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CORRECTION

The article “Purchasing Power” in the January-March 2015 edition of Army AL&T magazine erroneously identified the Enhanced Army Global Logistics Enterprise (EAGLE) program.

THE HONORABLE HEIDI SHYU

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Army AL&T magazine (ISSN 0892-8657) is published quarterly by the ASA(ALT). Articles reflect views of the authors and not necessarily official opinion of the Department of the Army. Articles may be reprinted if credit is given to Army AL&T magazine and the author.

Private subscriptions and rates are available from:
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Printing Office, Washington, DC 20402
202-512-1800

Periodicals official postage paid at
Fort Belvoir, VA, and additional post offices.

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ARMY AL&T

APRIL-JUNE 2015

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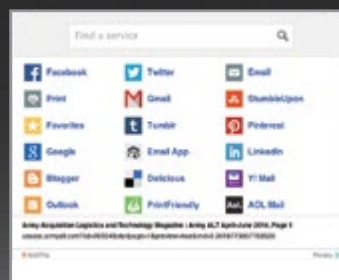


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From the Editor-in-Chief



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"Those who cannot remember the past are condemned to repeat it."

—George Santayana, philosopher, essayist, poet and novelist
"The Life of Reason: Reason in Common Sense," 1905

As the United States winds down its involvement in 13-plus years of war, acquisition enters yet another stage of change—change that has been nearly constant in recent years with cycles of heating up and cooling down, massive budgets and often draconian budget cuts. Along the way came the Gansler Commission Report (2007), the Better Buying Power (BBP) initiatives 1.0, 2.0 and 3.0 (2010-14), and other efforts to reduce waste and improve efficiency. But when you try to implement one initiative, there are usually consequences for other programs and policies. Like the Rubik's Cube on this issue's cover, a "twist" one way can have unintended consequences on another plane, resulting in a botched job. Which leads to the focus of this issue: revamping Army acquisition by harnessing the vast lessons learned in equipping Soldiers for combat.

In the course of Operations Enduring Freedom and Iraqi Freedom, Army acquisition has become adept at creating systems that our Soldiers urgently need through procurement of quick reaction capabilities (QRCs). This process was critical in wartime. Rapid fielding successes large and small, such as the Mine Resistant Ambush Protected vehicles and the Enhanced Small Arms Protective Inserts, have met emergent requirements on the battlefield, demonstrating the utility of speeding up development.

Bypassing many of the normal acquisition and decision-making processes sounds good until you factor in risk, reliability, future requirements, sustainability and, ultimately, cost. This is the major challenge the Army now faces, particularly the program executive offices: How do you transition from a fast-paced, well-funded, agile acquisition process that worked for a wartime contingency operation to a steady-state, program-of-record "peacetime" approach while retaining the best of both worlds? Is it possible? If so, what adjustments are necessary?

For this issue, Army AL&T looks at what can and is being done to harness the lessons learned in providing very successful QRCs during combat and by adapting the techniques that produced the items to manage programs of record. Examples of successful rapid-acquisition techniques transferred to programs of record include Transportable Tactical Command Communications and the Warfighter Information Network – Tactical Increment 1. Currently in transition is the Enhanced Medium Altitude Reconnaissance and Surveillance System.

Looking at the even bigger picture, Critical Thinking is a discussion with Dr. Jacques S. Gansler, former undersecretary of defense for acquisition, technology and logistics (USD(AT&L)) and chair of the commission that carries his name. Gansler offers his perspective on revamping acquisition: what it will take and how long it will take to get there. In a separate interview, current USD(AT&L) the Hon. Frank Kendall provides his insights into what DOD and the Army need to do next to make acquisition work better, and clarifies the intent of BBP.

For another perspective, we hear from National Defense Industrial Association Assistant Vice President for Policy Will Goodman in our Industry Insight column. He argues that revamping acquisition will require a sustained commitment by senior leaders to properly balance individual authority with accountability, and the overhead requirements of the acquisition process with the resources available to meet them.

Finally, this issue has a special addition—the results of the Major General Harold J. "Harry" Greene Acquisition Writing Awards competition. MG Greene left us too soon, but his influence and legacy will live on as an inspiration to others through this competition, aimed at inspiring a thoughtful approach to the topic of acquisition. Accompanying the magazine is a compendium of the first-place and honorable-mention articles in four categories: acquisition reform and BBP; future operations; innovation; and lessons learned.

As always, if you have feedback for the magazine or any topics you would like us to cover, please share your ideas by sending me a note at ArmyALT@gmail.com.

Nelson McCouch III
Editor-in-Chief

ON TO THE NEXT MISSION

Third Cavalry Regiment and 3rd Infantry Division Soldiers assigned to Train, Advise, Assist Command – East (TAAC-E) await the arrival of a UH-60 Black Hawk helicopter at the Nangarhar Regional Logistics Center (RLC) on Jan. 6. The RLC serves as a distribution hub for the police supply chain in eastern Afghanistan. Although major combat operations in that theater have drawn to a close, the AL&T Workforce continues to support remaining missions there. (U.S. Army photo by CPT Jarrod Morris, TAAC-E Public Affairs)





FROM THE AAE

FROM THE ARMY ACQUISITION EXECUTIVE
THE HONORABLE HEIDI SHYU



FROM THE AAE

YEARS OF WAR, YEARS OF LESSONS

Revamping Army acquisition in a post-Afghanistan era

This issue of Army AL&T examines how we can revamp the acquisition process by incorporating lessons learned over a decade of war, enabling Army acquisition to continue to answer the nation's call. By looking at our successes and challenges of the past 13 years in Operation Iraqi Freedom and Operation Enduring Freedom, the Army can better prepare to respond to ever-evolving threats.

While the Army saw significant victories in acquisition and logistics in theater, we also recognize the impact that the end of major combat operations will have on our workforce and programs. As we return to a more stable operating environment but face a less predictable funding environment, we are applying lessons learned and improving our readiness for the next contingency.

SURVIVABILITY AND COMMUNICATIONS

The mission of the Army acquisition enterprise is to provide our Soldiers a decisive advantage against any threat by fielding and sustaining the world's best equipment and services. An example of our success in this mission during the past decade-plus of war was increased survivability against improvised explosive device (IED) attacks.

Recognizing the threat of IEDs that our Soldiers faced in Afghanistan, the 401st Army Field Support Brigade oversaw the delivery of enhanced survivability upgrades to the Mine Resistant Ambush Protected vehicle (MRAP).

We are using the LIRA process to ensure that we balance emerging challenges within our base budget portfolio as we transition away from the OCO-funded environment.

These upgrades significantly increased Soldier survivability in IED attacks on blast-resistant vehicles and paved the way for future delivery of upgrades in theater.

Another key victory in acquisition, logistics and technology was the delivery of on-the-move satellite communications in Afghanistan. That country's mountainous terrain limited access to communications, but the Army's satellite communications (SATCOM) capability provided high-speed, high-capacity connectivity in restrictive areas. Ramping up the SATCOM network and fielding Increment 2 of the Warfighter Information

Network – Tactical system increased commanders' situational awareness and access to communications on missions outside of protected bases.

TRANSITIONING TO A NEW ENVIRONMENT

A key challenge facing the acquisition enterprise is the transition from a wartime environment in which the Army fields emerging needs as quick-reaction capabilities (QRCs) and funds them using overseas contingency operations (OCO) appropriations, to an environment in which we must plan for our base budget and address our emerging needs with programs of record.

The Army acquired a significant amount of equipment during wartime that we do not have the funding to sustain as our budget shrinks. We must find ways to integrate some of these critical new capabilities into enduring programs to ensure readiness against future threats and to retain the investments made during the war.

One example is the Enhanced Medium Altitude Reconnaissance and Surveillance System (EMARSS) program, a system critical to our success in future irregular warfare operations. EMARSS integrates QRCs from theater into a common baseline, including repurposing platforms procured by the Air Force during the war. (See related story on Page 35.) Integrating these capabilities will reduce our sustainment costs and further strengthen our existing infrastructure. We are actively seeking to capitalize on investments made during the war and transition other proven capabilities into programs of record as funding permits.



BETTER, STRONGER, CHEAPER

Joe Carter, an engineering technician with the U.S. Army Armament Research, Development and Engineering Center, secures the mortar tube in the electrochemical mortar manufacturing cell at Watervliet Arsenal, NY, as part of efforts to implement a new manufacturing process. The objective is to provide more precise weapons that can withstand extreme conditions at a lower cost. Cost-saving efforts like this one, funded in part through the Defense Acquisition Challenge, are vital in the current climate of fiscal uncertainty. (Photo by Bill Martin, Watervliet Arsenal)



Maintaining capabilities against emerging threats in an era of fiscal uncertainty remains both a priority and a challenge for the Army. The Long-Range Investment Requirements Analysis (LIRA) is one way we are attempting to keep up with emerging threats. LIRA enables the Army to look 30 years ahead, versus the five-year projections of the program objective memorandum process, with a strategic vision for balancing capability gaps with limited resources. We are using the LIRA process to ensure that we balance emerging challenges within our base budget portfolio as we transition away from the OCO-funded environment.

BUILDING THE WORKFORCE

As we apply the lessons learned from the past wars, we are also examining transitions that the acquisition workforce itself is facing.

One major challenge is that over half of the contracting workforce has fewer than 10 years of acquisition experience. In other times, this would indicate simply that half of the workforce has room to grow as they gain more experience in procurement. Now, it also means that the workforce gained what experience it has entirely during war.

Wartime contracting is very different from contracting outside a period of conflict. The pace of wartime contracting tends to be much more accelerated and expedited, focusing more on execution instead of management and oversight. Now, we need to focus on better acquisition planning, requirements definition, sufficient price evaluation and oversight. It is time to balance execution with management and oversight and ensure that our workforce has proper training and education. We have to build a workforce that can move with greater ease and



INTEGRATING CAPABILITIES

Members of the 304th Military Intelligence Battalion brief the Hon. Brad R. Carson, undersecretary of the Army, on the capabilities of the EMARSS, a critical component of future irregular warfare operations. One challenge facing the acquisition community is identifying ways to integrate new capabilities such as EMARSS into enduring programs, to capitalize on investment and ensure readiness against future threats. (Photo by SFC Kristine Smedley)



EXPANDING BOUNDARIES

Ground to Air Transmit and Receive Inflatable Satellite Antennas have increased the agility of U.S. forces, enabling them to achieve high-bandwidth network connectivity anywhere in the world from small deployable packages. That improved agility will be a factor in addressing future threats from ever-evolving adversaries. (U.S. Army photo)



READY TO RESPOND

CPL Daniel Thull of the 779th Engineer Company (EN CO), attached to the 133rd Engineer Battalion, prepares to board an MRAP for a berm-building project in March 2014 at Bagram Airfield, Afghanistan. Survivability upgrades for MRAPs in Afghanistan typify the acquisition workforce's success in rapidly fielding equipment that meets Soldiers' needs. (U.S. Army photo by PFC Yesenia Florez, 779th EN CO)

It is time to balance execution with management and oversight and ensure that our workforce has proper training and education. We have to build a workforce that can move with greater ease and respond to the environment that we face.


respond to the environment that we face. The science and technology (S&T) workforce also faces the challenge of adapting to a postwar environment. The S&T enterprise is essential in the Army's efforts to integrate wartime systems into enduring programs of record, as the workforce plays a prominent role in addressing emerging threats while operating with declining resources.

CONCLUSION

Strained by 13 years of war, the Army continues to tackle the challenges of drawing down, resetting and divesting materiel used in theater. While major combat operations in Afghanistan have drawn to a close, we know that the job there is not yet done. Acquisition, logistics and technology efforts will continue to support remaining missions.

We are up to the task. Despite significant budgetary pressures, the Army has always adapted to meet the ever-evolving needs of our Soldiers while remaining true to our mission. The Army adapts by incorporating lessons learned into our future operations, whether the learning took place in battle labs or on battlefields.

The true measure of the performance of Army acquisition in Afghanistan will be how well the Army adapts to defeat its next adversary, whatever and wherever it may be. We must recognize our strengths and challenges forged over a decade at war and let them guide how we revamp our acquisition process and all functions of the acquisition workforce to maintain our readiness.

The past 13 years of war have made the Army acquisition community strong. Moving forward with the lessons we learned will make us Army Strong. 



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ACQUISITION



SPOTLIGHT:

MR. GRANT P. ROUTZOHN

Power surge

MR. GRANT P. ROUTZOHN

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It's not unusual when the path to a life's work is anything but a straight line, but it is a bit unusual when it starts out with a job as an atomic demolition specialist. Along the meandering path of Grant Routzohn's unusual acquisition career, however, are two common themes: engineering and management.

In addition to sending teams all over the world—most recently to Niamey, the capital of Niger—to help get appropriate tactical power systems to Army and other service installations, Routzohn, director of tactical power integration for the project manager for expeditionary energy and sustainment systems (PM E2S2), also works to integrate tactical power systems and command post infrastructure for Network Integration Evaluation (NIE) exercises at Fort Bliss, TX, and White Sands Missile Range, NM. “That’s one of the major reasons that [BG, then-COL Brian P.] Cummings brought me to E2S2, because PM E2S2 wasn’t having success down there. We built the Command Post Operational Energy System, and we took that down there at a battalion level—and then at a brigade level at a later NIE—and had success. Right now, the Army’s looking at fielding it.”

Routzohn's last duty station in a nine-year military career that ended in 1981 was at the Atomic Demolition Munitions School at Fort Belvoir, VA, where

he was a teacher, because there weren't many options for those whose expertise was in hand-emplaced nuclear weapons. His career path outside the Army took him through several years as a contractor, then a DA civilian at PEO Soldier, followed by the U.S. Army Acquisition Support Center (USAASC) and eventually PM E2S2.

What do you do, and why is it important to the Army or the warfighter?

I'm responsible for managing NIE efforts for PM E2S2 and power assessments. Our NIE team takes generators, environmental control units, power distribution products and shelters from our product managers (PdMs) within PM E2S2 and applies those products to the capability gaps identified for the NIE. The team integrates the products into a system to meet the capability gap, puts the systems in the hands of Soldiers at NIE, supports the systems at NIE and then follows up with the PdMs to make the necessary enhancements.

We also conduct power assessments for units stationed in the States and overseas. A unit makes a request for tactical power, and our power assessment team coordinates with the unit, conducts a power assessment to determine the right size of tactical power and environmental control units required for their mission, and then works with the unit and PM E2S2's

fielding team to implement the recommended solution.

Developing systems to fill capability gaps at NIE plays an important part in improving the Army's capability. We want to bring the best solutions and products to make the Soldiers' lives better. Reducing the labor and maintenance required to deploy and maintain the systems is better for the Soldier and the Army as a whole.

Power assessments improve a unit's mission capability. Our team has conducted assessments where a unit was experiencing multiple power outages each day and living and working in shelters without air conditioning, in areas where the temperature was in excess of 120 degrees and 90 percent humidity. You can imagine the impact this has on personnel day after day. Providing the proper conditions for our Soldiers to conduct their mission is vitally important to mission success.

How did you become part of the AL&T Workforce, and why?

After leaving the Army, I worked for several contractors supporting Army and Navy programs as a trainer, technical writer, manager and network administrator. In 1999, after acquiring my Microsoft Certified System Engineer certification, I accepted a position as a contractor supporting PEO Soldier. After five years as a contractor, I applied for a government civilian position because I wanted to have more of an impact. As a contractor, you're limited in influencing the process and decisions being made. I wanted to have a greater impact on what we were doing to support the Soldiers. I saw being a contractor as a roadblock to being able to apply all of my skills.

What do you see as the most important points in your career with the Army

AL&T Workforce, and why? Is there a program or opportunity you wish you had pursued but didn't?

My deployment to Iraq in 2007 in support of the Land Warrior system—Nett Warrior's predecessor—was an important event during my career. Being able to interface with the Soldiers returning from a mission in which they used the system—to receive issues in real time—was extremely beneficial. It was as close as I could get to seeing the system operate in the intended environment. My career has allowed me to work in logistics, engineering and management, which has allowed me to understand all the different aspects of acquisition.

The one thing that I wish I would have done a better job in is seeking out mentors. Finding people willing to mentor DOD civilians is not easy. Most officers I have associated with do not understand the civilian career path in DOD acquisition. Serving a short three years at the USAASC taught me how the Army Acquisition Corps (AAC) operates. It is valuable to understand how officers and civilians are assigned to Centrally Selected List positions and table of distribution and allowances management. My assignment at USAASC changed how I viewed my career within the AAC. It provided me a better understanding of what was available to me to progress in my career.

What's the greatest satisfaction you have in being a part of the AL&T Workforce?

Supporting our Soldiers is why I am here. Having been a Soldier, I know the importance of providing them the best equipment we can. In 2007, I was given the opportunity to deploy with the Soldiers in Iraq using the Land Warrior system for the first time in combat. Because of the

time I served in the military and my military occupational specialty as an atomic demolition specialist, I was never sent into battle. Working with the Soldier, improving the system based on real-time feedback and seeing the system perform in the environment it was intended to work in was a great feeling.

Acquisition is a very broad term encompassing a lot of different job specialties, with many career tools available to them. What advice would you give to someone who wants to get where you are today?

There are many ways one can support the acquisition of systems. I would recommend that personnel in acquisition get involved in areas other than the one area you work in. The Army tries to assign officers in different areas to broaden their experience. This is hard to do on the civilian side because of the time required for certifications. One needs to stay focused in his or her career field. But this does not prevent you from seeking out individuals in other areas and asking them questions and learning how they look at acquisition.

What's something that most people don't know about your job? What surprises outsiders most when you tell them about your job?

This is a difficult question for me to answer. When I leave work, I try to leave work at work. This comes from my days when I worked on classified programs and was not permitted to talk about work outside the office place. Most of my friends don't know what I do beyond working for the Army. I spend most time talking to my friends about Freemasonry or woodworking.

—MR. STEVE STARK

QUICK RESPONSE

U.S. Army and Polish special operations forces conduct close-quarters combat training Sept. 10, 2014, in Baumholder, Germany, during Jackal Stone 2014, an annual joint special operations exercise. While large-scale, complex programs representing a big leap ahead in capability call for more complicated acquisition processes to manage risk properly, Kendall says DOD acquisition has taken a page or two from special forces programs that can acquire niche capabilities relatively quickly. (DOD photo by SPC Benjamin Pollhein)



PROGRESS REPORT

A Q&A with the Hon. Frank Kendall



As the United States winds down its involvement in more than a decade of war, acquisition has been in a nearly constant state of change—from heating up to cooling down, from massive budgets to budget-tightening. Along the way came the Gansler Commission Report and Better Buying Power (BBP) 1.0, 2.0 and 3.0. Efforts to carry out the recommendations of those seminal initiatives have shown some progress but continue to be hindered by outdated and often onerous processes and procedures, not to mention unwieldy bureaucracy.

The Hon. Frank Kendall, undersecretary of defense for acquisition, technology and logistics (USD(AT&L)) since May 2012, has had a front-row seat—in many instances, the driver’s seat—in many of these efforts, particularly BBP. A champion of critical thinking and innovation in acquisition, Kendall places a high value on professionalism. He sees great potential for the talents and experience in today’s acquisition workforce, given the right tools to perform, the right environment in which to innovate and the right processes to ensure accountability.

The next five years promise a whole new set of challenges for defense acquisition, plus more of the same, as DOD shrinks its force structure against a backdrop of multiple regional conflicts with global implications, all while budgets remain unstable. The fact that the new secretary of defense, the Hon. Ashton B. Carter, preceded Kendall as USD(AT&L) and was the architect of BBP places acquisition in an even brighter spotlight.

In an interview Feb. 11 with Army AL&T magazine, Kendall offered his views on what DOD and specifically the Army are doing—and what they need to do next—to make acquisition work better for all concerned.

Army AL&T: What's your response to some people's claim that, as SAP executive Tom Sisti put it, "We seem to be in a kind of procurement 'Groundhog Day' where we recycle through a lot of the same recommendations" for acquisition reform?

Kendall: We've tried to break that cycle. There is such a cycle, and the way I describe it is, we don't like the performance we're getting right now, so we tend to try to do something else, which is often something we've tried before with similar results. Some of the ideas that have been around a couple of times I've seen in my career: fixed-price development, for example, and, more recently, putting service chiefs more in charge of acquisition have come around a few times. I don't think that either one is the path to success.

What I've tried to be is very consistent over the last few years on the suite of things that I would call the core parts of Better Buying Power that we're trying to do to improve our performance—things like having competition and having competitive environments, focusing on cost-consciousness through the use of should-cost as a management tool, understanding how to incentivize industry and using appropriate contract types. Those are all very core things, and we need to be better at them. It's not that we shouldn't do something entirely different, it's just that we should get better at the things that we already have the authority and the opportunity to do.



INNOVATION INITIATIVE

Watervliet Arsenal, NY, Machinist Peter Northup takes a measurement on a 60 mm mortar tube that he is machining. Rather than sticking to business as usual, a mindset that Kendall has worked to dispel, Northup took the initiative to identify a potential single point of failure, as well as possible cost savings, then designed ways to improve production. (Photo by John B. Snyder, Watervliet Arsenal Public Affairs)

Army AL&T: And how do we do that?

Kendall: It's partly development and training, it's partly constant attention, it's partly providing tools to people so that they have a better basis to make decisions. When we did Better Buying Power 1.0, I refer to that as sort of focused on best practices, to have a list of best practices that we wanted people to follow. We weren't trying to tell people to always use those practices, just that they should consider them as they went through their decision-making process.

In Better Buying Power 2.0, we focus much more on professionalism and

providing tools to people to make good decisions. If you're going to ask people to use the appropriate contract type, you need to give them some guidance on what to think about and what circumstances to use, what kind of contract. The same is true with things like performance-based logistics, where we need to do more on the training and policy and guidance side to help people make better decisions and do a better job.

Army AL&T: You've spoken a number of times on the problem with the "school-house solution" and people having a knee-jerk reaction to recommendations on this or that coming out—that

a particular contracting mechanism is appropriate, and then everyone wants to go and use that mechanism for everything, which is not appropriate.

Kendall: That's absolutely right. We do such a wide variety of things in the Department of Defense, and we have such a wide variety of circumstances. If you just look at product acquisition or development, the risk profile for different products is very different, and that drives how you structure the acquisition. And you can, in some cases, do fixed-price development contracts, and in other cases—most cases—you want to do cost-plus, but not always.

In some cases, you're trying to support a warfighter who's engaged in combat, and you're going to accept a lot more risk in how you structure the acquisition, because it's really important to have that capability in the hands of the warfighter as quickly as possible. So we need to be flexible, and we need to think. One of the fundamental premises, if you will, of Better Buying Power 2.0 was about the importance of people thinking critically about their options and about the best course of action in a given circumstance.

Army AL&T: Do you think we've made progress in that respect, getting away from schoolhouse thinking?

Kendall: Yeah, I do. I think a lot of people embrace that. It gives more room for creativity. I think it's more challenging, and some people embrace that. There are people who, I think, like to be told what to do. Frankly, they're not the people we need leading our programs. We need people who have good judgment and have a good basis for making the judgments that they have to make based on their experience and training and so on.

Army AL&T: You have said that the real problem is the burdens and limitations placed on program managers in doing their jobs. With the legislative solutions that are working in DOD, what do you hope to accomplish?

Kendall: That particular set of initiatives has a relatively narrow purpose, and it's to remove some of the complexity and overhead and, in some cases, even inconsistencies in the rules that govern our program managers. I was motivated, when we were doing the DOD 5000.02 acquisition system instruction, when I realized the very long section of tables of compliance requirements that our program managers had to follow—very complicated, very hard to work your way through, and a big burden to meet all those requirements.

So the intent with that initiative was to go see if we could simplify all that and make it more comprehensive and clearer and more coherent, and I think we've had some degree of success. It's not, on its face, exciting things, but they are things that will give our program managers back something they need more than anything else, and that's time.

Army AL&T: What is the status of that legislative initiative?

Kendall: It's gone forward. It's been approved by the Office of Management and Budget, and it's up on the Hill now for consideration. It's been delivered to both of the authorization committees. And, as they work through their thoughts on acquisition reform, I'm hoping that we can work together on this. I think there are other ideas out there that we will be discussing as well. But so far, the response I've gotten from both the House and Senate sides has been very positive. I think it will probably be associated with the National Defense Authorization Act ultimately, the authorization bills.

I understand that the House may do a separate bill on acquisition reform, and it may incorporate some of these [ideas] in that. But I don't believe anything's been filed yet.

Army AL&T: Can you share with us some of the ideas and suggestions for improving acquisition outcomes that you offered during recent testimony before the House Armed Services Committee?

Kendall: I've testified before both the House and Senate Armed Services Committees on this, and one thing that I think comes back with a fair amount of consistency on both sides of the aisle—and I think I agree with this—is the

When I look at the history of defense acquisition, it's almost impossible to correlate any policy change with improvement. What I've tried to do over the last several years and will keep doing is to make a lot of policy changes and a lot of practice changes that make incremental improvement.

program management professionalism and strengthening our program managers, having more tenure for them so that they can stay in their positions longer and finding ways to compensate those who do a good job. And also, in some cases, hold accountable people who are not doing such a good job.

I'm more a carrot than a stick person as far as this is concerned. I think we need to reward good performance and attract the best talent possible to our senior leadership positions in acquisition, whether it's program management or engineering, contracting, testing or another field. So I'm encouraged by that. Our legislative initiative did not address that directly, but I am very interested in working with Congress on ways to strengthen our senior leaders.

Army AL&T: What significant progress do you think we have made in strengthening senior leadership?

Kendall: I think we have made some progress in terms of defining the qualification requirements for key leadership positions, and there are several of them that apply. One of our career fields has started having a professional certification board as a pilot program; this is the developmental test community. And some of the other fields, I think, are going to follow that. I'm leaving this to the career field managers to make their own decisions on this. I don't want to impose this on people. It needs to be a grassroots thing that the career field embraces.

I think we are holding people accountable in the sense that—we started this some time ago—all of my acquisition decision memorandums carry in their first paragraph the name of the program manager and program executive officer who brought the system forward and recommended



PRESERVING CAPABILITIES

CW2 Pedro Alvarado, retrosort yard accountability officer attached to the 82nd Sustainment Brigade – U.S. Central Command Materiel Recovery Element (82nd SB-CMRE) at Kandahar Airfield, Afghanistan, describes the retrosort operation to Kendall, who was visiting Kandahar Airfield Feb. 9, 2014. Kendall says DOD needs to preserve the capability established during Operations Enduring Freedom and Iraqi Freedom to respond quickly when operational commanders need that. (U.S. Army photo by SFC Jon Cupp, 82nd SB-CMRE Public Affairs)

the decision to go forward, so that there's some historical reference there and some accountability. I would like to keep some of our best talent around. I'm looking for ways we might do that. I see too many of our best program managers at the grade roughly of O-6, colonel or maybe captain, leaving because they don't make it to the star level in their service, and these are enormously capable people who've developed a huge body of expertise and are very talented. I'd like to find a way to keep those people around longer.

