrong.”

Do We Really Want to Be Like Business?

“DOD’s [sic] business practices need not be worse than the commercial sector’s norm,” according to the Defense Science Board’s 2008 report. First of all, to disabuse oneself of the belief that commercial business practices are the simple answer to DoD’s problems, one need only be reminded of recent corporate debacles involving Enron, Worldcom, and Tyco. Freddie Mac and Fannie Mae—paragons of quasi-governmental, market-driven corporations—were at the crux of the 2008 home mortgage financial collapse. Arguably among the historically most successful businesses, the “Big Three” U.S. automakers are, as of this writing, marching hats-in-hand to Congress on the brink of failure because of poor economic conditions and bad business decisions.

Do we really want DoD to emulate corporations in the commercial sector? Before answering, perhaps a quick tally is in order. How have commercial firms in the commercial sector fared over time? According to Price Prichett in his book *The Employee Handbook of New Work Habits for a Radically Changing World*:

- Of the 100 largest U.S. companies at the beginning of the 1900s, only 16 are still in existence today.
- Only 29 out of the 100 firms topping the first Fortune 500 list, created in 1956, could still be found in the top 100 by 1992.
- During the 1980s, a total of 230 companies—46 percent—disappeared from the Fortune 500 list.

Product development and sustainment in the commercial sector are, likewise, not as ideal as many wish to believe. According to Robert G. Cooper’s book, *Winning at New Products*, only one of four commercial projects that enter development make it to market; one of three products fails at launch, despite business research and planning; and a whopping 46 percent of all investments in product development and commercialization fail to yield an adequate financial return. Echoing this sad statistic, Greg A. Stevens and James Burley suggest that of 3,000 raw product ideas, only one makes it as a commercial success (“3,000 raw ideas = 1 commercial success!” *Research Technology Management*, May-June 1997).

In a similar vein, public projects outside DoD fare no better in terms of cost and schedule performance. Boston’s “Big Dig,” the “Chunnel” connecting England and France, and over 100 other projects on roads, bridges, and public building projects experienced significant cost overruns and substantial schedule delays. The “Big Dig” project in Boston, for example, overran its costs by 196 percent, and the Chunnel by 80 percent, according to Bent Flyvbjerg, Nils Bruzelius, and Werner Rothengatter in their book *Megaprojects and Risk: An Anatomy of Ambition*. There are certainly greater similarities between the management of public infrastructure projects and those of the DoD; and unfortunately, there are strikingly similar results.

Why DoD is Not Like a Business

DoD has a mission that is embedded directly in the preamble to the Constitution of the United States: “provide for the common defence.” The department is essentially a “public utility” that provides “energy” for the security of the nation. Some of this energy is invested in acquiring infrastructure in the form of ships, aircraft, tanks, and the myriad military systems needed to carry out the mission. This public utility is driven by an enormous bureaucracy that is overseen by a “board of directors” of 535 members of Congress. Billions of dollars flow through the department each year to a relative few defense contractors who build the wares of war and employ hundreds of thousands of skilled workers (who happen to also be congressional constituents and voters). As such, the department, unlike every business, operates as a not-for-profit monopsony [*a market condition with a single buyer*] buying goods and services from an industrial oligopoly [*a market condition with few sellers who can limit competition and materially affect price and availability of goods*]. The department has no profit motive to drive its behavior, and the defense industrial base is inextricably tied to its sole customer but has few real incentives (such as fierce competition) to control costs.

As a large spender of taxpayer funds, DoD is often the tool for implementing public policy—some having little to do with good business decisions or generating effective national defense. For example, a small percentage of the defense budget is siphoned off each year to fund small business innovative research projects. There are laws requiring defense contract preferences and set-asides for small, disadvantaged businesses. And there are, of course, congressional earmarks in each year’s authorizations and appropriations that direct funding to a particular project or constituency. Those efforts may contribute to the public good, but they do so in ways that no smart business would operate.

As a regulated industry, DoD operates under mountains of guidance and oversight. Since 1994, Title VIII of the National Defense Authorization Act has included more than 500 sections of acquisition provisions. The Federal Acquisition Regulation contains 1,933 pages of legalese; and its companion document for DoD, the Defense Federal Acquisition Regu-

lation Supplement (DFARS), provides another 1,015 pages. Even the *Defense Acquisition Guidebook*, designed to help acquisition managers navigate the labyrinthine regulations and procedures, is 520 pages. For comparison, *Moby Dick* is a minnow-sized 420 pages, and even Tolstoy's epic *War and Peace* is dwarfed at 699 pages. Each rule and regulation was undoubtedly created over time to enshrine a good practice or prevent an egregious error, but each of these Band-Aid® fixes to the acquisition process has created a challenging and wholly unbusiness-like system.

On the customer side, the defense customer base is represented by a small number of senior decision makers who establish the requirements for new battlefield equipment, unlike a commercial marketplace in which the customers represent themselves. Through yet another complex vetting process called the Joint Capabilities Integration Development System (JCIDS), battlefield shortfalls are identified, alternatives evaluated, and decisions made about what is needed and how it must perform. The process is completely logical, if slow and cumbersome, but being largely divorced from the buying process, it generally encourages "everything and the kitchen-sink" requirements that press the acquisition system to try to buy a Cadillac system with a Yugo budget.

Reinforcing this opinion, a 2008 Government Accountability Office (GAO) report noted that the system was not particularly effective in its analytical rigor or in aiding DoD to make good investment choices. In fairness, this situation is improving with closer collaboration between requirements setters and buyers, but there is a wide gap between this process and one that might be considered business-like.

Improving DoD Acquisition

Recognizing that DoD does not operate as a business and that, even so, operating like a business is not a panacea, there are clearly improvements that can and should be made. Even with the constraints under which DoD operates, scarce taxpayer dollars can and should be invested to maximize the defense and security capabilities DoD can deliver. To do that, a number of fundamental changes must be made and, frankly, it is not at all clear whether there is the political will to make it happen.

Managing the Product Line

Many in DoD, Congress, and elsewhere would agree that DoD has too many acquisition programs chasing too few dollars. GAO recently estimated that the entire portfolio of DoD projects amounted to more than \$1.7 trillion and was completely unaffordable. The first fundamental, absolutely necessary change is to bring the DoD portfolio into line with the available budgets. That means the JCIDS process must morph into a system that can aid in making tough strategic choices of which capabilities are really needed—and affordable—and which should be deferred or canceled. Such decisions will take courage to make and perseverance to stick.

DoD's challenge: Prove that acquisition can walk the talk; remain accountable to Congress, taxpayers, and warfighters; and have the self-discipline to manage its portfolio.



Every acquisition program will have advocates in Congress, industry, and elsewhere who will insist that its cancellation will mean the end of civilization as we know it. Yet, continuing to fund and extend lower-value programs will hurt the rest of the portfolio and ultimately damage national security and battlefield readiness. Rightsizing the acquisition portfolio may require an approach similar to Base Realignment and Closure in which low-priority acquisition programs are bundled for an up-or-down vote by stakeholders. Demonstrating the benefits of eliminating a few programs to the remaining ones in the portfolio might defuse some of the stakeholder criticism. Remaining programs reap the benefits of higher-priority, more stable funding; and perhaps allow greater numbers of systems be developed and fielded. This approach could be more successful than the whack-a-mole tactic of eliminating one program at a time and battling the stakeholder antibodies that would emerge in support of each individual program.

Simplified Regulation and Greater Accountability

Well-meaning statutes and regulations have become so complex and constraining that in many cases, smart business decisions are not only difficult, but impossible. Regulation designed to prevent mistakes have created a zero-tolerance environment in which risk avoidance and ultra-conservative approaches translate to higher costs, longer schedules, and poor decision making. While difficult, a comprehensive review of acquisition laws and regulations needs to be conducted to eliminate the unnecessary, streamline overly prescriptive and constraining rules, and create a rule set that fosters innovation and good decision making. In the meantime, a legislative holiday needs to be imposed to temporarily keep from exacerbating and complicating the situation until the review can be completed. To balance streamlined regulation, it will be incumbent upon DoD to insist on greater accountability from its acquisition



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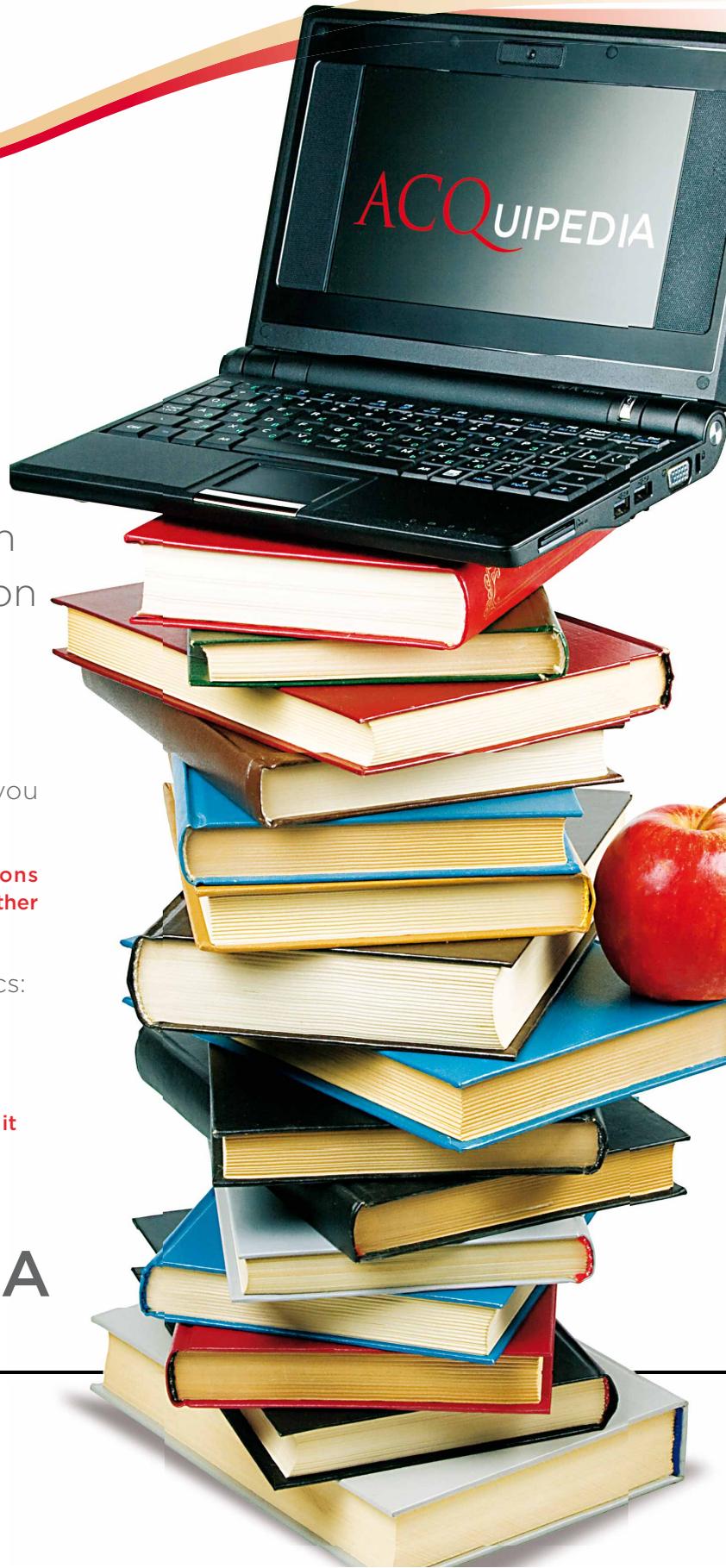
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program managers and oversight officials. One way to do this is to extend the tenure of defense program managers to at least five years—and make that stick—so they live with the consequences of their decisions. Another requirement would be to increase the rigor of milestone and gate reviews for programs. Too often, the default decision at milestone reviews is to allow the program to proceed to the next, more-expensive phase rather than holding it back until it is proven to be sufficiently mature. This tough love approach would require courage, but would restore substantial credibility to the integrity of the idea that the acquisition system can self-manage.

Operating with Good Business Principles

While DoD is not a business, nor can it ever be expected to operate like one, there are always opportunities for it to employ admirable principles like transparency, accountability, self-discipline, fairness, social responsibility, and customer focus. Those principles are at the core of many of the laws and regulations that attempt to codify and enforce them. If DoD demonstrated that it embraced such principles in all its business dealings, the laws and regulations would be unnecessary. That is DoD's challenge—prove that acquisition can walk the talk; remain accountable to Congress, taxpayers, and warfighters; and have the self-discipline to manage its portfolio.

Changing the Process

DoD acquisition is not a business. It never has been; it never will be. Rather, it operates much as a public utility, with significant oversight and regulation. The acquisition process must contend with powerful stakeholders who encourage the status quo; a risk-averse decision-making process that adds cost and delay; and an overstuffed portfolio created by customers with largely unconstrained appetites and no real linkage to budgets. With all these challenges, the system operates much as one might imagine—but certainly not like a commercial business.

If any improvement is possible, changes must be made within the framework DoD operates. Claiming that operating more like a business will solve the ills is overly simplistic and simply wrong. If change is possible, it must come from both inside and outside. Inside, the acquisition system itself must display the discipline, courage, and deep understanding of real constraints and the art of the possible. Change will come when the system demonstrates the ability to better self-govern. From the outside, Congress and key stakeholders must provide sufficient latitude and maneuvering room for the system to heal by removing some of the onerous regulatory and bureaucratic rules, allowing the system to streamline itself. Perhaps this is a chicken-and-egg challenge that lends itself to incremental change, but there are bold incremental changes that can help. The time to start is now.

The authors welcome comments and questions and can be contacted at john.krieger@dau.mil and roy.wood@dau.mil.

Defense Acquisition Human Capital Challenges and Opportunities

Anita K. Blair



About 25 years ago, I spent 11 months in trial on a case involving the procurement of the High Mobility Multipurpose Wheeled Vehicle, or HMMWV. The dispute in our case centered around the design of the armored version of the HMMWV.

At that time, nobody was thinking about improvised explosive devices. To the extent anybody thought about the threat of mines or rocket-propelled grenades, they probably thought, “No way could we produce a vehicle armored against those threats within the weight bogey and the other specifications we’re required to meet. That would be another vehicle altogether.”

Although the Jeep had been in use for 40 years before it was replaced, I don’t think the designers of the HMMWV believed their vehicle would be used for 40 years. Yet here we are, almost 30 years later, still using HMMWVs.

Blair is a lawyer and the former acting assistant secretary of the Navy for manpower and reserve affairs.



The Most Valuable Asset

What has that story got to do with human capital? My intense experience learning about the original HMMWV armor design and engineering actually taught me about the extraordinary importance of people in the national defense.

Working on the case, I needed to formulate what lawyers call “the theory of the case,” or what others might just call “the big picture.” When I asked myself some basic questions to understand what was really going on, the narrative always led back to the human element.

First, why put armor on a vehicle at all? After all, it would be a lot easier and cheaper to leave the armor off. But vehicles—just like airplanes, ships, and submarines—have people inside them. We have to care about their safety and protection. Second, why put people in vehicles? Because it really is true that “In the

21st Century, our most sophisticated weapons system is the human brain, and our most valuable asset is our people,” as noted in the 2007 Department of the Navy human capital strategy. Artificial intelligence and unmanned vehicles are getting to be pretty good, but there is still no substitute for the human operator.

That is even truer today than in the past. Today’s conflicts demand tactical competence as well as tact and sensitivity on the part of our warfighters. Their job is not only to defeat the bad guys, but also to win over people and behave in such a manner that the folks back home—and across the world’s stage—will approve.

That applies to the warfighters on the front lines, but what about those of us in the acquisition workforce? One big lesson I learned from my adventures in acquisition is that it takes a village to build a truck. Warfighters are the users, but they are not the only people

“In the 21st Century, our most sophisticated weapons system is the human brain, and our most valuable asset is our people.”

2007 Department of the Navy Human Capital Strategy

involved. Vehicles don't conceive, fund, design, manufacture, distribute, and maintain themselves. The whole supply chain is populated with people who specialize in those roles. I would venture to say that defense acquisition is one of the most complex business ecosystems in the world. Acquisition stakeholders include just about everybody in America, and many outside America as well.

Even though we tend to think of the acquisition “business” as focused on things, the real core competency of defense acquisition is, it seems to me, exercising judgment—analyzing needs, developing rules, assembling options, understanding tradeoffs, and making good choices. It is all work that may be aided by technology, but it's work that fundamentally requires people to do it.

Seeing the Whole Picture

The challenge for the acquisition workforce is a common one in the so-called human resources realm: to ensure that the institution manages its human capital like an asset and not just as overhead expense. To do this effectively, leaders and managers need to see the whole picture.

You may remember the fable of the six blind men who asked to meet an elephant because they had heard so much about the mighty beast. They were led to the place where the elephant was kept, and each one grasped a part of the beast

and thought, “This must be what an elephant is.” The blind man holding the trunk said the elephant was like a snake; the one gripping the tusk said the elephant was like a spear; the one touching the ear said the elephant was like a fan; the one feeling the body said the elephant was like a wall; the one clasping the leg said the elephant was like a tree; and the blind man clutching the tail said the elephant was like a rope. But, of course, the elephant is none of these things; it's an elephant!

In the same way, we need to grasp the whole picture of our enterprise or else we will mislead ourselves. We will fail to define the right issues and we will adopt solutions that don't fix anything and that will allow problems to persist and grow.

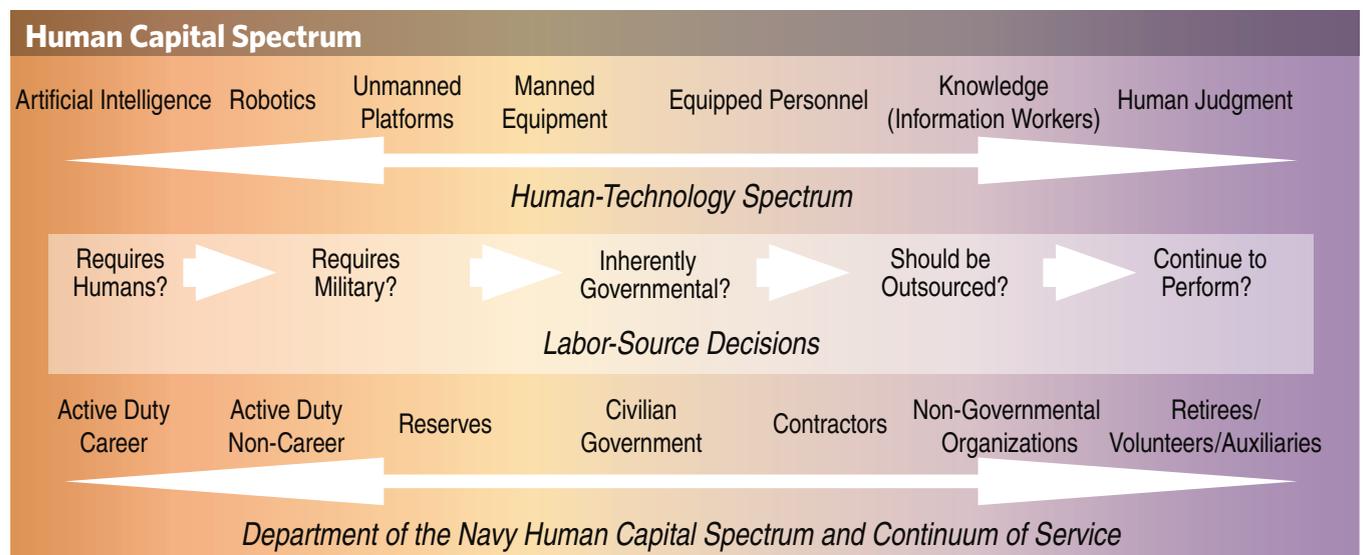
An Organic Human Capital System

Working on the Department of the Navy human capital strategy, I found a persistent theme of the silver bullet. Here and there were lone rangers who believed they had the one and only answer. They would say, “If only we can fix compensation,” or “If only we can get the IT system we need,” or “If only we can define competencies ... then that will solve everything!” In fact, we need to do all those things, and we need to do them in a coherent and coordinated manner.