Army AL&T: Our "Critical Thinking" Q&A with GEN Perkins [GEN David G. Perkins, commanding general of U.S. Army Training and Doctrine Command], in the current January-March issue, was a very good conversation regarding the Army operating concept, what it means and what it accomplishes, what it doesn't accomplish, and why it's necessary. We got into the issue of acquisition and how that fits into the requirements picture,

and his conclusion seems to be that the current system is based so heavily on programs of record that it's hard to respond to changing needs and evolving threats. What's your thinking on that?

Kendall: I think we need more flexibility in our acquisition system. But I think the fact that they're programs of record really shouldn't limit that. We have, for example, configuration steering boards at least annually—I think in many cases, early on, it should be more often—where the senior requirements person for the service and the senior acquisition person sit down together to look at requirements adjustments that need to be made in response to reality, in response to either things we've learned through the development program on the one hand, and on the other hand changing threats.

We also need to be designing flexibility into our programs so that we have modular programs where we can do upgrades



ADVANCE AWARENESS

Speaking alongside the MV Cape Ray in Portsmouth, VA, Jan. 2, 2014, Kendall discusses the ship's mission to destroy chemical weapons from Syria. The ship traveled to the Mediterranean Sea to neutralize mustard gas and a component of the nerve agent sarin, using two rapidly developed field deployable hydrolysis systems. (See related article on Page 144.) DOD anticipated and prepared for the mission, starting in early 2013, in recognition "that something was going to happen in Syria, in all likelihood that would require us to do something with those chemical materials that were known to be there," Kendall said. (U.S. Army photo by C. Todd Lopez)

in key areas where technology's moving more quickly, and where we control interfaces so the government has the ability to introduce competition for some of those things, as opposed to being a captive of a source that we select for the primary development.

So there are a lot of things that we can do to add flexibility. It has to be thought about, it has to be designed in and it has to be paid for. This isn't free. There are cost impacts of doing this. We can't escape ultimately the fact that large-scale, complicated things take a while to get through development. Just going through the design process, fabricating prototypes and doing testing takes time. But you can design into those products the ability to be more agile, and you can design into your process the ability to make changes as necessary while you're going through development.

You've got to be a little bit careful about that, because if requirements are constantly changing, you're always chasing them, and you never get a design that you settle on as you get into the field. And we've had that experience in the past a few times.

Army AL&T: Are there specific examples where you think the Army has succeeded in building in flexibility to acquisition?

Kendall: I think it's a work in progress. There's been some flexibility built into how they proceeded with the WIN-T [Warfighter Information Network – Tactical] program, where they've responded to facts on the ground plus budget reality to try to get to the right place there. I think [Army Acquisition Executive] Heidi Shyu is well aware that [the Army] needs to do this and she's trying to structure programs so that they can do that. Some

of the current thinking on the air defense side I think is in line with that, too.

Army AL&T: In the context of BBP, you've said that it's hard to eliminate unproductive and bureaucratic processes because of comfortable habits of years and even decades. What sort of a culture shift do you think will be necessary for meaningful acquisition reform to take hold in the Army specifically?

Kendall: I was referring as much to OSD [the Office of the Secretary of Defense] as the services when I made that comment. There are very deeply ingrained ways of doing business, ways of doing staffing in particular. And I think this is just as true in the services as it is in OSD, including the Army, where an awful lot of, I'll call them stakeholders, feel that they have to have a certain degree of influence over what goes on. And I think that getting that streamlined has really been a struggle. And getting it focused on substantive things has been a struggle.

There's kind of a compliance mentality where people have a list of things they expect to see, and if they don't see them, that's a problem—as opposed to being focused on what are we really trying to accomplish here and what actually matters in terms of the substance of what we're doing, as opposed to the rule set, if you will.

Army AL&T: Could you be a little bit more specific about that mode of thinking?

Kendall: Yeah, I get a fair amount of programs that come in, and what are raised as issues are, "Is the baseline current?" and "Are the LRIP [low-rate initial production] quantities still the same?" and "Are we going to have a Nunn-McCurdy [exceed, by at least 15 percent, a program's

unit cost baseline]?”—and those sorts of things, which are about the bureaucracy and its functioning. They’re not about, “Did we meet our timelines for certain things?” They’re not so much about what we’re actually doing and whether it’s a smart thing to do or not.

When I look at a program, what I first want to see is, what am I building and what are the risks associated with building that? And then, what are we doing to mitigate those risks, and how are we structuring the acquisition to incentivize industry to do the best possible job? How are we structuring the source selection so that we get the best possible solution for the money? Those are things that are

substantive and matter. But often those are the things that people are not focused on. They’re more concerned about whether all the bureaucratic I’s have been dotted and T’s have been crossed.

Army AL&T: Shifting to the global environment, we now seem to be in a more or less continuous war footing, given the contingencies that arise with nonstate actors in opposition to a variety of states. What effect do you think this is having on the structure and practice of DOD acquisition?

Kendall: We’ve done a lot to meet the needs of operational commanders as they’re engaged in operations. We’ve

established a group called the Warfighter Senior Integration Group that originated under Dr. [Ashton B.] Carter when he was in this position and that I chair now. It meets monthly; it is actually meeting every two weeks now because we have separate meetings on Afghanistan and the Iraq-Syria situation. And that group brings together all of the DOD stakeholders in the services to essentially address the needs of the combatant commanders, the operational commanders in theater.

And the idea—and I think we’ve been pretty good at this—is to cut through the red tape, to get rid of all the bureaucratic barriers, the authority barriers, the money barriers, the contracting barriers that get in the way of giving operational commanders what they need as quickly as possible. And I think we’ve had a lot of success with that. There is a group in my office called the Joint Rapid Acquisition Cell that is coordinating all of this. I think we’ve come a long way, and I don’t want to see that lost.

When Dr. Carter was here as the deputy [secretary of defense, from 2011 to 2013] and even when he was in my position [from 2009 to 2011], he felt very strongly about that, and so I know we’re in sync on this, and Deputy Secretary [Robert O.] Work is also. The department needs to have the ability to respond quickly when operational commanders need that. And it was something that did not exist in the early days of our campaigns in Iraq and Afghanistan. We’ve built the capability to do that, and we need to keep it.

This is a separate track, if you will, from the normal acquisition track, which is, you know, a little bit more risk-averse, but also involves large sums of money and programs that take years to do under



SETTING A HIGH BAR

Jeanette Rhodes of the Defense Contract Management Agency (DCMA) Engineering and Analysis Directorate receives a Spotlight Award from Kendall on June 6, 2014, at the agency’s Fort Lee, VA, headquarters. During his visit to DCMA, Kendall presented a number of Spotlight Awards to recognize the recipients’ BBP efforts. The awards represent a concerted effort by the USD(AT&L) to recognize noteworthy contributions and exceptional performance by individuals and teams across the full spectrum of defense acquisition activities, thus projecting a high standard for good performance. (Photo by Misha King, DCMA)

There are people who, I think, like to be told what to do. Frankly, they're not the people we need leading our programs. We need people who have good judgment and have a good basis for making the judgments that they have to make based on their experience and training and so on.

any circumstances. That's a different part of what we do. And I think we've done a pretty good job of establishing both tracks and making them both work more effectively.

Army AL&T: Does this borrow at all from the much-vaunted special forces acquisition methods?

Kendall: The special forces people do a good job of acquiring niche capabilities relatively quickly. They focus on core requirements. And a lot of what they do is personal equipment or modifications to existing equipment that can be done on a relatively quick basis, and they do it in small quantities. They're flexible about some of the environmental requirements that we have to worry about. I think that works well for them, and we can do the same thing.

What we're doing in rapid acquisition is very similar to that in many cases. I wouldn't say it was modeled on the SOCOM [U.S. Special Operations Command] model, but it's very similar.

Army AL&T: We wanted to ask that because there is a lot of talk about how SOCOM acquisition is the answer to everything.

Kendall: Unfortunately it's not. And the reason it's not is that some of the key warfighting systems that we buy, some of the things that really provide us with

core capabilities are very large, complex and inherently long programs that need a lot of careful management to be successful. One of the principal things that has to be managed in that process is risk. And before we embark on a \$10-or-more billion development program, we need to do risk mitigation in many cases to ensure that we've got the technology risks in particular, and in some cases manufacturing risks, under control and where we need them to be.

So you need a phase that does that for those large-scale programs. And I'm talking about things like the next-generation fighter, the next-generation bomber, the next-generation surface combatant, maybe the next-generation combat vehicle, where you're trying to get a substantive leap ahead in capability, a quantum improvement in capability relative to anything else that exists in the world or that you anticipate existing in the world.

Now these are the things that give us technological superiority at the end of the day. And they inherently involve more risk. So that's a different world, frankly, than the world that SOCOM lives in. They don't do that sort of thing.

Army AL&T: What's your assessment of where the United States stands in technical superiority, compared with our adversaries?

Kendall: I'm very concerned about that. I've been concerned about it for years now. I've done testimony about this, I've written about it. I've given speeches about it. I think that people are probably tired of hearing me talk about it. But as I look at the intel data on what some foreign countries are doing—particularly China; to a lesser extent, Russia; and even countries like Iran—they're acquiring capabilities that are designed to defeat the United States.

China, in particular, is doing so very aggressively. It's building counter-space capabilities to attack our space assets. It's building capabilities to attack our aircraft carriers and our air bases. It's building capabilities to take us on in the air with things like electronic warfare and advanced air-to-air weapons, and very capable air defenses. And the China I'm looking at now is nothing like the China I looked at 20 years ago when I left the department. We have a big problem here. While we're doing sequestration and cutting our budgets and [are] very, very busy around the world with a lot of real, right-now problems with extremist groups and so on, we are in a situation where we are losing ground. And I think we are losing ground to a dangerous degree relative to potential future adversaries and to the technologies that they might field to others or sell to others.

Army AL&T: Can you address the limitations of what incremental upgrades can do, engineering change proposals and that sort of thing? Is DOD research and development [R&D] really suffering with the cuts in funding?

Kendall: Yes, absolutely, and if you look at the structure—we were at a high of over \$80 billion and now we're down more in the \$65 billion category. We were even lower than that. That's in our request.

What is happening, as we go through budget deliberations and reach compromises and so on, is we end up, because of near-term requirements, covering our deployed forces, emphasizing readiness and force structure over modernization. And in particular, I'm concerned about our pipeline of new products. When I compare the data on the pipeline of new products to the pipeline, again, of China, it is dramatically different. We are essentially digging a hole for ourselves, and we're forced into that by the resource levels that we're at. Uncertainty about those resource levels has a big impact, because there's a tendency in that environment to hang on to force structure that we ultimately may not be able to afford. It prevents us from confronting some of the choices we may have to make.

So, getting some stability in our budget so we have some kind of idea of what to anticipate is critical. When we submit a budget that may be \$40 billion, \$35 billion above what we're actually going to get at the end of the day, that leads to huge distortions in our planning and in how we allocate resources. We really have to get this resolved. It's really crippling the department.

I would like to keep some of our best talent around. I'm looking for ways we might do that. I see too many of our best program managers at the grade roughly of O-6, colonel or maybe captain, leaving because they don't make it to the star level in their service.

Army AL&T: Are the services doing anything in a smaller way to keep up the pace of incremental improvements?

Kendall: There's a lot more of that going on, because we're forced to do it. The biggest part of our R&D account right now is the upgrades to existing programs. We're doing a lot to keep things around longer than we had initially intended, and where we can, we're upgrading some of those things. The Bradley and the M1 in the Army, for example, are good examples of that. The one thing that we have been able to protect in the budgets, we've chosen to protect, is the science and technology accounts. So the basic work that will give us programs in the field 20 years from now, maybe, or 30 years from now—we're protecting that. It's the effort that's going to give us capabilities in 10 or 15 years that we're shortchanging right now.

Army AL&T: You've stated that you'd like to leave as a legacy a stronger and more professional Defense Acquisition Workforce. Why is this legacy so important to you, and what are the programs you've put in place to establish that?

Kendall: When I look at the history of defense acquisition, it's almost impossible to correlate any policy change with improvement. What I've tried to do over the last several years and will keep doing is to make a lot of policy changes and a lot of practice changes that make incremental improvement. So I'm hoping that those will, when you knit them together, have a substantial impact. But I'm also very interested in improving the capability of our key leaders in acquisition to make good decisions, which is basically their professionalism.

Now we have a very professional workforce. I don't by any means want to say anything negative about it; it's a great

workforce, and I'm very proud to be part of it. But we can all improve. I can improve, everybody can improve. And I think [that includes] strengthening that workforce and creating a culture in which people are allowed to make those decisions, in which senior leadership outside the acquisition community listens to acquisition professionals about technical risk and about what it will really take to deliver a program, and heeds that advice. So I think it's a long, slow process to build up that sort of capability in any workforce, but I think we're making progress there. And we're going to keep at it as long as I'm in this position.

Army AL&T: Do you see any sort of end point in that progress?

Kendall: No. The whole idea of continuous improvement is that there are always ways that you can improve. You're never perfect. And I made the analogy to football, in a five-page paper I did for Sens. McCain [John McCain, R-AZ] and Levin [now-retired Sen. Carl Levin, D-MI] in a compendium they put together. We're in a competitive game here, and if you think of the acquisition people as basically a football team, all the players have to be as good as they possibly can be. The other team's trying to be as good as they can possibly be, too. And you never get to an end state. You're always trying to get better, you're always reacting to what the other guys are doing.

And you have to do everything right. You've got to recruit well, you have to train well, you have to plan well, you have to execute well in everything that you do. That's in a sense an unattainable end state, but that's what you strive for. You strive for that continuously, and you keep working for constant improvement.





A NEW DAWN: GCSS-ARMY MODERNIZING TACTICAL LOGISTICS



- SENIOR LEADERS MAKE STRATEGIC DECISIONS BASED ON
TIMELY, ACCURATE AND INTEGRATED LOGISTICS INFORMATION
- SOLDIERS EFFICIENTLY ACCOMPLISH SPECIFIC SUSTAINMENT
MISSIONS (SUPPLY, MAINTENANCE AND PROPERTY BOOK)
- SOLDIERS MAINTAIN A SINGLE AUTOMATED LOGISTICS SYSTEM,
ELIMINATING REDUNDANCIES AND REDUCING POSSIBILITIES FOR
ERROR
- TACTICAL COMMANDERS ASSESS OPERATIONAL READINESS
IN NEAR-REAL-TIME



SECURING THE TROOPS

A 3rd Cavalry Regiment soldier assigned to the Train, Advise, Assist Command – East (TAAC-E) security force maintains watch over the perimeter of the Khyber Border Coordination Center near Torkham Gate at the Afghanistan-Pakistan border Jan. 4. (U.S. Army photo by CPT Jarrod Morris, TAAC-E Public Affairs)



VESTED INTEREST

Rather than scrap hundreds of thousands of first-generation IOTVs, a team from PEO Soldier and DLA capitalized on smart decisions and solid testing. They devised a way to use existing equipment to upgrade the vests and extend their life cycle for just half the cost of replacement, potentially saving tens of millions.

by MAJ Chris Getter

It's not every day you can get half off the latest and greatest product in any industry, but that's exactly what a team from the Product Manager for Soldier Protective Equipment (PdM SPE) and Defense Logistics Agency Troop Support (DLA-TS) has done. Their efforts are now culminating in the first deliveries of more than 148,000 Generation III Improved Outer Tactical Vest (Gen III IOTV) body armor conversion kits, acquired at approximately half the cost of procuring new systems; \$791 versus \$413.

Best practices from government and industry, Soldier feedback and creative thinking allowed PdM SPE, assigned to the Program Executive Office (PEO) for Soldier, and DLA-TS to chart a path to upgrade older versions of the IOTV at half the cost of new Gen IIIs. The team of product engineers, quality assurance representatives, logistics support experts and contracting personnel developed a plan with the potential to save more than \$150 million while giving Soldiers the best possible



QUALITY CHECK

SPC Christopher Hattaway, left, SPC Chanel Coco and SSG Anthony Sabato, 143rd Sustainment Command (Expeditionary), inspect and exchange plates at the plate carrier collection point Feb. 11 in Manas, Kyrgyzstan. They look for any rips, tears or cracks in the ceramic plating that might endanger the lives of deploying service men and women. (U.S. Army photo by SSG Ian Shay, 143rd Sustainment Command)

The team of product engineers, quality assurance representatives, logistics support experts and contracting personnel developed a plan with the potential to save more than \$150 million while giving Soldiers the best possible system.

system. Current contracts have already saved U.S. taxpayers \$56 million.

A decade ago, as the nation waged wars on multiple fronts across the globe, defense spending rose and the Army acquired 1.7 million IOTVs, starting in 2007. Many of those IOTVs are older models that lack Soldier-driven improvements and may not be as effective in combat as the upgraded version. Almost 400,000 of the older IOTVs manufactured in the Universal Camouflage Pattern (UCP) remain in inventory and need to be replaced with the Operational Camouflage Pattern (OCP). With defense funding on the decline, this is a much different acquisition environment from that two years ago, and that was the spur for this effort.

In 2014, the team took advantage of smart decisions made during IOTV improvements to formulate a strategy that would

deal with tighter budgets, an aging IOTV inventory and concerns about the combat-effectiveness of older IOTVs. Continuous Soldier feedback spurred creation of three different generations of the IOTV. Gen I came in five sizes and included a threaded cable quick-release system. This allowed rapid removal of the IOTV if a Soldier fell in water or required first aid. Gen II came in 11 sizes in response to Soldier feedback, and included greater adjustability and other incremental improvements, such as in the quick-release system and soft-armor inserts. Finally, Gen III eliminated hook-and-loop closures and added a faster, more intuitive quick-release system.

Two factors characterized each IOTV iteration: 1) Each brought significant enhancements to the warfighter; and 2) The improvements did not change the size or shape of the ballistic materials used in the vests, which usually accounts

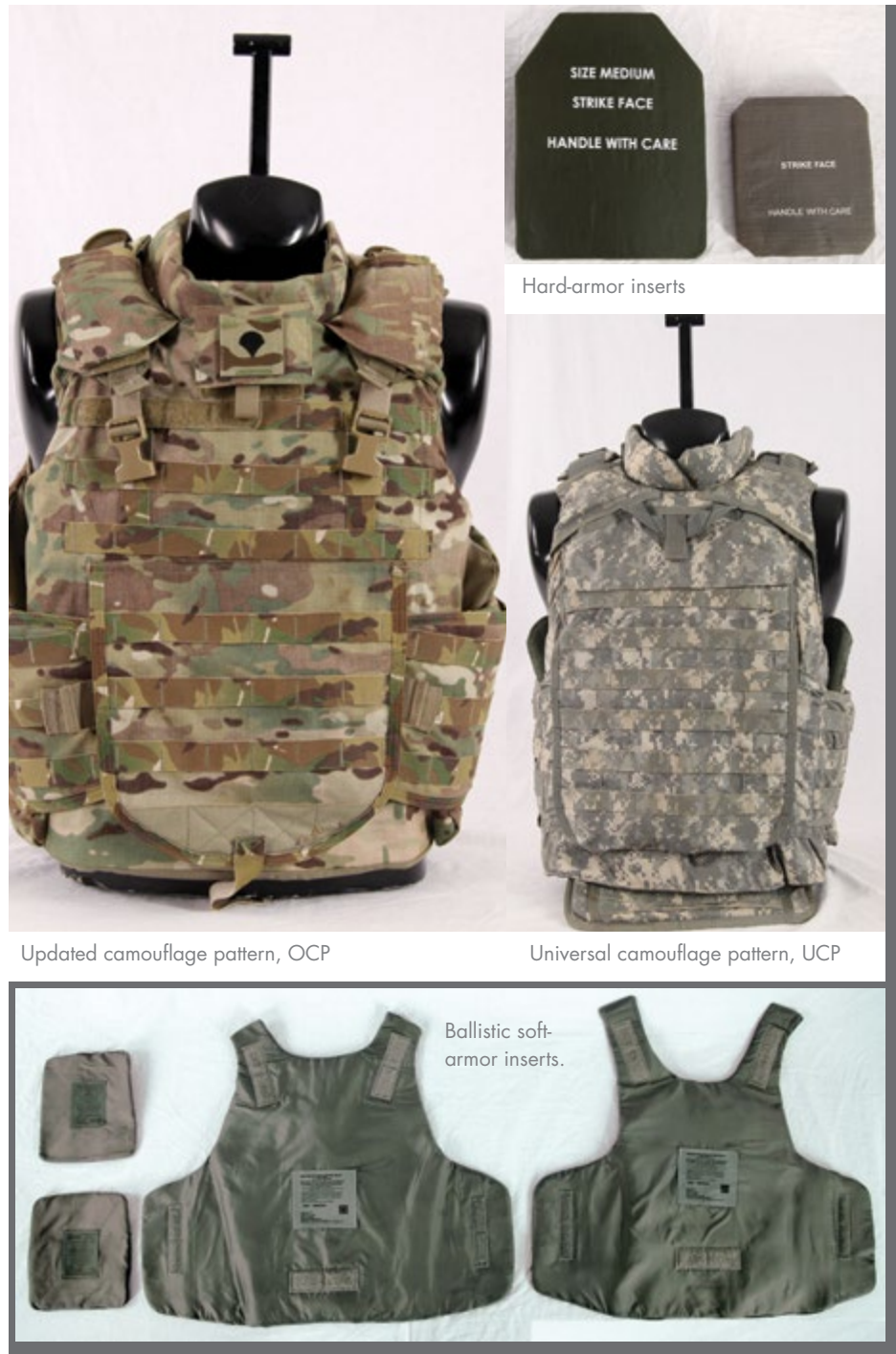
for more than half the cost of a new vest. This consistency in the ballistic materials meant that each generation did not add new items to the supply inventory. Doing so would have made thousands of systems obsolete and made logistics more difficult. But by making the hard-armor plates and soft-armor ballistic inserts compatible with newer IOTV designs, the PdM SPE and DLA-TS team could use existing stocks of these components.

HOW OLD IS TOO OLD?

If the team were to take advantage of existing stocks of soft-armor inserts, it needed to determine if those already in inventory or in Soldiers' hands would be usable in new systems. That meant determining how long aramid-fiber soft-armor ballistic packages really last. Industry provides a standard five-year warranty, but PdM SPE and DLA-TS had anecdotal evidence that soft-armor ballistic packages had longer shelf lives.

Armed with a ballistic surveillance effort test plan, PdM SPE pulled IOTV samples from multiple central issue facilities (CIFs) around the United States, representing the different climatic environments in which the IOTVs are stored. The team subjected the samples—some dating to 2007—to the same rigorous ballistic and fragmentation standards as when the Army originally accepted them. Results from the first round of testing showed the soft-armor ballistic inserts performed to standard. With these results, the team raised the estimated shelf life from five to seven years.

Subsequently, the team conducted a second round to test even older soft-armor ballistic inserts—those with service entry dates as early as 2000, also from multiple CIFs across the country—to see if they continued to maintain full serviceability. The team expects results from this second



Updated camouflage pattern, OCP

Universal camouflage pattern, UCP

EXCESS INVENTORY? NOT NOW

The Army has hundreds of thousands of Gen I and Gen II IOTVs in the UCP. Every generation of IOTV was designed to use the same hard-armor inserts and the same ballistic soft-armor inserts. Those design choices helped make the Gen III Conversion Kit a reality after thorough testing showed that older inserts worked just fine. Converting older IOTVs updates features and provides the updated camouflage pattern, OCP, at half the cost of new Gen III IOTVs. (Photo by Doug Cuddihy, PEO Soldier)

round of ballistic and fragmentation tests, conducted at Aberdeen Test Center, MD, to be available in late summer 2015. The tests conceivably could show that these inserts remain effective for up to 15 years.

KIT DEVELOPMENT

With scientific proof of longer service lives for soft-armor ballistic inserts, the team used the consistent size and shape of the inserts to develop the Gen III IOTV Conversion Kit, which uses existing quantities of soft-armor inserts rather than buying new complete IOTV systems. This strategy allowed continuous refreshment of technology through procurement. Instead of having DLA sustain the IOTV by procuring Gen II IOTVs in UCP, the agency will modernize at the same time as it sustains by procuring the Gen III Conversion Kits.

The IOTV Conversion Kit takes the soft-armor ballistic inserts from existing IOTV inventories and places them into a new carrier, creating the latest-generation vest. A Gen III IOTV ordered from DLA costs \$791 per system, but the average unit cost of a Gen III Conversion Kit is \$413. The benefits of the conversion kit are threefold:

1. Resets the shelf life of the IOTV system for up to another seven years by replacing the outer carrier and components that wear out first.
2. Offers all of the benefits of the latest generation of the IOTV, particularly the significantly enhanced quick-release system.
3. Provides an opportunity to change the camouflage pattern used on the IOTVs from UCP to OCP.

In an example of close cooperation between PEO Soldier and DLA-TS, procurement of the first quantities of the Gen III IOTV Conversion Kit occurred



PRICELESS PROTECTION

Soldiers from the 3rd Army Augmentation Unit go through Interceptor Body Armor sets as a part of predeployment checks July 7, 2014, at Fort Bliss, TX, in preparation for a yearlong deployment to Kuwait. Having the protection of body armor is worth its weight in gold—having upgraded body armor at a fraction of the price of new equipment is priceless. (U.S. Army photo by SSG Kai L. Jensen, 76th Operational Response Command)

before transitioning to sustainment. Today, all active IOTV contracts are now modified for either the Gen III IOTV Conversion Kit or the Gen III IOTV complete system. This offers the ability to procure conversion kits to upgrade more than 400,000 Gen I and II IOTVs as well as the UCP IOTVs currently in inventory.

CONCLUSION

With a cost savings of \$56 million during the recent procurement of conversion kits and the potential to realize more than \$150 million in savings if the entire inventory is converted, the government is providing the best possible system in a fiscally responsible manner, an achievement that resulted directly from effective and continuous coordination between DLA-TS and PEO Soldier.

The legacy of this effort will be measured in the increased capability provided to the Soldier. The conversion kits deliver the best capability, at the right time and in the right camouflage pattern to protect the American Soldier.

For more information, go to <http://www.peosoldier.army.mil>.