During my time in the Department of the Navy, we developed a basic model for the elements of the total system of human capital management. We found that there are five basic categories of issues that always need to be considered:

What is the work? We define work in many ways: mission, capabilities, requirements, tasks, conditions, and standards. The mission is top priority, so we always start with the work.

Who are the workers? We operate with a total force of military (active, reserve, and National Guard) and civilian, including government employees, contractors, and non-governmental organizations and volunteers. Workers have various qualifications and competencies, including aptitude,



We need to grasp the whole picture of our enterprise or else we will mislead ourselves. We will fail to define the right issues and we will adopt solutions that don't fix anything, and that will allow problems to persist and grow.

experience, education, certifications, knowledge, skills, and abilities.

How is the workforce structured? Organizational design helps identify the right rules, roles, responsibilities, relationships, accountability, and authorities.

What processes apply? Processes help us measure and move work and workers through the system. Processes include:

- Inputs (data, information, knowledge)
- Applications (e.g., to define, measure, analyze, improve, control)
- Outputs (products, measurable effects).

Why do workers work? What motivates them and the system? Compensation is often the first thing people reach for when they want to manage a workforce, but that's like assuming the gas pedal is the key to driving a car. It's necessary, but not sufficient. And in the case of compensation, other motivators and rewards—inspirational leadership, development opportunities, a desire to serve—may be as good as or better than money for a lot of people.

An excessive focus on compensation can lead to results that are not only nonproductive, but counterproductive. Workers will accept the extra money, but they won't change their ways. Some may even feel insulted or angry that their higher motives were devalued by management. So in the Department of the Navy's case, when we wanted to see the elephant of our human capital strategy, we acknowledged that we weren't dealing with a snake or a wall or a rope, but an organic system.

For example, competencies are key, but they must relate to the work, so you have to understand what the work is. You need processes to keep track of where competencies reside in your organization, you need an organizational structure to be able to distinguish levels of competency, and you need motivational tools such as compensation and benefits to get workers to acquire the right competencies. Merely adopting a list of adjectives and declaring them competencies is

insufficient without attention to all the other elements of the system.

Guiding Principles

The other big-picture tool that was important in developing and executing the Department of the Navy's human capital strategy was providing sets of guiding principles. I mentioned earlier that there are some things we can't rely on machines to do, and exercising judgment is one of those things. As we sought to manage the elements of human capital, we found that we needed some guiding principles to aid our judgments; those principles fell into four categories:

- **Mission:** The mission defines and determines what we do. We concentrate on excelling in required capabilities and core competencies.
- **People:** People make the difference. People are our most valuable asset. We invest in, cultivate and develop people in a lifetime of service.
- **Change:** A rapidly changing world demands that we be agile, flexible, and adaptable. We pursue continuous improvement and encourage lifelong learning.
- **Value:** We cannot afford to waste time, money, or lives. We make well-informed choices in managing our total force to provide the best value for America.

For the acquisition community, the challenge is real and it's big. Recently, the secretary of defense singled out acquisition and contracting reform as one of the principal objectives of the DoD budget. He said, "Fully reforming defense acquisition also requires recognizing the challenges of today's battlefield and constantly changing adversary. This requires an acquisition system that can perform with greater urgency and agility."

As I hope I've demonstrated, the acquisition system is not a collection of stuff. It isn't run by machines; and it isn't a snake, a fan, a wall, a tree, or a rope. The system is you; the system is us. The system is people engaged in a big, important enterprise, in a coherent and coordinated manner, understanding the basic elements and exercising sound judgments in a principled manner.

The good news is, you can do it. I have the highest respect for the people in the acquisition community. You have a huge responsibility, major challenges, and many critics, but much to be proud of. I don't believe you get the credit you deserve, but I know you will continue to perform your duties, and you'll rise to any challenge, including the challenge of mastering change so that it's change for the better, not for the worse.

Note: This article is based on remarks the author gave at the 2009 Defense Acquisition University Alumni Association Acquisition Community Symposium, held April 14, 2009.

The author welcomes comments and questions and can be contacted at anita.blair@wellyblair.com.

Acquisition as Deterrent

Maj. Dan Ward, USAF

THE CONFUSION, EXPENSE, AND DELAY *IS* THE WHOLE POINT...



ALL WARFARE
IS BASED
ON
DECEPTION
— Sun Tzu

The other night I had a dream. I was walking through a deserted part of the Pentagon, down a hallway I'd never seen before. I suddenly realized I had a slip of paper in my hand and, unsurprisingly, no clothes on whatsoever. Scrawled on the paper, in handwriting I did not recognize, were the words "6th floor, F-ring."

"Huh," I thought to myself. "I didn't know there was a 6th floor, or an F-ring. Must be new."

Dreams are funny that way, you know, with that funhouse distortion of reality they so often contain.

Ward is the chief of process improvement and reengineering in the Acquisition Chief Process Office, Office of the Deputy Assistant Secretary of the Air Force for Acquisition Integration. He holds degrees in systems engineering, electrical engineering, and engineering management. He is Level III certified in SPRDE and Level I in PM, T&E, and IT.

Illustration by Jim Elmore

There was a staircase ahead, and I began to ascend, climbing endless steps with a dreamy slow-motion pace with which you are no doubt familiar. My legs felt like lead while my gut screamed to go faster. I briefly wondered where my clothes were.

Suddenly, I found myself wearing a formal uniform, standing outside a door that said, "Welcome to the Office of Acquisition Deterrence." There was no sign; the door actually said the words out loud. It was one of those kinds of dreams.

The door swung open invitingly, and I walked into a lush foyer with dark paneling. An elegantly calligraphed sign on the wall displayed a dictum by Sun Tzu: "All warfare is based on deception."

The rest of the walls were decorated in the traditional decorating scheme of military facilities, with images of high-tech weapons systems in action. I perused the photos of artillery pieces, jet fighters, and helicopters for a few moments before something struck me. These were not just any old weapons. They were the Navy's A-12 Avenger, the Army's RAH-66 Comanche helicopter, and the Crusader field artillery. A one-fifth scale model of the Sgt. York Division Air Defense Gun sat on a mahogany table. Those weapons, every single one of them, had been cancelled after significantly overrunning their budgets and schedules, often because the hopelessly complex technologies had become operationally irrelevant, ineffective, or both. Not a single one of those projects had delivered an operational capability. "Who would build such a hall of shame?" I wondered.

Suddenly, a giant man in a grey and orange uniform was standing at my side. He had two rows of six stars on each shoulder—a 12-star general. I told you, it was one of those dreams. With a deep voice, he said, "Ah, thank you for coming. I've been expecting you."

The Truth Revealed

The general's massive hand gestured for me to take a seat in one of the deeply padded, high-backed leather chairs that were scattered around the room. It was the most comfortable chair I'd ever sat in.

"What I'm about to tell you is likely to be quite a shock," he began. "It's also extremely classified. In fact, it's almost too classified to say out loud, and even though you're not really cleared to know this, you've left me no choice. I have to brief you in to the program before you do any more damage to our national defense posture."

He paused, taking a long drag from a huge cigar. "I won't beat around the bush. When it comes to acquisitions, you've got it all wrong. The truth is, the schedule delays, cost overruns, excessive complexity, and ineffective performance frequently associated with American military hardware development are not an accident. We do it that way on purpose." He paused again to let the words sink in.

"These supposedly unfortunate acquisition outcomes are not inadvertently caused by ineptitude, greed, or confusion," the general continued. "The truth is, it's all part of a deliberate strategy. Your efforts to introduce reform and efficiency are inadvertently undermining an important element of national defense, and they need to stop." He took another puff

As long as our stuff is expensive, complex, and takes decades to accomplish, nobody else will even try to develop advanced weaponry.

How could they?

from the cigar, and a river of smoke poured out of his mouth as he continued.

"Decades ago, we made a strategic decision that American military weapon development projects should be expensive, complex, and lengthy. The more time and money we spent, the better. We did this in order to discourage other nations from imitating us. It is a brilliant strategy, really. By spending billions of dollars and countless decades building hugely complex weapons systems—some of which never work and others of which barely work—we send a not-so-subtle message to our adversaries: 'You can't do this.' Heck, we can barely do it, and we're the United States of America."

I sat there in my comfortable chair, unable to move or blink, surrounded by a constantly expanding cloud of suffocating cigar smoke. My mind raced, "No, it can't be true. It can't be true!" But deep down, with ice-cold dream logic, I knew it was. It was all making so much sense to my slumbering mind. The Sun Tzu sign on the wall now read, "Appear weak when you are strong, and strong when you are weak."

"As long as our stuff is expensive, complex, and takes decades to accomplish," the general said, "nobody else will even try to develop advanced weaponry. How could they? Nobody else has the kind of money necessary to design, develop, and field stuff like the F-22 Raptor, the Future Combat System, or Naval supercarriers. As long as the expense, delay, and complexity seem inevitable, nobody else will have

the kind of patience and the persistent, consistent political will to do so. Nobody else has the necessary level of technical expertise required to construct such beasts. Nobody else can understand our Joint Capabilities Integration Development System process, that's for sure. For that matter, we don't really understand it either. That's not an accident. The confusion, expense, and delay is the whole point."

"Look, Major," he leaned in closely, thrusting his head through the smoke. "If we suddenly began to make weapons system development look easy, if we were to rapidly develop and deliver innovative weapons systems that were both inexpensive and simple, the rest of the world might decide that they, too, can build state-of-the-art weapons. And they might be right ... and then we'd be in a heap of trouble, wouldn't we? We'd have to fight them, and nobody wants that."

The Sun Tzu quotation on the wall changed again and now read, "Supreme excellence consists in breaking the enemy's resistance without fighting."

"It's a disturbing thought, I know," the general said, "but our beleaguered, often-criticized defense acquisition community is actually serving an important deterrent role by convincing our adversaries to not even attempt to develop high-tech weapons to counter the U.S. military. Our inability to constrain costs and stick to budgets sends a clear message: Even the U.S. of A. has a brutally hard time doing this stuff. All you other countries shouldn't even think about it."

"Supreme excellence consists in breaking the enemy's resistance without fighting."

Sun Tzu

"This strategy of acquisition deterrence is every bit as effective as the nuclear ICBM force was against the old USSR. Dadburnit, I miss the Soviets," he said with a sigh and another long pull on his cigar. "Our ICBM fleet never launched a missile against the commies—it wasn't supposed to. Its mission was to deter them from launching against us ... and it worked. They crumbled without a single nuke being dropped on their heads (or ours, for that matter). Our acquisition community, which consistently busts budgets and overruns schedules, is actually serving an important deterrent role. We chose not to do things better because to do so would invite imitation by our adversaries, and we'd lose our ability to deter the technical advancement of hostile militaries. Do you understand what I'm saying?"

I was still unable to move, frozen in my chair by dream-induced paralysis. The icy ball in my stomach had expanded to fill my entire torso, and a cold sweat bathed my forehead.

"Why do you think Skunk Works was classified for so long? To protect the technology, sure, but also to hide the method and to disguise the fact that we could do things faster, simpler, and cheaper when we wanted to. Come on now, do you really think all these supposedly bad outcomes were anything but deliberate? Do you really think all the smart people in the acquisition community over the last 50 years couldn't figure out how to make this acquisition thing work? Of course they could, but I wouldn't let them do it—at least not in public or on a regular basis. I allowed enough successes to throw off any suspicion of our real motives, but not so many that the bad guys might decide to copy us."

He sat back in his chair and looked pensive. He now had a fistful of cigars in each hand, and he smoked them all at once.

"It was really touch-and-go for a while in the '90s, when NASA started their Faster, Better, Cheaper initiative. Nine of the first 10 projects in that portfolio were huge successes, and we nearly lost our deterrent edge. People started to realize high-tech systems could be, well, fast and cheap. That is, until 1999, when I personally arranged for four out of five of their projects to fail, and the whole Faster, Better, Cheaper thing got torpedoed. Now the idea of Faster, Better, Cheaper is just a joke." He broke into a loud guffaw that filled the room like smoke, filled my ears, filled my eyes, filled my head....

Galactical Crimes

Suddenly, I was standing on the surface of an alien desert world. It looked oddly familiar. Two orange moons circled overhead, their rapid orbits producing visible movement across the sky. A small group of strange-looking creatures was clustered along the edge of a pit in the sand, conferring and discussing something that was obviously important. You can always tell that things are important in dreams like this. One alien stood alone, a few feet away from the others. I carefully crept forward to listen in.

"For the crime of reducing the sector security of the Federated Technocracy, we sentence Commander Krog to death in this Raslac pit. As program manager of the Peregrine Starfighter program, you delivered an innovative and highly effective new weapon system at half the expected cost and in half the allocated time. By publicly demonstrating the capability to rapidly develop and field weapons systems that are simultaneously inexpensive, simple, and technologically advanced, you provided our enemies, the Minotaur-Squids of the Indigo Zone, with an example they could follow, and which they did indeed follow.

"Following your example, the Minotaur-Squids built several new 16th generation starfighters in a matter of weeks. Thus emboldened by their success in developing new weapons, they escalated hostilities against the Federation and destroyed several allied planets. You are responsible for these

losses. We will now throw you into this pit, and you will be digested by the ravenous Rascal for 22 years. Do you have any last words?"

"I understand my fault," Krog said with brave dignity, "and accept my punishment." Then they pushed him into the pit without a struggle, and he silently disappeared into the gaping maw of the unseen Rascal.

The Final Judgment

Suddenly, I was back in the Office of Acquisition Deterrence, face to face with the 12-star general in the grey and orange uniform. We stared at each other for a long moment, and his eyes silently told me he knew all about Krog, all about the Peregrine and the Rascal. He knew. I wondered if he was an alien.

With a surprising gentleness, he put a hand on my shoulder. It warmly engulfed most of my upper arm, and there was a promise of steel behind the warmth.

"Look, it's not your fault, Major. You were just doing what we said we wanted you to do, but now you know that's not what we really want. You were just trying to make things more efficient, to prevent us from going over budget and over schedule again. But you understand now, don't you? You understand that you can't do that anymore?"

"See, it's one thing when the Government Accountability Office tells us we're screwing up and we should cut schedules and spend less money. That's all part of the strategy. Those GAO reports really help spread the word that weapon systems acquisitions is an expensive, difficult, complex business. But when a program manager like you starts to actually do things, well, the people in this office need to take action. Fortunately, it doesn't happen as often as you might think."

His words made so much sense at the time, given the gauzy conviction and clarity that is so often found in dreams but that mercifully melts away in the light of day. He led me back to the doorway, and as the door swung open, I discovered the hallway was gone. In its place was a sandy Rascal pit. The general pushed, and I began to slowly fall towards a distant circle of pointy teeth. I woke up with a start, my heart pounding and my brow soaked with sweat. I sat panting in the dark bedroom. My clock read 2:22.

"Whasa matt'r?" my wife mumbled from the other side of the bed, blissfully half asleep.

"Nothing, honey," I answered, trying to keep my voice from trembling. "It was just a bad dream. Go back to sleep. It was just a bad dream."

The author welcomes comments and questions and can be contacted at the.dan.ward@gmail.com.



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Controlling Acquisition Risk via Scanning for Emerging Contaminants

Shannon E. Cunniff ■ David J. Asiello

Making better risk management decisions and investments enables the Department of Defense to expedite and sustain systems acquisition; protect people; maintain operational capabilities; and minimize the likelihood of unanticipated future costs—ideally avoiding such costs altogether. Faced with growing public and governmental interest in environmental issues, DoD is committed to improving its understanding of emerging contaminants and acting early to manage them and other chemical risks. DoD defines emerging contaminants as chemicals or materials that have evolving science (e.g., beryllium); new or unknown exposure pathways (e.g., trichloroethylene and nanomaterials); and new detection capabilities (e.g., perchlorate) that can be reasonably anticipated to lead to regulatory changes.

A new program initiated in 2006 by the Office of the Deputy Under Secretary of Defense for Installations and Environment addresses risks posed to DoD by emerging contaminants while recognizing that DoD's mission capability is a top priority. To more effectively address chemical risks,

Cunniff is the director of the Chemical and Material Risk Management Directorate for the Office of the Deputy Under Secretary of Defense for Installations and Environment. **Asiello** addresses environment, safety, and occupational health issues in the acquisition process within the Chemical and Material Risk Management Directorate.



DoD's emerging contaminants program was recently merged with ongoing efforts to help acquisition managers address environment, safety, and occupational health mandates to create the Chemical and Material Risk Management Directorate. The CMRM Directorate helps DoD proactively address risks posed by DoD's chemical selections through its ESOH activities in acquisition, emerging contaminants, chemical management, technology, and green purchasing programs.

The directorate's activities help meet DoD Directive 4715.1E (issued March 19, 2005), which directs DoD to "identify and analyze operational and financial risks of emerging ESOH issues" (section 5.1.4). The directorate also helps meet other mandates, such as DoD Instruction 5000.02, which directs acquisition program managers to eliminate ESOH hazards where possible and to manage risks when hazards cannot be eliminated. The instruction requires acquisition managers to address ESOH risks for each system's life cycle following the eight steps described in MIL-STD-882D, "DoD Standard Practice for System Safety" (see <[\[acc.dau.mil/communitybrowser.aspx?id=30309\]\(https://acc.dau.mil/communitybrowser.aspx?id=30309\)> for a list of the eight steps\).](https://</p></div><div data-bbox=)

DoD's focus on emerging contaminants helps acquisition program managers recognize future risks and root causes as called for in the *Risk Management Guide for DoD Acquisition, Sixth Edition*: "Root causes are those potential events that evaluators ... determine would adversely affect the program at any time in its life cycle." By addressing emerging contaminants early in the acquisition process, the CMRM Directorate also advances other DoD interests, such as extending the lifespan of platforms; anticipating regulatory shifts, and thus avoiding early obsolescence; and reducing the costs of future operations and maintenance and demilitarization efforts.

Historical Precedent of Emerging Contaminants

History has demonstrated that emerging contaminants can have adverse effects on operating forces, the workforce and their families, the public, and the environment. Concerns about a contaminant's adverse

health effects can result in restricted availability of chemicals or an outright ban on materials, which, in turn, can impact mission-critical industrial-base applications, procurements, and acquisition programs.

For example, stricter standards for the use of hexavalent chromium—a heavy metal used in coating aircraft—may affect system production and maintenance costs and the availability of hex chrome as an anticorrosive agent. Likewise, if concerns about the global warming potential of sulfur hexafluoride [*discussed later in this article*] are addressed in a regulatory scheme, DoD must be prepared to make investments that ensure its mission capabilities are maintained. Well before regulatory standards are developed, DoD can be impacted by concerns about its use of a chemical. For example, even before the Environmental Protection Agency established its toxicity value for perchlorate—which is used in rockets—training at two DoD ranges was curtailed because of concerns over the potential for public exposure to the chemical. Concerns over the chemical perfluorooctanoic acid—which is used in making materials for seals and O-rings and was used in fire-fighting foam, amongst other applications—caused many companies to limit and even cease their use of the compound. Because the chemical is used to create high-performance gaskets, DoD needed to be assured that new products using substitute processes and materials would meet performance criteria.

Proactive Risk Management

Some emerging contaminants require proactive risk management by DoD and defense-related industries to reduce the mission impacts of changes in regulation or market availability. Organizations that anticipate changes in a chemical's or a material's risk profile are better positioned to adapt to shifting regulations and/or market availability. Acquisition managers are challenged to identify and respond to a wide variety of risks that can adversely impact their programs. Early awareness and action will ensure that the acquisition program can meet cost, schedule, and performance expectations. Early action can even lower life cycle costs.

Leveraging the information and risk management options generated by the CMRM Directorate can help acquisition managers effectively address ESOH and other risks in their overall risk management process, as outlined in MIL-HDBK-881, "Work Breakdown Structures for Defense Materiel Items" (see http://www.acq.osd.mil/pm/currentpolicy/wbs/mil_hdbk-881A/milhdbk881A/webhelp3/milhdbk881a.htm). In addition to following mandates outlined in DoD Instruction 5000.02 and following procedures for reporting ESOH risks and generating sound programmatic ESOH evaluations, some key risk management practices are:

- Being aware of what emerging contaminants have been identified as of interest to DoD

- Funding research to explore, develop, or demonstrate the viability of alternative materials and processes
- Selecting environmentally friendly alternatives and minimizing the use of known hazardous materials and emerging contaminants to only those applications where no qualified alternatives exist.

Emerging Contaminants Impact Assessment Process

The DoD emerging contaminants impact assessment is carried out by the CMRM Directorate and DoD subject matter experts. The process evaluates new risk information on chemicals or materials that can assist DoD acquisition professionals in their decision-making process. Impact assessments provide key information that can be used at appropriate points in the acquisition process for assessment, decision making, and risk management. Risk profiles for emerging contaminants reflect impacts to the DoD enterprise—not just ESOH impacts, but a range of activities. Risk profiles, therefore, encompass the totality of the department's national security mission. The information generated in these assessments can help acquisition program managers plan ahead and influence the system design by answering questions about what materials may be impacting DoD 10 to 15 years from now, possibly leading to early decisions to "design out" certain chemicals or materials. Tools and resources on the process are available within the ESOH special interest area in the Acquisition Community Connection (<https://acc.dau.mil>) and within DENIX (<https://www.denix.osd.mil/MERIT>), or the Defense Environmental Network and Information eXchange.

The emerging contaminants impact assessment process begins with the early identification of emerging contaminants and an assessment of evolving science and the likelihood of regulatory shifts. With support from the U.S. Army Center for Health Promotion and Preventive Medicine, the CMRM Directorate conducts ongoing and extensive searches for emerging contaminants. The U.S. Army Center for Health Promotion and Preventive Medicine experts review periodicals, scientific journals, advanced notices of proposed rulemakings, and developments in European and U.S. locations considered early adopters of regulatory shifts—such as Massachusetts and California—to identify emerging contaminants that may be of interest to DoD. The process seeks to identify regulatory trends and shifts in chemicals that pose consequences for DoD's mission, business areas, personnel, the public, or the environment. By scanning that information, the CMRM Directorate determines which chemicals or materials are currently being used by DoD—or may be used in the future—and in what applications.

Phase I Impact Assessment

Once an emerging contaminant has been identified to have some interest or risk to DoD, a qualitative Phase I Impact As-

assessment is conducted. The assessment is divided into two parts, with the first part evaluating the likelihood of changes in toxicity values and regulatory status, and the second part estimating the prospect of specific impacts across a range of DoD functional areas.

During the impact assessment, subject matter experts respond to a set of probing questions to examine how potential new-risk information may affect the five DoD functional areas:

- Acquisition, research, development, testing, and evaluation
- Environment, safety, and occupational health
- Training and readiness
- Production, operations, maintenance, and disposal
- Cleanup/restoration.

Those five distinct yet cross-cutting functional areas encompass the entirety of the department's mission and responsibilities. As DoD experts deliberate on a chemical's risk, they are asked to focus on specific questions related to acquisition, such as:

- Will key research be delayed?
- Will key research be terminated?
- Will DoD be able to acquire systems, subsystems, or spare parts containing the material?
- Can DoD build inventories from current suppliers?
- Are substitutes available?
- Will DoD experience delays in procurement?
- Will the price of DoD acquisitions increase?
- How much time and money will be required to redesign systems so the material will not be required?
- How much time and money will be required to develop substitutes?
- Will suppliers leave the market?
- How many suppliers will remain to satisfy military requirements?
- Will DoD be faced with single-point failures?
- Will DoD suppliers have to make capital improvements?
- Will DoD suppliers have to modify their operations?
- Will DoD face increased testing, specification, and evaluation requirements?

Phase II Impact Assessment

The degree of consensus and variation in the experts' responses to those questions are carefully recorded, and they assist in determining whether more detailed quantitative analysis is warranted. If more analysis is required, experts must consider which chemicals should be placed on the action list of chemicals that pose high risks to human health. At that point, a more thorough evaluation—called a Phase II Impact

Assessment—is conducted, which can result in the development of risk-management options for the higher-risk chemicals. The steps can include new policies, information-sharing mechanisms, or research; and can shape where resources could be placed to better position DoD to continue meeting its mission requirements.

Engaging experts from across DoD brings key internal stakeholder groups together—including input from the acquisition and ESOH communities—to address risk, regulatory, and scientific information; and current DoD processes and practices. The results also help inform DoD staff about life cycle and total ownership cost factors.

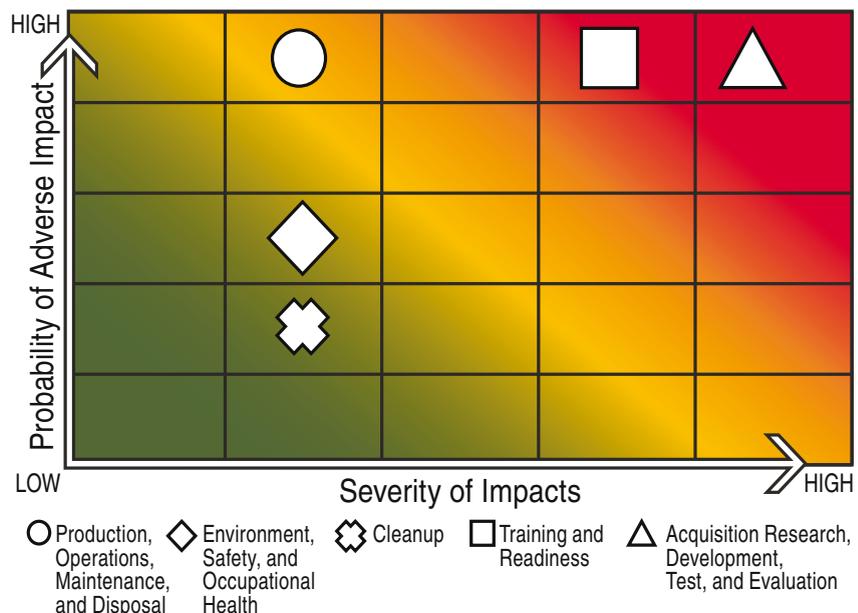
SF₆ Case Study

Tracing the evaluation of a key greenhouse gas, sulfur hexafluoride (SF₆), is illustrative of the analytical process and may show how impact assessments can prompt new approaches and actions in addressing enterprise-wide risks.

SF₆ is a chemical that contributes to climate change at 23,900 times the global warming impact of carbon dioxide, the most commonly cited greenhouse gas. Implementing new practices to reduce the use of one pound of SF₆ is equivalent to retiring 11 tons of carbon in the atmosphere.

While SF₆ has been recognized by the electric power industry as an emerging issue for several years, the potential DoD-wide impacts of tighter risk reduction efforts were highlighted after SF₆ was identified by DoD clean air experts and during a CMRM Directorate review process. A nontoxic odorless gas, SF₆ is produced for various industrial, electronic, research, and military purposes; and is used in the production of magnesium and aluminum. About 80 percent of its usage by volume is by the electric utility industry in equipment to regulate high-voltage transmissions of

Impact of Possible SF₆ Regulatory Limits on Key DoD Functions



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electricity across regional grids, but it also has several key military applications.

The Impact of Possible SF₆ Regulatory Limits figure illustrates the results of the overall Phase I Impact Assessment for SF₆, taking probability and severity of impacts into account. The figure summarizes an analysis of which DoD functional areas are most likely to be affected by possible changes in the management of sulfur hexafluoride risks.

Possible SF₆ regulations (i.e., a proposed greenhouse gas regulatory scheme) would pose high risks to the acquisition, research, development, testing, and evaluation functional area in addition to training and readiness. The subject matter expert responses to the specific acquisition, research, development, testing, and evaluation questions noted previously in this article led to a high-risk ranking for this functional area in the evaluation of SF₆. Risk management options are being explored and developed to avert and minimize unacceptable risks to national security.

After Contaminant Identification

To date, thousands of chemicals have been scanned, and 24 contaminants have been assessed by the CMRM Directorate. Of those, seven have been found to warrant action-list status and more in-depth review because their potential impact appears to be significant. Some examples of action-list chemicals are perchlorate, an oxidizer used to propel missiles, flares, and munitions; the explosive RDX; the solvent TCE; the fuel constituent naphthalene; hexavalent chromium, a heavy metal used in coatings; the heat-resistant metal beryllium; and sulfur hexafluoride.

Once placed on the action list, the next step is to conduct a Phase II Impact Assessment, which is a more thorough, quantitative evaluation of the likely impacts and costs involved with the elimination or changed usage of the chemical. More important, the assessment articulates risk management options for DoD program managers. Those options can range from developing viable substitute materials to implementing new pollution prevention measures to investing in cleanup technology. The results of the Phase II Assessment are then presented to the Emerging Contaminants Governance Council, which is chaired by senior DoD leaders. In addition to sharing information across DoD, the council provides advice on strategic investments and policies by endorsing actions that acquisition program managers can implement to DoD's future benefit.

DoD and Industry Partnerships

To advance information gathering and dissemination throughout the military services, the CMRM Directorate established the Materials of Evolving Regulatory Interest Team. MERIT consists of individuals from the military services and involves program offices and agencies from across DoD. MERIT's quarterly meetings are open to any interested member of the DoD workforce and those whose job respon-

sibilities are potentially affected by emerging contaminants. Meetings can be attended via the Web or in person. MERIT assists in the rapid compilation and distribution of information on the current status of contaminants and the best available science and technology.

DoD is also building partnerships with industry representatives to identify opportunities and obstacles to adopting alternative chemicals or other improvements in industrial materials and processes. Recent efforts have involved actively working with the NAEM (formerly known as the National Association for Environmental Management) and other industry representatives to identify and respond to the challenges posed by the European Union's sweeping new chemical regulation known as REACH (see <<http://www.buyusa.gov/europeanunion/reach.html>> for more information) in addition to any other challenges that may arise. The CMRM Directorate is also involved with efforts to benchmark systems and methods being used to rank chemical hazards to improve chemical selection and management systems. The move to "green chemistry" [*environmentally friendly chemicals*] is likely to have multiple benefits for acquisition managers in reducing life cycle costs, avoiding ob-

DoD is committed to improving its understanding of emerging contaminants and acting early to manage them and other chemical risks.

solescence challenges, and supporting documentation of programmatic ESOH evaluations.

Later this year, the CMRM Directorate expects to release an evaluation of what kind of toxicity information is most helpful at different junctures in the acquisition process to aid in identifying the environment and health risks of key chemicals.

The CMRM Directorate supports a process to facilitate informed risk management decision making that ensures ESOH issues are addressed in the acquisition process in addition to other DoD functional areas. More information on DoD's emerging contaminants program and specific contaminants of interest can be found on the program's Web site at <<https://www.denix.osd.mil/MERIT>>.

The authors welcome comments and questions and can be contacted at shannon.cunniff@osd.mil and david.asiello@osd.mil.

Program Management versus Contingency Contracting

Lessons Learned from the Field

Lt. Col. Russell Dunford, USA

What follows are some of my observations as a program manager deployed to support contingency contracting for the Joint Contracting Command Iraq/Afghanistan. My intent is to highlight some of my lessons learned from the point of view of a soldier with a different perspective on contingency contracting: an Army Acquisition Corps officer trained primarily in program management and logistics but cross-trained in contracting. It is my hope that this article will give those who will be supporting contingency contracting some new perspectives and factors to consider for their missions.

I'll be addressing five questions that resulted from my experiences:

- Should a contracting officer be a generalist or specialist?
- Should program managers and junior contracting officers be allowed to perform the same duties as level III contracting officers?
- Do bank tellers and contracting officers' representatives (CORs) have more in common than we imagine?
- Are longer contracting officer tour lengths better?
- Can e-mail traffic be tamed?

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The following scenarios provide an example of a common occurrence in contingency contracting. After discussing each point, I'll suggest some practices I would implement if I were king for a day. Although the examples are Army-specific, the lessons learned are applicable across all of the Department of Defense.

Generalist or Specialist?

Contracting Officer 1: Look, I'm a contracting officer. I don't do transportation. Besides, I contracted for the material, and the shipping terms are F.O.B. [freight on board], so it is the vendor's responsibility to get the items delivered. Besides, I have 20 contract actions on my desk.

Contracting Officer 2: I know. I had a similar situation last week, and I'm still waiting for delivery.

The contracting officer must have general experience in many fields—with transportation as the key field—but must be a specialist in the field of contracting. Contracting officers can quote the Federal Acquisition Regulation (FAR), the Defense Federal Acquisition Regulations System (DFARS), and acquisition instructions as well as oversee a competitive selection process and all the other tasks associated with contracting. However, when the contracting officer drifts from his specialty, he exits his comfort zone. The same is true of all military branches. But in the contingency contracting environment, contracting officers have to learn the second-order effects of their actions and how to ask probing questions when they work with local nationals. For example, F.O.B. or FedEx® deliveries in the United States and other noncombat environments work as advertised, conform to generally accepted terms, and are used in contracts with little concern about confusion—which is not the case in the contingency environment. FedEx doesn't deliver to a war zone.

The Army Acquisition Corps has begun requiring personnel to become broader in scope, which I think is a good thing. Knowledge of an alternate acquisition field will prove beneficial as one builds a bigger Rolodex® of resources for future assignments, missions, and challenges.

Now, you may be saying that I am stating the obvious, but we grow so accustomed to a certain level of service based on our experiences in a peacetime environment that we forget what a challenge everything can be in a contingency environment. What works well in peacetime does not work as well in a conflict. Knowing the right question to ask is paramount in getting to the ground truth and developing a working solution. Allow me to focus on transportation and provide an example.

Once upon a time, a field command sent an e-mail up the chain of command, and it rolled downhill and landed in the contracting officer's lap. Everyone's favorite question was in the subject line: "When am I getting my stuff?" So the con-

tracting officer quickly got on the phone and, after multiple attempts, was finally able to get in contact with the local vendor. The vendor spoke broken English, and the contracting officer's Arabic was even worse. The summary of the vendor's response was, "Seven days." The contracting officer asked, "Are you sure?" The vendor replied, "Yes, seven days." This message of seven days was then communicated across the theater of operations, across horizontal and vertical levels and every chart and chain of command imaginable—and all was good with the world.

Often, such a scenario has a happy ending, but sometimes it does not. Trust me—in the contingency contracting environment, we should plan for the worst and hope for the best. And we should ask the right questions, which is something I learned while working with those in the transportation world.

Question 1: You should ask the vendor if he can fax or e-mail you a copy of your import clearance documentation. If, after you ask this question, you hear crickets chirping on the other end of the phone, lightbulbs should be going off in your mind. If the host nation has not approved the shipment for import, I seriously doubt the delivery will arrive in seven days. The processing time alone for import authorization can be seven to 10 days.

Question 2: Assuming the product is local, ask for a location where you can inspect the item. If you again get crickets on the phone, know that not everything is going smoothly. I can assure you that in seven days, at 2400 hours, the commander will send a follow-up e-mail if the item is not delivered as advertised. And no, you won't get a "thank you" if all works as planned, but you will hear if people aren't happy. That is life.

So if I were king for a day, I would have a week-long orientation to teach contracting officers general knowledge about areas of responsibility that overlap with contracting, and give them an opportunity to meet the commanders and support staff. The contracting officer would be able to educate his commander about what he brings to the fight. The contracting officer would also learn about transportation and any other processes he needs to know about. That is what a ground commander does when he executes a relief in place [*an act in which all or part of a unit is replaced in an area by the incoming unit, allowing continuity of operations*].

Realistically, perhaps there is no time for such training. In that case, the contracting officer must take the initiative to discover the key sources of information, find the person who has been there about a month ahead of him (that person will be most beneficial), and be prepared to learn on the job.

PMs in a Contracting Officer Role

Program Manager: All I know is, it was submitted to contracting over three weeks ago. Why they can't just go sole source is

beyond me. I have everything ready to execute. All I need is that contract released, and we're bending metal.

Contracting Officer: All a PM knows is cost, schedule, and performance, and he can't even begin to spell contracting.

Effective immediately, we should expand the contracting officer "gene pool" and let contingency contracting commands be the vanguard in educating PMs and junior contracting officers (those who are at least Defense Acquisition Workforce Improvement Act level I) to work in contingency contracting. One of our military's greatest strengths has always been the cross-training of personnel.

Cross-training would do much to facilitate an understanding of each respective acquisition specialty. PMs and junior contracting officers can work in the contingency contracting environment and aid the contracting officer. The PMs need a shadowing experience with a contracting officer before the PM and the junior contracting officer can begin assuming more contracting officer duties.

Contracting officers will argue that they don't have time to babysit; however, given that the bulk of the items being contracted are consumables—printer cartridges, paper, office supplies, tents, containerized housing units, and such—a PM and junior contracting officer can be trained to oversee the contracting of those items, and they can learn much by doing. The contracting officer can then focus on the multi-million-dollar source selections and other actions that are more complex and require greater experience and attention to detail.

The attitude among contracting leaders sometimes seems to be that if you aren't a level III contracting officer, you aren't qualified. We all have our corporate cultures, but that attitude must change. It takes time to grow contracting officers, and though PMs might not quote the FAR by paragraph and line number, they at least come with a solid baseline of knowledge and can learn. The same holds true for the junior contracting officer.

Not expanding the human capital to those that are less than level III certified is a bad practice. If contingency contracting leaders maintain that they want only level III-trained contracting officers down range, how are we going to grow our junior ranks? Having level III-trained personnel in every office may be desirable, but you fight with the contracting officer force you have, not with the one you want.

I am a firm believer that people will rise to the height of the bar. I am not advocating we fill every billet with junior personnel, but I do submit that a junior contracting officer or PM could perform and assist with many tasks and thereby enable the senior contracting officer to focus on more complex issues. Those new to the contracting field must come with an open mind and be ready to learn. As Herb Kelleher,

chief executive officer of Southwest Airlines said, "Hire for attitude. ... Train for skills." So if I were king for a day, I would expand the gene pool for contracting officer to include PMs and contracting officers who are level I in their respective career fields.

Bank Tellers and CORs

Contracting Officer: I don't understand who that COR thinks he is, issuing a cure notice. I'm the contracting officer.

COR: I'm an 11B. What am I doing being a COR? I can never get in contact with the contracting officer. ... I have to get this moving. The commanding officer is on my butt. I'll issue a cure notice. That will get the vendor's attention.

If a contracting officer has no idea what an 11B is, it is probable that an 11B has no idea what the FAR is or what the whole concept of contracting is about. Now, an 11B is the military occupational specialty for an infantryman. They are in every military service, being the troopers who are put into every mission under the sun. Yet we take an inexperienced person, put him through a one-hour class, and then turn him loose as a COR—and two or three months later, we wonder why the contract performance is all fouled up. It is my opinion that PMs and the contracting community set themselves and the COR up for failure.

The military does not have a monopoly on this approach. Consider bank tellers. Banks will spend millions on an ad campaign to gain customers, but the one person in the bank who has the most interface with the customer—the one who will most influence the customer experience—is often the least-paid and possibly the least-trained bank employee: the teller. The same thing can happen in the world of contracting.

If I were king for a day, what would I do? Starting next week, I would have all contracting officers routed through a one-hour class on patrol techniques; and once a week for 24 hours, they would be required to conduct a route reconnaissance in the red zone with their 11B COR brethren. One week they would be drivers and the next week they would be in the 50-caliber machinegun turret, and so on. This quality time would foster better communication and a collaborative spirit between the contracting officer and the COR. Is this extreme? Yes, but think of the teambuilding that would evolve.

The contracting officer community solution for CORs must be equivalent to what contracting officers would desire if they had to perform a route reconnaissance mission. If we do this, we'll have a quality COR program. Give all CORs a satellite communications phone, digital camera, and laptop so they can communicate effectively with the contracting officer. Empower the COR. No one shows up wanting to fail. What costs more: the solution I propose or the manpower required to recoup the losses from a poorly executed contract?

When the contracting officer drifts from his specialty, he exits his comfort zone.



Contracting Officer Tour Lengths

Contracting Officer 1: I have 20 days left until my six-month tour is over. I'll have to file my TDY [temporary duty] settlement upon return.

Contracting Officer 2: Has your replacement arrived?

Contracting Officer 1: No, he's been delayed for some training in Kuwait.

Contracting Officer 2: So how much cross-training will you get?

Currently, contracting officers have six-month tours, which tend to progress like this: The first month, the contracting officer is learning; the last month, he's marking days off a calendar. We all do it, at least mentally. Then we overlay the seven to 10 days during which the contracting officer will execute his or her rest and recuperation pass. In all, the commander essentially achieves a little less than four months of combat effectiveness from a six-month contracting officer deployment. I'm not making a judgment here; that is merely the battle rhythm I've observed with six-month deployments. If I were king for a day, all contracting officer tours would be 12 months.