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TIMES CHANGE



your
**BATTERIES
SHOULD
TOO**

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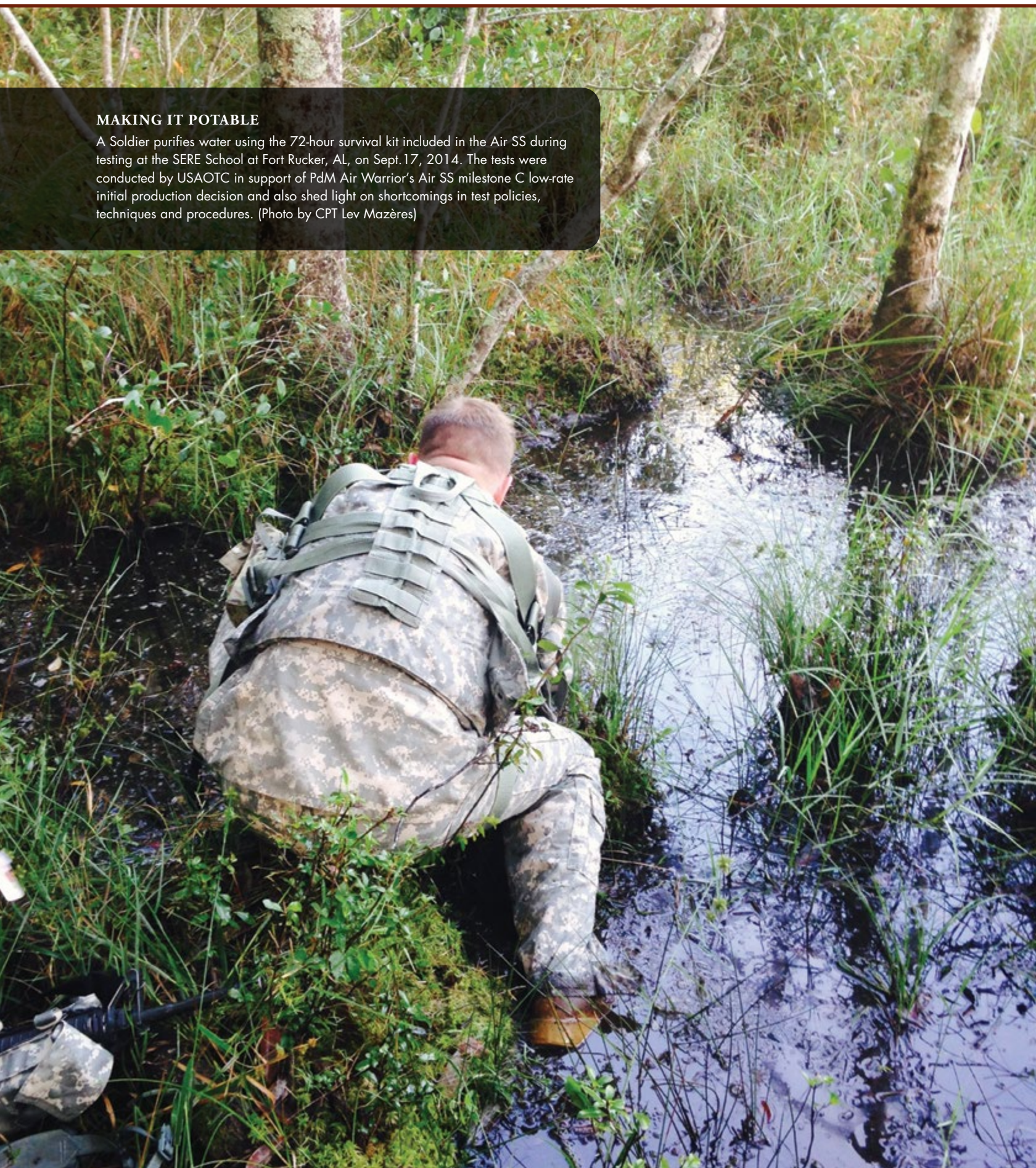
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MAKING IT POTABLE

A Soldier purifies water using the 72-hour survival kit included in the Air SS during testing at the SERE School at Fort Rucker, AL, on Sept. 17, 2014. The tests were conducted by USAOTC in support of PdM Air Warrior's Air SS milestone C low-rate initial production decision and also shed light on shortcomings in test policies, techniques and procedures. (Photo by CPT Lev Mazères)





Testing, TESTED

USAOTC looks to streamline testing and increase the value of training with a new paradigm that would capitalize on collaboration and communication to get new products to Soldiers in less time and at a lower cost.

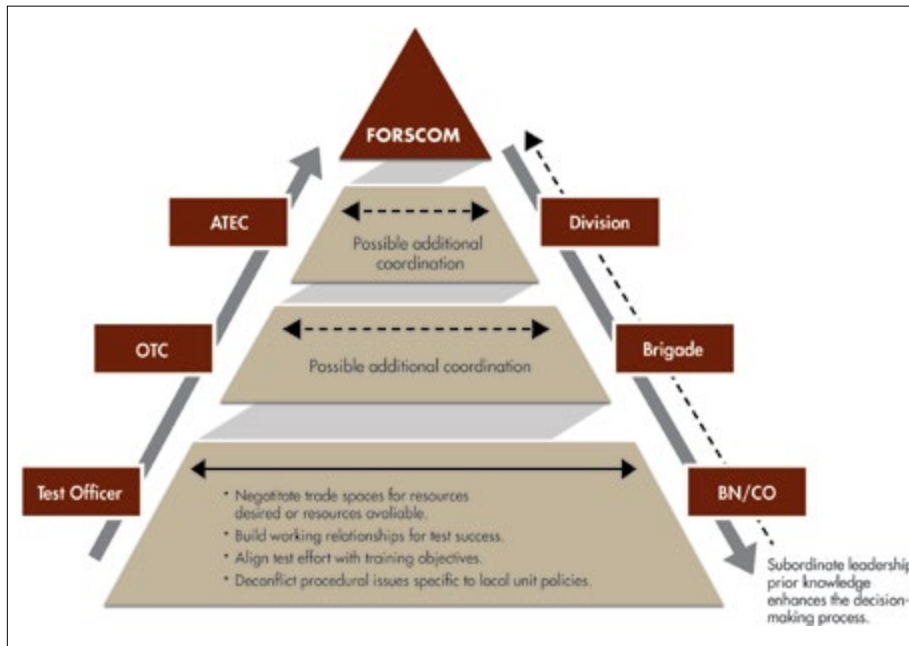
by CPT Lev L. Mazères

Every test effort faces its own set of challenges—the Air Soldier System (Air SS) included—but through creative problem-solving, a team from the U.S. Army Operational Test Command (USAOTC) delivered a thorough operational test (OT) that has positioned the evaluation effort for success as the Air SS Test and Evaluation Working Integrated Product Team prepares for an initial operational test (IOT) in late summer 2015.

USAOTC executed a series of test events over the course of two months last summer, in support of Product Manager (PdM) Air Warrior's Air SS milestone C low-rate initial production decision. During this period, personnel from the U.S. Army Evaluation Center (USAEC), Army Aviation Concepts and Requirements Directorate, PdM Air Warrior, the Army Survival, Escape, Resistance, and Evasion (SERE) School at Fort Rucker, AL, and the 10th Combat Aviation Brigade (CAB) supported operational testers from the USAOTC Aviation Test Directorate. The goal of these events was to test the effectiveness, suitability and survivability of the Air SS in an operational environment.

While successful, the experience revealed the need to re-examine how an enterprise plans, resources and executes OTs—particularly with regard to programs in acquisition category (ACAT) II and below that are not on the Office of the Secretary of Defense (OSD) Test and Evaluation (T&E) Oversight List—in a new, more fiscally constrained environment. ACAT I and T&E Oversight List programs generally receive test unit priority.

Air SS is an integrated, modular, mission-tailorable aviation life support equipment and protective ensemble for aircrew Soldiers. Intended for crews of select manned aircraft in maneuver, maneuver support and maneuver sustainment roles involved



STAYING ON COURSE

The chart depicts the paths of communication between test officers and unit action officers and their respective hierarchies. Greater collaboration and communication within the operational community can improve the effectiveness of operational testing while reducing the cost. (Image courtesy of CPT Lev Mazères)

in full-spectrum operations, the new system promises to provide existing capabilities while reducing weight and bulk and increasing situational awareness. As the Army's only independent OT organization, USAOTC ensures such enhancements are adequately tested and worthy of being put in the hands of the Soldier. As is typical of most ACAT I and II programs, USAOTC used the Test Schedule and Review Committee (TSARC), in accordance with regulatory requirements, to source OT players and units from U.S. Army Forces Command to support operational testing.

PLANNING COMES UNDONE

Originally planned as a combined developmental test (DT) and OT event, with the intent to use the same test players for both the DT and follow-on initial OT

(IOT) effort, TSARC leadership notified USAOTC in late 2013 to expect the 25th CAB to provide the test personnel and equipment necessary to execute the consecutive test events. Unfortunately, additional and competing higher priority taskings resulted in 25th CAB requesting a reclama (reconsideration of a decision) from the TSARC tasking in early 2014. As a result, the TSARC assigned the 10th CAB to take part in testing.

To meet program timeline constraints, PdM Air Warrior opted to conduct a separate DT event at the Redstone Test Center, located at Redstone Arsenal, AL, while shifting the IOT to the summer. System maturation issues resulted in a joint agreement between Army Test and Evaluation Command and Program Executive Office for Soldier to reduce the

OT from an IOT to a limited user test and subsequently to a customer test (CT). The CT resulted in the test timeframe being cut in half and the loss of range reservations at Fort Drum, NY, which meant that the M4 and M9 weapon ranges and SERE lanes could not be conducted.

Challenged to collect adequate data to meet USAEC evaluator needs, but with less time and fewer resources, the situation brought to the surface previously overlooked opportunities to collect relevant feedback. Leveraging previous working relationships with personnel at the SERE School, while ensuring a simultaneous request through the TSARC process, kept all appropriate stakeholders in the loop.

The joint effort resulted in an extensive test of the Air SS 72-hour survival gear during a SERE situation, as well as testing the performance of the combat basic ensemble configuration during various stress weapon and break contact firing ranges. All testing occurred at minimal cost and within the timeframe for inclusion into the USAEC OT agency milestone assessment report. The test also served as a great learning event for test

By engaging in these discussions and negotiations at the action officer level, the TSARC process would in fact be enhanced rather than marginalized.



ASSESSING THE PRODUCT

A test player, left, a SERE School instructor and MAJ Howard Swanson, USAOTC test officer, conduct a stress fire range test while wearing the Air SS ensemble at the SERE School at Fort Rucker, AL, on Sept. 18, 2014. Tests of the Air SS highlighted the need to re-examine how an enterprise plans, resources and executes OTs in a more fiscally constrained environment. (Photo by Bradley Davis, U.S. Army Research Laboratory)

personnel on how to better prepare for the following year's IOT, when the testing will have to be repeated with a test unit on their own installation. Additionally, the test shed light on shortcomings in policies, techniques and procedures.

These shortcomings became apparent during the Air SS CT when the one of the 10th CAB company commanders approached the test team with the offer to test components of the Air SS during already-slated aircrew progression training, for which flight hours were already paid. However, the short notice precluded the coordination required to ensure that airworthiness and safety releases were in place, PdM Air Warrior could properly field the required gear, and USAOTC could set up the right data collection methods to ensure data collected would be valid.

Ultimately, the original CT schedule was maintained, and the proposed testing could not be conducted. Issues that would have been identified earlier during the opportunity testing surfaced, and as a result, caused test disruptions that could have otherwise been mitigated or eliminated.

TEST, FIX, TEST

A review of the last 13 years of operational testing through the archival lens of Army AL&T magazine and Program Manager (PM) Online shows how the challenges of planning, resourcing and executing OTs have evolved—or rather, have not. At their core, the same challenges from 2002 exist today in 2015. The struggle to ensure requirements are current, adequate and attainable continues. Often, sufficient testing is not conducted and adequate time to test-fix-test is not observed, partially because the processes for doing so do not provide the flexibility required to overcome the challenges faced by PMs and PdMs when developing materiel solutions.

By the time test officers are finally assigned test units, a great deal of time and resources have been expended developing working relationships with the unit leadership and personnel during the critical last months leading up to test execution. The result is often that Soldiers and unit leadership view operational testing as a tasking burden rather than an opportunity to train and to influence the Army's acquisition decision-making process.

The result is often that Soldiers and unit leadership view operational testing as a tasking burden rather than an opportunity to train and to influence the Army's acquisition decision-making process.

One potential solution is to create a program where unit leadership, starting at the company level, can “opt into” operational testing. Essentially, that would consist of a calendar of upcoming test events on a secure portal that would list upcoming OTs and associated timeframes and requirements. In exchange for working training into the framework of OT, the operational unit would receive additional funding and resources to enhance their training program, as well as an opportunity to shape the materiel solutions of the future. The program would also serve as a forum to negotiate trade space for when testing occurred and what personnel and equipment were required in real time. In its current form, the TSARC process cannot provide this level of flexibility in an acceptable window of time.

The TSARC process by no means would be replaced or sidestepped using this method; rather, the opposite would occur. By engaging in these discussions and negotiations at the action officer level, the TSARC process would in fact be enhanced rather than marginalized.

Requests for resources would be better refined and more realistic, while the leadership of potential units being tasked would be better informed by their subordinate leaders on whether a tasking could be supported. Even if a unit ultimately could not support a tasking because of higher echelon mission requirements, at least the time to receive that decision

would be reduced, allowing another unit to consider the testing requirement.

Another potential benefit is the creation of greater transparency among test efforts and ongoing programs. The forum would give leaders across the T&E community the ability to view upcoming test events and combine efforts where applicable. By potentially combining two or more test events, T&E members could increase efficiencies, reduce overhead requirements and increase cost-sharing while decreasing the financial impact to PdM shops. In the USAOTC Aviation Test Directorate, flight hours routinely are one of the greatest cost drivers for test events. Any opportunity to sync test schedules results in instant savings while reducing TSARC's need to task multiple units.

CONCLUSION

This potential program is not necessarily a “one size fits all” solution. ACAT I programs and other programs on the OSD T&E Oversight List (which represented less than half of the OTs executed by USAOTC in FY14) are likely not appropriate candidates for this potential program, given the attention they receive and the complexities of their tests. In addition, certain types of equipment may not be as well suited depending on the stringency of the requirements for the time period, personnel and the type of equipment. Again, this proposed program is more in the realm of knowledge sharing, encouraging crosstalk and an overall

enhancement of the TSARC process. Just as the Air SS test team ensured all regulatory and procedural requirements were met to conduct the SERE excursion for the Air SS CT, the same would have to be done for any future tests.

By providing a mechanism to increase collaboration with and buy-in from the operational community, the effectiveness of operational testing can be increased while reducing the cost. If the cost is sufficiently reduced, the frequency of and opportunities for operational testing would potentially increase. Not only does this ensure better refined materiel solutions, but more importantly, better refined requirements. With input from the combat developers, materiel developers, testers and evaluators, this process could work. This process would allow for the resolution of issues identified over the last 13 years of working in a post-9/11 world while simultaneously moving forward in a more fiscally constrained environment, thereby ensuring the American Soldier is equipped with the best solutions financially possible.

For more information, contact the author at lev.l.mazeres.mil@mail.mil. Acquisition officers interested in working in an environment that seeks out critical thinkers and problem solvers should contact their branch manager about future assignment opportunities at USAOTC.

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EVOLVING EMARSS

A wide variety of aerial ISR capabilities, fielded as quick reaction capability technologies, now must transition to programs of record. Lessons learned over many years at war, plus a study seeking commonalities among all the ISR capabilities, provide the EMARRS program with a view of what to keep, and how, to maximize the benefit to the warfighter. Doing so requires a new approach outside the conventional life-cycle management process.

by MAJ Preston Pysh and Mr. Brandon Pollachek

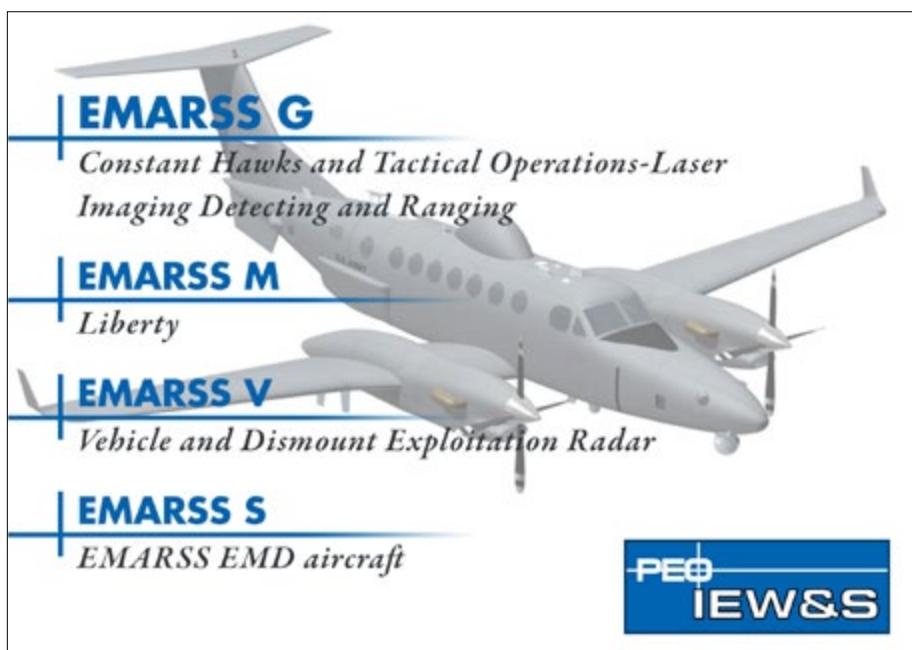
Capitalizing on investments made in design costs, aircraft platforms and the sensors used in current combat-proven aerial intelligence, surveillance and reconnaissance (AISR) capabilities, the Project Manager for Sensors – Aerial Intelligence (PM SAI) has taken an innovative approach to the Enhanced Medium Altitude Reconnaissance Surveillance System (EMARSS) program. PM SAI's approach will rely greatly on existing assets and lessons learned in theater to bring disparate aircraft into one program of record (POR).

EMARSS is a manned multi-intelligence AISR system that provides a persistent capability to detect, locate, classify, identify and trace surface targets at day or night in near-all-weather conditions with a high degree of timeliness and accuracy. When fielded, EMARSS will provide direct support to brigade combat teams.

EXPANDING THE PORTFOLIO

The Army has a requirement to field 24 of the newest aerial platforms into the portfolio, which currently includes four engineering and manufacturing development (EMD) aircraft. To round out the portfolio of the remaining 20 required systems, the Army G-2 office directed PM SAI to tap into the capabilities of existing manned aviation ISR quick reaction capability (QRC) platforms and infuse them into a POR. These aircraft proved their utility throughout Iraq and Afghanistan, primarily supporting Task Force Observe, Detect, Identify and Neutralize.

FIGURE 1



FOUR FACES OF EMARSS

Using the IVM approach, four separate QRC variants are to transition to the EMARSS POR. (SOURCE: PM SAI)



ONWARD AND UPWARD

An EMARSS prepares for takeoff during testing at Aberdeen Proving Ground, MD. (Photo by William Schofield, PEO IEW&S Visual Information)

To capitalize on existing, nonrecurring engineering, design, testing and cost of sensors, aircraft and network design and certifications, PM SAI—part of the Program Executive Office (PEO) for Intelligence, Electronic Warfare and Sensors—and PEO Aviation's PM Fixed Wing are going to recapitalize the existing QRC fleet over the next two years, beginning in FY15, by modifying them to meet the EMARSS POR requirements. This modification is occurring after milestone C, so the model doesn't fit neatly into the life-cycle management system. Typically, low-rate initial production would occur next in the process, but PM SAI is calling the initial modification to reach a common configuration "initial variant modification" (IVM).

The purpose of the IVM approach is to mitigate risk before modifying all of the remaining QRCs that are slated to be a part of the EMARSS POR. Four separate variants are to transition into the POR. (See Figure 1.) This recapitalization will use the EMARSS Capability Production Document and annexes originally created as a starting point for modifying the various platforms to be used in the program. PM SAI will modify only a small number of aircraft first to determine the best way to do so, and then will apply lessons learned information to the remaining aircraft. PM SAI will develop one of each variant using the IVM; that variant, in turn, will serve as the blueprint for modifying the rest of the fleet. This will allow for commonality of the hardware and software, network configurations and outer-mold line design, reducing airworthiness risk and minimizing security accreditation efforts and risk.

The PM can reduce program risk by taking the QRC technology capabilities—at Technology Readiness Levels 8 and 9—and by fully understanding the

PUTTING EMARSS TO THE TEST

MG Peter D. Utley, right, commanding general of the U.S. Army Test and Evaluation Command (ATEC), reviews Soldier training during an EMARSS test event Feb. 5 at the U.S. Army Electronic Proving Ground, an ATEC test center at Fort Huachuca, AZ. (Photo by Ray K. Ragan, ATEC)



expected system and sensor performance as we have seen them operate in a combat environment throughout Operations Enduring Freedom and Iraqi Freedom. An added benefit to this approach is that the QRCs have already been working with the Distributed Common Ground System – Army to ensure interoperability and compatibility for the processing, exploitation and dissemination (PED) cycle, which reduces the net-ready key performance parameter (KPP). This KPP

typically represents one of the highest risks on a POR. (See sidebar below.)

A BEST-OF-BREED APPROACH

PM SAI and PM Fixed Wing worked with Johns Hopkins University Applied Physics Laboratory and Massachusetts Institute of Technology's Lincoln Laboratory to conduct a study of the best way to use capabilities of existing manned aviation ISR QRC platforms. The focus of the study was to identify a common

network and workstation design, focusing on how to maximize the ability to exchange sensors yet retain relevant on-station mission time.

As with all aircraft programs, space, weight, power and cooling are major concerns in developing courses of action. The objective of the study was to reduce program costs and minimize nonrecurring engineering efforts by taking a best-of-breed approach where possible. The result is to gain maximum commonality between platforms, including common capabilities in signals intelligence and full motion video, to satisfy multimission tasking and reduce overall program risk. The study resulted in three different designs, incorporating the 20 QRCs into the EMARSS POR.

CONCLUSION

The recapitalization of the QRC platforms and sensors allows DOD to achieve the greatest possible cost saving, and the study results allowed PM SAI and PM Fixed Wing to maximize capability to the warfighter. The use of lessons learned from operating the various ISR aircraft in theater; upgrades to the systems, sensors, PED cycle equipment, as well as procedures from combat experience; and the information from the QRC study will translate to an EMARSS IVM program

THE PED CYCLE

The processing, exploitation and dissemination cycle reduces the net-ready key performance parameter, which typically represents one of the highest risks on a POR.

This is how the cycle works:

- Processing operations convert raw sensor data into forms that enable the extraction of information with intelligence value.
- Next, exploitation operations extract information that has intelligence value. This information is then analyzed, integrated and correlated to create intelligence products that satisfy specific requests for information.
- Finally, dissemination operations provide the intelligence products to combat units and other intelligence consumers.



HARNESSING LIBERTY

The MC-12W Liberty aircraft, formerly part of the U.S. Air Force inventory and used extensively in Operation Enduring Freedom, will be one of the variants added to the EMARSS POR as the Army proceeds to fulfill a requirement for 24 of the newest aerial platforms. (Photo by MSgt Michael Smith)

that produces the greatest capability at the best price and schedule, with the lowest risk.

Cost savings will derive from the reuse of the aircraft, sensors, software and nonrecurring engineering and design. Though not fully calculated, the savings are projected to be in the tens of millions of dollars. Additionally, the Army will save time in comparison with how long it would take to acquire and integrate multiple platforms. Commonality, lower training costs and use of preplanned improvements are also expected to save on operations and support costs throughout the Army ISR fleet.

The reuse of equipment that represents long-lead items, such as aircraft, sensors,

gimbals, radios and antennas, will help realize significant schedule savings, even though this government-furnished equipment needs to be refurbished. The reuse of software and nonrecurring engineering, designs and drawings, and the anticipated reduction in certification could also shorten schedules.

In the event that other project managers face a situation in which they must incorporate multiple variations of a system into a single POR, the IVM approach may be helpful in setting a baseline for each variation.

For more information on PM SAI and PEO IEW&S systems, go to <http://peoiews.apg.army.mil>.

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ANY MISSION, ANYTIME, ANYWHERE

The Army is transitioning to smaller, more agile CPs, such as this one using an inflatable air beam tent and supported by a satellite terminal, the Secure Internet Protocol Router/Nonsecure Internet Protocol Router Access Point and combat vehicles equipped with WIN-T Increment 2, the Army's mobile tactical communications network backbone.
(U.S. Army photo by Amy Walker, PEO C3T)





NEXT-GEN *Command Post*

For Soldiers on the front lines, winning in a complex world calls for an increase in both capability and adaptability. In response, the Army is integrating advanced technology and taking new, more flexible and holistic approaches to acquisition to create a leaner, more mobile command post to support an expeditionary force.

*by LTC Joel Babbitt, LTC Jack “Shane” Taylor and
MAJ James E. Howell*

The typical brigade command post (CP) of the past decade looked something like this: hundreds of feet of wires and cables, a deluge of transit cases and cumbersome tents—all requiring an entire day and a platoon of Soldiers to assemble. Now, advanced technology and improved acquisition approaches are enabling the Army to transform yesterday’s command posts so they are leaner and more agile to support an expeditionary force, a major DA operational priority.

The acquisition community is delivering CP solutions that increase capability while decreasing size, weight and power (SWaP) requirements. We are weaving together evolving technologies such as 4G LTE/Wi-Fi, virtualized hardware, Web-based mission command applications and intelligent power in a holistic, flexible manner so the new CP is a well-honed weapon system—no longer an anchor, but an enabler that can support any mission, anytime, anywhere.

During Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), CPs were huge, heavy, complicated and time-consuming to set up, move and tear down, but they performed as needed for more static operations in those theaters. As the Army transitions to a regionally aligned force that responds to unexpected contingencies at a moment’s notice in accordance with the new Army operating concept (AOC), units

will require mobile, scalable and expeditionary CP capabilities that support all phases of tactical operations, forms of maneuver and the doctrine behind employing CPs.

The new CP will not be a mere shelter, but a mission command and situational awareness enabler that supports commanders and staff at every stage of operations—from home station to in-flight, to early-entry landings of C-17s and C-130s filled with Soldiers and equipment, to larger follow-on tactical operations centers at different echelons.

These new systems will support a division-led Army operational concept with a modular, echelon-appropriate set of configurations tailorable to light and heavy units. Instead of sending division main CPs forward to the heart of the fight, with their extensive core mission command and network equipment, the “brains of the operations” can more frequently remain behind in a safer location, or even back in the United States. The Army will be able to deploy forward smaller “right-sized” formations armed with smaller mobile tactical (TAC) CPs to deter and operate in multiple regions simultaneously. The new TACs will be more agile than those of the past, tied to combat vehicles equipped

with the Army’s mobile tactical communications network, Warfighter Information Network – Tactical (WIN-T) Increment 2 and corresponding mission command applications. For certain formations and missions, these networked vehicles can also be combined with new shelter variants such as inflatable air beam tents or towed hard-sided shelters, which could be erected and brought online in half an hour.

EXPANDING ACQUISITION PARADIGMS

To achieve these goals, the Army is revising its past acquisition approach to the CP by taking a holistic approach to development with synchronization across the user, acquisition, and science and technology communities. Requirements determination, technology development, integration and fielding for the new CPs involves numerous organizations, commercial and government products, services and infrastructure across multiple stakeholders. This holistic approach could influence other programs, present and future, as the Army continues to modernize the force.

For example, a working group representing the command, control, communications, computers, intelligence, surveillance and reconnaissance

community is helping to inform the U.S. Army Training and Doctrine Command as it develops requirements for future CPs by providing a unified, inclusive view of current and future technologies that will feed into the effort.

The Army will also leverage early user feedback from a collaboration involving the Program Executive Office for Command, Control and Communications – Tactical (PEO C3T) and the U.S. Army Communications-Electronics Research, Development and Engineering Center to rapidly integrate two division TAC CPs—one for the 82nd Airborne Division, a light unit, and the other supporting the 3rd Infantry Division, a heavy unit. The units’ expertise in rapid response and early-entry situations as part of the Global Response Force (GRF) will help the service home in on the right combinations of tactical and strategic assets and requirements for the CP. The Army also plans to gain input from other units to continually shape and improve this capability as it matures.

User feedback from real-world operations will continue to provide lessons learned to advance CP capability. Urgent operational needs often require that a new capability be sent quickly to the field, such as in the ongoing Ebola response effort in Africa. Among the many network communications systems provided for this rapid response, the Army fielded unclassified Wi-Fi capability to support military and nongovernmental organizations. National Guard units have also demonstrated 4G LTE/Wi-Fi as part of their new CP package to support disaster relief efforts, and feedback from their use of these and other systems will continue to inform CP modernization for the entire force. The GRF will also continue to provide input on its new Enroute Mission Command Capability,

The acquisition community is delivering CP solutions that increase capability while decreasing size, weight and power requirements. We are weaving together evolving technologies such as 4G LTE/Wi-Fi, virtualized hardware, Web-based mission command applications and intelligent power in a holistic, flexible manner.



BEYOND SHELTER

Much more than a mere shelter, the new CP will enable mission command and situational awareness to support commanders and staff at every stage of operations. The Transportable Tactical Command Communications unit at lower left, for instance, is a satellite terminal that connects small company- and team-sized elements to the high-capacity WIN-T network and extends that network to the tactical edge. (Image courtesy of U.S. Army)

which enables in-flight connection to the WIN-T network backbone, allowing commanders to tap into mission command applications such as Command Post of the Future and providing access to video teleconferencing, Voice over Internet Protocol calls and intelligence, surveillance and reconnaissance feeds from unmanned aerial vehicles.

Network Integration Evaluations (NIEs) will continue to play an important role in fleshing out capabilities and configurations to best support different echelons, operational stages and missions. One new CP capability package that includes improved power initiatives, hardware consolidation, secure wireless

networking and expeditionary shelters will be evaluated at NIE 16.1 in fall 2015, with individual component capabilities scheduled to be evaluated during NIE 15.2 in May.

THE COMMAND POST UNPLUGGED

In its effort to simplify the CP, the Army now is tackling the first culprit of complexity, one that most Americans have eliminated in their own homes: wires.

Secure 4G/Wi-Fi will figure prominently in the Army's redesign of its CPs, providing both a tactical and logistical advantage. It will unencumber the CP of myriad cables, reducing footprint,

strategic lift requirements, and setup and teardown times by at least two hours each. This technology also untethers commanders and staff from their workstations and allows leaders to access classified information from tablets and smartphones, without the need for encryption hardware. Applications include the ability to monitor remote sensors, live video from checkpoints and unmanned aerial vehicle feeds while mobile.

Information security has always been the Army's biggest challenge in providing secure 4G LTE/Wi-Fi for use on military networks. Working in conjunction with the National Security Agency (NSA), U.S. Special Operations Command, the



UNENCUMBERED

Soldiers from the 86th Expeditionary Signal Battalion evaluate the new CP 4G LTE/Wi-Fi system in May 2014 at NIE 14.2 on Fort Bliss, TX. 4G LTE/Wi-Fi will obviate the need for myriad cables inside the CP and yield a system with a smaller footprint, reduced strategic lift requirements and reduced time for setup and teardown. (U.S. Army photo by Amy Walker, PEO C3T)

Joint Staff and PEO Soldier's Nett Warrior program office, PEO C3T broke the barriers that hindered secure wireless and 4G LTE access to military networks with an NSA encryption solution called Commercial Solutions for Classified, similar to the security software used for online shopping. To this, the team added a no-cost "special sauce" that enables it to work on military networks. With this solution, the Army has leveraged billions of dollars of commercial investment at no cost to the government.

LIGHTENING THE LOAD

Virtualization is also supporting a leaner, more agile CP. It replaces hardware appliances such as call managers, security software and bandwidth management tools with software, enabling the Army to improve network performance, simplify network operations and reduce SWaP requirements for command

posts, shelters and vehicles. For example, through virtualization the new WIN-T End Of Life Technical Refresh effort enables the Army to reduce the number of required Increment 1 transit cases by one-third, shedding 1,000 over the next three years across the Army and reducing the weight of the remaining cases.

The Army is also streamlining CPs from a power perspective with the use of technologies such as Intelligent Power, a microgrid power generation system that uses a highly flexible, reconfigurable power architecture. Intelligent Power prevents overloads and grid collapse, reducing manpower requirements for grid operation and fuel consumption by 25-40 percent. It also reduces the number of generators needed from 18 to four, greatly lightening the load on strategic lift aircraft.

Additionally, On Board Vehicle Power modifies a standard vehicle transmission to enable the vehicle to generate electrical power for both internal vehicle use and for smaller CPs.

MISSION COMMAND MEETS THE WEB

During OIF and OEF, individual mission command systems performed well and provided critical capabilities, but with multiple systems on multiple screens throughout the CP, the commander had to use a "swivel chair" approach when executing mission command. To achieve interoperability and collaboration, Soldiers had to manually extract data from one system and physically re-enter it into another, which was time-consuming and opened up the potential for human error. The infrastructure required to support these separate systems also weighed down the CP.

In response to these limitations, and in line with the new AOC, the Army is transitioning stand-alone mission command systems to sustainment and replacing them with an integrated, Web-based environment that delivers those functions as user-friendly apps, merged with the common operating picture of the battlefield.

The foundation for mission command on the Web is the Command Post Computing Environment (CP CE), which is unifying the CP by providing Soldiers and commanders with common views, shared data, shared maps and common services across the warfighting functions of fires, logistics, intelligence, airspace management and maneuver.

Critical to the Army's new CP vision, CP CE also simplifies the back-end hardware and software infrastructures required to support mission command systems at

A CLEANER ENVIRONMENT

A Soldier displays multiple warfighting function Web applications and reviews icons for friendly and enemy locations within the CP CE at Aberdeen Proving Ground, MD, in March 2014. The CP CE is the foundation for mission command on the Web, unifying the CP with common views, shared data, shared maps and common services. (U.S. Army photo)



battalion and below. By keeping complex infrastructures at higher echelons, the CP becomes more agile for the units that need it most. Simplified infrastructure means that users will no longer have to start up multiple operating environments for multiple systems; they will just go to one, common environment. Furthermore, with the decrease in system complexity, Soldiers will train on one desktop, one time, across the entire Army. CP CE is a phased effort; v1 is currently in approval for fielding, and the final version is scheduled for release in FY19.

Also in the realm of mission command, the Army has introduced the Installation as a Docking Station (IADS) concept to support the expeditionary nature of rapid response forces. Soldiers at several U.S. Army installations now have daily access to the tactical mission command systems they will use when deployed, preparing them to carry out missions in the areas of maneuver, fires and logistics. The 82nd Airborne's use of IADS is working to establish one user identity, thus enabling the Soldier to access data throughout rapid sequences of joint forced-entry and airborne operations. Once in theater, the pre-trained troops assemble the systems

and migrate the servers forward, alleviating a lag from the time the airplane departs and arrives at its destination.

CONCLUSION

From home station, to a plane or boat en route, to an urban back alley or desert terrain, the CP concept must be adaptable to unique and varied mission sets and operational environments. Reinventing the CP as a whole instead of the sum of its parts is key to increasing the expeditionary nature of forces so they can better support multiple, complex contingencies of the future.

For more information, go to the PEO C3T website at <http://peoc3t.army.mil/c3t/>, the project manager (PM) for WIN-T website at <http://peoc3t.army.mil/wint/> and the PM for mission command website at <http://peoc3t.army.mil/mcl/>; or contact the PEO C3T Public Affairs Office at 443-395-6489 or usarmy.APG.peo-c3t.mbx.pao-peoc3t@mail.mil.

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QUICK ON THE UPTAKE

A Soldier from the 101st Airborne Division uses the Command Post of the Future, a DARPA system the Army adopted during OIF. The new network marketplace will facilitate quick insertion of innovative capabilities from DARPA, industry and other partners into the Army's tactical network baseline by giving them access to Army-owned foundational technologies and standards for interoperability and security. (U.S. Army photo)





To a NETWORK Marketplace

Lessons learned not only in digitizing the warfighter, but also in the limitations of technology itself inform a new Army approach to more competitively sourcing digital command, control, communications, computers, intelligence, surveillance and reconnaissance gear.

by Ms. Claire Heininger

It was 1997 and an exhilarating time for information technology. Microsoft became the world's most valuable company, and Steve Jobs returned from exile to begin the resurrection of Apple Computer. In the Army, the Task Force XXI warfighting experiment proved that advanced digital communications systems could be a force multiplier in a time of limited resources and dwindling end strength.

After the Force XXI experimental brigade outshone the vaunted opponent at the National Training Center that year, the Army began to move out on a plan to resource and deliver the new capabilities across the force within five years. Four years later came 9/11, and the orderly march of Army digitization was over.

"People said, 'I want all this stuff now,'" said retired LTG Steven Boutelle, who was the acquisition trail boss for Force XXI and later Army Chief Information Officer (CIO)/G-6. "And they expected when they got it that it was finished, but in fact it was still very early. This technology is not revolutionary, it's evolutionary, and few people understood that."

In Iraq and Afghanistan, successes and failures played out in real time. Meanwhile, there was exponential progress in commercial communications technology—which the military leveraged where it could, but had no disciplined and holistic way to incorporate it for the long term.





BUILDING ENCLAVES

MAJ Jason A. Foreman, network operations director for the 35th Signal Brigade (Theater Tactical) (TTSB), tries on personal protective equipment at Fort Gordon, GA, in October 2014 before deploying to Liberia in support of Operation United Assistance. Capitalizing on more than a decade of lessons learned, the Army is now working to bring emerging information technology to field operations. For Operation United Assistance, it fielded secure Wi-Fi, commercial network enclaves and additional communications capabilities to West Africa to facilitate information sharing and collaboration between military units and non-governmental organizations battling the Ebola virus. (U.S. Army photo by CPT Lindsay D. Roman, 35th TTSB Public Affairs)

Now, with the accumulated wisdom of Force XXI, two wars and key process changes since, the Army once again stands on the threshold of change. Recognizing the important role that information plays in the new Army Operating Concept and an agile, expeditionary force, the Program Executive Office for Command, Control and Communications – Tactical (PEO C3T) is introducing a “network marketplace” model to efficiently support evolving needs. Treating digitization as an ongoing journey, this approach will create the conditions for the Army to access

the latest technology as it adapts to changing circumstances—without losing control over the integration and fielding process, and while keeping the capabilities simple for the Soldier.

A ‘CRAZY TIME’

What followed Force XXI was a decade of leaps forward and steps sideways, punctuated by major capability enhancements and an atmosphere in which commercial capabilities often arrived in theater without the Army’s typical level of vetting, training or oversight. The deluge of operational needs statements from the field reflected the demand for information technology, as commanders recognized the value of digital maps, messaging, command and control, sensors and other capabilities for visualizing and executing missions across a complex battlefield. The push to deliver new capabilities ensured troops had the tools they needed in the fight, but created a situation where the resulting systems often didn’t interoperate with one another, were too complex for Soldiers to use without dedicated field support, and sometimes ended up forgotten in a shipping container after one unit left and another took its place.

“It was an entirely crazy time,” said Chuck Pizzutelli, then a lead systems engineer for the PEO. “It was a learning process of, ‘How do we do this, without negatively affecting the overall performance of the system of systems?’ ”

To impose a more deliberate structure, the acquisition community worked with the Army CIO/G-6 to introduce software blocking, Army interoperability certification, unit set fielding and other processes. Together, these processes aimed to ensure systems were tracked to a common baseline, were able to communicate with one another and were deliberately fielded and trained. However, they primarily applied to programs of record, not the quick-reaction commercial capabilities that flooded into theater.

Operations Enduring and Iraqi Freedom (OEF and OIF) produced innovations that saved lives and became a lasting part of the force. The Warfighter Information Network-Tactical (WIN-T) and counter rocket, artillery and mortar systems leveraged commercial and government technologies and moved to the field faster because of wartime priorities. Software-defined radios demonstrated the potential of extending the network to lower echelons and dismounted troops.

The wars opened the door for Defense Advanced Research Projects Agency (DARPA) systems like Command Post of the Future, which synthesized mission command information on

a user-friendly interface, and Tactical Ground Reporting, which gave troops on patrol the basic digital intelligence-gathering and sharing capabilities that lower echelons had lacked previously. And both operations cemented the role of Force XXI Battle Command Brigade and Below/Blue Force Tracking (BFT), the foundational system of Army digitization, as something no commander would go to battle without.

BACK TO A BASELINE

As the pace of the wars slowed in 2010-2011, the Army paused to survey the digital landscape. Leaders concluded that the quick-reaction capabilities that could serve a lasting purpose needed to be integrated into a new, common baseline with programs of record that were

reaching maturity, such as WIN-T Increment 2 and the Rifleman Radio, which would multiply the network's mobility and reach. But while the Army had been devoted to speeding gear to combat, the industry trends of simplification and miniaturization—iPhone, Android, commodity laptops—had largely passed it by.

“While we were working to deliver capability to the warfighter to meet his immediate needs, commercial industry was focusing on delivering a new user experience,” said Terry Edwards, chief science and technology advisor for PEO C3T. “While OIF and OEF created a demand for digitization and explored a number of solutions to meet specific needs, on the downside it was a chaotic process, and a lot of things didn’t feed

back into the programs of record. So we had to get back to the baseline in order to build on it and simplify it.”

That realization across the Army acquisition, requirements, test and signal communities gave rise to the Network Integration Evaluation (NIE), a series of field exercises launched in 2011 and intended to establish and validate a new, integrated network baseline for fielding across the force. The NIE also offered a structured process for industry partners to demonstrate technologies targeting specific capability gaps.

The capability sets that emerged from the NIE introduced groundbreaking new capabilities such as mission command on-the-move and smartphone-like devices for dismounted Soldiers, all integrated up front and delivered to priority units through a consolidated fielding process. The first capability set deployed to Afghanistan in 2013 with Soldiers from the 10th Mountain Division who described it as their “digital guardian angel.” That became a new baseline on which the Army today is delivering subsequent capability sets.

But the dream of rapidly purchasing and fielding the latest commercial innovations through NIE has not been fully realized. The Army has procured non-program of record capability solutions as a result of NIE, but gaps remain and the process continues to evolve. Beginning in FY16, NIE will incorporate the new Army Warfighter Assessment, which will offer a more experimental environment for industry technologies.

ENCOURAGING INNOVATION

Taking the lessons learned from Force XXI, OEF, OIF and NIE, the Army is now working to provide a fast yet disciplined pathway to get emerging



POWER OF COMPETITION

A Soldier operates a Mid-Tier Networking Vehicular Radio (MNVR) during the government integration test over-the-air event at the Army's Electronic Proving Ground at Fort Huachuca, AZ, in fall 2014. MNVR is one of several competitively procured networking radios that provide on-the-move voice and data communications to Soldiers spread out over complex terrain, linking lower-echelon digital radios like the Rifleman and Manpack to the WIN-T. (U.S. Army photo)

information technology to the force. The “network marketplace” model follows a pattern: The government owns the infrastructure or foundation of a capability—such as a radio waveform or a mission command operating system—so the Army sets the standards for interoperability and security. Third parties, such as industry, DARPA or other partners, receive access to these foundational technologies and know the standards they must follow. The Army can then issue contracting actions for a lighter radio, a faster network reconfiguration app or other capability need, encouraging competition for the best of breed technologies within the marketplace. The standard infrastructure will allow the Army to integrate new hardware and software into the capability set baseline, while simplifying training and sustainment.

“Just imagine a network where if you come in with a better widget, the network is adaptive enough for us to say, ‘I want 1,000 of those, and get them into the hands of Soldiers within weeks,’ and they will seamlessly fit in with the rest of the network,” said MG Daniel P. Hughes, the PEO for C3T. “We’re building that backbone to plug in the new apps, to plug in the new devices, to get the best ideas and move out.”

For the next generation of Rifleman and Manpack radios, the Army is moving to competitively procure non-developmental item radio hardware from multiple vendors. The radios will operate the same government-owned waveforms for interoperability, but industry has an incentive to innovate in areas such as weight, processing power and battery life. The same concept can also be applied to satellite communications waveforms such as BFT2: by providing industry with access to the government-owned waveform, vendors can offer transceivers that



PROCESS OF ELIMINATION

The WIN-T Increment 1 End of Life (EOL) Technical Refresh capitalizes on virtualization, modernizing the system so that it can continue to operate on the Army’s tactical network. In addition to ensuring that all Soldiers are fighting with the same equipment, the EOL Technical Refresh also enables the Army to reduce a unit’s network transit cases by one third. This equipment was eliminated from the Maryland Army National Guard’s C Signal Company, 29th Infantry Division Headquarters. (U.S. Army photo by Amy Walker, PEO C3T)

are compatible with and build upon that technology.

For mission command, the Command Post Computing Environment (CP CE) is consolidating multiple systems and servers to create a common infrastructure. CP CE will provide a software development kit enabling third parties to contribute new tactical applications to that standard baseline—much like developers can build smartphone apps that smoothly integrate with the iOS or Android operating systems. PEO C3T is now examining methods to create a competitive contracting environment that will allow the Army to procure these applications as needed.

CONCLUSION

There is still work to do to achieve the network marketplace. But the approach is the product of valuable experience and represents a shift in how the Army has acquired and fielded information technology. In support of the new Army

Operating Concept, the marketplace will allow the acquisition community to be disciplined, flexible and responsive—all at the same time.

The following stories illustrate the growth of select tactical communications capabilities, and how both the technologies and acquisition approaches have evolved to enable the network marketplace.

For more information, go to <http://peoc3t.army.mil/c3t/> or <https://www.facebook.com/peoc3t>

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ARMY'S NETWORK STILL EVOLVING

by LTC Joel Babbitt

From early operations in Iraq to natural disaster response to the current Ebola fight in West Africa, Warfighter Information Network-Tactical (WIN-T) Increment 1 has been the Army's primary tactical communications network backbone and continues to evolve in support of new missions and requirements.

The system that became WIN-T Increment 1—the Joint Network Node Network—was first conceived to quickly address problems that arose with outdated communications equipment in Iraq. To cut down on the standard development and procurement time, the Army purchased commercial off-the-shelf (COTS) solutions that could be integrated into its systems to rapidly support urgent fielding requirements for Operation Iraqi Freedom (OIF).

The WIN-T Increment 1 network has been supporting a full range of military operations since 2004, providing high-speed, high-capacity voice, data and video communications. For units with higher mobility requirements, the follow-on WIN-T Increment 2 network adds on-the-move access to tactical communications and extends the network to the company level.

A result of choosing COTS solutions is that the Army can more easily insert new technologies into WIN-T. Advances in COTS technology and innovations from the Army's science and technology community enable the service to update its WIN-T

systems to increase capability and simplicity while reducing size, weight and power (SWaP) requirements.

Most recently, the End Of Life (EOL) Technical Refreshment update modernizes the Increment 1 system and is necessary for the continued operation of the equipment on the Army's tactical network. The EOL upgrades include new COTS hardware and software components that provide 50 percent more capacity for future modernization efforts.

The in-progress WIN-T Increment 1b upgrade improves security and efficiency, while increasing interoperability between Increments 1 and 2. A Network Operations Convergence upgrade simplifies and reduces the number of network management tools for communications officers, while an upgrade to the High Capacity Line of Sight radio provides a fourfold increase in throughput, enabling higher-data applications such as full-motion video, high-definition video teleconferencing and network convergence.

The approach to fielding these upgrades also reflects lessons learned from the past 11 years. For example, whenever possible the Army is simultaneously fielding all four upgrades to increase efficiencies and cause the least disruption to units.

The National Guard's C Signal Company, 29th Infantry Division Headquarters received the EOL Tech Refresh first across



WIN-T UPGRADE

Soldiers from the 86th Expeditionary Signal Battalion receive training on the improved network security and efficiency of the WIN-T Increment 1b upgrade, at Fort Bliss, TX, in February 2014. WIN-T Increment 1 was initially fielded in 2004 after operations in Iraq outran the Army's previous communications equipment. (U.S. Army photo by Amy Walker, PEO C3T)

the entire Army. Guard units were often the last to be fielded new equipment in the past, but in Operation Enduring Freedom (OEF), guard units fought alongside active Army and reserve units on the same network, emphasizing the importance of all components fighting with the same equipment.

The guard also benefits from improved interoperability with first responders. During disasters such as Hurricane Katrina and 9/11, damaged and overloaded cell towers and a lack of interoperability caused life-threatening communications gaps. Now the guard can overcome such gaps using the new rapidly deployable Disaster Incident Response Emergency Communications Terminal package, which keeps commercial Internet and phone services operating and improves collaboration and situational awareness between the military and first responders.

Signal Modernization capabilities fielding under the WIN-T umbrella also stemmed from lessons learned in OIF and OEF. These include a network enclave that provides unclassified, classified, coalition or commercial connectivity from a single box, reducing SWaP while improving situational awareness across multiple mission partners. Signal modernization uses a new National Security Agency technology to deliver secure

Command Post 4G LTE/Wi-Fi without the need for encryption devices, and enables the Army to leverage billions of dollars of commercial investment at no cost to the government. Unclassified Wi-Fi, commercial network enclaves and additional WIN-T capabilities were fielded to West Africa to support Operation United Assistance to facilitate better information sharing between multiple military units and nonmilitary entities.

The WIN-T program office continues to partner with industry and leverage various contract vehicles and small business set-aside contracts to best support the Soldier, taxpayer and fielding timelines.

For more information, please go to <http://peoc3t.army.mil/wintl/>.

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ARMY CREATES ONE-STOP SHOP FOR HARDWARE

by Ms. Danielle Kays

The evolution of commercial off-the-shelf (COTS) information technologies in the late 1990s challenged the way Army programs acquired tactical systems. During Operations Enduring and Iraqi Freedom (OEF and OIF), most Army command, control, communications, computers, intelligence, surveillance and reconnaissance programs used proprietary contracts that didn't support the agile and rapid demands of the warfighter in Iraq and Afghanistan. Operational demands challenged the acquisition community to streamline processes to quickly field cutting-edge technologies while promoting competition and adhering to the Federal Acquisition Regulation.

The product director for Common Hardware Systems (CHS) took on the challenge. Through the CHS program office, the Army is applying lessons learned by taking an existing contract, inserting flexibility and creating new internal processes to enable programs to acquire tactical hardware using a system-of-systems acquisition approach. The CHS program office now enables rapid acquisition of the latest technology, while providing the flexibility to seamlessly integrate these technologies into existing networks and fielded systems.

These improvements allowed Army programs to rapidly procure and field technologies to meet capability requirements during OIF and OEF. This convergence of expansive growth in commercial communications technology and a more holistic approach to acquisition created the opportunity to deliver common hardware in an integrated, efficient and simplified way.

As the Army continues to advance the common operating environment (COE) framework to support the rapid development and delivery of secure, interoperable software applications, CHS is facilitating efficient procurement and sustainment of hardware items across the COE while leveraging industry innovation.



TECH EXPO

Through the CHS program office, the Army is applying lessons learned by taking an existing contract, inserting flexibility, and creating new internal processes to enable programs to acquire tactical hardware using a system-of-systems acquisition approach. To give vendors the chance to demonstrate how their technologies might fit into Army modernization efforts, CHS hosts a semi-annual Technology Expo, pictured here in April 2014, which is open to technical leads and design-level engineers from programs across the Army. (U.S. Army photo by Claire Heininger, PEO C3T)

CHS aligns closely with vendors of all sizes, including its prime contractor, 20 major subprime contractors and close to 300 small businesses. CHS also provides programs with market research and analysis on specific capabilities in advance of procurement.

CHS hosts a semi-annual technology expo to provide an open forum for commercial vendors to demonstrate new technology and how it fits into the Army's network modernization goals. The organization also works with industry to brief Army program engineers on their technology roadmaps and to demonstrate technologies that may fill a capability gap for future requirements. These forums enable collaboration between engineers across multiple programs to discuss areas of convergence and consolidation to simplify the battlefield, and provide cost savings to the Army.

CHS also leverages a strong connection to the Army organic industrial base including Tobyhanna Army Depot, which provides hardware repairs, system upgrades and other support to meet current specifications.

CHS is already seeing success in the holistic approach with \$123 million in cost avoidance to Army programs in FY14, when it also cut acquisition time on technology insertions by 50 percent and time to fill customer orders by 40 percent.

CHS will continue to draw on lessons learned, evolving to meet the Army's priorities for interoperable, scalable and intuitive communications technologies across a portfolio of contract vehicles.

For more information, visit (Common Access Card enabled): <https://www.kc.army.mil/chs/>.

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OPERATIONAL EXPERIENCE, TECHNOLOGY ADVANCES SET STAGE FOR RADIO MARKETPLACE

by LTC Rayfus Gary

The PRC-117G was one of the last of many commercial-off-the-shelf (COTS) radios fielded through a rapid acquisition process during Operation Enduring Freedom (OEF) and Operation Iraq Freedom (OIF).

Originally built as a tactical satellite radio, 117Gs were repurposed as networking radios running the Adaptive Networking Wideband Waveform and sent to Afghanistan in response to operational needs. The 117G transmitted large amounts of voice and data, including video and biometrics. Passed back and forth between checkpoints and other key locations, this information ensured that Soldiers were detaining or capturing the right people.

The 117G demonstrated in an operational context what the Army had believed for years while developing the Joint Tactical Radio System (JTRS): Software-defined radios (SDRs) could be a game-changer at lower echelons of the force.

As OEF and OIF started to draw down, there were fewer units in theater, and they were more dispersed. Thus, it

became clear that the Army needed more SDRs that could provide on-the-move communications to Soldiers spread out in many areas.

Two radios, the Rifleman and Manpack, developed under the JTRS effort—tested extensively, and evolved through user feedback from initial fielded units and the Network Integration Evaluations (NIEs)—have now reached maturity. Providing dismounted troops with real-time information that was previously available only in vehicles or command posts, these radios enable Soldiers to exchange voice and data with higher headquarters without relying on a fixed infrastructure. Both radios have deployed to Afghanistan with select units to support mobile networking, personnel accountability and information exchange for troops executing the advise-and-assist mission.

To spread the power of SDRs across the Army for future operations, the Army has created a groundbreaking radio marketplace model to competitively procure full-rate production quantities of both the Rifleman and Manpack radios.



CAPABILITY SET 13

SSG Shelby Johnson, a squad leader with the 4th Brigade Combat Team (BCT), 10th Mountain Division, observes the area around Forward Operating Base Torkham, Afghanistan, in fall 2013 while wearing the Capability Set 13 communications suite. Following lessons learned from the past decade, Capability Set Fielding introduced a more integrated, structured approach to fielding the tactical network, as well as groundbreaking new capabilities such as mission command on the move, software-defined radios and smartphone-like devices for dismounted Soldiers. (U.S. Army Photo by SSG Jerry Saslav, 4th BCT, 10th Mountain Division)

Through a competitive, nondevelopmental item acquisition strategy, qualified industry partners will compete on a regular basis to fill the radio hardware requirements, while using existing government-owned waveforms maintained in the Joint Tactical Networking Center repository. The consistently competitive environment will not only lower costs for the Army, but also deliver the best available commercial capabilities into the Army network.