Many contracts are for services or span periods of performance that do not terminate when a unit rotates out of theater. To ensure that we have continuity in managing those contracts, we need to stagger contracting officer rotations in relation to the relief in place and transfer of authority of combat units. Or we should extend the tour until the new unit is established in country, which I believe requires at least 45 days from the date of the completion of the relief in place. Otherwise, the unit COR, whom we've trained and worked with for over a year, departs when his parent unit departs; and the contracting officer, junior contracting officer, and PM

then must train a whole new unit COR team. The contracting officer is the continuity factor in this scenario and must remain on station until the new unit is established.

On a positive note, the contracting command for Iraq and Afghanistan has held firm on requiring a replacement to be on the ground and a battle handoff conducted before the outbound person departs the theater of operations. It's not always easy, but it appears to be working, and it ensures that replacement personnel are received and cross-trained. Most departing personnel are professional and have a vested interest in cross-training their successors because they remember what it was like when they arrived.

E-mail Management

If I were king for a day, all e-mail accounts would be duty/functional-specific and we would halt the practice of using name-specific e-mail accounts. We should begin using e-mail addresses such as "KO1@iraq.mil," with a display name of "Contracting Officer 1." Using such a functional e-mail account format rather than a name-specific e-mail account like "john.doe@iraq.mil," will greatly facilitate continuity of communication, halt the transfer of the personal e-mail files, and improve business communications.

Using name-specific e-mail accounts often disrupts continuity of communication with local nationals and within our own commands whenever a new person arrives and backfills for someone with whom all parties are used to working. How many times have you lost a contact and tried to find his or her replacement within the same office? And we're on the same DoD team! By using functional e-mail addresses, no longer would the military unit or vendor get "failed mail" messages because the last point of contact they had was

Program Management *continued on page 38.*

Opportunity costs, therefore, include opportunities lost or delayed as a result of the presence of situations the process does not anticipate or is ill-equipped to deal with—situations that require improvisation or deviation from the norm. This includes overlooking or bypassing new customers, suppliers, markets, methods or techniques which do not fit the process, or which would require a greater degree of flexibility or personal initiative than the process provides allowance for.

When a defect is defined as “nonconformity of a product or service to its specifications,” as it is in Six Sigma, the risk of seeing even an improvement in quality might make sense in a manufacturing context, but in other contexts, it incurs opportunity costs that are not a measure but are, nonetheless, a cost.

Opportunity costs also include the costs of errors that are the result of a mismatch between the established process and the actual conditions of the business environment (including the cost of poor outcomes that are not captured into a round process hole). Organizations may ignore these costs, but some do not. Improvisation and variation is a benefit to customers.

Pinhead Cost

As *Scientific American* magazine noted, “If a worker’s task is precisely and rigidly defined, what/who/when/where are strictly specified, improvisation is forbidden, and when improvisation is required (such as with a factory worker repairing a machine), the worker’s “powers of mind will dwindle and become ... no larger than that of one of the pinheads.” The worker to be a man, and becomes a mere tool. Hammer’s BPM approach uses precision to dictate the what/who/when, removing improvisation and variation. The end result sounds a lot like the pinhead-producing structure *Scientific American* warned against more than 150 years ago. The worst part is that a majority of the pinhead cost is paid by the organization’s employees and only indirectly by the organization itself. This is yet another case of benefits and costs being realized by different parties.

Process advocates naturally deny the existence of the pinhead cost and frequently object that those who have the gall to mention it simply misunderstand what process is all about. However, we are not willing to ignore the man behind the curtain, nor to ignore how much the giant head of Oz protests.

By their own admission, process-based approaches to organizational behavior are inherently focused on uniformity in terms of both organizational outcome and employee behavior. The process enterprise’s demands for repeatability and conformity of human behavior stunt workers’ develop-

ment, repress talent, and stifle initiative. People learn through variation and exploration, not through simple repetition. Take away improvisation and experimentation, and you undermine learning. The end result is an apathetic and underdeveloped workforce. Aside from the ethical concerns of treating people this way, it also diminishes the pool of future leaders—and even the most ardent process advocate must admit that’s not a good thing for the organization.

Lest there be any doubt of the tendency for process enterprise advocates to deny the existence of the pinhead cost, Hammer himself suggests that the process approach is designed to “compel the participation of employees who are not exactly an enlightened and self-motivated workforce.” It doesn’t support the assertion that process is a neutral, encouraging creativity and developing employees.

Process advocates often deny, ignore, or otherwise minimize the cost of errors, openly, and apparently. The process advocates’ insistence on the benefits of a process-based approach is often sloppy at best. The process advocates’ insistence on the benefits of a process-based approach is often sloppy at best. The process advocates’ insistence on the benefits of a process-based approach is often sloppy at best.

For example, if a task requires 10 units to accomplish, and a process-based approach requires 15 units to accomplish the same task at a cost of five units, the process advocates therefore calculate a savings of 50 percent by neglecting to account for the PLC. However, let’s say the overhead cost is three units, the opportunity costs are another three units, and we end up with a PLC of six units. Accomplishing the task now has a net cost of 11, not five units. This approach actually ends up costing more than the original 10 units. If the task is repeated, the opportunity costs can be expected to persist or even increase, and the pinhead cost is likely to rise over time as well.

This is an admittedly simplistic and notional example, not based on any actual data. It is entirely possible—perhaps even likely—that in most cases, the PLC will be less than the BPM benefit, in which case the process approach provides real savings to the organization. We aren’t saying process doesn’t help—we simply want to increase awareness of the costs associated with process-based approaches. As with anything, when determining the degree of benefit, we need to look at all the factors, not just the favorable ones. To what extent PLC can be minimized is an open question, largely because the actual costs have not been extensively examined or measured. The point of this article is not to offer a quantified assessment of this cost, because the PLC will be

What if...

A Rogue Thought Piece by Dan Ward, Chris Quaid, Gabe Mounce, and Paula Croisetiere



Bridging the PM Performance Gap

Owen Gadeken



Ever wonder why so many program managers do everything they can to succeed but still fail? (As in, “Why do bad things happen to good people?”) One of the major challenges in program management is how much control PMs really have over their programs.

Defense acquisition policy dictates that a PM’s authority, responsibility, and accountability should be spelled out in a formally coordinated and signed charter—now called a program management agreement. The charter also outlines the resources the PM will have at his or her disposal to successfully complete the program. At least, that’s what the policy says.

Gadeken is a professor of program management at DAU’s School of Program Management, with more than 25 years of experience as a DAU faculty member. His current interest centers on helping program managers become effective leaders. Gadeken earned his doctorate in engineering management from The George Washington University.

Most of us who have actually been PMs see a somewhat different picture. Yes, the charter provides direction, authority, and resources; but the balance is a little off. In most, if not all, cases, the direction and responsibility (what you need to do) exceed the authority and resources (what you have to do it with), giving rise to what I call the **gap**. This is illustrated in Figure 1, "The PM Performance Gap."

So why would a PM sign a charter that has such a mismatch of requirements versus resources? That is a very good question, and it will take more than this article to provide a full answer. But I will share some observations in the next few paragraphs, and then provide some potential solutions that can help PMs overcome the performance gap.

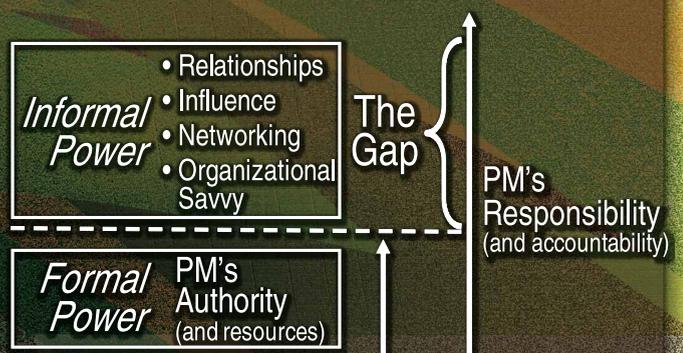


Figure 1. **The PM Performance Gap**

Facing Reality

One of the hallmarks of the military culture is the "can-do" attitude. PMs are inherently optimistic and are somehow led to believe that they can do the impossible, thinking it just takes a little longer to do it. Having

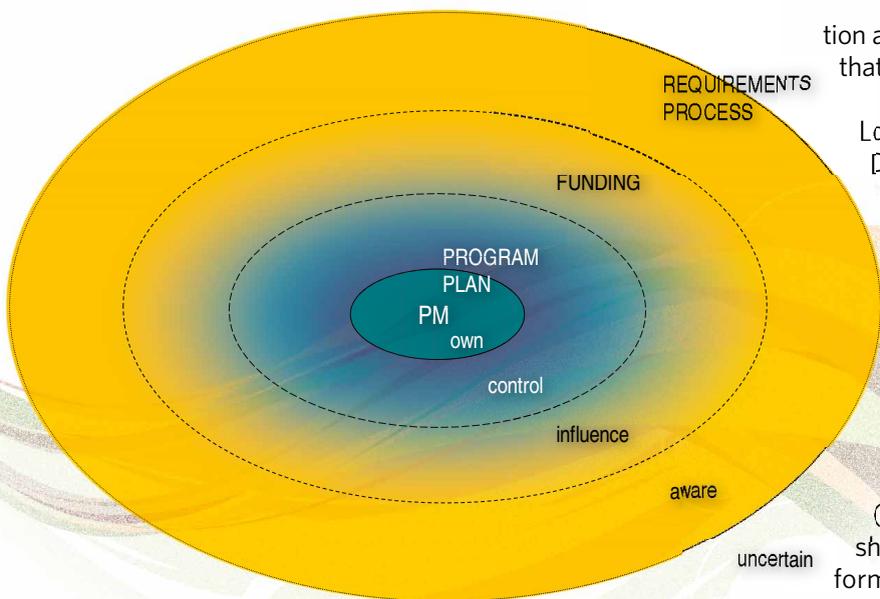


Figure 2. **The PM Span of Control**

a positive attitude is a key attribute for PMs and their teams, but when this attitude begins to depart from reality, then you may be in trouble.

When it comes to early program planning (scope definition), all the cards are stacked in the direction of minimization. The user already needs the system, so you just need to put a basic plan together, then refine and redirect as you go along—“ready, fire, aim.” Budget and senior management pressures also push heavily in this direction, as the smaller the scope and cost, the more likely the program is to be approved. And even the best plans are going to change. Many of those changes will be externally imposed, with the PM’s only option being to comply or adapt. That’s just part of today’s operating environment.

So in my experience, the combination of overestimating your and your team’s abilities (optimism), underestimating the full scope of the program (minimization), and the inevitability of change, make the requirements versus resources mismatch a reality on most programs. While we could work on reducing the trends of personal optimization, program minimization, and external change, I choose to leave this task for other authors. I view the process of changing trends as a long-term and possibly unproductive process. In this article, I provide ways to attack the gap using a near-term, pragmatic approach.

A Few Definitions

Before I provide some ways to overcome the gap, let’s establish a few definitions. According to Webster’s Dictionary, authority is defined as a “legal or rightful power; a right to command or act; power exercised by a person by virtue of his office or trust.” In the acquisition world, authority is the formal power bestowed on the PM based on his or her posi-

tion and charter. It is what the organization gives you that allows you to do your job.

Looking at the other side of the gap, Webster’s Dictionary defines responsibility as “the state of being responsible, accountable, or answerable, as for a trust, debt, or obligation.” In Webster’s, accountability and responsibility are synonyms. In the acquisition world, the PM fits the “buck stops here” definition, as the PM is the person answerable for program performance, cost, and schedule outcomes.

Facing the challenging goals that exist on most programs, PMs are caught in the requirements (responsibility) versus resources (authority) gap shown in Figure 1. Dedicated PMs can use all their formal authority and assigned resources, yet still come up far short of achieving their assigned goals. That’s because the bar is set too high for them to succeed without extra help.

What we’re really talking about here is a power mismatch. Going back to Webster’s again, power is defined as the “ability to act; the capacity for action or performance.” In simple terms, power is about getting something done and being able to achieve a result or outcome. Just as it takes a certain amount of mechanical power to run a machine, one could also say that it takes a certain level of human power to successfully run an acquisition program.

Personal power is a fascinating and complex topic. I will simplify it by dividing it into two categories: formal and informal power. We have already discussed formal power, and defined it as the authority and resources assigned to the PM by the organization. On the other hand, informal power can be thought of as the ability to get something done without formal authority and assigned resources. What that really means is that you are using other people’s authority and resources to help do your work and execute your program.

Interpersonal Relationships

The real basis of informal power is relationships with people. Effectively using this source of power requires an investment of time to build and maintain your relationships. Every acquisition program includes large numbers of stakeholders who are not directly involved in day-to-day program activities but nonetheless can have an impact on program success at key points in the program’s life cycle. Some examples are the requirements, budget, and test communities in your command or agency. Their support is often critical to moving a program forward, so effective PMs take time to develop relationships in all of those communities. Those relationships are more than just contacts. The best relationships are both personal and professional. And there is reciprocity in each relationship; a balance between giving and taking. Relationships that are all one way—either giving or taking—

won't last long enough or be strong enough to benefit either party in the long run. Developing relationships isn't something PMs should do *if* they have the time. It is something they *must* take time to do. It is a top priority.

One civilian PM I interviewed told a story of how he had to order his military deputy to walk out on the floor and get to know the people working in the program office. The deputy thought it would be a waste of time to have too many personal conversations with members of the program team. In a later meeting with the PM, the deputy was shocked at how much he learned in those supposedly idle conversations.

At the heart of any relationship is the ability to influence the other person to gain support for your program. The type of support will vary depending on the person and the circumstances. Such support could lead to additional people or funding, more collaborative work, a favorable decision, or even a situation in which someone refrains from taking action that could damage the program. Influence strategies are many and varied, from clearly stated requests for support with documentation to subtle cajoling or even threats. Influence is far more art than science, and such skills are developed from actual experience; from seeing what works and what doesn't.

I once had a project I was trying to get funded but was having trouble working my way up through our chain of command to present my proposal. Finally it hit me that I didn't have to be the one to sell my proposal. I arranged for a senior-level leader to brief the organization on the topic of my proposal and made sure the head of my organization was invited. The briefing was a huge success, and my organization head asked what we could do to follow up. I sent in my proposal, and it was funded immediately. My successful influence strategy was to ride the coattails of the senior leader's credibility.

Degree of Influence

Another important concept is the degree of influence that PMs have over different parts of their programs. This influence can vary considerably, as illustrated in Figure 2, "The PM Span of Control," which depicts the degree of influence as a set of concentric circles. The PM's influence spans a spectrum from total ownership to uncertainty. Using the example of an information systems program (from a recent case study I taught), the program plan was something the PM owned and controlled. The PM was able to influence the funding profile, but the requirements process for that particular program was managed by a technical standards body outside of the DoD. As a result, the PM had no control or influence on the requirements process, and the lack of responsiveness from

the technical standards body was putting the program's future in serious jeopardy.

If you use the diagram as a frame reference in this case, you can see that the PM had two choices. He or she could change the nature of the requirements process, moving it toward the center of the diagram where the PM would have greater influence. Or the PM could attempt to expand his or her circle of influence outward to reach the requirements process area on the diagram. Given the nature of the requirements process in this case (which was external to DoD and had many stakeholders), the PM would be much more likely to be successful in expanding his or her personal influence strategy to reach the existing requirement process. Lacking such an ability, the PM's likelihood of success on the program would predictably be very low.

The diagram in Figure 2 can be a useful tool for PMs to chart their influence strategy with respect to key program events and processes. The placement of events on the diagram would vary based on the unique circumstances related to each program.

Networking

Another informal power base can be built through networking with groups of stakeholders. Personal networks can offer a multiplier effect over individual relationships and influence strategies. Every PM needs to analyze and understand the value of personal networks.

The first network available to the PM is his or her program office. If that network is not well-connected, then some team building and goal alignment work needs to be done, with strong leadership from the PM. Moving outside the program office, the network opportunities are almost endless. They can include groups of PMs working on related programs (system of systems), functional networks (engineers, logisticians, testers, contracting officers, etc.), former programs the PM has worked upon, past organizational colleagues, and professional and industry associations. Careful attention needs to be paid to time spent nurturing each network based on that network's value.

Organization Savvy

The final informal power base that every PM should seek to use is organization savvy—in other words, "street smarts" applied in an organizational context. After working in an organization for even a few months, the savvy PM can quickly determine which processes work and which require workarounds; which rules are important and which are routinely broken or skirted; and most important, which people are movers and shakers and which are only figureheads. It may surprise you to know that

PMs must understand and use both their formal and informal power bases.

sometimes the movers and shakers aren't even in key positions in the organizational hierarchy. In my experiences with PMs, I have found that organizational savvy is indispensable to PM success due to the inherent complexity of the DoD acquisition environment and related factors such as the vast number of stakeholders, cumbersome hierarchy, volumes

Dedicated PMs can use all their formal authority and assigned resources, yet still come up short. That's because the bar is set too high for them to succeed without extra help.

of policies and procedures, and large number of programs competing for funding.

Applying social network theory in an organizational context, UCLA researcher Karen Stephenson has developed a survey approach and software tool called NetForm that can analyze and chart the informal networks in any organization. Using that tool, one can quickly identify which people are most vital to the organization and what social functions (hub, gatekeeper, pulse taker) they perform. Information like this could be of immense value to any PM.

The Path Forward

PMs face a predictable gap in their ability to control and achieve program results. The gap can be thought of as the difference between what PMs are responsible for and the formal authority and resources they are given.

Looking beyond their formal role, PMs have several informal strategies they can employ: relationships, influence, networking, and organizational savvy. These are tools or skills that can readily be developed and used with great success.

The key to the PM control dilemma is for PMs to understand the system they are in—including its flaws—and develop strategies that work within that system. PMs must understand and use both their formal and informal power bases to fully bridge the gap to successful performance and program results.

The author welcomes comments and questions and can be contacted at owen.gadeken@dau.mil.

Program Management continued from page 31.

redeployed. They also will not have to spend two weeks trying to reestablish e-mail contact. Trust me, with six-month rotations, gaining and maintaining contact is paramount for contingency contracting success, and it's a nightmare for vendors and the contingency contracting command when communication lines are broken.

You may advocate establishing a pseudo e-mail or "distribution" e-mail account that allows for e-mail to be sent to KO1@iraq.mil and then automatically be forwarded to john.doe@iraq.mil. The problem with that format is that John Doe will build his file folders and organize his own PST files under his own account. When he departs, his successor will have to start from ground zero and have only a PST file as a historical reference. Another concern with that approach is that as soon as John Doe replies to the inquiry forwarded from the KO1@iraq.mil e-mail account, the value of the functional e-mail address is lost. That's because most users invariably hit "reply," and the default e-mail address that loads into the message for the reply will be the name-specific john.doe@iraq.mil.

Yes, the contracting officer is going to get saturated by local nationals' e-mails once they get the duty-specific e-mail address. But that is no different from the situation in the United States when vendors reach out to get the contracting officer's attention once they get his e-mail address. Just copy and paste a form letter and refer the vendor inquiry to the Web page that hosts all solicitations and educates the local national on the contracting process or the local host national business adviser. And remember, you could have that junior contracting officer or PM share those tasks. If we stop getting e-mails from local vendors, then we have real problems.