The lessons learned from the last several years, including investments in the JTRS developmental effort, success of the 117G and other COTS radios in theater and the NIEs, helped show the Army that the commercial arena was mature enough to support a competitive marketplace if the right standards were in place.

For the next generation of SDRs, those standards come in the form of advanced waveforms that enable quick upgrades—to

add capability or increase cyber security—without deploying new hardware to the field. With constantly evolving, commonly shared waveforms and the ability to incorporate commercial hardware, the radio marketplace will enable the Army to achieve the promise of software-defined radio technology on a large scale.

LTC Rayfus Gary has been the product manager for Handheld, Manpack and Small-form Fit since 2013. He holds an M.S. in computer information systems from the Florida Institute of Technology and a B.S. in computer information systems from Florida Agricultural and Mechanical University. He is a member of the Army Acquisition Corps, and is Level III certified in program management and Level I certified in contracting, information technology and test and evaluation.

SOLDIER FEEDBACK DRIVES JBC-P'S EVOLUTION

by LTC Michael Olmstead

Soldiers who advanced into Baghdad in 2003 had, for the first time in wartime history, near real-time digital situational awareness of the friendly units flanking them. What made that possible was Force XXI Battle Command Brigade and Below (FBCB2), which provided integrated, on-the-move digital command and control and situational awareness to the tactical commander and Soldier, replacing voice radios and paper maps with a far more accurate common operating picture (COP).

Since that time, the FBCB2 family of systems has continuously sought and applied Soldier feedback as it added the capability to display threat information from other systems and a joint capability with the U.S. Marine Corps. It has now matured into the Joint Battle Command-Platform (JBC-P) to provide mounted situational awareness capabilities that are reaching down to the dismounted Soldier. It has also become more than just a system: JBC-P is setting the foundation to easily integrate new tactical apps developed by government, industry and even individuals.

Installed on more than 120,000 platforms, the transformation of FBCB2 to JBC-P has been energized by recently deployed Soldiers who participated in user juries or the Network Integration Evaluation (NIE) events held at Fort Bliss, TX, and White Sands Missile Range, NM. These Soldiers, who recently operated FBCB2 or the follow-on version, Joint Capabilities Release, have provided invaluable operational lessons learned needed to modernize mounted capabilities.

Their primary request to the program office has been to make the system easier to use, which is exactly what the office has done. User juries and NIE have allowed the JBC-P product office to better implement the program's incremental acquisition



AT THE VANGUARD

CSM Alan Hummel, the senior enlisted advisor for 4th Infantry Brigade Combat Team (IBCT) 3rd Infantry Division (ID), uses the JBC-P system to navigate to his unit's training, Jan. 22 at Camp Oliver, GA, during Vanguard Focus, a brigade-level training exercise. The Vanguard Brigade is the first unit in the Army to field the upgraded system, which evolved through Soldier feedback from its predecessor, FBCB2. (U.S. Army Photo by SGT Joshua Laidacker, 4th IBCT, 3rd ID, Public Affairs)

strategy—more frequent software releases to keep pace with emerging needs but with the azimuth check needed to course-correct along the way.

JBC-P is the foundation for the Mounted Computing Environment (MCE), the common framework across the lower tactical network infrastructure. Built on top of the JBC-P product line, the Mounted Android Computing Environment (MACE) infrastructure will allow government and industry partners to build Android applications. Leveraging Android simplifies the development process, and provides the simplified, common user experience that today's tech-savvy Soldiers demand. While MACE is focused on MCE, the goal is for apps to be developed once, then be capable of running on MACE across multiple platforms: mounted and dismounted Android devices or as widgets in the command post. Apps running on multiple hardware platforms at multiple echelons—and across multiple networks—will provide access to the COP with a common look

and feel to the user, regardless of operational environment or hardware.

With JBC-P and MACE, the Army will now have greater access to app developers. By encouraging innovation rather than asking industry to build to older systems, the Army will stay more closely aligned with current and future leading-edge technology capabilities—and with the Soldiers who continue to show the way.

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CONNECTING TOMORROW'S WARRIORS

The Army's new family of tactical radios does a lot more than push to talk. More like miniature computers, the radios use secure, high-bandwidth waveforms to send voice, data, images and video, even past terrain obstacles and beyond line of sight.

NOT YOUR FATHER'S RADIOS



RIFLEMAN RADIO

Single-channel radio running the Soldier Radio Waveform (SRW) that connects to Nett Warrior devices so Soldiers can use mission apps, send messages and track one another's locations.



MANPACK RADIO

Two-channel radio that can run SRW, SINCGARS, UHF SATCOM and MUOS to serve as a "bridge" from the Rifleman to the Army network—fielded in vehicle-mounted and dismounted versions.



MNVR

Mid-Tier Networking Vehicular Radio:

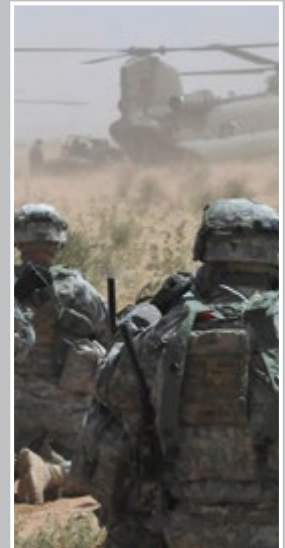
Runs SRW and the Wideband Networking Waveform (WNW), for new "mid tier" in the network, connecting brigade and battalion with company and platoon.



SALT

Small Airborne Link-16 Terminal:

Connects the Apache helicopter to brigade and below with real-time voice and data via SRW, and provides voice and the joint air picture via Link 16.



SANR

Small Airborne Networking Radio:

Uses SRW, WNW and SINCGARS for air-ground data, voice and video comms with Apache, Kiowa Warrior, Chinook and Black Hawk helicopters, and Gray Eagle Unmanned Aircraft.

PEO C3T is using a Non-Developmental Item approach to procure commercially developed radios that use government-owned waveforms. This competitive radio marketplace will drive industry innovation, leading to superior radios for Soldiers at lower costs.



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LOGISTICS



SPOTLIGHT:

MR. TRACY HEDRICK

MR. TRACY HEDRICK

COMMAND/ORGANIZATION:

Product Manager for Modernization,
Program Executive Office for Aviation

TITLE:

Logistics management specialist

YEARS OF SERVICE IN WORKFORCE: 4

YEARS OF MILITARY SERVICE: 20

EDUCATION:

B.S. in occupational training and
development, University of Louisville

DAWIA CERTIFICATIONS:

Level III in logistics

AWARDS:

Commander's Award for Civilian
Service (2), Global War on Terrorism
Service Medal, Operation Enduring
Freedom NATO Medal

Leveraging green-suit experience

If you think of acquisition as just another 9-to-5 job, consider the career of Tracy Hedrick. A logistics management specialist for the product manager for modernization in the Program Executive Office for Aviation, Hedrick spent 20 years on active duty with the Army, joining the acquisition workforce four years ago. Remarkably, in those four years he has deployed more often than he did on active duty.

Hedrick joined the Army right out of high school, earning associate and undergraduate degrees before retiring in 2005 as a sergeant first class. His career in uniform gave Hedrick an exposure to acquisition that many civilians don't get the chance to experience.

"When I deployed in theater, I would see an operational needs statement being submitted by a unit to meet a specific requirement they had. But by the time the materiel solution would be selected, sourced and delivered, the unit that requested it would have already rotated out," he said.

Now that he's on the other end of the acquisition process, he has a better handle on the challenges of getting equipment to warfighters quickly. "In today's Army, with all the downsizing of budgets and personnel, it's hard to maintain the same pace. Even though we lose people, the workload doesn't decrease, nor does the tempo slow down. The only way we overcome that challenge is by making ourselves more proficient at other tasks, to pick up the workload and accomplish the mission."

**What do you do, and why is it important to the Army or the warfighter?**

I currently work logistics for the Hunter, Sky Warrior Alpha and Gray Eagle Block 0 unmanned aircraft systems (UAS). We provide the assets that assist in intelligence, surveillance and reconnaissance data collection and provide real-time video to the troops on the ground who are engaged in combat every day.

How did you become part of the AL&T Workforce, and why?

For my last duty assignment for the Army, I was assigned to the TRADOC [U.S. Army Training and Doctrine Command] capabilities manager at Fort Knox, KY, as an infantry subject-matter expert for Future Combat Systems. That assignment afforded me the opportunity to see how I could have an impact on equipment being fielded to the Soldier.

After leaving the Army, I started as a systems engineering and technical assistance contractor, working as the user representative for the Unmanned Ground Vehicles Program. I was selected to work on unmanned aircraft and from there moved to a position working logistics for the project manager for UAS.

What do you see as the most important points in your career with the Army AL&T Workforce, and why?

The most important career moves I made were the decision to retire and then to continue to work within the acquisition field. I started taking Defense Acquisition University classes as a contractor, and continued once I [became a government employee]. The deployments to Afghanistan gave me more knowledge of all the UAS platforms as well as their importance to the warfighters on the ground.

**FRONT-LINE PERSPECTIVE**

Hedrick, left, with then-MAJ (now LTC) Mark Hurwitz, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology forward adviser, Regional Command – East, at Forward Operating Base Ghazni, Afghanistan, in 2012. (Photo courtesy of Tracy Hedrick)

What's the greatest satisfaction you have in being a part of the AL&T Workforce?

Being able to continue to work with the Soldiers on the ground and provide the support they require to accomplish their mission.

Acquisition is a very broad term encompassing a lot of different job specialties, with many career tools available to them. What advice would you give to someone who wants to get where you are today?

Having been introduced to Army acquisition as a green-suiter was definitely a big advantage. If you're someone who's just starting out and who doesn't have that Army experience, find an internship or similar position that would give you an

active role in the acquisition process. Getting firsthand experience is invaluable.

What's something that most people don't know about your job?

Most people are surprised to know that I have deployed more as a civilian than I did while on active duty. As a Soldier, I deployed to Operation Desert Shield/Desert Storm/Provide Comfort. And since retirement from the Army, I have deployed twice to Iraq, once as a robotic trainer and technician, and once as the lead logistics and supply representative for the Joint Robotic Repair Facility at Camp Victory Iraq, for a total of 18 months.

—MS. SUSAN L. FOLLETT



KEEPING TRACK

SPC Yarietzy Figueroa, transportation management coordinator with the 495th Movement Control Team, records the numbers on trucks entering the inbound yard at Bagram Airfield, Afghanistan, Sept. 8, 2014. In-gating and out-gating operations involve logging transportation movement requests, supply classification and container numbers into a tracking system. The authors see vast room for improvement in DOD's cargo tracking to remote locations, based on their examination of commercial methods. (Photo by SSG Michael K. Selvage, 10th Sustainment Brigade Public Affairs)



LESS *is* MORE

The key to increasing combat power isn't just more people and weapons. It's also reducing waste through smarter packaging, sourcing locally, increasing supply chain efficiency, and creating and using tactical power more wisely—in short, making all Army assets count.

*by MAJ Linda C. Wade, CPT Adam G. Bradford,
CPT Timothy P. Gibbons and CPT Nathan D. Platz*

The Army Logistics Innovation Agency and Department of the Army G-4 chartered the MG James Wright MBA Fellowship Program at the College of William and Mary's Mason School of Business to research supply chain optimization for remote locations. The intent was to garner insights from civilian organizations with the objective of improving Army sustainment.

The study focused on sustainment in areas with minimal or no local infrastructure or supply sources in environments similar to inland central Africa and isolated Pacific islands.

The comprehensive study of commercial supply chain innovations revealed best practices that the Army should adopt to better support combat operations in the most remote areas on earth. The recommendations focused on accomplishing these six improvements:

1. Reduce packaging waste.
2. Increase use of local and renewable resources.
3. Employ regional logistics experts.
4. Increase the commonality of parts.
5. Improve logistics communications systems.
6. Generate operational power efficiently.

Implementing these six recommendations would increase combat power by achieving a smaller footprint, greater use of assets, reduced inventory, simplified logistics and increased operational flexibility. All six recommendations have been proven to reduce costs for commercial companies.

FIGURE 1



UNWRAP AND REUSE

The U.S. Army Natick Soldier Systems Center has developed ideas for smaller, lighter packaging for MREs, with the additional potential for dual use to create more value for Soldiers. (SOURCE: The MG James Wright MBA Fellowship Program at the College of William and Mary)

REDUCED PACKAGING

The Army can learn from initiatives in the private sector to reduce packaging waste. Wal-Mart Stores Inc., for example, decided that the punt, or dimple, at the bottom of a bottle of wine is wasteful. The chain worked closely with its supplier to redesign the Oak Leaf store-brand wine bottles and reduce the punt, resulting in a shorter and lighter bottle. This small change reaped big cost savings in glass consumption, packaging materials and transportation and reduced Wal-Mart's annual shipping requirement by 280 trucks.

Likewise, Freeport-McMoRan Inc., one of the top mining companies in the world, worked closely with a supplier to completely redesign its packaging for cobalt hydroxide. The new design resulted in a larger, square-shaped product bag that was more rigid. The new design fits the exact dimensions of the company's cargo trucks and has doubled the amount of material that can be shipped in one truck. The rigid bag cost \$2 more but doubled

the transportation network's efficiency. The new design also made the packing process at the mine more efficient.

For the Army, an initiative to reduce or redesign packaging would have a significant effect on combat operations. Inefficient packaging results in more trucks than necessary on the road, poor use of air delivery assets and inefficient use of storage space. Improved packaging would decrease the exposure of vulnerable assets along the supply chain and improve air and ground asset utilization.

Most packaging materials used for food, water, ammunition and repair parts become a solid-waste burden during combat operations; waste must be disposed of for tactical, political and sanitary reasons. In remote areas, burning is the common method for disposal, but that can lead to health problems for Soldiers. Removing unnecessary packaging does not go far enough: Packaging should be designed to burn cleanly to generate power.

A single case of Meals, Ready-to-Eat (MREs) is a great example of poor packaging. Not only does the cardboard case create solid waste, but the individual MRE package design leads to unused space within a case. This increases the cost of packaging and printing and creates waste along the supply chain as these cases move on ships, vehicles and aircraft.

Smaller, lighter packaging offers significant benefits to Soldiers who receive resupply by containerized delivery systems on air-only combat outposts. The U.S. Army Natick Soldier Systems Center has developed improved packaging for the MRE, pending DOD approval. Natick has also considered designing dual-purpose packaging to create more value for Soldiers. For example, an MRE package could be used as a sandbag, a field-expedient latrine or a camouflage net case. (See Figure 1.)

The improved packaging initiative should extend to how the Army awards contracts to suppliers. For example, awarding contracts only to suppliers that could comply with efficient packaging standards, including packaging that is the minimum required, lighter, dual-purpose and clean-burning, would put American ingenuity to work in developing smart solutions to packaging challenges.

LOCAL AND RENEWABLE RESOURCES

Freeport-McMoRan, which operates mines in remote areas of Central Africa, maximizes local and renewable resources to reduce its logistics resupply requirement, increase its operational effect and maximize its profits. Methods employed include digging wells, partnering to refurbish a hydroelectric plant and providing equipment and training to create local sourcing options. Each of these methods reduces the distribution resources required

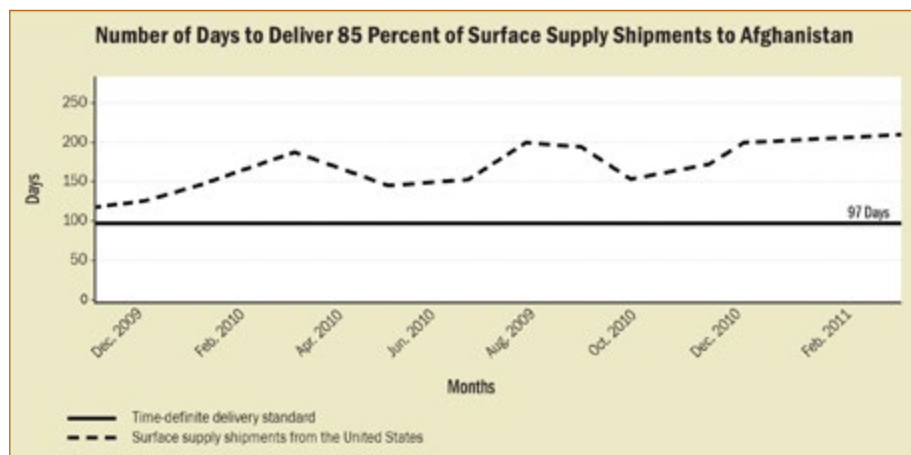
to sustain operations at remote sites, freeing up assets and money to support core operations.

The Army can mirror this approach and drastically increase combat power while reducing support requirements by using local and renewable resources. Every dollar saved in the supply chain is another dollar that can be spent on combat power.

When Freeport-McMoRan is in a remote area, its water requirements are similar to those of an Army forward operating base (FOB) in Afghanistan. Instead of shipping bottled water to the remote site, Freeport-McMoRan constructs a freshwater well, which supplies the site and the local village. The tactical benefits of a well are fourfold: reducing resupply convoys, freeing up assets for combat missions, strengthening relationships with the local community and increasing funding for combat power. In 2008, 20 percent of all materiel sent by convoy in Iraq and Afghanistan was related to water. A freshwater well to support a remote FOB would eliminate a significant number of resupply convoys and the helicopter air support they often require.

Establishing good relationships with the local population is critical to long-term security in any operation. A freshwater well that supplies water to the local village as well as the FOB would establish an enduring relationship. Funding could be established to pay the locals for the water at a far lower cost than for transporting bottled water. This would strengthen the local economy, support counterinsurgency operations and reduce logistics support requirements. Using local resources to provide water also would lessen the requirement for support personnel on the FOB, which would increase combat personnel and combat power.

FIGURE 2



UNTIMELY DISTRIBUTION

From December 2009 through March 2011, surface shipments of requisitioned supplies did not once meet the time-definite delivery standard that calls for 85 percent of shipments to arrive within 97 days of being ordered. The problem stemmed largely from challenges in transporting cargo on surface routes in Afghanistan and through neighboring countries. Procuring materials locally, particularly using renewable resources, might be a more reliable solution, in addition to helping build relationships with the local populace, the authors note. (SOURCE: The MG James Wright MBA Fellowship Program at the College of William and Mary)

Freeport-McMoRan requires essential buildings for their mines in central Africa to be made of brick, which is heavy and expensive to move. Instead of transporting bricks, Freeport-McMoRan transported the equipment to make bricks into the remote area and trained the locals to make them, then purchased the bricks from the locals. The Army also used this method in 2007 during Operation Iraqi Freedom when it needed mass quantities of cement barriers to cordon off areas for the Iraqi presidential election. Transporting cement barriers into Iraq was not practical, so the Army procured locally produced barriers.

Procuring materials locally might also be more reliable. A 2011 report by the Government Accountability Office (GAO), the auditing agency for Congress, stated that “DOD has not always met delivery

standards and time lines for shipments to major logistics bases in Afghanistan ... due in large part to the various difficulties in transporting cargo on surface routes through neighboring countries and inside Afghanistan.” (See Figure 2.)

When moving into a remote location, one of the first requirements is Class IV construction materials. Soldiers need them to improve fighting positions, but they are bulky and heavy to move. The Army’s current solution is to procure Class IV materials at home station and transport them to the forward location. This is expensive and time-consuming, and takes up valuable transportation assets needed for other critical items. Locally procuring building materials would alleviate that requirement, increase the timeliness of arrival and improve relations with the local population.



REACHING REMOTE LOCATIONS

A local construction worker helps build an Ebola treatment unit Dec. 4, 2014, as part of Operation United Assistance in Greenville, Liberia. When moving into a remote location, one of the first requirements is Class IV construction materials, which are bulky and heavy to move. Procuring building materials locally, instead of the current Army practice of procuring them at home station and shipping them forward, would free up transportation assets needed for other critical items. (U.S. Army photo by SFC Brien Vorhees, 55th Signal Company (Combat Camera))

REGIONAL LOGISTICS EXPERTS

Army logisticians face significant challenges in navigating cultural boundaries and bureaucratic processes while resupplying troops in the field. Civilian corporations face these challenges every day, but they have logistics experts working with government officials, learning the bureaucracy and adjusting their systems to provide seamless support.

Combatant commands are charged with contingency planning, but commands often lack the continuity and resources required for a deep understanding of regional challenges. The Army requires a

team of professionals dedicated to making contacts with local support options, navigating bureaucracy and learning from partnerships. Local support can free logistics and combat assets. Contracting local support can provide a tactical advantage. Regional experts can focus on initiatives similar to those of their civilian counterparts in the area. They can serve on the ground to develop partnerships that will reduce the strain on the distribution network and free up scarce resources.

Cultural boundaries, regulations, policy and hostility are challenges to supporting remote locations. The reliability and

consistency of shipments decrease with every border crossing. National borders are the most obvious challenges, but tribal and cultural boundaries also exist. Regional experts can gain firsthand knowledge of each nation's requirements, understand the cultural landscape and calculate the impact on distribution networks throughout the region. The most efficient main supply route will often depend on the cultural landscape rather than distance and infrastructure.

It's not practical for the Army to conduct mock operations in remote locations to learn these lessons, but it's entirely feasible that a team of regional experts could



Establishing good relationships with the local population is critical to long-term security in any operation. A freshwater well that supplies water to the local village as well as the FOB would establish an enduring relationship.

partner with civilian corporations and agencies to gain invaluable insight before an operation.

The U.S. Agency for International Development funds an economic development project across Africa with the intent of reducing barriers to trade. The Trade Hub program understands how to move across borders, and it is actively campaigning to reduce border delays. The East Africa Trade Hub program has reduced border crossing documentation by 10 percent, established main trade routes and has an intimate knowledge of trade requirements. The Army should seek to benefit from this effort; regional experts would be the catalyst to ensure that the information is shared.

COMMON PLATFORMS AND PARTS

Ford Motor Co. in 2011 announced a global initiative to reduce its number of vehicle platforms from 15 to five. This “economies of scale” initiative led to cost savings in engineering time, parts and service and in tooling and machinery. In 2014, Subaru announced a new global platform for its vehicles. The initiative promises to cut unit costs by 20 percent by 2020 through “more efficient vehicle designs, standardized platforms and leaner manufacturing processes.”

Freeport-McMoRan purchased 150 of its own cargo trucks to move supplies on the supply route where it experienced the

most challenges and incurred the highest freight costs. Vendors wanted to sell the company three different brands of truck; instead, it procured 150 of the same trucks and 200 of the same trailers. This reduced the complexity of the supply chain of parts, storage of parts and lubricants, operator training and mechanic training. It also simplified communication with the manufacturer for maintenance expertise or warranty claims.

As the Army moves forward in procuring the newly designed Joint Light Tactical Vehicle (JLTV), it has wisely insisted on 90 percent commonality of parts for the JLTV family of vehicles. This is a tremendous step in the right direction, but the Army needs to source vehicles with common parts between families of vehicles. The goal should be commonality within the entire fleet of Army vehicles, not just the JLTV family. The road toward that level of commonality is long, but the benefits would be worth it.

A light cargo truck, gun truck and forklift could all share the same parts. If every vehicle had the same tires, brake system, lights, battery and seat belt clips, the fleet would be ready for the most austere and logistically challenging locations on earth. Embracing a more robust common platform initiative for vehicles can help the Army reduce the logistics burden of parts, storage, transportation, operator training, mechanical expertise and manufacturer support.

LOGISTICS COMMUNICATION SYSTEMS

In surveys conducted for this study, both Army professionals and civilian agencies listed communication as the leading cause of logistics problems that occur while resupplying remote locations and during operations in general. The Army is often inefficient in supply distribution because of a lack of simple communication platforms that can accurately forecast the needs of those on the front lines. These platforms include in-transit visibility (ITV), inventory management and the collection of historical data.

ITV is designed to provide near-real-time status on the movement of materials from supplier to user. DOD defines ITV as “the ability to track the identity, status and location of DOD units and nonunit cargo (excluding bulk petroleum, oils and lubricants) and passengers; patients; and personal property from origin to consignee or destination across the range of military operations.”

The Army uses this capability poorly; it does not adequately track the distribution of all classes of supply to remote locations. The Army’s ITV scope and platform must be updated in order to become more efficient in resupply operations. Providing decision-makers with effective ITV systems will allow for improved inventory management. The Army’s current inventory management system is not synchronized in a manner that allows leaders at higher echelons to see the total logistics picture. According to a 2012 GAO report, the Army has \$8.4 billion worth of excess inventory.

Wal-Mart Stores Inc. and Caterpillar Inc., a global leader in mining and construction equipment, use advanced scanning mechanisms to track items from supplier to point of sale in real time.

Wal-Mart cashiers update the company's elaborate tracking system each time they scan customers' purchases at checkout, or point of consumption. To better manage resupply missions and resupply to remote locations, the Army should research and make efforts to embrace technology that supports superior ITV and inventory management. Scanning to track all classes of supply to the point of consumption would significantly improve the Army's ability to manage inventory.

Companies are also more successful when they use collaborative forecasting and foster relationships with their suppliers. Companies in the supply industry use vendors to manage inventory, sharing demand data with suppliers to enable better forecasting. Whenever it is possible and not tactically, operationally or strategically detrimental, the Army should have suppliers manage and maintain inventory to simplify the supply chain and shorten lead time on deliveries.

The lack of a simple, dependable and accurate ITV platform, combined with inadequate inventory management, results in historical data being lost and underused in forecasting supply operations. With respect to logistics, the Army collects data, uses the information momentarily and then dumps it. The Army's scanning systems do not have the capability to archive historical data for easy access by leaders and logistics professionals in the future. For example, it would be extremely difficult for the logistics officer in the 2nd Brigade Combat Team, 101st Airborne Division to retrieve the number of tires or the amount of fuel distributed to one of the brigade's maneuver battalions while in Mahmudiyah, Iraq, in 2005.

The Army needs a simple, Web-based, customizable system that collects

historical data by location, unit and class of supply. This data would be invaluable for forecasting the requirements of units in all locations, but especially in remote locations. Keeping such data would also allow units to simulate demands in the supply chain during training events. This would increase accuracy in forecasting and result in more efficient supply chains and, ultimately, an increase in combat power. Caterpillar cited forecasting as its biggest competitive advantage.

The Army needs to move in the direction of civilian agencies and improve communication systems in order to capture and use data to improve the logistics network.