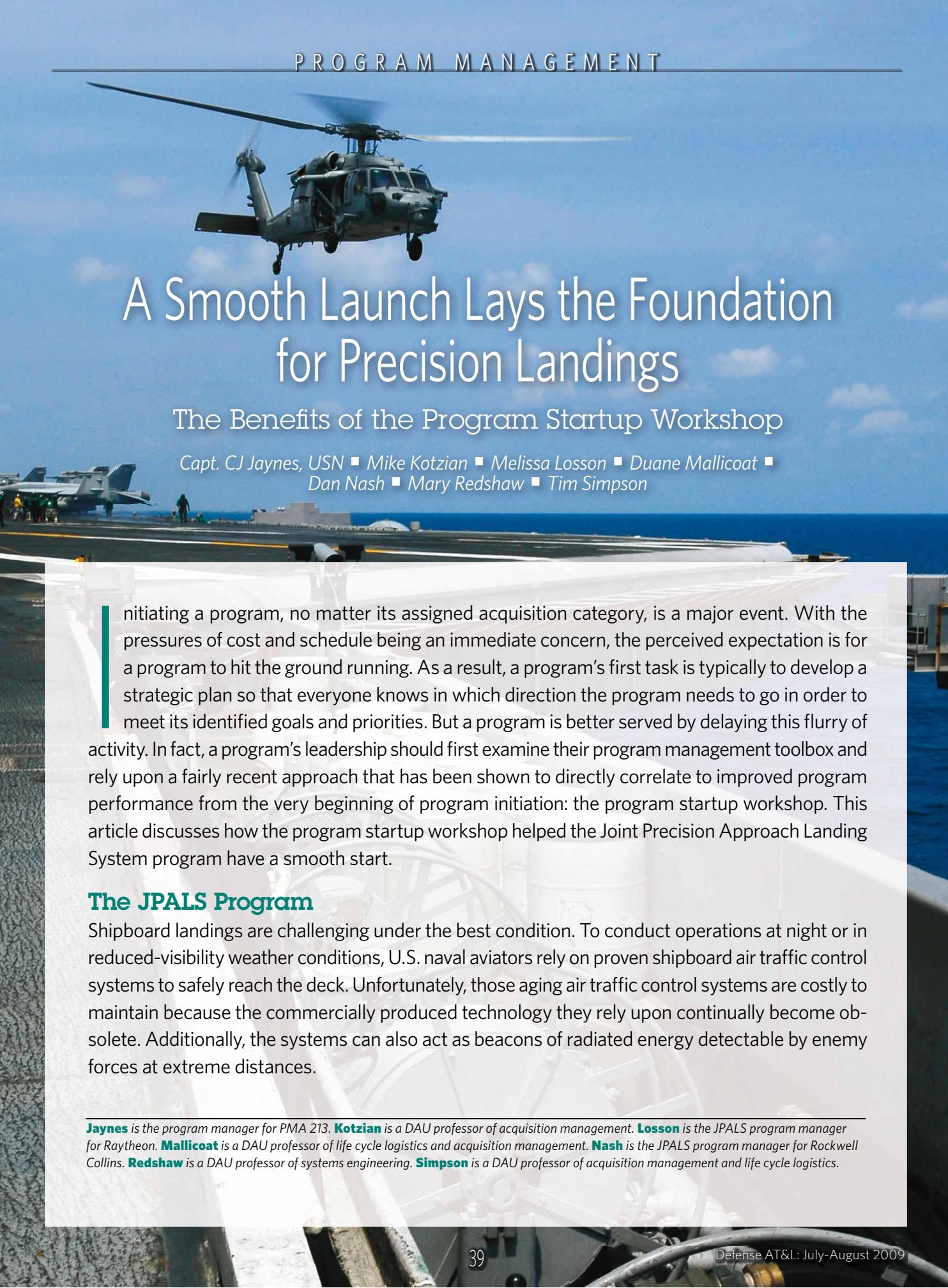
An additional benefit of duty-specific e-mail addresses is operational security. How long do you think it takes before the local vendor population starts using the Army Knowledge Online or Defense Knowledge Online e-mail format once they have your name? The local vendors quickly learn that the address protocol is `firstname.lastname@us.army.mil`.

Failure is Not an Option

Operation Enduring Freedom and Operation Iraqi Freedom are not the first, and they certainly won't be the last, to have contracting challenges. I've learned much from many different people during my experiences. This article merely present one man's opinions, and it provides a few rules of thumb and a path ahead.

Lastly, remember this: Chuck Norris never fights, he just contracts for private security. Those who have been down range will get this one. Those who don't get it, come on down; we're hiring. Keep moving forward; failure is not an option.

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A large helicopter is shown in flight against a clear blue sky. Below it, the deck of a ship is visible, with various equipment and structures. The overall scene is bright and clear, suggesting a sunny day at sea.

A Smooth Launch Lays the Foundation for Precision Landings

The Benefits of the Program Startup Workshop

Capt. CJ Jaynes, USN ■ Mike Kotzian ■ Melissa Losson ■ Duane Mallicoat ■ Dan Nash ■ Mary Redshaw ■ Tim Simpson

Initiating a program, no matter its assigned acquisition category, is a major event. With the pressures of cost and schedule being an immediate concern, the perceived expectation is for a program to hit the ground running. As a result, a program's first task is typically to develop a strategic plan so that everyone knows in which direction the program needs to go in order to meet its identified goals and priorities. But a program is better served by delaying this flurry of activity. In fact, a program's leadership should first examine their program management toolbox and rely upon a fairly recent approach that has been shown to directly correlate to improved program performance from the very beginning of program initiation: the program startup workshop. This article discusses how the program startup workshop helped the Joint Precision Approach Landing System program have a smooth start.

The JPALS Program

Shipboard landings are challenging under the best condition. To conduct operations at night or in reduced-visibility weather conditions, U.S. naval aviators rely on proven shipboard air traffic control systems to safely reach the deck. Unfortunately, those aging air traffic control systems are costly to maintain because the commercially produced technology they rely upon continually become obsolete. Additionally, the systems can also act as beacons of radiated energy detectable by enemy forces at extreme distances.

Jaynes is the program manager for PMA 213. **Kotzian** is a DAU professor of acquisition management. **Losson** is the JPALS program manager for Raytheon. **Mallicoat** is a DAU professor of life cycle logistics and acquisition management. **Nash** is the JPALS program manager for Rockwell Collins. **Redshaw** is a DAU professor of systems engineering. **Simpson** is a DAU professor of acquisition management and life cycle logistics.

The JPALS program (Acquisition Category ID) was initiated to reduce life cycle costs, increase naval aviator safety, and decrease the operating electronic footprint associated with recovering aircraft. The JPALS capabilities development document defines two increments, with increment one being the ship-based (naval) variant.

As the next-generation precision-approach landing system—scheduled for an initial operating capability in late 2014—JPALS will leverage GPS technology to provide reliable landing guidance—accurate up to less than one meter—for sea-based fixed and rotary wing aircraft during all weather conditions. Such accuracy is 22 times and 94 times greater than the targeting accuracies provided by the Joint Standoff Weapon and the Joint Direct Attack Munition, respectively. The JPALS signal will provide two additional advantages: It is highly jam-resistant, and it has a low probability of intercept. It is unlikely that an enemy will be able to detect the JPALS sea-based signal and trace it back to its origin—thereby allowing naval platforms to eliminate the electronically radiated beacon from existing shipboard air traffic control systems. In order to provide this interoperable JPALS solution to the fleet on time and within cost objectives, the JPALS integrate product team (IPT) recognized the need to leverage innovative acquisition business practices.

The Program Startup Workshop

As part of the National Defense Authorization Act for Fiscal Year 2007, Section 853(a) (Strategy) requires the secretary of defense to devise a comprehensive strategy for enhancing the role of Department of Defense program managers in developing and carrying out defense acquisition programs. In an August 2007 report to Congress, the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics addressed specific DoD initiatives to provide support and incentives for current and future PMs. One initiative is the program startup workshop.

According to the OUSD(AT&L) report, program startup workshop are “designed to accelerate alignment of the government and contractor program management teams within the first three to six weeks after contract start.” A program startup workshop can “address typical startup issues in an informed manner by establishing a common framework for program execution as early as practical rather than having each party independently establish their procedures.” JPALS is one of several DoD acquisition programs that have recently used the program startup workshop to accomplish such team alignment.

Is Your Team a Team?

Building an effective team remains one of the most critical actions any PM will undertake. Unfortunately, teambuilding is often left to chance, as organizations often do not implement a strategic plan to ensure they get the most from a newly formed team. A core foundation of the program startup workshop philosophy is early formation of collabora-

tive processes that facilitate a team’s government-industry integration and mutual commitment to program success. Conducting a program startup workshop allows government and industry partners to align goals, processes, and tools from their respective organization into a joint government and industry IPT, ensuring all parties are on the same page. Ideally, representatives from all functional areas across the program’s enterprise are represented and contribute from the very beginning.

All teams go through inevitable stages in order to grow, accept challenges, plan work, tackle problems, find solutions, and deliver results. The most widely accepted model characterizing those necessary teaming stages is known as the “FSNP” model first advocated by Bruce Tuckman in 1965. While variations of this classic model have subsequently surfaced, the following four stages are widely accepted as the stages through which teams progress:

- Forming—individuals come together, get to know one another, and start to form the team in order to agree on goals and tackle the tasks.
- Storming—typically a chaotic time in which different ideas compete for consideration and individuals vie for leadership roles.
- Norming—team members adjust their behavior “for the good of the team” by agreeing on rules, procedures, values, etc., based on a willingness to trust.
- Performing—team members become interdependent and find ways to get the job done smoothly, efficiently, and effectively.

The storming stage is typically the most difficult through which to navigate, and it frequently leads to team dysfunction. After a team is able to make the leap into the norming and performing stages, significant changes to such factors as team composition, task assignment, or leadership have the potential to throw the team back into the storming stage. Team development then cycles back to the beginning of the process, resulting in potential negative impacts to a program’s schedule and/or cost estimate. A program startup workshop is one way to ensure new acquisition program offices can form a strong team before the unavoidable storming phase takes over.

Why all this talk about teams? Well, teaming is what program startup workshops are all about. A workshop seeks to improve the execution of acquisition programs by fostering the formation of a cohesive government-industry partnership.

A tailored program startup workshop offers several benefits. The workshop provides an opportunity to engage both the government and industry teams on effective program startup actions; it provides an environment to grow trust, collaboration, teamwork, and communication; and—most important—it helps to establish a solid foundation upon which to execute a successful program. Ideally, program

startup workshops are held three to six weeks after a contract award and last three to five days. However, program startup workshops can be held at virtually any program stage if teaming improvement is sought.

The JPALS Workshop

It was against this backdrop that Naval Air Systems Command PMA 213 (Naval Air Traffic Management Systems Program Office) turned to the Defense Acquisition University Mid-Atlantic Region to hold a three-day JPALS program startup workshop. Navy Capt. CJ Jaynes, the JPALS program manager and contributor to this article, felt a program startup workshop would provide immediate benefits to the JPALS program, which had just been awarded the increment 1A system development and demonstration contract.

A program startup workshop should be part of a PM's toolkit to enhance program success by more efficiently navigating through the inevitable storming phase to become a high-performance team.

The program startup workshop was to provide a tool to facilitate and accelerate the transition of the JPALS government-industry IPT through the initial forming stage of team development. As noted previously, the storming phase is a usual part of a group's development, and use of the program startup workshop will not eliminate entirely the group conflicts that are typical of the phase. However, by using the program startup workshop to strengthen roles and responsibilities as well as arrive at agreed-upon rules and procedures (indicative of the norming phase), the JPALS government-industry team was much better positioned to immediately begin working as a committed and unified team.

Participants in the workshop included the program manager, principal deputy program manager, deputy program manager for landing systems, the JPALS increment 1A integrated product team leader, and key team members from the PMA 213. Other participants included program managers and key team members from Raytheon and Rockwell Collins; and the program integrator from Defense Contract Management Agency.

The JPALS program startup workshop agenda included an array of topics designed to ensure the government-industry team members established processes for communication and collaboration while also covering topics that would help JPALS prepare for the program's upcoming integrated baseline review. The agenda included "soft" topics to facilitate teaming, such as a Myers-Briggs Type Indicator® personality analysis, conflict resolution, and external and government-industry communication plans. Additionally, "hard" agenda topics were covered that more closely associated with an acquisition focus, such as IPT roles and responsibilities; an integrated baseline review roadmap; system readiness review/system functional review checklist and lessons learned; and program metrics, including leading indicators. While the JPALS program startup workshop agenda was typical for a workshop, a PM can tailor the agenda to satisfy his or her specific goals in order to meet a program's unique challenges.

Workshop Expectations

Unclear expectations contribute to and prolong a team's storming phase. As government and industry PMs communicate their management expectations to the IPTs, it is not uncommon that differences of opinion between the government and industry team members may arise and create friction in a newly established working environment. Facilitation and general guidance—"rules of the road" provided to the program startup workshop attendees—help a newly formed team overcome typical stumbling blocks and increase the potential for program success. The program startup workshop provides a way for the government and industry PMs to establish joint expectations and to flow these expectations down to the individual IPT for implementation—overcoming barriers to effective teambuilding caused by unclear expectations.

So what were the JPALS program startup workshop expectations? Jaynes established the following goals for the JPALS program startup workshop:

- Industry-government team members would become familiar with each other on both a professional and personal basis.
- Standards would be set on how the team will operate and conduct themselves.
- IPTs would become aligned with the PM's vision for success.

Independently, managers from the industry partner organization outlined a surprisingly similar set of expectations. Melissa Losson, the JPALS PM for Raytheon and a contributor to this article, stated that her expectations were for increased team communications, the formation of understood ground rules, a continuation of the JPALS team formation and maturation, and the establishment of personal relationships. Dan Nash, the JPALS PM from Rockwell Collins and a contributor to this article, arrived with expectations to meet and build relationships with JPALS team counterparts from

Raytheon and PMA 213, and thus, hoped to understand how the larger JPALS team would work effectively together to achieve success.

The PMs from both Raytheon and Rockwell Collins welcomed the opportunity to hear firsthand the government's expectations, and to align the activities of all three organizations to achieve common success. Jaynes' use of a program startup workshop provided the forum to get the constituent elements of the JPALS team on the same page very early in the process, and it allowed managers from all three organizations to engage in a proactive, collaborative team environment

JPALS Workshop Outcomes

At the completion of the three-day JPALS program startup workshop, the outcomes could be grouped along the lines of three general themes. First, members across the JPALS IPT gained a better understanding of the PMA 213, Raytheon, and Rockwell Collins roles and responsibilities; and what the counterparts in each of the organizations expected of each other. Indicative of the norming team stage, there was a clarification of rules and procedures regarding the government-industry teaming concept. The program startup workshop emphasis on teambuilding and team interactions laid a solid foundation for future communications and information flow.

"I was impressed with how everyone was truly integrated on JPALS," said Losson.

Second, the Myers-Briggs Type Indicator proved to be a good starting point for team discussions and understanding members' perspectives. Myers-Briggs is widely used to identify and describe an individual's personality type and approach to problems. With the Myers-Briggs results, the JPALS government-industry team was better positioned to improve team interaction and development based on individual interpersonal communication preferences. Use of the Myers-Briggs Type Indicator provided a better understanding of different approaches to information processing, communication, and problem solving. It also established a basis for creating more efficient communication techniques that helped accelerate the team-building process. Understanding of other perspectives facilitated the formation of better partnerships and healthier working relationships.

The third general outcome concerned IPTs. A firmer understanding was gained regarding how IPTs within the program were to function and interact for enhanced vertical and horizontal communication. Several of the team members met for the first time at the program startup workshop, so the event proved a great opportunity for IPT members to build relationships and define their team processes. Having a template for the IPTs to use in order to define rules, roles, and responsibilities greatly facilitated the process. One such template topic (identify perceived challenges) prompted meaningful

conversations that uncovered concerns many of the team members had not previously considered.

Is it Worthwhile?

Was the JPALS program startup workshop worthwhile? When asked this question, Jaynes stated: "The Program Startup Workshop accelerated the team-building process and has enabled Team JPALS to start out the gate sprinting. Personal relationships were established that facilitated improved professional relationships. We understand our differences, and are able to resolve issues more efficiently and move on to the next challenge. Everyone understands that we are Team JPALS, and we will succeed or fail as a team."

The JPALS team also saw the value of the program startup workshop as part of a program's continuing support to performance throughout all phases of the defense acquisition framework.

"Programs often run for years with several leadership changes. When a program is going through a major transition or being restructured, a tailored [program startup workshop] would be an opportune way to roll out the revised program vision and priorities. In this situation, the [program startup workshop] would accelerate the transition and help reduce the resistance that often occurs when there is a change," said Losson.

The program startup workshop enabled IPT leaders to give the program a strong beginning by aligning government and industry team members; clarifying management issues; developing an integrated baseline review execution plan; establishing a risk management process; and arriving at a consensus for IPT charters, responsibilities, and authority.

"Having run numerous large DoD [system development and demonstration] programs, this is the first time I had attended a program startup workshop. I highly recommend all programs of this size conduct a program startup workshop upfront in order to ensure the entire team is sensitized to leadership expectations and has the opportunity to form lasting and productive relationships with their industry and government counterparts," said Nash.

The JPALS program startup workshop met the OUSD(AT&L) goal of early team alignment and mutual commitment to enhance program success. Regardless of a program's phase within the acquisition process, a program startup workshop should be part of a PM's toolkit to enhance program success by more efficiently navigating through the inevitable storming phase to become a high-performance team.

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The Relentless Pursuit of Program Management and Acquisition Excellence

Col. Mun H. Kwon, USAF



The new Program Management Assistance Group, part of the Space and Missile Systems Center (SMC) at Los Angeles Air Force Base, Calif., seeks to enhance the probability of successful mission accomplishment for its team members and across Air Force acquisitions. How is the PMAG accomplishing this?

Kwon is the director of the Program Management Assistance Group at Los Angeles Air Force Base, Calif.

Hands-on experience and program know-how are hard to come by because too often, military and civilian personnel rotate out of their positions as soon as they become subject matter experts.

Content-Based Program Management

Simply put, there are too many programs with baseline execution problems, resulting in marginal program stability. Acquisition Category I acquisitions are slow and built on cumbersome processes infamous for cost overruns, schedule slips, and performance problems. We have too many acquisition-certified program managers who are not adequately trained or sufficiently skilled in crafting executable baselines that would assure program stability. There are numerous times in which DoD had good processes in place but lacked disciplined execution as a result of inadequate understanding of the content-based program execution. As a result, the acquisition community fails to comply with proven processes from its own policies, instructions, and regulations.

Program management demands a complex and high level of intelligence, knowledge, and experience. However, hands-on experience and program know-how are hard to come by because too often, military and civilian personnel rotate out of their positions as soon as they become subject matter experts. The PMAG mitigates the impact of rotation requirements by filling in the holes such rotations inevitably cause. By assisting and supplementing wing commanders and program offices in fixing common problems, the PMAG raises core competencies in a program management office and provides cross-cultural experience that can benefit numerous programs. Although the PMAG is an Air Force-specific organization, the methodology and lessons learned it provides can benefit the entire acquisition community.

PMAG Revitalization

The PMAG was first established in 1975 at Headquarters, Air Force Systems Command, but was dissolved in the early 1990s. The concept was resurrected and redesigned in July 2007 at the SMC. Consisting of a relatively small cadre of professionals, the PMAG was put in place at SMC

to help mitigate program management, system integration, and program control deficiencies. In doing so, the PMAG strengthens government organic capabilities by establishing a high-performance and content-based culture. The PMAG institutionalizes the Air Force's drive for change, creating a corporate culture that has integrated itself across programs and across locations, starting at SMC and propagating across the Air Force. In fact, a March 18, 2009, secretary of the Air Force memo tasks Air Force Materiel Command senior leaders and the PMAG director with developing an action plan, including a timeline to establish the PMAG capability across the Air Force.

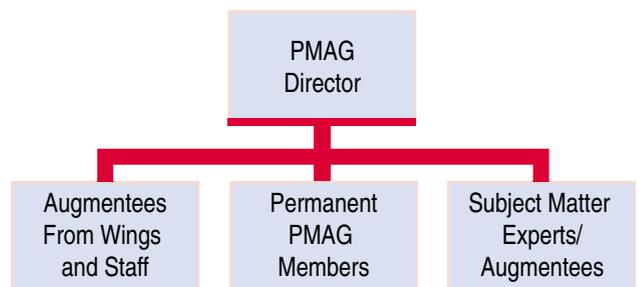
The PMAG has been so successful that the center's commander believes the PMAG initiative will help reestablish SMC's excellence and reputation. It has become SMC's leading program management agency for providing program management, systems integration, and program control expertise to program managers. The group earned its credibility through its expertise and close, collaborative relationships with its integrated staffs; industry partners; the Federally Funded Research and Development Center (FFRDC); the Defense Contract Management Agency; systems engineering and technology assistance contractors; and its customers, which include six Air Force wings and two direct report groups. This collaboration has resulted in many program milestone successes, including the Space Based Space Surveillance integrated baseline review, the Space Based Infra Red System engineering manufacturing development design review and integrated baseline review, the Space Based Infra Red System follow-on production system requirement review and preliminary design review, the Expeditionary Combat Support System integrated master plan workshop assistance, and GPS IIIA program startup assistance.

The PMAG Team

A PMAG project can be initiated by the center's commander, vice commander, executive director, wing commanders, acquisition commanders, and staff directors. The PMAG director works with the appropriate leadership to determine a program's needs and to assign team members.

The PMAG team goal is to create a true integrated program management team that can provide knowledge, expertise,

PMAG Organizational Structure



and training that the wing does not have or cannot provide. The PMAG seeks to maintain a lean operation of 10 to 15 permanent members. The core team is supplemented as needed. Augmentees are selected by the PMAG director on an as-needed basis to assist with project teams and provide extra capabilities, and they are chosen based on their subject-matter expertise and backgrounds with multiple programs. Augmentees may be selected from civilian, military, aerospace, or contractor positions. Interns, graduates on presidential management fellowships, and even second lieutenants have been given project management leadership opportunities, mentored by the experienced PMAG core; and they develop competencies and program management execution knowledge that they will take with them throughout their careers. It is a win-win situation for the wings, as individuals who have received valuable touch-time experience are later hired into their organizations. The PMAG augmentee becomes a valuable team member in the wing.

The PMAG team composition allows for a flexible group of subject matter experts who can learn from different programs and provide lessons learned and best practices from one program to another. Most important, PMAG members are not simply consultants; they are participants who roll up their sleeves and work hands-on with their customers. By rotating core and augmentee staff across programs, a life cycle system integration focus is developed and applied.

Key to PMAG's methodology is its multi-disciplinary team approach in which every participant brings a unique expertise. Members are holistically focused; enthusiastic to apply integrated program management capabilities with a strong technical background; and driven to exceed their own expectations and limitations for the benefit the rest of the team, the customer, and the Air Force enterprise.

By relentlessly pursuing continuous improvements in all SMC business cases, PMAG has learned to not merely exchange ideas, but to jointly mitigate program deficiencies with its customers. Such business cases include development of requirements definitions, acquisition strategies, requests for proposal, source selections, integrated baseline reviews, design reviews, and deployment processes, as addressed in the PMAG framework. Such collaborative relationships spark further collaborations between programs, creating a cycle of success.

A key step in changing the current acquisition culture and training new acquisition professionals is to propagate the PMAG's methods, culture, and lessons learned. True knowledge in acquisitions comes not in a classroom, but from on-the-job training; and from seeing, doing, and experiencing passionate mentoring and coaching efforts.

GPS IIIA Program Startup Assistance

From Nov. 13, 2007, to Oct. 31, 2008, PMAG distinguished itself by supporting the SMC's \$1.4 billion GPS Block IIIA

integrated baseline review team. As GPS Commander Col. David Madden stated in a Nov. 14, 2008, issue of *Aerotech News and Review*, "The PMAG, SMC's program management experts, were an integral part of the overall process providing application-oriented training, templates, analyses and assessments vital to IBR success."

The integrated baseline review was designed in three stages:

- The content stage established the program technical baseline content.
- The integrity stage established the scope and schedule baselines.
- The execution stage established the performance measurement baseline.

The stages allowed for detailed establishment of robust cost, schedule, and technical baselines to ensure program executability. The overall process took nearly 11 months.

The PMAG team was an integral part of the overall integrated baseline review process, providing application-oriented training, criteria templates, analyses, and assessments vital to the success of the integrated baseline review—the most comprehensive review ever undertaken at SMC. PMAG's three-phased risk formulation, control account manager notebook evaluation training, program planning, robust baseline review practice, and collaboration with the contractor's program startup assistance team succeeded in building a strong, organic, integrated program management capability within the wing and

The PMAG is an integrated program management staff, supplementing and assisting the wing's efforts; providing advice, training, and lessons learned; and augmenting organic capability, from cradle to grave, for every major defense acquisition program that needs it.

the prime contractor's operation. The three-phased startup integrated baseline review verified and validated technical, schedule, and cost performance aspects of the baseline, encompassing more than 600 control accounts in total. The PMAG conducted close to 180 critical and near-critical path control account assessments to ensure the crucial \$1.4 billion performance measurement baseline was executable.

The program startup assistance with the integrated baseline review was accomplished through unprecedented cooperation with the wing, integrated staff, the FFRDC, systems engineering and technology assistance contractors, and industry partners to provide integrated program management, program control, and system integration expertise. PMAG worked to develop new methodologies and incorporate lessons learned from other successful programs, providing detailed instruction to the wing to ensure further program success.

PMAG travelled across the country to the contractor's facilities, spent countless hours poring over the contractor's materials, and coordinated with the wing on reviews. PMAG acted both independently and in sync with the wing, providing comprehensive training sessions, reviewing the same materials as the wing to develop independent assessments, and working in tandem with the wing to develop a solid and robust baseline. By introducing successful elements from other programs on base, by acting as a servant leader to the wing, and by applying its own unique integrated nature to the project, the PMAG team was successfully able to assist the wing in accomplishing the most comprehensive integrated baseline review performed at SMC. It is because of such success that PMAG has thrived, working with more wings on additional projects, and providing true integrated life cycle support to the programs at SMC and a developing knowledgebase from which other programs can tap into.

Keys to Success

PMAG's overall function through startup assistance efforts is to formulate integrated life cycle risks to support the PMAG's life cycle program assurance framework. The integrated baseline review then leads to design reviews (assembly, subsystem, element, segment, and system-level program design reviews), with detailed specification review, design review data packages, and the formulation of additional risks. The PMAG works with the program to mitigate risks, and the group stays with the programs for as long as the organization is needed. The PMAG is an integrated program management staff, supplementing and

True knowledge in acquisitions comes not in a classroom, but in on-the-job training.

assisting the wing's efforts; providing advice, training, and lessons learned; and augmenting organic capability, from cradle to grave, for every major defense acquisition program that needs it.

The PMAG team is successful because all those involved become holistically

capable by moving beyond their own strengths. Because the key to the group is its powerful integrated capability—integrated, multi-disciplinary teams—the final product reflects a variety of viewpoints. The strength of the group becomes the strength of the individual as teams work together to craft high-quality products. The strength of the individual is found in the group, as new viewpoints and expertise are brought in to augment and supplement other members of a project team. There are often many projects being worked simultaneously, with the PMAG team in five different places working 10 different projects with augmentees from wings, the FFRDC, integrated staff, and supporting teams. Knowledge and experience gained by augmentees and team members is returned to their parent organizations.

The PMAG brings substance through disciplined execution and focuses on content while deemphasizing automatic delegation. A fundamental aspect of the PMAG is the integrated team's approach to producing compounded program management products and services.

We Must All Continue to Improve

If you take nothing else with you from this article, take this: We can do better. We must do better. If we all remember what it is that truly inspires us—about service, about development acquisitions, about our country—we can reinvigorate the acquisitions community. Complacency and passivity cannot permeate our culture. Competency, collaboration, and content-based performance—these are the keys to our success. We all must do the innovative work necessary to make DoD acquisitions better. We all must grow as leaders, developing ourselves, cultivating change, and continuously pushing the envelope for improvement. And most important, we can grow only by working together. It is that personal growth, through cooperation and leadership, for the benefit of the Air Force and the acquisition community, that the PMAG strives to achieve.

The author welcomes comments and questions and can be contacted at mun.kwon@losangeles.af.mil.

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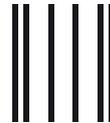
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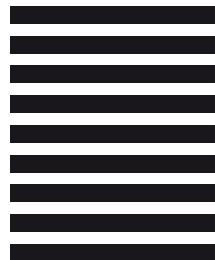
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Jointness in the Acquisition World

Cmdr. Frank "Spanky" Morley, USN

Over the past decades, our operational military forces have transformed themselves from Service-centric combat forces to a truly joint force, operating under unified commands, employed across Service boundaries with a healthy understanding of other Service force capabilities, and achieving synergies previously unattainable. We are far from perfect, certainly, but most would agree that there has been a culture change, with new legislation, Service-level edicts, changes in promotion and selection board precepts, and a stronger educational foundation. As a result of those efforts, our operational forces now think how best to operate and execute as a synergistic joint force, and not necessarily strictly from a Service-specific perspective. Our forces understand the strengths and weaknesses of their fellow Services and know where Service-specific capabilities can complement the overall battlefield.

Unfortunately, the same cannot be said of our acquisition and developmental forces. There is an appreciation of the need for joint interoperability and development coming from Department of Defense-wide efforts within forces, such as the Joint Requirements Oversight Council and the Joint Capabilities Integration Development System; however, within the trenches of the individual program offices, there is limited interaction with and understanding of other similar program efforts. For example, as a deputy program manager within the Navy's

Morley is the deputy program manager for PMA 265.

F/A-18 and EA-18G Office, I have little to no interaction or insight into efforts within other tactical aircraft programs, such as the Joint Strike Fighter, F-16, F-15, or F-22. There are benefits to be gained from increasing the acquisition and development communities' culture to a wider perspective that embraces other efforts across DoD.

The acquisition world should look at and emulate the efforts taken by the operational world as a way to increase efficiencies and synergies in the acquisition of our weapons systems. Three common operating precepts from DoD's Capstone Concept for Joint Operations (Version 3.0, Jan. 15, 2009) that are directly applicable to acquisition and should be embraced by our acquisition community are:

- Combine joint capabilities to maximize complementary rather than merely additive effects.
- Avoid combining capabilities when doing so adds complexity without compensating advantage.
- Drive synergy to the lowest echelon at which it can be managed effectively.

Our efforts over the past couple of decades to transform the force into a joint aware, interoperable, and synergistic total force have resided in three major areas: legislation, education, and experience.

Legislation

The cultural change of our operational forces into a joint force did not happen on its own. Changing the culture and momentum of any large organization requires a consistent driving function from the top and over a significant period of time. For our military and DoD organizations, such change comes in the form of legislative and organizational policies, which often affect the career progression of the DoD workforce. For example, on the operational side, DoD-wide policy requires career operational officers to have a specific combination of joint education and joint experience in order to be promoted. By definition of Title 10 of the U.S. Code, the fielding of DoD's combat equipment and forces is Service-centric. Legislation and policies encourage jointness, but not always for our acquisition forces.

There are certainly unique circumstances within the acquisition workforce that make joint integration efforts challenging. The acquisition world resides within the world of appropriations and budgets, as well as competing commercial contractors, all with proprietary concerns and competitive motivations. Services and programs face the challenges of competing for limited funds. Competition is good so long as it remains balanced and does not result in counterproductive efforts.

DoD must determine and institute the means to overcome the acquisition community's competition for limited funds. Acquisition organizations and individual members must be motivated and rewarded for making joint decisions when appropriate, and discouraged from Service- or program-

specific thinking when it is counterproductive to the overall force. DoD has passed acquisition reform legislation and policies to institute various non-Service-specific oversight of acquisition and developmental programs. That certainly has aided efforts in providing a level of consistency and basic interoperability checks and balances within our programs and equipment. However, DoD legislation and policies must go beyond top-level oversight and must penetrate further into the individual program offices and acquisition workforce members to infuse a more joint culture deep within the program offices in order to truly realize synergistic benefits. Achieving that situation will require legislation and career progression policies, which in turn will require joint education and experience for acquisition workforce members who continue to advance.

Education

The education pillar within the acquisition world is probably most on track for encouraging joint efforts. Currently, most formal education within DoD's acquisition world resides with the Defense Acquisition University. The formal curricula addressed in the system reflect acquisition policy, regulations, and processes that are uniform across the Services. Acquisition workforce members across DoD attend DAU classes and participate in online acquisition tools/information-sharing resources. They also have the opportunity to interact with their uniformed and civilian counterparts, increasing awareness and understanding, and aiding in the development of an informal network across the Services that has proved valuable within the operational communities.

We can certainly further refine the formal education processes within the acquisition communities. For example, with members joining the acquisition workforce at various levels of career progression and seniority, the education system should allow for various entry points and accelerated advancement for those members entering into higher-level management jobs within the program offices. In addition, the current curricula focus heavily on the "mechanics" of the business, and may have room for growth in the more theoretical and case study areas earlier in the education pipeline. Further developments and refinements of acquisition-specific education should continue to be centered on a joint model such as DAU.

Cross-Program and Joint Experience

Cross-program and joint experience within the acquisition community is probably the area needing the most attention, and the area in which the quickest gains can be made with some very simple efforts. Acquisition professionals, both uniformed and civilian, can serve their entire career within the walls of a single program office and have little to no interaction with another Service. The technical competence, complexity, and long developmental timelines of DoD's major programs require a level of stability that is not as imperative as it actually is within many of our operational forces, lessening the likelihood that an acquisition profes-

sional will gain diverse experience across several different program offices and technical competencies throughout a career. Also, when you're involved in a program, it is very easy to keep your head down and develop minimal understanding or awareness of other related program efforts. There are few functions that motivate program office personnel to spend any of their extremely valuable time on matters outside their specific program efforts.

Liaison Officers

There are some simple efforts that could be implemented to help increase overall awareness. For example, within the combatant commands, there are liaison officers (LNOs) resident from the other combatant commands. U.S. Pacific Command will have a U.S. Strategic Command and a U.S. Northern Command LNO who is stationed within the PACOM headquarters and is responsible for maintaining communications between the commands. A similar effort could be introduced for related acquisition developmental efforts within Services.

There could be LNO representatives between the Joint Strike Fighter Program Office and the Hornet/Growler Program Office, as an example. It would be extremely valuable to the two program offices to have a person residing within their headquarters whose entire responsibility is to aid in understanding efforts within each program, specifically where developmental and operational synergies can be identified. Differing industry partners may not see this as a benefit, for they are in business and, by definition, in competition; however, from the government point of view, DoD must minimize the cross-program competitiveness to productive levels and respect commercial proprietary rights while integrating efforts in order to provide the best overall value to the taxpayer.

I have found throughout my operational experience that the productivity of one well-placed LNO far exceeds the commitment of a billet, and the officer provides benefits to both organizations. Manpower restrictions should not be a deterrent to considering the use of an LNO. With such a system established, studies and technical developmental efforts already conducted, and other vital information that has already been done by one program could be shared with the other, avoiding duplication of effort and funding. Could that prevent divergent developmental tracks between systems and identify solutions to maintain parallel and interoperable courses throughout the developmental and sustainment phases?

Exchange Officers

Another effort that could be implemented relatively easily with potential significant benefits is the use of exchange officers. DoD has used military exchange officer positions throughout the operational forces and test pilot communities for decades. Much like the LNOs, exchange officers have improved perspective, cooperation, and understanding

across Service lines and have benefited DoD's overall joint warfighting abilities. What if, for example, the Navy had an acquisition exchange officer within the Air Force F-16 program office and vice versa? Would we not gain the same benefits that have been realized within other communities? There are a small number of civilian acquisition professionals who may cross Service lines over a career; however, most stay within their own Service, and those who do cross over generally remain with the new Service for many years, and consequently do not bring their experience and perspective back to the original Service organization. There is room for growth in this area to better cross-pollinate our acquisition workforce across Service boundaries so that we better understand and, ultimately, more efficiently acquire critical military products.

Regardless of what efforts it undertakes, DoD should guard carefully against any impact or erosion of individual program manager autonomy and authority. DoD's major program managers are in command for a reason. Accountability, ownership, pride, and the right amount of competition are all proven motivators for successful organizations. Efforts in improving jointness and interoperability across programs can and should be made while maintaining the stature and authority of the program manager. Joint efforts and processes within the operational world have not impeded the role of unit commanding officers—nor should efforts within the acquisition and developmental world erode the authority of DoD's program managers.

The Benefits are Out There

There are some real benefits to be realized within DoD's acquisition and development worlds if the department applies already-established parallel joint efforts—that have proven successful within its operational forces—to its acquisition practices. Some can be implemented simply, inexpensively, and within the near-term. Others will take continued efforts at the highest levels. There are specific challenges and variables within DoD acquisition that renders some operational joint efforts irrelative; however, there is much that could be applied.

The efforts discussed in this article are meant to be infused within the culture, bringing awareness to professionals, encouraging them to ask questions throughout the program offices about interoperable development, and establishing ways for them to talk across program and Service lines. Previous acquisition reform efforts have concentrated on oversight, and that has its place. However, the next step should be to change the culture and provide the tools and motivations to bring jointness to DoD. Such change will not happen overnight or with one precipitating event. It will take years, but change will come about. We should begin our efforts today.

The author welcomes comments and questions and can be contacted at francis.morley@navy.mil.

From Not-So-Great to Worse

The Myth of Best Practice Methodologies

Christopher R. Paparone

The November 2008 issue of the *Academy of Management Perspectives* has two very interesting studies that challenge bestselling author Jim Collins' assertions in his 2001 book *Good to Great: Why Some Companies Make the Leap ... and Others Don't*. Both articles—"From Good to Great to...," by Bruce G. Resnick and Timothy L. Smunt, and "Good to Great, or Just Good?" by Bruce Niendorf and Kristine Beck—conclude that Collins' arguments and suggested principled commonalities about great firms were unsupported.

Resnick and Smunt conducted a financial analysis over subsequent periods on the 11 companies Collins identified as great. "We found that only one of the 11 companies continues to exhibit superior stock market performance according to Collins' measure, and that none do so when measured according to a metric based on modern portfolio theory. We conclude that Collins did not find 11 great companies as defined by the set of parameters he claimed are associated with greatness, or, at least, that greatness is not sustainable," the authors note.

Niendorf and Beck came to a similar conclusion, noting, "*Good to Great* provides no evidence that applying the five principles to other firms or time periods will lead to anything other than average results." By the way, Collins' list of 11 great companies includes Circuit City (now bankrupt) and Fannie Mae (currently receiving bailout support from the U.S. Treasury Department).

Paparone is an associate professor in the Army Command and General Staff College's Department of Logistics and Resource Operations.

In a late-1980s bestselling book, *In Search of Excellence: Lessons from America's Best Run Companies*, authors Tom Peters and Bob Waterman used a methodology similar to that of Collins to investigate companies they identified as excellent and identify good business practices. Those companies, in reality, later turned out to be somewhat mediocre.

What is troublesome about the influence of such bestselling management books and other quests for best business practices is that many leaders in the Department of Defense profess that DoD needs to find these presumed “best practices” and incorporate them into the department’s systems and processes. Indeed, over the past 30 years, we have witnessed the bandwagon effect of popular management movements such as management by objectives; reinventing government; reengineering; the balanced scorecard; and the latest craze, Lean and Six Sigma. Why do we persist?

The answer may be in the underlying belief that the pursuit of best practices mimics the “hard sciences” (i.e., beliefs associated with objectivity, reductionism, isolation of variables, one-way causality, and the scientific method), when in reality, such best practices research studies are really in the “soft sciences” category (studies not based on reproducible mathematical data).

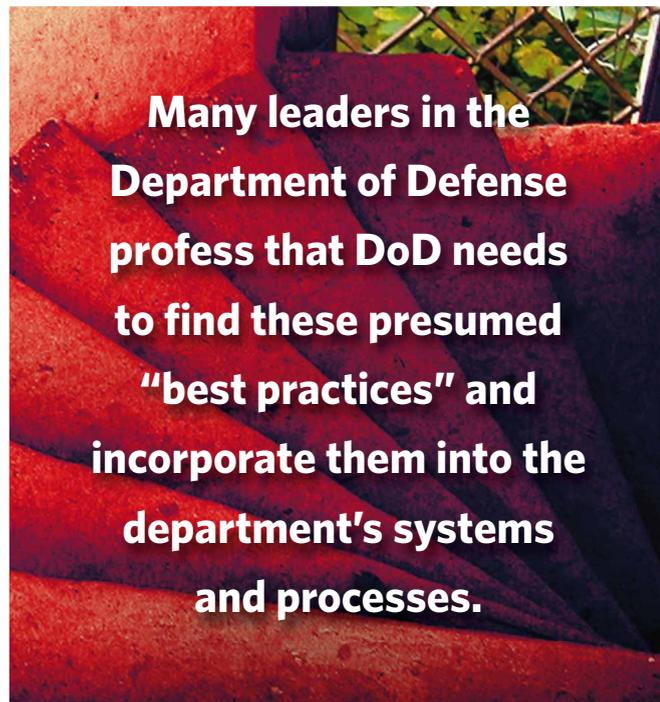
The “Facts” of Best Practices

Social scientists have argued that there are fundamental differences between “natural facts” (that strive toward objective meaning and reproducibility) and “social facts” (better characterized through subjective meanings and are contextually novel).