POWER GENERATION

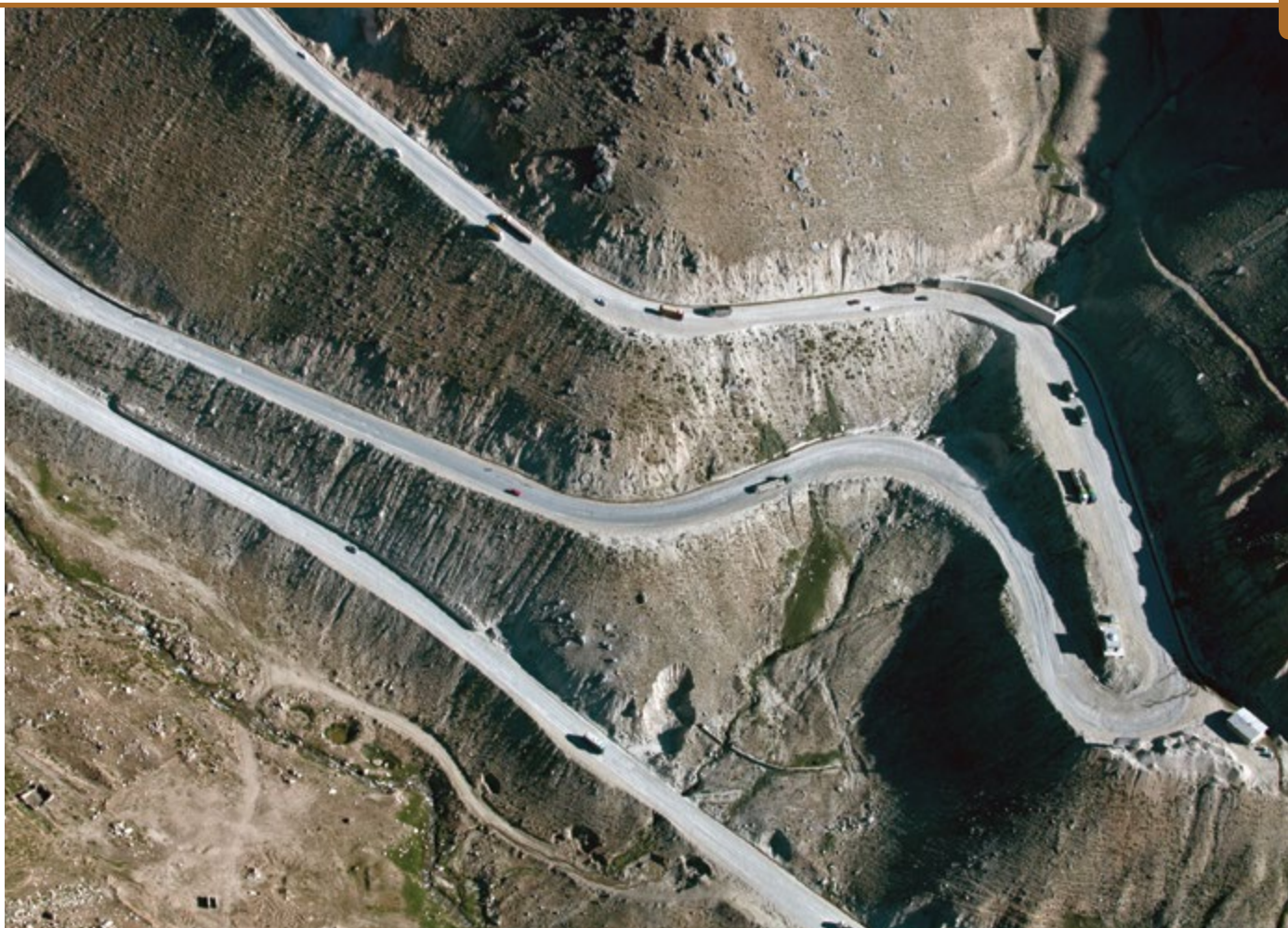
Freeport-McMoRan has instituted systems at its remote mining sites to turn waste into energy, which reduces the fuel needed, saves money and reduces the strain on the distribution network. The systems also provide the company with a responsible and safe manner in which to dispose of waste through the use of incinerators that cleanly burn used oil to produce energy. The Army can adopt this method to reduce the demand for resources at remote locations and improve combat power. In 2007, 50 percent of

all Army convoys were dedicated to the transportation of fuel. Reducing the amount of fuel required to sustain operations would result in cost savings, a more efficient supply chain, increased asset utilization, better operational flexibility and greater combat power.

The Army has operated many combat outposts in Iraq and Afghanistan over more than a decade of war, most located in remote areas next to small villages or town centers. Generators for operational power are mission-essential and are responsible for approximately 40 percent of remote base fuel consumption. Given the small quarters inside the combat outpost, efficient waste management is critical to both the health of the Soldiers on the post and the relationship with the local population.

Waste is collected in one location at these sites and burned, often with serious and lasting negative health consequences. Implementing a modular waste-to-energy incinerator would offer the Army a solution to both of these issues, enabling it to provide energy to remote locations just by burning trash. Incinerators have been shown to produce fewer air particulates than open-burn pits. Waste-to-energy

Combatant commands are charged with contingency planning, but commands often lack the continuity and resources required for a deep understanding of regional challenges. The Army requires a team of professionals dedicated to making contacts with local support options, navigating bureaucracy and learning from partnerships.



NO EASY JOURNEY

The Salang Pass through the Hindu Kush mountains has been called one of the most dangerous roads in the world but is the only route to a number of FOBs in Afghanistan. Reducing the need for supply convoys to traverse routes such as this, by reducing the demand for supplies, is an essential focus of making sustainment to remote locations more efficient. (Photo by SSG Michael K. Selvage, 10th Sustainment Brigade Public Affairs)

incinerators at remote locations would not only reduce the sites' logistics requirements and increase their operational flexibility but would also be safer for Soldiers.

Another problem is generator use. The Army is extremely inefficient in how it employs and operates them, and the consequences greatly hinder combat power. At Camp Leatherneck, a remote base in southern Afghanistan, the 5 megawatts (MW) of demand is met by 19 MW of capacity, with 196 generators running at 30 percent capacity and consuming 15,431 gallons of fuel per day. Operating

generators at 30 percent capacity results in "wet stacking," which occurs when a generator is run with a minimal load, causing the generator to use fuel more quickly and burn oil. It causes unnecessary wear and tear on the equipment, leading to more maintenance.

Fluor Corp., a major defense contractor, highlighted wet stacking as a major focus in striving to improve remote logistics support. Fluor's research showed that running the required number of generators at an 80 percent load factor would mean sending 2,000 fewer fuel tankers per year

to one FOB, reducing the number of convoys required, which improves combat power and saves lives. This practice is not more widespread in the Army because the Army lacks the appropriate command emphasis and does not properly deploy knowledgeable Soldiers to enforce how generators should be operated.

CONCLUSION

The Chairman of the Joint Chiefs of Staff, GEN Martin E. Dempsey, recently stated that "our force will be smaller, so it must be more agile, more lethal and postured to project power wherever needed." The



SHARING COMPONENTS

The Army's insistence on 90 percent commonality of parts for the JLTV family of vehicles, such as this one, is a major step in the right direction, the authors say, but they believe the Army could go much further and achieve commonality of parts between families of vehicles across the entire fleet. (Photo courtesy of Lockheed Martin Corp.)

path to achieve a more agile, lethal force capable of projecting power anywhere, anytime lies in creating logistics efficiencies.

Through the six supply chain efficiencies identified in research conducted through the MG James Wright MBA Fellowship Program, the Army will be able to decrease waste and delivery times, increase accuracy and asset utilization, and free up valuable funding that can be applied to increasing combat power.

This article first appeared in the March–April 2014 issue of Army Sustainment magazine, at <http://www.alu.army.millalog/currentissue.html>.

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Webster University, and a B.A. in economics from the United States Military Academy at West Point.

CPT ADAM G. BRADFORD is a special assistant in the Office of the Chief of Staff of the Army. He holds an MBA from the College of William and Mary and a B.A. in business administration from the University of Arkansas.

CPT TIMOTHY P. GIBBONS serves at the Combined Arms Support Command, Fort Lee, VA. He holds an MBA from the College of William and Mary and a B.A. in enterprise management technology from the University of Scranton.

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SCIENCE & TECHNOLOGY

SPOTLIGHT:

MS. CAROL D. HOLCOMB

Three decades, one program, countless rewards



MS. CAROL D. HOLCOMB

COMMAND/ORGANIZATION:

Joint Attack Munition Systems Project Office, Program Executive Office for Missiles and Space

TITLE:

Chief, Platform Integration and Launchers Division, Systems Engineering Directorate

YEARS OF SERVICE IN WORKFORCE: 26

EDUCATION:

M.S. in management, Florida Institute of Technology; B.S. in electrical engineering, University of Alabama in Huntsville

DAWIA CERTIFICATIONS:

Level III in test and evaluation, and in systems planning, research, development and engineering; Level I in program management

AWARDS:

Inadvertent Launch Investigation Special Act, Errant HELLFIRE Investigation Special Act

Carol Holcomb has worked for the Army for nearly 30 years, and has spent all of that time on one program. But don't confuse longevity with stagnation: She started as a college student and has worked in an alphabet soup of roles—including R&D, T&E and S&T (that's research and development, test and evaluation, and science and technology)—and is now chief of the Platform Integration and Launchers Division within the Systems Engineering Directorate at the Joint Attack Munition Systems (JAMS) Project Office.

Holcomb started at the U.S. Army Test and Evaluation Command as part of a co-op program, sparked by her father's 40-year Army career. Her work at the Program Executive Office for Missiles and Space (PEO MS) means that she's involved in the entire weapon system—missile, launcher and aircraft—and has seen some big changes over the past three decades.

"As a weapons integrator, one of the biggest changes I've noticed is in standardizing of the logical and functional interfaces," she said. "This change plays a huge part in reducing both software development and subsequent integration costs. Likewise, it makes integration onto additional launch platforms more streamlined and less painful. It promotes the reuse of components, which is

necessary for future acquisition to make weapons more cost-effective."

She added, "I have been remarkably fortunate in that I've been involved with one particular product throughout my entire career. It has been amazing participating and contributing to that system and seeing what goes into making that product successful."

What do you do, and why is it important to the Army or the warfighter?

We handle launcher development and engineering for all of JAMS' products, which range from small, guided munitions to multimode missiles. We are also responsible for integrating those weapons onto launchers and their respective launch platforms. We provide the warfighter with an integrated weapon system featuring the latest technologies and capabilities within the weapon's class.

How did you become part of the AL&T Workforce, and why?

I started working for the government as a co-operative education student at the Test and Evaluation Command. I was interested in working for the government at a very early age because my father worked for the Army for nearly 40 years. His work always seemed interesting and purposeful, so I wanted to contribute like he had.



AIMING HIGH

Holcomb sits in the cockpit of an AH-6 Little Bird helicopter, one of many diverse experiences she has sought out during the 26-year career that involves her in every phase of the weapon system. She advises new acquisition workforce members to gain experience in multiple career fields. "You can go as deep or as broad as you choose." (Photo courtesy of PEO MS)

What do you see as the most important points in your career with the Army AL&T Workforce, and why? Is there a program or opportunity you wish you had pursued but didn't?

The most important career move I've made is working in multiple career fields. I look at these moves as career-broadening experiences. I have been mentored at each of my jobs, and it has been invaluable. I have also been a mentor. I find that being a mentor helps me stay focused and grounded, and I learn a lot by seeing the system from a new perspective. The effect these moves have had on my career, and on me as a person, is that I've learned that we are all valuable in our own way. I've also learned that teamwork strengthens my skills, and I've forged friendships of a lifetime throughout my experiences.

I had an opportunity early in my career to do an 18-month fellowship at the College of William and Mary. I would have done research in the electronics engineering field while working on my master's degree in electrical engineering. I can't say I regret my decision, but if I were offered such opportunity again, I would certainly do my best to pursue it.

A fellowship is a wonderful opportunity to obtain an advanced degree while getting tangible experience.

What's the greatest satisfaction you have in being a part of the AL&T Workforce?

Working at the systems level, allowing me to participate in and contribute to the acquisition process from cradle to grave on a weapon system. The greatest satisfaction is being an integral part of weapon development and seeing it be successfully fielded and then successfully engage or suppress the enemy.

Acquisition is a very broad term encompassing a lot of different job specialties, with many career tools available to all of them. What advice would you give to someone who wants to get where you are today?

My advice for newcomers to the acquisition workforce is to get experience in multiple career fields. You can go as deep or as broad as you choose. I began in a T&E environment, testing single components and working my way up to testing systems. This was a great foundation

for me, because the item was already purchased and built, and I verified that it met the specification to which it was purchased. From there I moved into the R&D area, where I was more on the specification development and item design side. I led a couple of S&T programs, which allowed me to learn about what goes into getting something designed and ready to test. Now that I'm working in the programmatic aspect of a system, I work with users to turn a requirement into a fielded program of record.

What's something that most people don't know about your job? What surprises outsiders most when you tell them about your job?

Most people don't realize that a platform integrator must know and understand the interfaces to both the munition and missile and the aircraft and launch platform. Understanding the interface, interoperability and interaction of the entire system makes my job more enjoyable; I get to see the big picture and also play in the details. This job requires close contact with both industry and the user. Working directly with the combat developers to establish requirements is key in developing a weapon that is efficient and effective.

I think what surprises outsiders the most is how this job allows me to be part of the entire weapon system: missile, launcher and aircraft. I get to conceptualize, build prototype hardware and be part of the laboratory testing and range testing. I've had the pleasure of flying in the helicopter while the missile is being tested, provided the fire control solution for ground shots and investigated field situations. It's very satisfying to be able to work on the entire weapon system.

—MS. SUSAN L. FOLLETT

THINK DIFFERENT

One of the most important distinctions about innovation is that it focuses on doing something different instead of just doing something better. (U.S. Army photo)



Looking Back *to MOVE AHEAD*

Leveraging a decade spent learning hard lessons in Iraq and Afghanistan, CERDEC's Night Vision and Electronic Sensors Directorate is planning to bolster the Army's future technology investments by thinking different, failing fast and embracing change.

by Dr. Richard Nabors and Mr. Nathan Burkholder

Science and technology (S&T) initiatives historically have been seen as a primary support mechanism in helping to address long-term challenges that the U.S. Army will face from conventional military threats. However, as demonstrated in Iraq and Afghanistan, unconventional (asymmetric) threats, defined as those strategies and tactics employed by an often inferior force to offset their deficiencies and exploit weaknesses, continue to impact Army strategic land power, significantly raising the sustainment and life-cycle costs for military equipment.

The dynamic evolution of threats necessitates that conventional S&T acquisition development processes evolve as well. Therefore, preserving the Army's dominance for the next 20 years and beyond will require integrating the S&T innovation lessons learned from the past decade of rapidly addressing these asymmetrical threats.

The Communications-Electronics Research, Development and Engineering Center (CERDEC) Night Vision and Electronic Sensors Directorate (NVESD), based at Fort Belvoir, VA, is applying three overarching lessons learned on innovation from Operations Enduring and Iraqi Freedom (OEF and OIF) to its efforts in supporting the Army's future strategic land power investment strategy.



ROOT CAUSES

More than a decade of conflict in OEF and OIF have highlighted the importance of identifying first principles in innovating new technologies. (U.S. Army photo)

LESSON ONE: IDENTIFY FIRST PRINCIPLES

A significant lesson learned from the past decade of conflict is the importance of identifying the root causes behind the challenges—their first principles—in order to develop innovative technology solutions.

This importance of identifying first principles to enable innovation technology can be seen in Elon Musk's recent and revolutionary commercial advances at SpaceX and Tesla. In a January 2015 Business Insider interview, Musk said, "I think it's important to reason from first principles rather than by analogy. The normal way we conduct our lives is we reason by analogy. [With analogy] we are doing this because it's like something else that was done, or it is like what other people are doing. [With first principles] you boil things down to the most fundamental truths ... and then reason up from there."

Instead of looking at what everyone else was doing, SpaceX used the first-principles approach—and questioned conventional wisdom—to determine what exactly a rocket needed for its material construction. And in doing so, determined that it could build rockets at 2 percent of the cost of what everyone accepted as normal, a truly revolutionary innovation. SpaceX did this by focusing on creative, abductive thinking—looking for the most direct explanation—which promoted imagining the possible. This point of view takes much more mental energy to develop from scratch and question historical premises. Most typical organizations, including rocket manufacturers, develop technology based on inductive and deductive thinking, which is tied to past evidence and logical extrapolation and results in small incremental improvements. With first-principle thinking, SpaceX was able to innovate in clear leaps by going back to the fundamental questions affecting space travel: what needs to be accomplished,

what is the real problem, what really matters to the end user.

In the case of strategic land power, the rapidly changing nature of the asymmetrical threats faced in OEF and OIF provided unique challenges for the Army to address. Many of the long-term, lifesaving technical achievements developed during those conflicts came from the Army laboratories and research centers that applied the method of first principles to look beyond the symptoms of the challenges into their fundamental elements.

Building on the demonstrated success of innovations such as airborne change detection, hyperspectral imaging and advanced ground-based radars, it is important for the Army to continue to apply resources and energy to the remaining strategic land power asymmetrical challenges, such as detecting explosive hazards in high clutter environments at much faster operational tempos to ensure future dominance and the safety of our warfighters. Doing so will continue to give the S&T community opportunities to provide effective and efficient materiel solutions with long-lasting effects.

LESSON 2: INJECT ORTHOGONAL THINKING

One of the most important distinctions about innovation is that rather than supporting the ability to "do something better," which is more akin to incremental improvements, innovation focuses on "doing something different." Orthogonal thinking is a catalyst for innovation and occurs when a problem is approached from a completely new angle. Orthogonal thinking implies a fresh, new perspective often provided from those not involved with what would be considered the traditional fields of study associated with the problem.

From 2007 to 2010, innovation flourished for the detection, neutralization and mitigation of asymmetric threats for ground-based platforms. This was the result, in large part, to organizations such as the Joint Improvised Explosive Device (IED) Defeat Organization and the Army's Counter IED Task Force, led by CERDEC NVESD, which successfully adapted new processes for integrating innovative short and midterm initiatives into field-ready capabilities. These organizations explored the use of new outreach platforms, such as industry days, workshops and online forums, to engage in dialog with industry, academia and international research organizations to provide opportunities for injecting orthogonal thinking into the development process.

Additionally, the asymmetrical threats in Afghanistan and Iraq led to a positive byproduct in unifying the military and federal S&T enterprise in examining internal areas of research that could be applied in new ways against a unique threat. Engineers and scientists explored opportunities to look outside the traditional development cycles that bounded their thinking and discovered orthogonal applications and cross-domain solutions. This created opportunities for S&T investments

By taking a fresh look at the fundamentals, NVESD was able to identify new opportunities for exploring cost-effective innovations.



THREAT RESPONSE

The dynamic evolution of threats necessitates that conventional S&T acquisition development processes evolve as well. CERDEC is applying three overarching innovation lessons from OEF and OIF to its efforts in supporting the Army's future strategic land power investment strategy. (U.S. Army photo)

in one area to find multiple applications; and created dual-use capabilities, which improved the overall cost-effectiveness of S&T exploratory investments across the federal enterprise. For example, microwave research by the Air Force for crowd control applications influenced the development of vehicle-based directed-energy systems that initiated IEDs used by the Army and Marine Corps. In another example, portal screening research by the Army, the Department of Homeland Security and the Transportation Security Administration directly influenced military checkpoints and suicide bomber detection systems deployed throughout Iraq and Afghanistan.

LESSON 3: WILLINGNESS TO CHANGE

By definition, innovation creates organizational conflict. A disruptive new idea struggles to gain a foothold because it challenges convention. The military conflicts of OIF and OEF demonstrated

that those organizations that could positively and rapidly embrace change were at a significant advantage in meeting the unique challenges associated with asymmetric warfare.

Asymmetric warfare allowed the enemy to adapt quickly to address the technological and military advantages held by U.S. forces and their allies. They embraced the "fail fast" approach often used in software development, which resulted in resilient organizations that were tolerant of failures and adjusted quickly to minimize the impact and cost of flawed processes and methods.

This unique threat to the conventional strength of the U.S. military encouraged the DOD acquisition community to embrace aspects of this fail-fast philosophy out of necessity to adapt to an ever-changing adversary. New organizations such as the Rapid Equipping Force were formed—going to far as to include

the qualifier “rapid” right in their name. This approach of embracing rapid change can, at times, create natural tensions between maintaining core competencies within conventional approaches and quickly adapting to a changing environment. What OEF and OIF taught us is the importance for the Army S&T community to be able to do both of these things to ensure long-term success. Army S&T must maintain core competencies in key areas to preserve conventional overmatch strength but also must be able to have portions of their organization unencumbered to quickly adapt to the rapidly changing, fail-fast approach used in asymmetric warfare.

PULLING IT ALL TOGETHER

NVESD is actively working to apply these three lessons to create an innovation-rich

environment to support the Army’s efforts in addressing strategic land power initiatives such as the unconventional uses of explosive hazards to counter U.S. military superiority. One example of an innovation activity is a crowdsourcing initiative completed in 2014 that NVESD executed for the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology in partnership with the Counter Terrorism Technical Support Office headed by the Assistant Secretary of Defense for Special Operations/Low-Intensity Conflict.

This effort leveraged InnoCentive, a crowdsourcing company that accepts “challenge problems” in a range of technical areas and gives cash awards for the best solutions to solvers who meet the challenge criteria. NVESD executed two challenges

focused on detecting in-road explosive hazards as well as explosively formed penetrators. This initiative used all three of the lessons learned identified above: establish first principles, inject orthogonal thinking and demonstrate willingness to change.

To begin, NVESD organized a multi-laboratory team to distill the fundamental core elements that characterize these long-term challenges for asymmetric threats. In doing so, NVESD identified that, at a root level, one of the main challenges was in being able to detect and characterize man-made objects from the natural environment. Using this first-principles approach, NVESD discovered similarities between the Army’s military problem and challenges facing the commercial autonomous vehicle industry. Similar to SpaceX’s experience, by taking a fresh look at the fundamentals, NVESD was able to identify new opportunities for exploring cost-effective innovations.

This iterative process took several weeks to complete and was critical to ensuring a sound foundation upon which to build the prize-based challenges—in essence, it made sure that the Army generated external innovation in response to the right questions. Narrowly defined problem statements may result in too few responses by unintentionally forcing “solvers” toward a subjective viewpoint regarding the nature of the solution. Similar risks also apply to problem statements that are too broad. Careful work was required at the start to identify those portions of the overall problem that were most appropriate and suited for this process.

NVESD broke down the problems into their first principles and posted them on InnoCentive in a manner that obfuscated their source and was devoid of their military context. This helped NVESD ensure the widest possible dissemination of the



CONFLICT ZONE

Innovation, by definition, creates organizational conflict because it challenges convention. The military conflicts of the past 13 years exemplified how those organizations that could positively and rapidly embrace change provided significant advantages for themselves. (U.S. Army photo)

challenges to a nontraditional audience of more than 300,000 solvers from more than 200 countries. Through InnoCentive's strategic partnerships with organizations such as The Economist, Nature Publishing Group and Scientific American magazine, challenges posted have the potential to reach more than 13 million individuals worldwide. This diverse body of potential solvers from across many different disciplines enabled NVESD to inject orthogonal thinking from outside of the traditional military development communities into their organization.

InnoCentive documented and provided to NVESD more than 82 solutions in response to the challenge posting, with five of the solutions awarded prizes ranging from \$2,000 to \$7,000. Awarded ideas came from as far as New Zealand and India. These ideas provided NVESD with completely new sensor approaches to explore, such as a fast-pulse, high energy X-rays coupled with gamma-ray LIDAR [light detection and ranging] for faster detection of explosives hazards at stand-off, as well as new ideas for using fractal analysis algorithm techniques for identification of man-made objects from natural, organic backgrounds.

The final lesson, a willingness to change, can be seen in how NVESD is embracing a culture of exploration and introducing the Army to even larger numbers of nontraditional sources of technical excellence. The use of prize-based challenges is just one part of their larger strategic approach, which includes other initiatives such as technology wargaming, horizon scanning and new in-house efforts designed to promote discovery events for new hires who are bringing fresh eyes to old challenges. These help to inject new thinking and innovation opportunities into an organization with a history of excellence in developing advanced sensors



CACHE AND CARRY

OEF and OIF have encouraged the acquisition community to embrace the philosophy of adapting and changing; both are necessary to ensure the future success of Soldiers against hybrid and asymmetric threats. (U.S. Army photo)

and technologies in support of some of the Army's hardest challenges.

CONCLUSION

In order to continue to provide world-class capabilities in 2025 and beyond, the Army must be open to new approaches while still maintaining the core technical competencies that are foundational to the military overmatch relied on today.

The lessons learned from OEF and OIF are helping CERDEC NVESD and the Army at large to embrace innovation, be open to change and to take a fresh look at the best technical approach to long-term challenges. Following years of expensive conflict overseas, the U.S. military needs its own innovators, like Elon Musk, that can help find creative, cost-effective solutions to the asymmetrical challenges still remaining and shape the direction for S&T investments into the future. Organizations like CERDEC NVESD are working to instill these lessons learned to create the environment in which new

ideas can be explored, matured and transitioned into formal acquisition programs for strategic land power dominance into 2025 and beyond.

For more information, contact CERDEC Public Affairs at 443-861-7566 or usarmy.apg.cerdec.mail.cerdec@mail.mil.

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npi

LIFESAVING POSSIBILITIES

USAMRMC's New Products and Ideas website encourages vendors to submit ideas on innovations that can improve prevention and treatment for the warfighter. Now in its ninth year and with a major update in the works, the website is constantly evolving to reflect lessons learned in how best to manage the development of ideas.

by LTC Felicia D. Langel, Ms. Amanda Cecil and Ms. Jean M. Shinbur



JOINT BENEFIT

A flight medic with the 2nd Battalion, 3rd Aviation Regiment hooks a hoist to an evacuation device called a jungle penetrator, which will lift two 24th Marine Expeditionary Unit Marines to a hovering helicopter during a casualty evacuation exercise Feb. 5 near Camp Buehring, Kuwait. The technologies introduced to military use through NPI have the potential to benefit all the services. (Minnesota Army National Guard photo by SPC Jess Nemec)

Some of the best product ideas originate outside the government, which is why acquisition personnel at the U.S. Army Medical Research and Materiel Command (USAMRMC) stood up the New Products and Ideas (NPI) website at <http://mrmc-npi.amedd.army.mil> to learn about innovations developed by commercial vendors that the Army could adopt to assist the warfighter.

Since 2006, this website has collected and channeled more than 1,250 fresh ideas in areas as wide-ranging as combat casualty care, military operational medicine, medical chemical and biological defense and clinical and rehabilitative medicine. When news coverage of the Ebola outbreak sparked a tremendous response from vendors interested in collaborating with the Army to help curb the spread of the disease, the NPI team received 26 proposals for a variety of countermeasures, and USAMRMC was poised to assist Army Medicine with the influx of submissions.

Along the way, the command has learned several lessons that it is translating into site and process improvements that will make the NPI a faster, smarter and more user-friendly system. These include leveraging existing partnerships, introducing new system features and changing how work is assigned. USAMRMC will fold these enhancements into a next-generation system that it expects to release later this year.

NUTS AND BOLTS

Users submit a product concept through the NPI site by first creating an online account. The system then prompts users to provide detailed information about their product or idea and its relevance to the military, following a simple two-step, password-protected process.

The NPI site alerts the appropriate subject-matter experts (SMEs) at USAMRMC, who then review the submission and evaluate its



WEB DEMO

LTC Felicia D. Langel, director of USAMRMC's SPO, reviews the NPI website with the website administrator Amanda Cecil, center, and team member Jean M. Shinbur. The NPI site allows SMEs at the USAMRMC to access innovative ideas submitted by vendors and evaluate their applicability to its mission. Vendors, in turn, can submit their products using a two-step, password-protected process. (Photo by Heather McDowell Duong, USAMRMC Public Affairs)

applicability to the mission. Participating businesses receive feedback on USAMRMC's interest in their submissions, usually in 60 days or less.

The USAMRMC's contracting element, the U.S. Army Medical Research Acquisition Activity, launched NPI in December 2006. The objective was to provide a starting point for individuals who wished to present ideas or products but weren't sure how to "crack the code" and formally collaborate with DOD. At the same time, technical experts were feeling inundated with requests for meetings with vendors to discuss products and were looking for a way to learn about new technologies in a fair and equitable way.

Because the site was geared toward fostering promising ideas and basic research rather than serving as a contracting tool, the USAMRMC's Strategic Partnerships Office (SPO) assumed its management in 2011. NPI has helped introduce new medical tools that are now in use in the field, and the staff is continuing to make administrative and technical improvements to

eliminate redundancies, streamline the review process and make the system more user-friendly.

GREASING THE SKIDS

Successful operation of the NPI website involves close coordination between vendors and product evaluators. A technically diverse cadre of approximately 30 SMEs reviews submissions. They include command personnel such as project managers, nurse consultants, program analysts and biomedical engineers, who assume this role in addition to their day-to-day responsibilities.

Reviewers provide formal feedback, referred to as dispositions, on each submission. In their dispositions, they provide insight and detail into whether a product meets their needs and, if not, why. If a product could prove useful with modifications, they provide that input. Then they direct vendors to the resources they should explore to apply for funding to further explore the idea or develop the product, such as through a broad agency announcement, program announcement or solicitation.

“What I look for in an NPI is a technology that can fill a current capability gap or can improve the performance of an existing capability,” said NPI SME Teal LaRocca, a program analyst with the U.S. Army Medical Materiel Development Activity. “A request for information from a theater of operation was sent to us for the research, development and materiel acquisition of a lightweight dismounted litter. An NPI was submitted for such a device and is now being evaluated under a solicited proposal.”

Throughout the years, users have presented product concepts from the mundane to the unusual—including an idea for camouflage toilet paper. Each submission is carefully reviewed by a qualified product evaluator. Novel ideas for litters, dental equipment and various combat kits are among the 140 products and ideas submitted in 2014.

Items introduced through the NPI site and currently in use by the military include an adjustable, coiled IV tubing design fielded to support combat medics and a single-use drainage line stripper fielded to intensive care units to simplify the cumbersome emptying of drainage lines.

Site users historically have consisted of representatives from industry or the nonprofit community. Most users are unfamiliar with DOD’s acquisition process, and many have a unique idea but don’t know where to turn for funding. Commercial vendors frequently have a product that they want to bring to the command’s attention or are looking for feedback on how an existing item can be modified to support DOD efforts.

SPO staff grease the skids of these many moving parts. They ensure that reviewers have proper training on the assessment



ENHANCING COMBAT CASUALTY CARE

Wisconsin Army National Guard combat medics perform lifesaving stabilizing procedures on battle-damaged mannequins during a two-day U.S. Army Medical Department (AMEDD) training session at Fort McCoy, WI. Combat casualty care is one of many wide-ranging areas in which the NPI site has collected and channeled more than 1,250 fresh ideas since its inception in 2006; other areas include military operational medicine, medical chemical and biological defense and clinical and rehabilitative medicine. (Wisconsin National Guard photo by 1SG Vaughn R. Larson)

The NPI site serves as a one-stop shop for leaders from USAMRMC to view new and exciting ideas generated outside the government.

Throughout the years, users have presented product concepts from the mundane to the unusual—including an idea for camouflage toilet paper. Each submission is carefully reviewed by a qualified product evaluator.

process, maintain the NPI site and serve as a go-between for the vendors and reviewers as needed. Should the team receive a promising concept outside the program reviewers' expertise, SPO staff will look across and outside the command for assistance.

The SPO's participation in on-site medical materiel trade shows positions the command well to connect product developers with medical acquisition representatives. Vendor days provide the services' medical logistics agencies with strategic market analysis of products and technologies that may be well-suited to austere medical environments. SPO staff often invite NPI users to attend a Vendor Day event or discuss the benefits of the NPI website with session participants.

PLANS FOR NPI 2.0

As with any product, there is always room for improvement. Site administrators conducted a focus group in spring 2013 to identify ways they could improve both the site and the submission process.

The SPO maintains a close working relationship with the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE), which became a part of USAMRMC in 2013. The DCoE is charged with working to improve the lives of service members,

families and veterans by advancing excellence in psychological health and prevention of traumatic brain injury and care. It maintains a website similar to the NPI called the DCoE Concept Submission Program (CSP). During focus group discussions attended by DCoE staff, participants worked to integrate the CSP into NPI, creating a more inclusive site to reflect USAMRMC's expanded missions.

Perhaps one of the most important system upgrades that staff identified is giving reviewers greater flexibility in generating the dispositions they send to vendors regarding their product or idea. While the current system gives reviewers a selection of automated responses they can send to vendors, they can't easily customize their input.

The new system will also include a searchable archive of submissions, giving acquisition personnel access to nearly a decade of product concepts. Other updates include a mouse-over feature that will provide contextual help and a more robust method for capturing success stories. The new site will also incorporate Google Analytics, giving administrators insight into how visitors are using the tool.

Some other added site features will focus on the workflow itself—for example, how

user input is entered and then routed to SMEs. As users complete fields, the website prompts them to select categories describing their idea or innovation from drop-down lists. Administrators noticed that users sometimes failed to understand category nomenclature and would misfile their items. This, in turn, would delay review of the product by the appropriate specialist. To remedy this problem, staff developed a triage function that helps users more accurately determine who should evaluate their submission.

Reviewers who fail to see a use for a product often refer the item to a teammate for consideration. In the past, the NPI did not capture the rationale for redirecting a product. However, NPI 2.0 will prompt reviewers to elaborate on why they are referring the item. This functionality will provide the next reviewer added detail that can make the next assessment more efficient. Similarly, submissions in the past could only be routed to one research area at a time. Now they can be routed to multiple areas simultaneously, further reducing review times.

Another workflow enhancement is the integration of questions at various phases throughout the submission process, surveying participants about their experience. The team plans to use this feedback to continue advancing the tool.

Working closely with USAMRMC's Information Management Office, the SPO will launch a beta site in spring 2015. Representatives within the user community and program partners will test the updated site and identify any system glitches or workflow adjustments.

The office is also forming an NPI governance committee to oversee contextual changes to the site. As proposed modifications arise, such as adding a new

research category, a team of experts will make the decision, as opposed to one office.

CONCLUSION

The NPI site serves as a one-stop shop for leaders from USAMRMC to view new and exciting ideas generated outside the government. Instead of spending valuable time responding to promising yet fragmented pitches from vendors, USAMRMC leadership can refer prospective partners to the site. In turn, the site guides vendors through a step-by-step process to identify how their product or idea can serve the nation's armed forces.

Vendors receive coaching from real experts in the field, along with thoughtful, specific input that saves them investment dollars and time. Lastly and most importantly, the site ensures that no stone is left unturned in developing new and innovative products that will help protect the men and women of the U.S. military.

For more information, see the "Guide to Working with the U.S. Army Medical Research and Materiel Command – USAMRMC," available at <https://mrmc.amedd.army.mil/index.cfm?pageid=work.overview>; click on "Work with us" in the column at left. Or contact the NPI Team at usarmy.detrick.medcom-usamrmc.other.npi@mail.mil.

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HEALTH CARE MADE SIMPLER

The Tube-Evac, introduced to military use through the NPI site, is a single-use drainage line stripper for surgical lines that rolls easily down tubing and pushes fluid and other material into a collection bulb. This innovation simplifies the cumbersome emptying of drainage lines. (Photo by Heather McDowell Duong, USAMRMC Public Affairs)

ONE SYSTEM, MANY PLATFORMS

The FACE consortium was created roughly five years ago to enhance interoperability and software portability for avionics software used across DOD platforms. Under FACE, a system on this AH-64E Apache, shown here with an MQ-1C Gray Eagle during testing at Dugway Proving Grounds in Salt Lake City, UT, could be built by one company and used on all platforms that subscribe to the open architecture approach that FACE promotes. (Photo by the Project Office for Unmanned Aircraft Systems)



ABOUT 'FACE'

PEO Aviation teams with NAVAIR, industry and academia to standardize architecture and open up avionics software development. These new standards cut costs and lead time, and offer a path forward for other programs and industries to emulate.

by Mr. Terry Carlson

Aviation platforms supporting troops across the services are complex, software-intensive and expensive. That's why the Program Executive Office (PEO) for Aviation and the U.S. Navy Naval Air Systems Command (NAVAIR) embarked on a collaboration with The Open Group to develop a technical architecture, standards and a business model to support development of avionics software. The Open Group created the Future Airborne Capability Environment (FACE) consortium in 2010 to enhance interoperability and software portability for avionics software used across DOD platforms. The Open Group is an independent, global consortium with more than 400 member organizations, whose goal is to achieve business objectives through information technology standards.

The consortium is working to enable the federal government to insert capabilities at lower implementation costs while affording industry the opportunity to reach more platforms with their solutions, such as a common data loader capability for Army and Navy helicopters and Navy jets. On the horizon are solutions in design for terrain avoidance as well as digital mapping capabilities.

FACE-ING PAST FAILURES

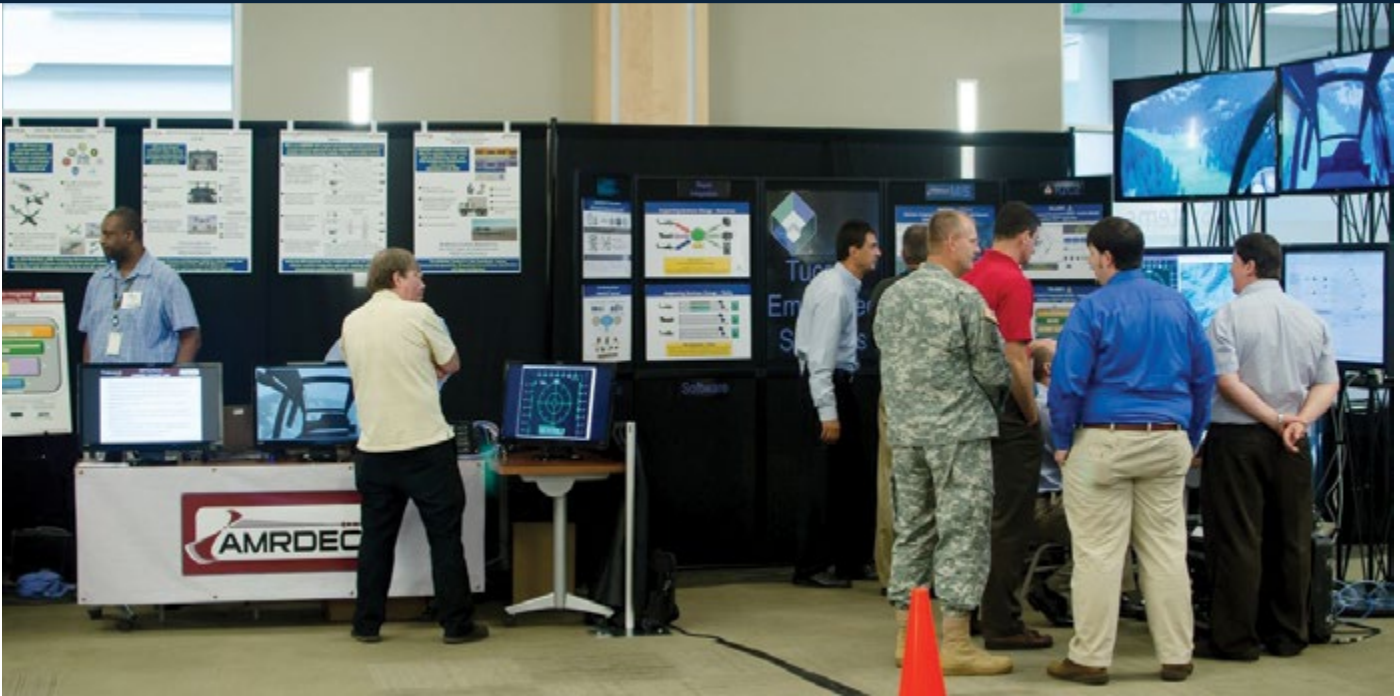
Single-vendor projects with long lead-time development cycles have no place in today's climate of rapid technological advances,

and don't help DOD cut spending. Reducing barriers to competition and opening opportunities to build capabilities that support more than one platform will accelerate development, reduce test time and cost and allow for more rapid deployment to meet aviation forces' urgent needs. The FACE consortium is working with contracting subject-matter experts from industry and government to model contract language that can ensure clear articulation of FACE standards.

This effort, coupled with clear definitions of what will be considered "FACE-conformant" and how to identify the reuse of existing conformant software articles, will break down barriers that make it difficult for service components to accept capabilities developed for other platforms—for example, stovepiped, proprietary products and solutions offered by industry.

FACE was born of a combination of need and lessons learned from several unsuccessful DOD and Army attempts at creating standardized architectures, such as the System of Systems Common Operating Environment, the Defense Infrastructure Information/Common Operating Environment and the Weapons System Technical Architecture Working Group.

These attempts failed to gain traction because they did not sufficiently address critical areas such as contracting, schedules and adverse effects on the business end of programs. Recognizing



THE FACE OF PROGRESS

Current FACE membership includes more than 75 companies and 800-plus individuals. The Open Group manages a number of consortia around the globe, and its leadership has noted that the FACE consortium has produced the most relevant and significant work in the shortest amount of time in comparison to other consortia under their purview. (Photo courtesy of PEO Aviation)

UNDERSTANDING THE OPEN APPROACH

A key to success for the consortium was to approach FACE standards development using industry best practices and avoiding standards that already exist in some form. This led to use of the modular open systems approach (MOSA) and open architecture (OA) as the foundation for the FACE architecture.

There are five principles of MOSA:

1. Establish an enabling environment.
2. Employ a modular design.
3. Designate key interfaces.
4. Make use of open standards.
5. Certify conformance to the design, interface and standards.

There are many definitions of open architecture, but the Defense Acquisition University website's version applies to FACE: "A type of architecture whose specifications are made public by its designers which allows users to make modifications to various components."

The emphasis in this software environment is on portability across platforms via standards for operating systems, programming languages and interfaces for distributed communications.

OA for software development improves interoperability, enables greater interface reuse and reduces integration costs by using a consensus-based approach. A simple majority vote is required for adoption. Interface, in this case, means the connections that provide for communication between modules developed or integrated to create a capability. Using a standards-based OA promotes a "build once, use many" environment, which helps to ensure use of the same formats regardless of the number of hands involved in building the components that create capabilities. For example, the ability to copy text in one application and paste it into another would not be possible without a standards-based environment.

these impacts, the consortium developed contracting guidelines and a complementary business architecture to reduce the risk of migrating to the FACE standard.

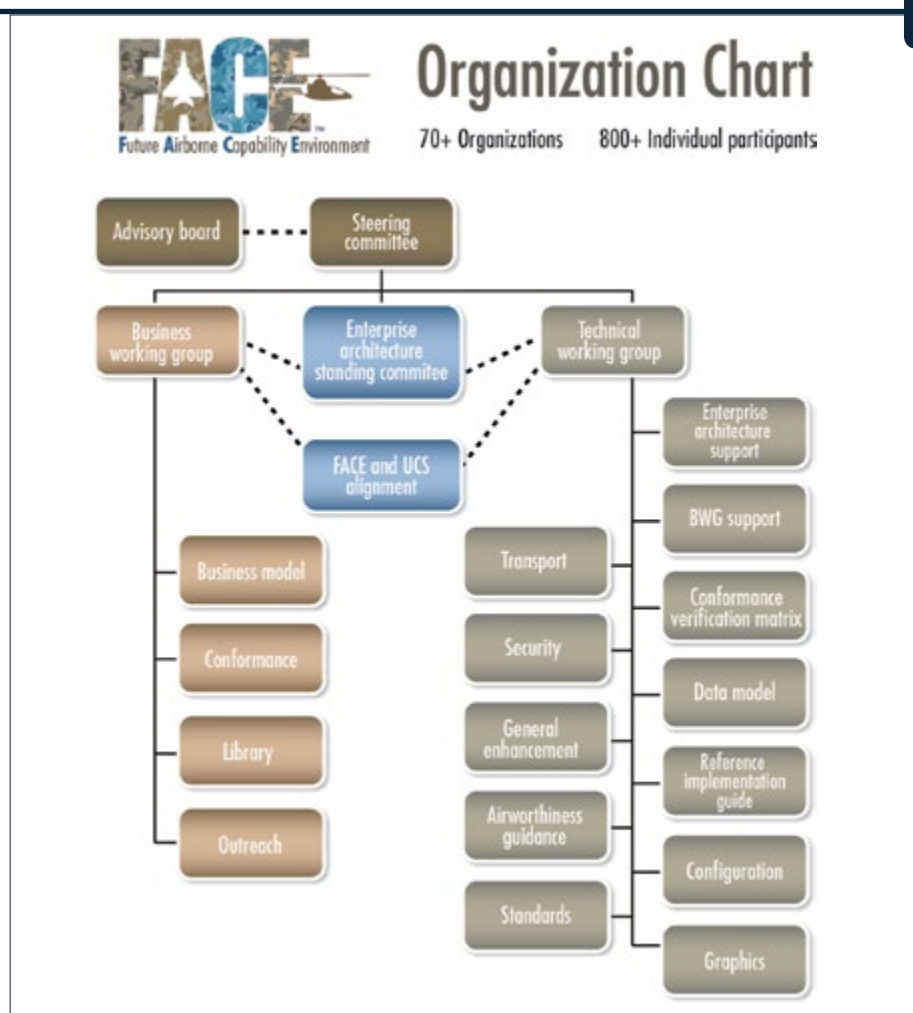
Past failures resulted from trying to employ a one-size-fits-all technical solution via a constrained, schedule-driven approach that mandated that all systems had to come together at the same time to test as a Common Operating Environment (COE)-ready capability set, without regard to the impacts on individual program costs, schedule and risk. That meant more work for program offices to determine how to obtain waivers from commonality, or to develop prohibitive cost models that would prevent them from meeting the unfunded requirement for commonality.

The PEO Aviation team's timing in joining the FACE consortium was nearly perfect, as the team was confronting the challenge of developing a plan to meet the Army's mandate to migrate to a common operating environment. The COE, managed by the System of System Engineering and Integration (SOSE&I) Directorate in the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology, is aimed at developing a more agile, rapid and cost-effective process of fielding capabilities to the Soldier.

ENABLING INTEGRATION

SOSE&I identified six unique computing environments (CEs): command post; mobile handheld; mounted; sensors; data center/cloud; and real time, safety critical and embedded (RTSCE). As the Army's lead for the RTSCE CE, PEO Aviation quickly realized the value that FACE would bring as one of the four real-time integration framework (RTIF) enablers.

The eight project offices within PEO Aviation represent more than 50 member



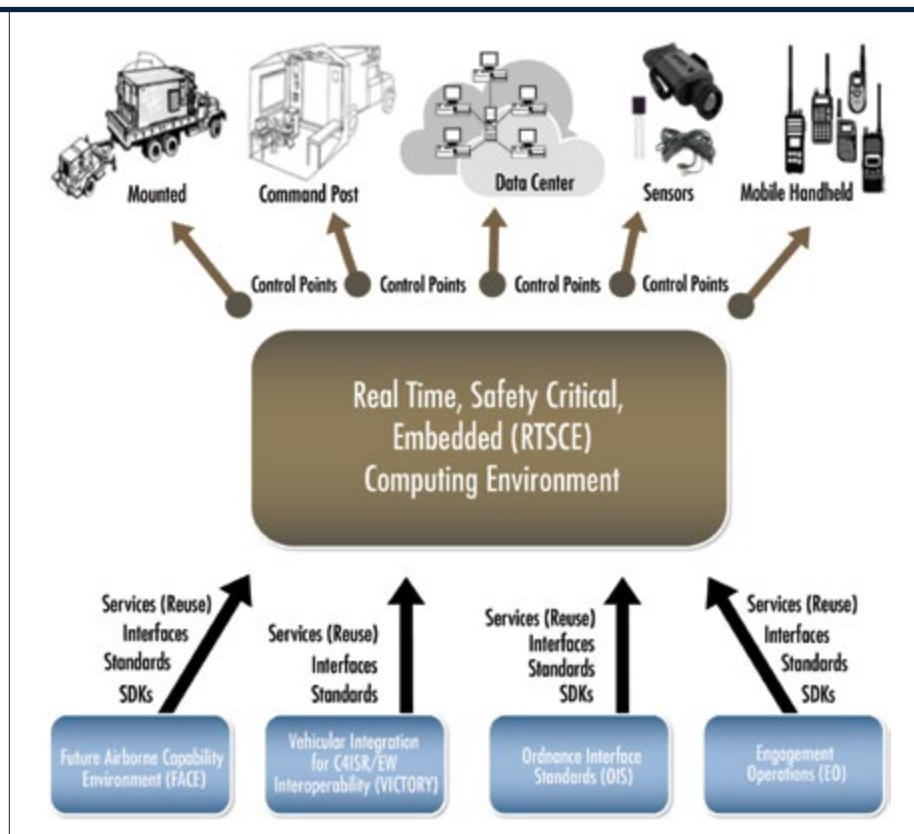
THE STRUCTURE OF COLLABORATION

The FACE advisory board consists of senior representatives from the Army, Navy, industry and academia. The board advises the steering committee, which sets the direction for the consortium and works with The Open Group to manage the working groups and subcommittees. (Image courtesy of PEO Aviation)

systems in the RTSCE CE, including ground vehicles to sensors, smart munitions, missiles, training systems and helicopters with unique mission requirements. The team identified the distinctive requirements of these systems and determined that a standards-based approach would be necessary.

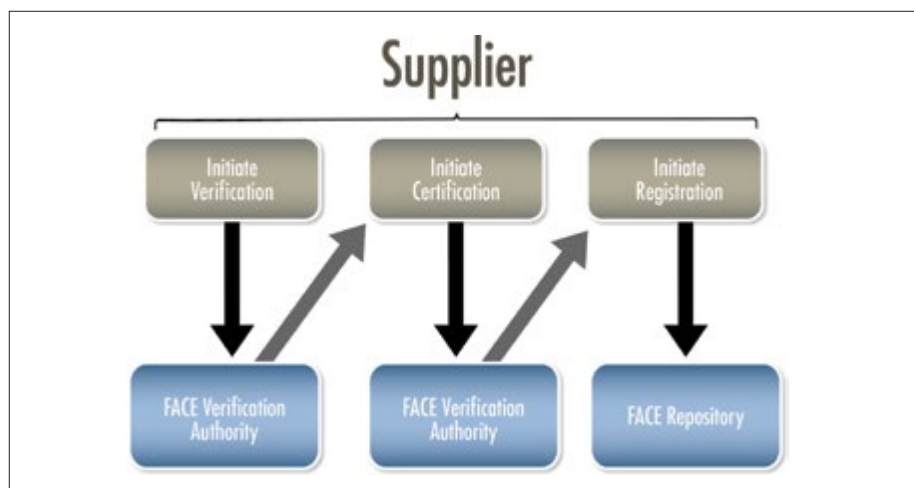
The group created the FACE RTIF enablers with the mandate that they focus on (1) standards, (2) open architectures, (3) software development kits and, most importantly, (4) a "do-no-harm" approach to building the RTSCE COE. This approach emphasizes

integration of the COE based on each program's scheduled upgrades, enhancements and modifications to current platforms or systems. Previous attempts to introduce common architectures also introduced significant cost and schedule risks that prompted program offices either to ignore the commonality mandate or to obtain waivers for exemption. FACE standards provide the foundation that meets the first three mandates, and PEO Aviation's approach of incorporating FACE-based capabilities in program modernization, upgrades and new starts rounds out the fourth.



MAKING INTEGRATION EASY

Each of the four RTIF enablers shown here focuses on bringing common standards and open architecture to the environments they support. PEO Aviation, as the Army's lead for the RTSCE CE, is looking for opportunities to bring these enablers together in areas where a single set of standards can be applied without harming the balance that each of the standards bring within each individual environment. (Image courtesy of PEO Aviation)



THE PATH TO CONFORMANCE

After developing and testing an application with the FACE test suite, a provider can submit it to an approved VA to conduct conformance testing. Once verification is complete, The Open Group issues the product a FACE-conformance seal and includes it in the FACE repository. (Image courtesy of PEO Aviation)

NAVAIR and PEO Aviation teams are working with the members from Georgia Tech and Vanderbilt to build software development kits and conformance test tools that will be made available to any organization developing FACE-conformant products. The consortium has identified a two-step process for allowing a product to carry the FACE conformance seal, which will provide buyers with proof that the product is built to a set of standards and can be integrated into their architecture.

After a provider has developed and tested an application using the test suite available from the FACE consortium, the provider can submit the product and artifacts to an approved verification authority (VA) to conduct conformance testing. The U.S. Army Aviation and Missile Research, Engineering and Development Center at Redstone Arsenal, AL, was the first VA approved, followed by two others: the Navy's NAVAIR 5.4.3.7 Verification and Validation Branch and Tucson Embedded Systems. Other consortium members are expected to apply to become approved VAs as the FACE standards become more commonly implemented.

As VAs complete verification, The Open Group will validate the results, issue the product a FACE-conformance seal and include it in the FACE repository. Program managers will be able to acquire FACE-conformant products from the repository to reuse on their platforms, or access the FACE library to download documentation that will help them develop contracts, statements of work or requests for proposals to develop FACE-conformant products.

CONCLUSION

The FACE consortium is looking at automotive industry organizations that have succeeded in developing common

architectures and standards, to determine where expansion to other industries is practical. Such expansion will open doors for the industry participants' products and help the government drive down unit costs for these products.

In the past four years, the overall progress for establishing the consortium and putting out versions 1, 2 and 2.1 of the FACE technical standard along with the associated products on the business side, such as the Business Guide and the Contracts Guide, has been tremendously successful when compared to similar consortia efforts. The Open Group manages

a number of consortia around the globe, and its leadership has noted that the FACE consortium has produced the most relevant and significant work in the shortest amount of time in comparison to other consortia under their purview. This underscores the value that industry and government have placed on working together to bring the most capability, in the shortest time, at the lowest cost to the Soldier—and to do so in a collaborative environment that benefits all involved.

For more information, contact the author at (256) 955-0596 or terance.f.carlson.civ@mail.mil.

To learn more about FACE, go to <http://www.opengroup.org/face>. User registration is at <https://www.opengroup.us/face/register.php>.

MR. TERRY CARLSON is the chief information officer/G6 and assistant program executive officer for information management in PEO Aviation. He has a master's degree in management from Florida Institute of Technology and a B.S. in computer science from Athens State University. He is Level III certified in program management and information technology.