I’d like to provide some background information on the different kinds of facts. John Searle, a philosopher from the University of California, Berkeley, developed a continuum to better judge the idea of facts. Along that continuum, he ranges from natural facts (things we can physically sense), Social Type 1 facts (things we can physically sense but have a human-created purpose), to Social Type 2 facts (ways communities of humans socially agree about reality).

There is little ambiguity, for example, when we see a mountain (a natural fact). While different languages and cultures have different names for the mountain and what it might symbolize, it is still *there*. In another example, a spear (a Type 1 fact) is *there*, but a member of a secluded culture seeing a spear for the first time might not have the same sense of natural factualness about it as would a native who made and uses it. Yet outsiders would probably be able to implicitly figure out for what and how it is used.

At the far end of the fact spectrum are the social facts pertaining to human-to-human agreed-upon concepts that, without that social agreement, would simply not exist and would certainly not be meaningful to any outsider. For example, the traditional military decision-making process ex-



ists toward the Type 2 end of the fact continuum—only those involved in the decision-making process will understand the entirety of how it works.

The existence of today’s military decision-making process remains a fact so long as the defense community shares a belief that it achieves the intended purpose for which it was created and the community continues to use the decision-making process. If those in the defense community believe the decision-making process no longer achieves its intended purpose, then they will no longer continue to use it. There’s no way to tell how long the process will continue to be used or how long people will believe in it—it works now, but there’s no way to tell if it will work in the future. The same is true of popular management techniques.

The Type 2 social reality explains what happens when people read and objectify popular management movements: They latch onto a charismatic story told by a thought leader, such as Jim Collins, and incorporate the story into their management belief system. As other leaders are convinced of the “hard science” of it all, others jump on the bandwagon through a social interactive process. That explains why best practices are still applied. But just because people believe in the practices doesn’t mean they are solid, proven methods. What are some alternatives to applying a new business practice every couple of years? How should people view such “best practices” theories?

Reflective Practice

Social psychologists and management theorists have argued that reflective practice, which involves being continuously

Not-So-Great *continued on page 64.*

Two Sides of Reinventing the Wheel

Wayne Turk





In project management, we've heard it before in some form or another. "Don't reinvent the wheel." "Let's not reinvent the wheel." "We're not reinventing the wheel here, are we?" It is usually spoken with a cynical, derisive, exasperated, or condescending tone.

Many times, we in DoD just recycle and repackage things, and we don't really change. In project management, there's the problem of whether or not to reinvent the wheel. Is it worthwhile to start over and make big changes, or is it better to reuse part or all of what works and move on from there?

Most people involved with project management don't want to reinvent the wheel because the wheel works well enough; and it would waste precious time, dollars, and effort doing the reinvention. On the other hand, some say we do need to reinvent the wheel, at least occasionally. If we didn't, we would still be using wooden rollers. Some kinds of wheels have to be reinvented many times before you get them right. Reinvention can be innovative and involve major breakthroughs, or it can be as simple as providing an improvement.

Who is right? Well both, of course. There are specific times and situations in which one perspective or the other can apply. The details of when and why will be provided later in the article. First, I want to start with some definitions so that we are all speaking the same language.

Turk is an independent management consultant with Suss Consulting. A retired Air Force lieutenant colonel and defense contractor, and the author of *Common Sense Project Management* (ASQ Press, 2008), he is a frequent contributor to Defense AT&L.

The wheel isn't perfect. What product, process, application, or tool is perfect?

Some Definitions

My paper dictionary is not up to date on clichés and jargon, so I had to go online to find current definitions. The following are a couple of definitions of “reinventing the wheel.” They are similar in meaning, but each has some little differences.

Wikipedia states, “Reinventing the wheel is a phrase that means a generally accepted technique or solution is ignored in favor of a locally invented solution. To ‘reinvent the wheel’ is to duplicate a basic method that has long since been accepted and even taken for granted.” Wikipedia does go on to say that the phrase is occasionally used by a person to explain what they did. In that case, it is said like, “I didn’t just reinvent the wheel.”

The Online Dictionary defines it as “to do something again, from the beginning, especially in a needless or inefficient effort; to recast something familiar or old into a different form.”

Finally, die.com explains it as “to design or implement a tool equivalent to an existing one or part of one, with the implication that doing so is silly or a waste of time.”

As you can see, even the definitions are somewhat derivative in tone. There are some other common phrases that are related or associated, which should sound familiar to many readers. I have added my own brief definition to each of them.

- “Not built here” or “not invented here”—The organization or company, for the most part, doesn’t want to use or accept things (tools, concepts, products, code, processes, etc.) not created in-house.
- “If it ain’t broke, don’t fix it”—If it works, why are we looking at changing it? An extremely common phrase that sounds good but isn’t always right.
- “Design in a vacuum”—Starting from scratch on each project or application. Frequently used in software development.
- “Leveraging on previously developed work”—Reusing work, architecture, designs, code, processes, documents, etc., to save time, effort and money. One of my favorites because it can really help save resources.

The Cons of Reinventing the Wheel

The biggest and most compelling argument in favor of not reinventing the wheel is that it saves time, money, and effort. It is hard to argue against that in today’s economy. We can’t afford to waste anything. Someone else has already expended the resources to develop, test, and implement something, so why not take advantage of the work and the associated savings? Are the improvements, if any, worth it? Can the project team do a better job? How much would it cost, and how much time would it take? Usually the answer boils down to “we can’t afford to do it.”

In the government, and especially in DoD, we have to worry about interoperability. With the Services’ diverse missions and equipment, interoperability is a must. Reinventing the wheel with new equipment, new programming codes, etc., can throw a monkey wrench into the works, making interoperability a problem. Backfilling or making changes to products already in use to maintain or create interoperability can be extremely expensive and time-consuming.

When reinventing something, you also have to consider how to maintain the product. Say that while maintaining a program, you generate new programming codes. That puts the product in a proprietary situation. What if you’re no longer around to fix it when something goes wrong? If someone else has to fix it or change it, he or she has to comb through thousands or even millions of lines of code to figure out what you did and why. Again, that starts becoming very time-consuming and expensive.

There’s also the argument that some tasks are very tricky and hard to do right. To use programming as an example again: If the programmer’s skills aren’t up to the challenge, there is not much choice but to use someone else’s already-working code. If there is even the slightest doubt as to whether the programmer can do a task, or if someone wonders if the programmer is going to have any problems, then the answer is to reuse the code that has been tested and time-proven. That is why architecture, design, module, and code reuse is not only acceptable but is recommended or even required in some cases.

As you can see, the arguments for not reinventing the wheel are strong. So, those of us working for or supporting government and DoD in particular should never do it, right? Well, no; there are arguments on the other side, too.

The Pros of Reinventing the Wheel

Let’s start with probably the best argument: The wheel isn’t perfect. What product, process, application, or tool is perfect? I can’t think of many, if any.

As an aside, Fran Briggs, an author and motivational speaker, once asked a group of elementary school kids why someone should reinvent the wheel (see <www.franbriggs.com/wheel.html> for the full article). Her aim was to chal-

lenge their beliefs and encourage them to think. Here are a few of the thought-provoking reasons as to why they would reinvent the wheels (on their bicycles):

- They only come in one color.
- They don't bounce.
- You can't see inside.
- They need some style.
- They're not made of steel.
- Too many flat tires.
- They're boring.
- They slow down when on grass.
- They don't glow in the dark.

Now, think about any software application that you use. Is it perfect? Does it do everything it should? Is it easy to use? Is it efficient? Does it cost too much? Does it crash or break down? The questions could go on and on. And very few of the answers are "yes" (or "no" if no is the right answer). The same goes for any other product. Even when it is a good one, there is always room for improvement.

There are other arguments for reinvention. One is that you (or your organization or company) might stumble onto something that is really innovative and maybe even profitable. It could happen, especially if the design was made without looking at what else had been already created or tried. In the case of new ideas, just because it hasn't been done before doesn't mean it can't be. Even if it has been done, it doesn't mean it can't be done cheaper, more efficiently, more elegantly, more effectively, or have better uses. Why shouldn't companies and individuals make a buck if they can?

Another very good argument in favor of reinventing the wheel is that individuals, companies, and agencies can learn from reinventing. That is one of the most common, and probably correct, arguments in favor of reinvention, especially in programming. People learn by doing, and they learn from their mistakes. Yes, they can learn theory from a book, but until that theory is put into action, that is all it is—theory.

Now we are getting into the weaker arguments in favor of reinvention. People reinvent because it's much more fun reinventing the wheel than using someone else's wheel. Or, you can reinvent the wheel because you've got nothing else to do, and you want to be busy when your boss walks by. Granted, these are not serious arguments; however, if the resources are available, and if you are not constrained by time or money, then go for it! You just may come up with something altogether new while you're doing it.

When Should We Reinvent the Wheel?

When should the wheel be reinvented? That is really a tough question. The following are some examples of times when it might be the right move:

- When something obviously needs improvement. Maybe it was great at one time, but it doesn't currently meet

the need or help accomplish the mission in the most efficient and effective manner.

- When someone has an idea that might improve it (whatever "it" is), even if it is working. If the improvement helps make it better, cheaper, easier to use or maintain, or improves the efficiency, why not use the idea?
- When someone has a new and innovative idea. If the idea will lead to a better product or process of some kind that is needed or useful, reinvention may be worthwhile.
- When the dollar and time constraints aren't there. This doesn't happen often, but it is in the realm of possibility.
- When a company can't reuse something that already works because it is patented or copyrighted by another company, and the licensing would be too expensive or the other company won't allow its use.
- When someone needs the experience. As was said earlier, people learn from doing. We have to get people who are new to a field or new to an office some experience so that they can progress and become a more valuable asset.
- When someone is willing to do it on his or her own time. Who knows? It may produce a winner.
- When it is research and development. Research and development isn't always about brand new products. Sometimes it is reinvention for improvement or to meet a new need.

Making the Decision

In the past, I carried out a number of business process re-engineering projects. When we examined processes and considered changes, we always asked two questions: "Why" and "why not?" Why were the organizations doing something a specific way? Why not change? Sometimes there were good reasons not to change. Other times there weren't. Most of the time, nobody had considered the questions. Considering the whys and why-nots should be part of any process when reinventing the wheel is an option.

Not reinventing the wheel can save time and money—there is no arguing that. However, it can also restrict efficiency, improvement, or innovation. Sometimes the scales tilt one way or the other. Too often, they tilt because people don't think the issue all of the way through. People don't weigh the pros and cons of each side. They jump to a conclusion.

So are you going to reinvent the wheel on your project? That is up to you. It might or might not be the right answer, but don't automatically dismiss reinventing right away. Think it over, weigh the costs and benefits, and decide what is the best solution—and don't let preconceived notions of reinventing the wheel influence your decision.

The author welcomes comments and questions and can be contacted at wayne.turk@susconsulting.com or rwturk@aol.com.

Buying Green As the largest federal buyer of goods and services, the Department of Defense strives to ensure that every procurement meets the requirements of all applicable federal green purchasing requirements. In fiscal year 2004, DoD established a formal Green Procurement Program (GPP) to enhance and sustain mission readiness while protecting the environment through compliant, cost-effective acquisition that reduces consumption of resources and excessive generation of solid and hazardous wastes.

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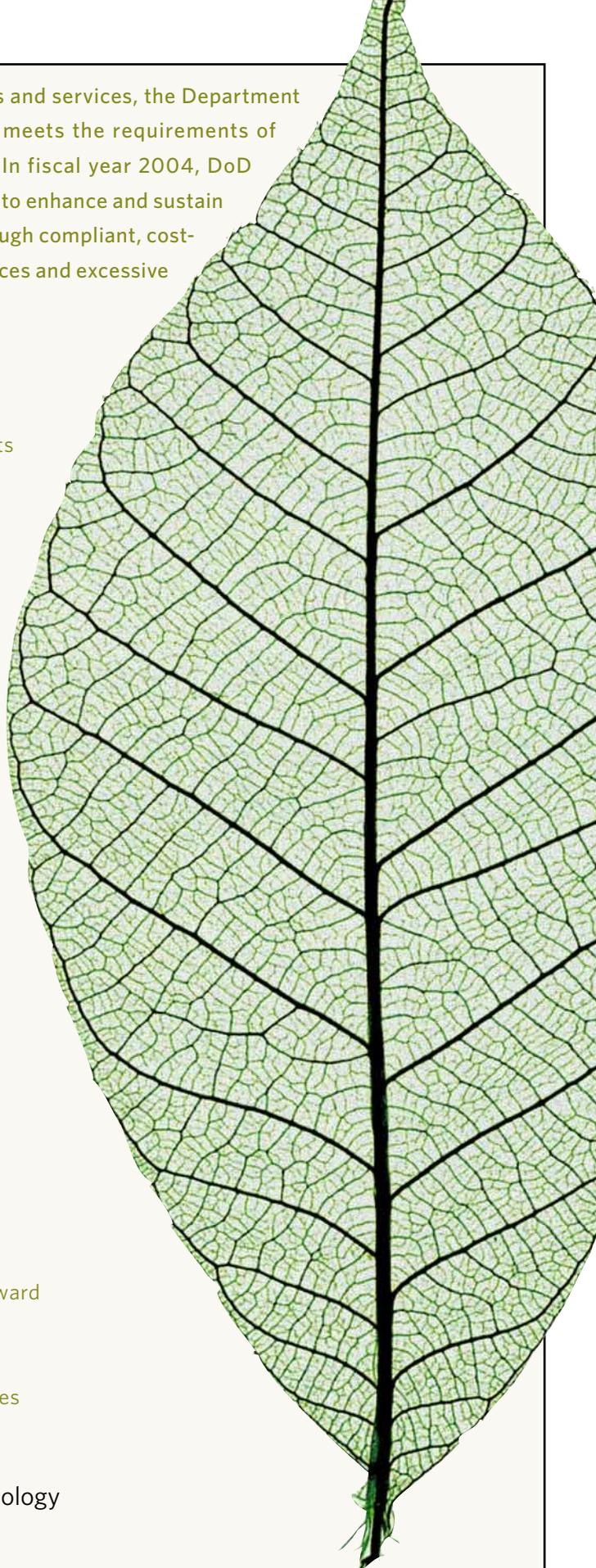
Green Procurement



The objectives defined in DoD's GPP policy are to:

- ☞ Educate all appropriate DoD employees on the requirements for federal green procurement preference programs, their roles and responsibilities relevant to these programs and DoD's GPP, and opportunities to purchase green products and services
- ☞ Increase purchases of green products and services consistent with the demands of mission efficiency and cost-effectiveness, with continual progress toward federally established procurement goals
- ☞ Reduce the amount of solid waste generated
- ☞ Reduce consumption of energy and natural resources
- ☞ Expand markets for green products and services

For more information visit the Acquisition & Technology Web site at <www.acq.osd.mil/at>.





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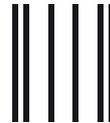
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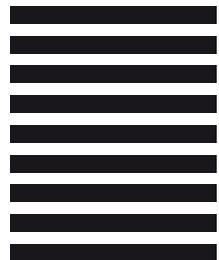
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mindful of social facts, is the concept we should subscribe to. Reflective practice has the following philosophical characteristics:

We cannot expect the same sort of objective knowledge we gain from studying in the hard sciences as we explore in the soft sciences (such as is the field of management). For example, when DoD acquisition professionals interpret events (subjective reality), the explanations and conclusions that result may inform future materiel solution proposals. When a program becomes funded (objective reality), there is a need to review decisions of the past in the context in which the decision was made. Subjective premises must always be reviewed.

Objects, events, and situations in the workplace do not have natural meanings, per Searle's theory of natural facts. We attribute meaning to them, sometimes in the form of creative conjecture, stories, and other subjective means. For example, DoD leaders use the term "transformation," even though that word can mean different things to different people.

Life at work (like anywhere else) is socially interactive and requires dealing with situations that are always novel and continuously changing. For example, process control technologies, such as those proposed by the popular management philosophy of Lean Six Sigma, may lack the flexibility

the department needs to adjust to changes in the environment, which can make the process entirely obsolete.

Critical reasoning (an important ingredient in reflective practice) admits the human tendency to objectify items (perhaps motivated by a belief in hard science) and seeks truth by exposing for the gaps between our objectified work life and the subjective world we create. This is the tricky part, because this form of thinking requires DoD professionals to admit their interpretations are *always* subjective and the importance of revisiting and re-judging the relevance of past decisions as often as possible. This form of critical thinking is called "reflection in action."

A Quest for Reflection-in-Action

The idea of best practices, albeit seductively "scientific," should be replaced with a quest for reflective practice in the defense community. Reflection in action should guide our thinking while acting in the workplace, not an overreliance on management techniques espoused to be "proven." There are no such "laws of management" as there are "laws of gravity," and there will never be as long as people are involved. Popular management writers should be viewed as thought leaders (who provide ideas), and the knowledge they purvey does not have the same factuality as those of natural scientists. Perhaps this recognition is what will really make us great.

The author welcomes comments and questions and can be contacted at christopher.paparone@us.army.mil.



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The DAU Alumni Association opens the door to a worldwide network of Defense Acquisition University graduates, faculty, staff members, and defense industry representatives—all ready to share their expertise with you and benefit from yours.

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For more information, call 703-960-6802 or 800-755-8805, or e-mail [dauaa2\(at\)aol.com](mailto:dauaa2(at)aol.com).

For more acquisition news, please go to the Defense AT&L magazine Web site at <www.dau.mil/pubs/damtoc.asp> and click the links under the "Acquisition News Topics" heading.

New Under Secretary of Defense for Acquisition, Technology & Logistics

ACQweb.com, April 27, 2009

Dr. Ashton B. Carter was sworn in as under secretary of defense for acquisition, technology and logistics on April 27, 2009.

Before assuming this position, Dr. Carter was chair of the International and Global Affairs faculty at Harvard's Kennedy School of Government and co-director (with former Secretary of Defense William J. Perry) of the Preventive Defense Project, a research collaboration of Harvard and Stanford Universities. Dr. Carter was also senior partner at Global Technology Partners and a member of the Board of Trustees of the MITRE Corporation and the Advisory Boards of MIT's Lincoln Laboratories and the Draper Laboratory. He was a consultant to Goldman, Sachs on international affairs and technology matters. He was a member of the Aspen Strategy Group, the Council on Foreign Relations, the American Physical Society, the International Institute of Strategic Studies, the Advisory Board of the Yale Journal of International Law, and the National Committee on U.S.-China Relations. Dr. Carter was also co-chair of the Review Panel on Future Directions for the Defense Threat Reduction Agency Missions and Capabilities to Combat Weapons of Mass Destruction, chair of the National Security Strategy and Policies Expert Working Group of the Congressional Commission on the Strategic Posture of the United States, a member of the National Missile Defense White Team, and a member of the National Academy of Sciences Committee on International Security and Arms Control.

Dr. Carter served as a member of the Defense Science Board from 1991-1993 and 1997-2001, the Defense Policy Board from 1997-2001, and Secretary of State Condoleezza Rice's International Security Advisory Board from 2006-2008. In 1997, Dr. Carter co-chaired the Catastrophic Terrorism Study Group with former CIA Director John M. Deutch, which urged greater attention to terrorism. From 1998 to 2000, he was deputy to William J. Perry in the North Korea Policy Review and traveled with him to Pyongyang. In 2001-2002, he served on the National Academy of Sciences Committee on Science and Technology for Countering Terrorism and advised on the creation of the Department of Homeland Security.

Dr. Carter was assistant secretary of defense for international security policy during President William Clinton's first term. His Pentagon responsibilities encompassed: countering weapons of mass destruction worldwide, oversight of the U.S. nuclear arsenal and missile defense programs, the 1994 Nuclear Posture Review, the Counter proliferation

Initiative, control over sensitive U.S. exports, chairmanship of NATO's High Level Group, the Nunn-Lugar program resulting in the removal of all nuclear weapons from the territories of Ukraine, Kazakhstan, and Belarus, establishment of defense and intelligence relationships with the countries of the former Soviet Union when the Cold War ended, and participation in the negotiations that led to the deployment of Russian troops as part of the Bosnia Peace Plan Implementation Force.

Dr. Carter was twice awarded the Department of Defense Distinguished Service Medal. For his contributions to intelligence, he was awarded the Defense Intelligence Medal. In 1987, Dr. Carter was named one of Ten Outstanding Young Americans by the United States Jaycees. He received the American Physical Society's Forum Award for his contributions to physics and public policy. Dr. Carter was elected a Fellow of the American Academy of Arts and Sciences and the American Academy of Diplomacy.

From 1990-1993, Dr. Carter was Director of the Center for Science and International Affairs at Harvard University's John F. Kennedy School of Government, and Chairman of the Editorial Board of International Security. Previously, he held positions at the Massachusetts Institute of Technology, the Congressional Office of Technology Assessment, and Rockefeller University.

Dr. Carter received bachelor's degrees in physics and in medieval history from Yale University, summa cum laude, Phi Beta Kappa. He received his doctorate in theoretical physics from Oxford University, where he was a Rhodes Scholar.

In addition to authoring numerous articles, scientific publications, government studies, and Congressional testimonies, Dr. Carter co-edited and co-authored eleven books, including *Keeping the Edge: Managing Defense for the Future* (2001), *Preventive Defense: A New Security Strategy for America* (1997), *Cooperative Denuclearization: From Pledges to Deeds* (1993), A



New Concept of Cooperative Security (1992), Beyond Spinoff: Military and Commercial Technologies in a Changing World (1992), Soviet Nuclear Fission: Control of the Nuclear Arsenal in a Disintegrating Soviet Union (1991), Managing Nuclear Operations (1987), Ballistic Missile Defense (1984), and Directed Energy Missile Defense in Space (1984).

Contract Specialist Opportunities in Iraq/Afghanistan

Are you a civilian contract specialist looking for a job that is challenging, rewarding, and career enhancing? Or perhaps you are retiring or departing from one of the military services and you're looking for a contract specialist position that will support your former members in arms. If so, the Joint Contracting Command-Iraq/Afghanistan is for you. The JCC-IA needs experienced contract specialists to work in the highly charged, stimulating environment of Iraq.

The Project and Contracting Office was established in 2004 to support the humanitarian relief efforts in Iraq. In 2006, the various contracting offices operating independently in Iraq were brought under the Multi-National Forces-Iraq command, and JCC-IA was established by Central Command to support Operation Iraqi Freedom and Operation Enduring Freedom. The mission was to provide responsive operational contracting support to the chiefs of mission, Multi-National Forces-Iraq, and Combined Forces Command-Afghanistan to efficiently acquire vital supplies, services, and construction in support of coalition forces and the relief and reconstruction of Iraq and Afghanistan; and to provide capacity building to establish effective contracting and procurement processes within the Iraqi and Afghani ministries to build and sustain self-sufficient security forces. Since 2004, more than 70 civilian contract specialists with a variety of backgrounds have served in the JCC-IA, either on detail or temporary assignment.

Maile Parker, a senior contracting officer now serving in theater, said of her tour: "My experience here has been life-altering. The ability to serve and support our military men and women in the combat zone makes me feel like a contributor in our country's war on terror. The commodities and services I procure are used in direct support of our soldiers, in aircraft, on the roads; and [it] helps make a difference in the daily lives of our heroes here. I am glad to be a part of it. The most rewarding experience I have had as a contracting officer was when an Army soldier thanked me for getting an essential piece of military equipment to him in two days versus the normal two weeks. Being here makes me focus on

the big picture of life, duty, and service to country and minimize my small travails. I am proud to be serving my country."

Ken Nix, now the chief of staff at the Mission and Installation Contracting Command, Fort Sam Houston, Texas, tells people "Never say, 'If only I had.'" He described his two tours in Iraq: "I look back now, after two tours in Iraq, and realize that these assignments were the most rewarding of my career. Like every other civil servant that made the decision to go, I was worried about being one of the unlucky ones that may never return home. I could have easily thought of a dozen reasons that would prevent me from going and am thankful every day that I did not invoke any of those reasons to stay safely at home. I was assigned to the Joint Contracting Command—Iraq and Afghanistan in the international zone and got to be a part of a joint military and civil servant team of the most dedicated personnel that the Department of Defense has to offer. We were not the smartest people in the room, we were not the very best in DoD acquisitions, we were not the bravest people on the battlefield—all those people used some of the dozen reasons to stay safely at home. But we were there, and we gave it everything we had to help make the mission a success.

"To all those civil servants that are still on the fence about volunteering to go to Iraq or Afghanistan, I know firsthand that the decision is not easy. What I can tell you is that the feeling that you get by genuinely serving your country and your profession in a war zone is something that you will never look back on and regret. There is not a week that goes by that someone does not come up to me and tell me how they would have gone to support the effort if not for one of the dozen reasons. The feeling of accomplishment that I got from my service in Iraq is incredible, and an action that I will never look back on and have to say "if only I had."

There are additional benefits that go along with the job, other than a feeling of satisfaction in doing work directly supporting the warfighter. Employees are eligible to receive Danger Pay (35 percent of base salary) and Foreign Post Differential (35 percent of base salary). The workweek is Sunday through Thursday, so Sunday premium pay is a part of the compensation package, as well as overtime and night differential.

If you are interested in pursuing a position in JCC-IA and would like further information, please contact Carolyn Creamer, human resources specialist for the office of the assistant deputy assistant secretary of the Army for Procurement—Iraq/Afghanistan, at carolyn.d.creamer@conus.army.mil.

Acquisition & Logistics Excellence

An Internet Listing Tailored to the Professional Acquisition Workforce

Surfing the Net

ACQuipedia

<https://acquipedia.dau.mil>

Online encyclopedia that provides the acquisition workforce with quick access to information on common acquisition topics.

Acquisition Central

<http://acquisition.gov>

Shared systems and tools to support the federal acquisition community and business partners.

Acquisition Community Connection

<http://acc.dau.mil>

Policies, procedures, tools, references, publications, Web links, and lessons learned for risk management, contracting, system engineering, TOC.

Aging Systems Sustainment and Enabling Technologies

<http://asset.okstate.edu>

Government-academic-industry partnership. ASSET program-developed technologies and processes expand the DoD supply base, reduce time and cost of parts procurement, enhance military readiness.

Air Force (Acquisition)

www.safaq.hq.af.mil

Policy; career development and training opportunities; reducing TOC; library; links.

Air Force Institute of Technology

www.afit.edu

Graduate degree programs and certificates in engineering and management; Civilian Institution; Center for Systems Engineering; Centers of Excellence; distance learning.

Air Force Materiel Command

Contracting Laboratory's FAR Site

<http://farsite.hill.af.mil>

FAR search tool; *Commerce Business Daily* announcements (CBDNet); *Federal Register*; electronic forms library.

Army Acquisition Support Center

<http://asc.army.mil>

News; policy; *Army AL&T Magazine*; programs; career information; events; training opportunities.

Army Training Requirements and Resources System

<https://www.atrrs.army.mil>

Army system of record for managing training requirements.

Assistant Secretary of the Army (Acquisition, Logistics & Technology)

<https://www.alt.army.mil>

ACAT Listing; ASA(ALT) Bulletin; digital documents library; links to other Army acquisition sites.

Association for the Advancement of

Cost Engineering International

www.aacei.org

Planning and management of cost and schedules; online technical library; bookstore; technical development; distance learning.

Association of Old Crows

<https://www.myaoc.org>

News; conventions, courses; *Journal of Electronic Defense*.

Association of Procurement Technical Assistance Centers

www.aptac-us.org

PTACs nationwide assist businesses with government contracting issues.

AT&L Knowledge Sharing System

<http://akss.dau.mil>

Automated acquisition reference tool covering mandatory and discretionary practices.

Best Practices Clearinghouse

<https://bpch.dau.mil>

The authoritative source for acquisition best practices in DoD and industry. Connects communities of practice, centers of excellence, academic and industry sources, and practitioners.

Central Contractor Registry

<http://www.ccr.gov>

Registration for businesses wishing to do business with the federal government under a FAR-based contract.

Committee for Purchase from People

Who are Blind or Severely Disabled

www.abilityone.gov

Information and guidance to federal customers on the requirements of the Javits-Wagner-O'Day (JWOD) Act.

Defense Acquisition University and Defense Systems Management College

www.dau.mil

DAU Course Catalog; *Defense AT&L* magazine and *Defense Acquisition Review Journal*; DAU/DSMC course schedules; educational resources.

DAU Alumni Association

www.dauaa.org

Acquisition tools and resources; links; career opportunities; member forums.

Defense Advanced Research Projects Agency

www.darpa.mil

News releases; current solicitations; *Doing Business with DARPA*.

Defense Information Systems Agency

www.disa.mil

Defense Information System Network; Defense Message System; Global Command and Control System.

Defense Modeling and Simulation Coordination Office

<http://www.msco.mil>

DoD modeling and simulation master plan; document library; events; services.

Defense Spectrum Organization

<http://www.disa.mil/dso/>

Operational spectrum management support to the Joint Staff and COCOMs; conducts R&D into spectrum-efficient technologies.

Defense Technical Information Center

www.dtic.mil

DTIC's scientific and technical information network (STINET) is one of DoD's largest available repositories of scientific, research, and engineering information. Hosts over 100 DoD Web sites.

Department of Commerce, Defense Priorities and Allocations System

www.bis.doc.gov/dpas

DPAS regulation, policies, procedures, and training resources.

Deputy Chief Management Officer

<http://www.defenselink.mil/dcmo/index.html>

Information on the Defense Business Transformation Agency and the DoD Performance Improvement Officer.

Deputy Under Secretary of Defense for Acquisition and Technology

www.acq.osd.mil/at

Acquisition and technology organization, goals, initiatives, and upcoming events.

Director, Defense Procurement and Acquisition Policy

www.acq.osd.mil/dpap

Procurement and acquisition policy news and events; reference library; acquisition education and training policy, guidance.

DoD Defense Standardization Program

www.dsp.dla.mil

DoD standardization; points of contact; FAQs; military specifications and standards reform; newsletters; training; nongovernment standards; links.

DoD Enterprise Software Initiative

www.esi.mil

Joint project to implement true software enterprise management process within DoD.

DoD Inspector General Publications

<http://www.dodig.mil/PUBS/index.html>

Audit and evaluation reports; IG testimony; planned and ongoing audit projects of interest to the AT&L community.

DoD Office of Technology Transition

www.acq.osd.mil/ott

Information about and links to OTT's programs.

DoD Systems Engineering

<http://www.acq.osd.mil/sse>

Policies, guides and information on SE and related topics, including developmental T&E and acquisition program support.

Earned Value Management

www.acq.osd.mil/pm

Implementation of EVM; latest policy changes; standards; international developments.

Electronic Industries Alliance

www.eia.org

Government relations department; links to issues councils; market research assistance.

FAIR Institute

<http://www.thefairinstitute.org>

Organization that promotes a federal acquisition system that continually innovates, exceeds world class standards of performance, and ensures the prudent use of taxpayer dollars.

Federal Acquisition Institute

www.fai.gov

Virtual campus for learning opportunities; information access and performance support.

Federal Acquisition Jumpstation

<http://prod.nais.nasa.gov/pub/fedproc/home.html>

Procurement and acquisition servers by contracting activity; CBDNet; reference library.

Federal Aviation Administration

<http://fast.faa.gov>

Online policy and guidance for all aspects of the acquisition process.

Federal Business Opportunities

www.fedbizopps.gov

Single government point-of-entry for federal government procurement opportunities over \$25,000.

Federal R&D Project Summaries

<http://www.osti.gov/fedrnd>

Portal to information on federal research projects; search databases at different agencies.

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Federal Research in Progress Database

<http://grc.ntis.gov/fedrip.htm>

Information on federally funded projects in the physical sciences, engineering, life sciences.

Fedworld Information

www.fedworld.gov

Central access point for searching, locating, ordering, and acquiring government and business information.

Government Accountability Office

<http://gao.gov>

GAO reports; policy and guidance; FAQs.

General Services Administration

www.gsa.gov

Online shopping for commercial items to support government interests.

Government-Industry Data Exchange Program

<http://www.gidep.org>

Federally funded co-op of government-industry participants, providing electronic forum to exchange technical information essential to life cycle development.

GOV.Research_Center

<http://grc.ntis.gov>

U.S. Dept. of Commerce, National Technical Information Service, and National Information Services Corporation joint venture, single-point access to government information.

Integrated Dual-Use Commercial Companies

www.idcc.org

Information for technology-rich commercial companies on doing business with the federal government.

International Society of Logistics

www.sole.org

Online desk references that link to logistics problem-solving advice; Certified Professional Logistician certification.

International Test & Evaluation Association

www.itea.org

Professional association to further development and application of T&E policy and techniques to assess effectiveness, reliability, and safety of new and existing systems and products.

Joint Capability Technology Demonstrations

www.acq.osd.mil/jctd

JCTD's accomplishments, articles, speeches, guidelines, and POCs.

Joint Interoperability Test Command

<http://jitic.fhu.disa.mil>

Policies and procedures for interoperability certification; lessons learned; support.

Library of Congress

www.loc.gov

Research services; Copyright Office; FAQs.

MANPRINT (Manpower and Personnel Integration)

www.manprint.army.mil

Points of contact for program managers; relevant regulations; policy letters from the Army Acquisition Executive; briefings on the MANPRINT program.

NASA's Commercial Technology Office (CTO)

<http://technology.grc.nasa.gov>

Promotes competitiveness of U.S. industry through commercial use of NASA technologies and expertise.

National Contract Management Association

www.ncmahq.org

Educational products catalog; publications; career center.

National Defense Industrial Association

www.ndia.org

Association news; events; government policy; *National Defense* magazine.

National Geospatial-Intelligence Agency

www.nima.mil

Imagery; maps and geodata; Freedom of Information Act resources; publications.

National Institute of Standards and Technology

<http://www.nist.gov>

Information about NIST technology, measurements, and standards programs, products, and services.

National Technical Information Service

www.ntis.gov

Online service for purchasing technical reports, computer products, videotapes, audiocassettes.

Naval Air Systems Command

www.navair.navy.mil

Provides advanced warfare technology through the efforts of a seamless, integrated, worldwide network of aviation technology experts.

Naval Sea Systems Command

www.navsea.navy.mil

TOC; documentation and policy; reduction plan; implementation timeline; TOC reporting templates; FAQs.

Navy Best Manufacturing Practices Center of Excellence

www.bmpcoe.org

National resource to identify and share best manufacturing and business practices in use throughout industry, government, academia.

Navy Research, Development, and Acquisition

<http://acquisition.navy.mil/rda>

Policy documents; career management; Acquisition One Source page, providing links to acquisition communities of practice.

Office of Naval Research

<http://www.onr.navy.mil/>

News and announcements; publications and regulations; technical reports; doing business with the Navy.

Open Systems Joint Task Force

www.acq.osd.mil/osjtf

Open systems education and training opportunities; studies and assessments; projects, initiatives and plans; library.

Parts Standardization and Management Committee

www.dscc.dia.mil/programs/psmc

Collaborative effort between government and industry for parts management and standardization through commonality of parts and processes.

Performance-Based Logistics Toolkit

<https://acc.dau.mil/pbltoolkit>

Web-based 12-step process model for development, implementation, and management of PBL strategies.

Project Management Institute

<http://www.pmi.org>

Program management publications; information resources; professional practices; career certification.

Small Business Administration

www.sba.gov

Communications network for small businesses.

DoD Office of Small Business Programs

www.acq.osd.mil/osbp

Program and process information; current solicitations; Help Desk information.

Software Engineering Institute (SEI)

www.sei.cmu.edu

Advances software engineering principles and practices as well as computer security, and process improvements.

Software Program Managers Network

www.spmn.com

Supports project managers, software practitioners, and government contractors. Contains publications on highly effective software development best practices.

Space and Naval Warfare Systems Command

<https://e-commerce.spawar.navy.mil>

SPAWAR business opportunities; acquisition news; solicitations; small business information.

System of Systems Engineering Center of Excellence

www.sosece.org

Advances the development, evolution, practice, and application of the system of systems engineering discipline across individual and enterprise-wide systems.

Under Secretary of Defense for Acquisition, Technology and Logistics

www.acq.osd.mil

USD(AT&L) documents; streaming videos; links.

U.S. Coast Guard

www.uscg.mil

News and current events; services; points of contact; FAQs.

U.S. Department of Transportation Maritime Administration

www.marad.dot.gov

Information and guidance on the requirements for shipping cargo on U.S. flag vessels.

Links current at press time. To add a non-commercial defense acquisition/acquisition and logistics-related Web site to this list, or to update your current listing, please e-mail your request to [datl\(at\)dau.mil](mailto:datl(at)dau.mil). Your description may be edited and/or shortened. DAU encourages the reciprocal linking of its home page to other interested agencies. Contact: [webmaster\(at\)dau.mil](mailto:webmaster(at)dau.mil).

Defense AT&L Writer's Guidelines in Brief

Purpose

Defense AT&L is a bimonthly magazine published by DAU Press, Defense Acquisition University, for senior military personnel, civilians, defense contractors, and defense industry professionals in program management and the acquisition, technology, and logistics workforce. The magazine provides information on policies, trends, events, and current thinking regarding program management and the acquisition, technology, and logistics workforce.

Submission Procedures

Submit articles by e-mail to [dattl\(at\)dau.mil](mailto:dattl(at)dau.mil) or on disk to: DAU Press, ATTN: Carol Scheina, 9820 Belvoir Rd., Suite 3, Fort Belvoir VA 22060-5565. Submissions must include the author's name, mailing address, office phone number, e-mail address, and fax number.

Receipt of your submission will be acknowledged in five working days. You will be notified of our publication decision in two to three weeks.

Deadlines

Issue	Author Deadline
January-February	1 October
March-April	1 December
May-June	1 February
July-August	1 April
September-October	1 June
November-December	1 August

If the magazine fills before the author deadline, submissions are considered for the following issue.

Audience

Defense AT&L readers are mainly acquisition professionals serving in career positions covered by the Defense Acquisition Workforce Improvement Act (DAWIA) or industry equivalent.

Style

Defense AT&L prints feature stories focusing on real people and events. The magazine also seeks articles that reflect your experiences and observations rather than pages of researched information.

The magazine does not print academic papers; fact sheets; technical papers; white papers; or articles with footnotes, endnotes, or references. Manuscripts meeting any of those criteria are more suited to DAU's journal, *Acquisition Review Journal (ARJ)*.

Defense AT&L does not reprint from other publications. Please do not submit manuscripts that have appeared in print elsewhere. *Defense AT&L* does not publish endorsements of products for sale.

Length

Articles should be 1,500 – 2,500 words.

Format

Submissions should be sent via e-mail as a Microsoft® Word attachment.

Graphics

Do not embed photographs or charts in the manuscript. Digital files of photos or graphics should be sent as e-mail attachments or mailed on CDs (see address above). Each figure or chart must be saved as a separate file in the original software format in which it was created.

TIF or JPEG files must have a resolution of 300 pixels per inch; enhanced resolutions are not acceptable; images downloaded from the Web are not of adequate quality for reproduction. Detailed tables and charts are not accepted for publication because they will be illegible when reduced to fit at most one-third of a magazine page.

Non-Department of Defense photos and graphics are printed only with written permission from the source. It is the author's responsibility to obtain and submit permission with the article.

Author Information

Contact and biographical information will be included with each article selected for publication in *Defense AT&L*. Please include the following information with your submission: name, position title, department, institution, address, phone number, and e-mail address. Also, please supply a short biographical statement, not to exceed 25 words, in a separate file. We do not print author bio photographs.

Copyright

All published *Defense AT&L* articles require a signed Work of the U.S. Government/Copyright Release form, available at www.dau.mil/pubs/damtoc.asp. Please print and complete in full the form, sign it, and fax it to 703-805-2917, ATTN: *Defense AT&L*.

Alternatively, you may submit a written release from the major command (normally the public affairs office) indicating the author is releasing the article to *Defense AT&L* for publication without restriction.

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