CONSORTIUM STRUCTURE

The FACE consortium has five sponsor organizations: NAVAIR, PEO Aviation and representatives from Boeing Co., Lockheed Martin Corp. and Rockwell Collins. Current membership includes more than 75 companies and 800-plus individuals. (For a complete list of current participating organizations, go to <http://opengroup.org/face/member-list>.) Two academic institutions, the Georgia Tech Research Institute and Vanderbilt University's Institute for Software Integrated Systems, also participate in the consortium.

The FACE advisory board consists of senior representatives from the Army and Navy as well as a few select individuals from industry and academia. The board provides guidance on goals and advises the steering committee, which is elected by members. Two major working groups meet frequently to develop technical and business standards.

The steering committee sets the direction for the consortium, working closely with The Open Group to manage the working groups and subcommittees. The Technical Working Group (TWG) comprises several subgroups charged with developing the enterprise architecture, standards, data model, conformance verification, implementation guide, security specifications, airworthiness requirements and transport layer protocols (Ethernet, 1553, data distribution service and others). Each subcommittee's volunteer members develop the products and present them to the TWG for review and

concurrence. The package is then presented to the entire FACE consortium membership to give them an opportunity to comment and have their concerns addressed. After a review period, the consortium members vote on the products for consensus approval and incorporate them into the FACE standards.

The Business Working Group (BWG) functions in the same manner. It includes four major subgroups, which address the business model, conformance, library and outreach. The outreach subcommittee works to inform industry and government organizations that could benefit from participation in the consortium, and develops and maintains the education component presented to new and potential members at the in-person meetings. Other subcommittees or working groups form as necessary to address specific areas that the advisory board or steering committee identifies as potentially benefiting the consortium.

The TWG currently has a FACE and unmanned aircraft systems control segment (UCS) working group focused on exploring the potential synergies of the FACE and UCS standards. The goal is to determine if the UCS standards are compatible for inclusion in the FACE architecture. Another TWG sub-working group is looking at the impacts of FACE on the airworthiness and safety of flight requirements for DOD aviation platforms.

NO LAUNDRY NECESSARY?

SPC Cameron Gary and PVT Neil Smith, 91st Engineer Battalion, 1st Armored Brigade Combat Team (BCT), 1st Cavalry Division, march through rain, mud and low temperatures to the obstacle course—the final challenge—during the 10-mile “Saber Challenge,” held Jan. 22 at Fort Hood, TX. In the future, clothing made from nanocomposite materials could enable Soldiers to run such courses and forget about the need for laundry. (Photo by SSG Keith Anderson, 1st BCT, 1st Cavalry Division Public Affairs)



THE BIG PICTURE IS SMALL

Natick looks to nanotechnology to advance future food packaging and textiles, creating new and better ways of wrapping everything from MREs to Soldiers themselves, and potentially creating whole new categories of super products—clothing that rarely or never needs washing, lenses that never fog and packaging that can keep food nutritious for extended periods.

by Mr. Craig Rettie and Ms. Jane Benson

Thinking small is the key to developing future food and clothing technologies for the Soldier—such is the conclusion of researchers at the U.S. Army Natick Soldier Research, Development and Engineering Center (NSRDEC). Scientists there are using nanotechnology, the engineering or manipulation of materials or systems at an atomic or molecular scale, to improve packing—both for the food Soldiers eat and their own packaging—i.e., clothing.

NSRDEC's efforts include the development of high-barrier, nonfoil food packaging materials—polymer films that prevent oxygen and water from transporting through them. Nanoparticles within a polymer film make it difficult for gas molecules to get through, improving the barrier to oxygen and moisture, both of which can speed the deterioration of food.



NANO PACKAGED PENNE

Researchers at the Natick Soldier Research, Development and Engineering Center (NSRDEC) are investigating nanocomposite packaging for rations, like the pasta shown here. The packaging may replace foil pouches, enhancing food quality and reducing waste. (Photo by David Kamm, NSRDEC)

NSRDEC is also working on developing and advancing omniphobic and super-omniphobic textiles and other products, which resist dirt, dust and liquids. Omni means “all,” and, in chemistry, phobic doesn’t so much mean fearful as it does a chemical aversion. An omniphobic coating, therefore, is averse to both water (hydrophobic) and oils (oleophobic). Omniphobic coatings contain micrometer-sized (one 1-millionth of a meter) particles, such as silica, or a combination of micro- and nanometer scale particles. (A nanometer is one 1-billionth of a meter.) When these coatings are applied to textiles or hard surfaces, such as glass or metal, their surfaces are modified with micro- and nanoscale surface features. These features are similar

to a lotus leaf’s hierarchical nonwetting surface, which enables the plant to float and glide on water, or a water strider’s feet, which let the insect walk on water without sinking.

By working on the nano-level, NSRDEC’s scientists and engineers have the opportunity to expand the applications of this technology for the good of the Soldier.

THE PERFECT NONFOIL

The Advanced Materials Engineering Team (AMET), part of NSRDEC’s Combat Feeding Directorate (CFD), is investigating high-barrier, polymeric materials for military ration packaging and for food packaging that supports deep space missions for NASA. Nanocomposite materials are an ideal packaging choice for shelf-stable processed foods because they can improve the barrier, mechanical and thermal properties of nonfoil food packaging. Polymeric laminates with foil as the barrier are currently being used for ration packaging. These structures provide an exceptional barrier to oxygen and moisture, but can also experience stress cracking and pin holing.

“The incorporation of nanotechnology into barrier films has proven to be a critical ingredient in our packaging design that will allow us to achieve food protection properties only seen before through the use of foil-based systems,” said Dr. Christopher Thellen, a Ph.D. materials engineer in the CFD. “The exfoliated dispersion of nanoparticles in polymers forces penetrating oxygen and water vapor molecules to follow a tortuous pathway through the packaging material, thereby increasing the time needed to penetrate the packaging and improving barrier properties.”

Nanocomposite packaging can be lighter in weight and less expensive than foil

pouches. That reduction in size not only reduces the amount of solid waste and enhances the quality of the rations by preserving them better and longer, but it also reduces the warfighter’s logistical burden. NSRDEC is exploring technology that is based on incorporating nanoparticles into thermoplastic resins to create a nanocomposite material that is 1,000 times smaller than conventional composite material fillers. Nanoparticles have proven to be cost-effective and compatible with many polymers used in packaging.

As a result, the high-barrier, nonfoil polymeric packaging will comply with the Meal, Ready to Eat requirement of maintaining a three-year shelf life. For space applications, it will maintain up to a five-year shelf life.

NOT YOUR GRANDMA’S CANNING

Food sterilization techniques, in combination with proper packaging, play an important role in extending shelf life. Retorting, similar to pressure cooking, is the food industry’s most common commercial sterilization process for pre-packaged, low-acid foods. This process exposes food packages to high moisture and high temperature conditions under pressures of up to 2.5 atmospheres. In some cases, the long retort process leads to a reduction in food quality and limits the types of packaging materials that can be used.

Dr. Jo Ann Ratto, AMET team leader, whose doctorate is in plastics engineering, said that the implementation of a nonfoil structure into food packaging will make it possible to consider novel sterilization methods, such as microwave-assisted thermal sterilization (MATS) and pressure-assisted thermal sterilization (PATS). MATS and PATS are desirable alternatives to retort sterilization because

they reduce the time needed to raise the product temperature to that required for the thermal lethality of target bacteria—that is, they kill botulism and other toxins faster. A shorter process time can improve food quality and nutrient retention at a lower cost, which is one reason these methods are so attractive for both the U.S. military and NASA.

AMET is exploring polymeric packaging for these novel methods in collaboration with CFD's Food Processing Engineering and Technology Team. The two teams are also studying the effect of the various processing methods on vitamin stability in an effort to preserve freshness and food safety and prevent nutrient loss.

“The nanocomposite research and development work has been challenging and rewarding for the Advanced Materials Engineering Team. After further demonstration and validation work, we will know if these materials have acceptable performance to be considered for incorporation into ration packaging for the warfighter,” said Ratto.

‘SO’ CLEAN

Soldiers are frequently in muddy, dusty and oil-contaminated environments. NSRDEC and its industry partner, Luna Innovations Inc., have worked together to develop omniphobic coatings for fabrics. Omniphobic surfaces do not become wet when exposed to water, liquid chemicals, organic solvents and some oils, such as cooking and motor oils.

Unlike omniphobic surfaces, which can be found in nature, super-omniphobic (SO) surfaces are purely man-made, engineered surfaces based on a 2007 discovery by the Massachusetts Institute of Technology (MIT). SO surfaces are both super-hydrophobic and super-oleophobic and theoretically repel most, if not all,

known liquids, including those with extremely low surface tensions, such as the solvents heptane and hexane, which would make most surfaces, without SO protection, wet.

NSRDEC's research and development of omniphobic and SO technologies, which will be used in protective clothing applications, will improve warfighters' quality of life and lessen their logistical burden. Omniphobic fabrics require much less frequent washing, reducing water and detergent usage. NSRDEC is also investigating the development of SO coatings, inherently SO fibers and micro- and nanoscale transparent films.

Besides being super-repellent to liquids when applied onto protective clothing, SO coatings will also contain an antimicrobial additive to retard the growth of microbes that cause body odors. The SO fibers with the antimicrobial additive will be woven into yarn, made into fabric and finally fabricated into protective clothing that will require no laundering and remain clean, dry and odor free. The hierarchical micro- and nanoscale SO transparent films will be applied onto protective lenses, goggles and visors to provide the soldiers with “always clear vision” by shedding water, oils and chemicals on the outer lens surface while preventing fog from forming on the inner lens surface. These features will help



MRE REDUX

NSRDEC scientists are investigating the development of nanocomposite packaging for MREs that will be lighter in weight and less expensive than foil pouches, while enhancing food quality and reducing waste. (Photo by David Kamm, NSRDEC)



SELF-CLEANING CLOTHING

Self-cleaning clothing has a special coating that repels liquids and does not attract dirt or dust. The coating can also be applied to protective lenses, goggles and visors to shed water, oils and chemicals. (Photo by David Kamm, NSRDEC)

Soldiers better complete the vision-dependent aspects of their missions, including driving, firing, viewing maps and operating electronic equipment in multiple environments, especially under wet and rainy conditions.

To bring Soldiers the very best science has to offer, NSRDEC is combining its expertise with the expertise of academia and industry. Quoc Truong, an NSRDEC physical scientist, emphasized the importance of these collaborations. “NSRDEC provides concepts and ideas, technical approaches and guidance and methods of testing and evaluation to best meet our Soldiers’ needs,” he said. “We also have a thorough knowledge of user requirements and materials specifications, while our collaborators have expertise, technical knowledge, resources and personnel who are academically trained and also have experience” in a range of related disciplines. Those collaborators include nanomanufacturing experts at the University of Massachusetts Lowell; fiber spinning experts at Clemson University; experts in re-entrant nanosurfaces, theories and modeling at MIT; and experts in omniphobic coating processes at Luna Innovations.

“Single inventors, such as Edison and Einstein, are now much rarer,” said Truong. “Our world remains complex, but more and more scientists and engineers are trained in their specialized areas. Therefore, collaboration is a necessity for new

inventions and discoveries. This way, we can put our heads together in solving longstanding problems or coming up with new and innovative products and practical solutions, to help our Soldiers complete their mission in the safest and most efficient manner.”

INHERENTLY SO

According to Truong, the characteristics of the SO coating will provide a significant improvement over the omniphobic coating. Moreover, SO surfaces will cause most liquid droplets to roll off and will minimize dirt and dust attraction. In addition to coatings, NSRDEC researchers are now working with academia and industry partners to develop fibers and transparent films that are inherently super-liquid-repellent based on their surfaces’ physical nanoscale structures and features.

“Clothing and shelters fabricated from fabrics woven using inherently SO fibers will simply stay clean,” said Truong, adding that yarns made from inherently SO fibers, then woven into cloth and made into clothing, are expected to be much lighter and more flexible and, therefore, more comfortable to wear. The fabric made from SO fibers will be more breathable because of a physical structure that has multiple “micro-scale” air channels (with nano features on its fiber surface) that run the entire length of the fibers. Since the inherently SO fibers will no longer

require the added step of coating, the clothing is also expected to have a lower manufacturing cost.

CONCLUSION

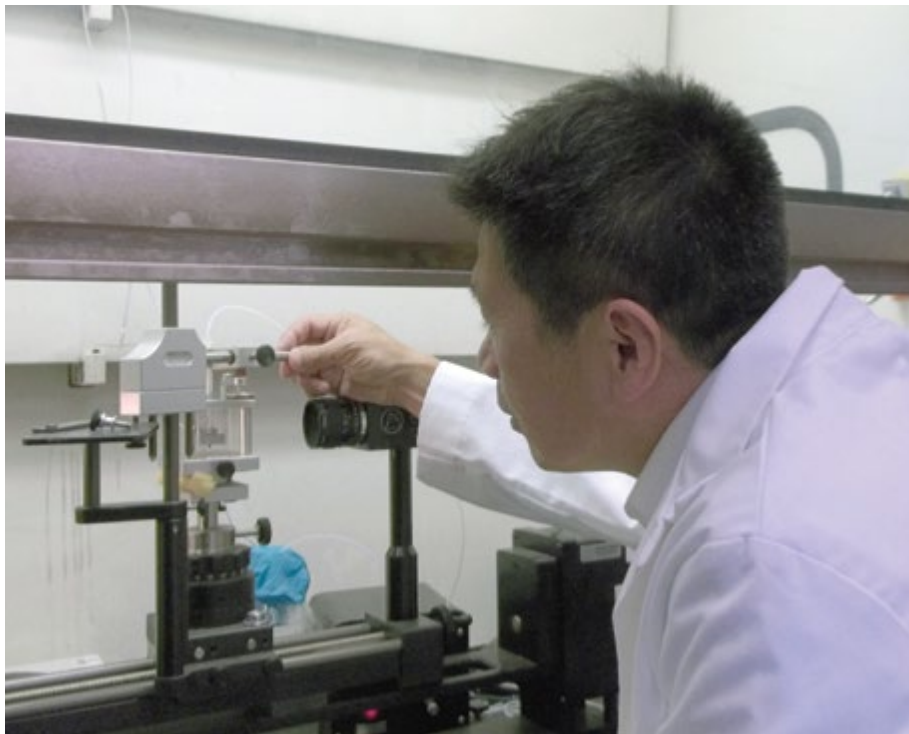
SO coatings, inherently SO fibers and SO micro- and nanosurface transparent films have different applications. The coatings will be used on soft and hard shelters, textiles, cables, solar panels, intricate shapes and objects and flexible and hard surfaces, including windows, cars, ships and airplane exteriors. The inherently SO fiber technology will be used on textiles and filtration products.

“With SO technologies, Soldiers will have clothing that always stays clean and fresh,” said Truong. “Their goggles, visors, vehicle windshields and windows will always stay clean, which allows them the clear vision to fight and complete their missions. Applying the technologies to ship hulls will allow them to move much faster on the water surface with less fuel consumption.”

Like SO coatings, SO films will be used on durable hard surfaces—solar panels, windows or airplanes, for example—to make them repellent to dust and dirt, and super-repellent to water, oils and other liquids.

“It is my hope that these new breakthrough technologies will help to enhance existing technologies the same way that carbon fibers improved the structural strength of buildings and cars,” said Truong. “However, these SO materials, which are just about a year or two away from their formal introduction to commercial applications, will have vastly more potential, especially because of transparent SO film.”

Being super-clean means being more mission-ready and more hygienic, with



DRIP FACTOR

NSRDEC Physical Scientist Quoc Truong uses a goniometer to measure the contact angle of liquid drops on textile surfaces. Truong’s work includes omniphobic and inherently SO textiles and hard surfaces, which repel dirt, dust and liquids. (Photo by Jane Benson, NSRDEC Public Affairs)

enhanced protection from contaminated water and liquid chemicals. “This exciting research and development project work is underway, and it is expected that sample-size fabrics and lens products will be available for further testing and evaluation by December 2015,” said Truong.

NSRDEC is a subordinate organization of the U.S. Army Materiel Command’s Research, Development and Engineering Command. For more information on NSRDEC’s work for the warfighter, go to <http://nsrdec.natick.army.mil/about/index.htm>.

MR. CRAIG RETTIE is the associate director of science and engineering at

NSRDEC. He holds an MBA from Pennsylvania State University and a B.S. in engineering technology from Old Dominion University. He is Level III certified in program management and science and technology management, and is a member of the Army Acquisition Corps.

MS. JANE BENSON provides contract support for the NSRDEC as a public affairs writer for Battelle Natick Operations. She holds an M.A. in professional writing and publishing from Emerson College and a B.A. in English from Framingham State College. She worked previously as a technical writer for the Army and is Level II certified in life-cycle logistics.

TECHNICALLY **SPEAKING**

A MOMENTOUS DISCOVERY ... OR IS IT?

How the explosives detectors at airports work

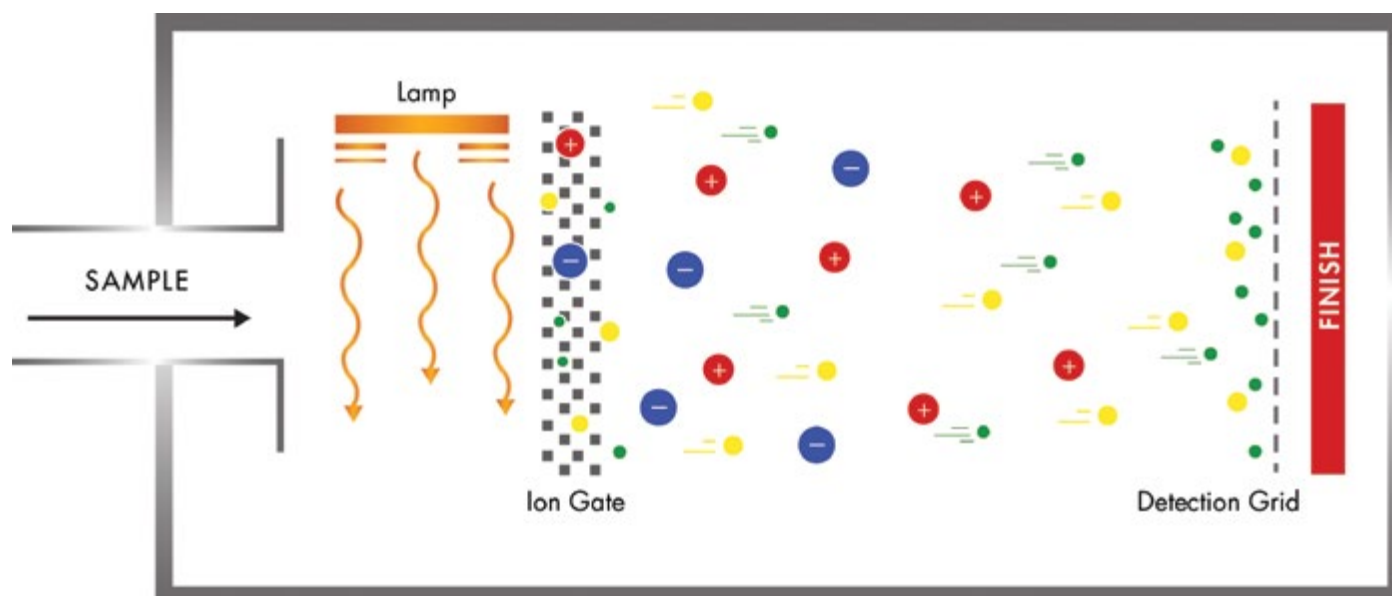
by Dr. Augustus Way Fountain III

A lot of very smart people work in Army acquisition—scientists, technicians, engineers—and many are the best in the world at what they do. That work is often mind-bogglingly complex, given the nature of the systems that they help to design, develop and deliver for the benefit of the Soldier. They often speak in technical language that people outside their area of expertise just wouldn't understand. But it's important that taxpayers and members of Congress and their staffs understand it—not just because taxpayers have a need and a right to know, but also because it's really hard to have a conversation when only one party speaks the language.

So it's a helpful exercise to step back from the highly particular language and jargon of a technical field and try to express those highly technical ideas in language that everyone can understand. "Technically Speaking," a regular feature in Army AL&T magazine,

challenges subject-matter experts to do just that, using only the 1,000 most commonly used words in the English language (or as close as possible) and the Ten Hundred Words of Science Challenge, at <http://tenhundredwordsofscience.tumblr.com/>, as a guide.

For this issue, Army AL&T reached out to Dr. Augustus Way Fountain III, whom we interviewed for the Outside the Box feature in the January-March 2015 edition of the magazine. That article, "Old Dog, New Nose," was about the Joint Chemical Agent Detector (JCAD) and its upgrade to JCAD Chemical Explosive Detector (CED), an effort that Fountain began. JCAD CED uses ion mobility spectrometry to detect chemicals and explosives—the same technology used in airport explosives detectors. Here is Fountain's explanation of how it works.



IONS LARGE AND SMALL

In this simple diagram, a lamp heats an incoming air sample. Any particles get charged, or ionized, as the air passes over the ion gate at the starting line. The finish line is the detection grid, which can tell the makeup of the ions by their size and speed. (SOURCE: Dr. Augustus Way Fountain III)

Have you ever watched a race? Everyone lines up, starts at the same time and then runs to the finish line. Some are quick and get to the end sooner than others. While not always true, the smaller one in the race is the fastest and the heaviest one comes in last. That is how the devices used to look for explosives work.

First, matter is warmed to make it a gas, and then it is sucked into the box. Then a hot light turns on and starts a race with everything in the gas. Just like in the race above, the smaller parts are fast and the heavier parts are slow. Because the parts always run the race in the same time, every time, by seeing how much time it takes for each part to get to the end, we know if something bad is there. The box can do this hundreds and hundreds of times each second to make sure the answers are true.

DR. AUGUSTUS WAY FOUNTAIN III is a member of the scientific and professional cadre of the Senior Executive Service and serves as the senior research scientist for chemistry within the

Research and Technology Directorate at the U.S. Army Edgewood Chemical Biological Center, Aberdeen Proving Ground, MD. He is an internationally recognized expert in electro-optics as it pertains to chemical, biological, radiological, nuclear and explosives sensing. He retired from the Army after 22 years of active duty, in which he last served as a professor of chemistry in the Department of Chemistry and Life Science at the United States Military Academy at West Point. He received his Ph.D. in chemistry from Florida State University, a Master of Strategic Studies degree from the U.S. Army War College and a B.S. in chemistry from Stetson University. He is a fellow of SPIE, formerly the Society of Photo-Optical Instrumentation Engineers.

Take a shot at explaining something super technical, such as a concept, technology or job, in the 1,000 most commonly used words. Send it to ArmyALT@gmail.com.



SPOTLIGHT:

MAJ ANTHONY 'TONY' ROGERS

Satisfaction that doesn't quit

MAJ ANTHONY 'TONY' ROGERS

COMMAND/ORGANIZATION:

650th Contingency Contracting Team
413th Contracting Support Brigade

TITLE:

Team leader

YEARS OF SERVICE IN WORKFORCE: 6

YEARS OF MILITARY SERVICE: 15.5

EDUCATION:

MBA, College of William and Mary;
B.S., health care administration,
Western Kentucky University

DAWIA CERTIFICATIONS:

Level II in contracting; Level I in
program management

AWARDS:

Bronze Star Medal, Defense Meritorious Service Medal, Meritorious Service Medal, Army Commendation Medal (5), Army Achievement Medal (3), Presidential Unit Citation, Joint Meritorious Unit Award (2), Meritorious Unit Commendation, Army Superior Unit Award

MAJ Tony Rogers is a busy man, and that's OK with him. Nearly 16 years ago, he joined the Army in search of a career that was interesting and exciting, after his first and only job in health care administration didn't pan out.

"In the summer before I graduated from college, I had an internship in the planning department of a hospital. I quickly realized that I didn't enjoy office work, at least not at that time in my life," he said.

Rogers, who grew up in a military family, joined the Army through Officer Candidate School after finishing college. "I knew the Army could satisfy my craving" for interesting work, he said. Initially part of the Signal Corps, he learned of the Acquisition Corps from a friend and joined acquisition through contracting job opportunities created in response to recommendations of the Gansler Commission.

He's currently a contingency contracting officer (CCO) and team leader for the 650th Contingency Contracting Team (CCT), and played important roles in two large-scale training exercises held last year in Thailand and Indonesia. He served as senior CCO in support of Garuda Shield, the U.S. Army Pacific Command's largest bilateral training exercise. Rogers' three-man team executed more than 50 actions and critical requirements to facilitate the event, which involved approximately 1,200 U.S. and 700 Indonesian soldiers.

Rogers served as supporting contracting officer for Cobra Gold, U.S. Pacific Command's largest multinational exercise in the Pacific area of responsibility (AOR). He and his team supported 13,000-plus participants from eight countries, executing more than 260 contract actions valued in excess of \$2.7 million.

"It can be stressful when contracting is expected to have a magic wand to bridge the gap when operational or logistical plans fail," Rogers said. "The process can

be challenging, but the greatest satisfaction is realized when the plan comes to fruition, our contracts are in place and the customers are pleased with the support they are receiving from our contracts.”

What do you do, and why is it important to the Army or the warfighter?

I am the team leader for the 650th CCT at Yokota Air Base, Japan. The team has a unique position as an Army unit embedded in an Air Force contracting squadron (CONS).

I am fortunate to concurrently serve in two leadership positions, as a team leader and also an acting flight chief for 374th CONS. As the 650th CCT team leader, I lead five contracting officers who execute the 413th Contract Support Brigade’s mission to provide contracting support to U.S. Army Pacific in garrison and expeditionary environments.

We’re tasked with being ready to deploy for humanitarian assistance and disaster relief operations in the Pacific AOR. Because of the high risk of natural disasters in the Pacific Rim, we must be ready to respond within 72 hours. I’m also the Army support flight chief and lead 27 military and civilian members who support and execute a contract portfolio for U.S. Army Japan with an annual value of \$78 million.

How did you become part of the AL&T Workforce, and why?

I became interested in the AL&T Workforce when I heard about the opportunities of the Acquisition Corps. A friend who had recently started his first assignment in the workforce broadened my perspective of the business side of the Army. I was intrigued by the opportunities to support the warfighter in a different manner, the possibility of furthering my education

and the chance to develop a career that is relevant to both the military and commercial industries. Soon after, I applied to the Acquisition Corps, which happened to be when the contracting workforce was growing as a result of the Gansler Commission report. I was selected into the acquisition functional area, and my first assignment sent me to Detroit Arsenal as a contract management officer.

What do you see as the most important points in your career with the Army AL&T Workforce, and why? Is there a program or opportunity you wish you had pursued but didn’t?

My most important career move has been making the leap into the Army AL&T Workforce. By doing so, I’ve had several leadership opportunities and a career-broadening experience: attending graduate school at the College of William and Mary. I was fortunate to have been one of 20 Army officers selected to attend the inaugural MG James Wright MBA Fellowship program in 2011. And while graduate school was a great broadening experience, I still believe that the best way to progress in the Army is through performance. In the Acquisition Corps, many officers have graduate degrees, so performance is ultimately the best way to distinguish a board file.

I have been blessed during my career with many opportunities to live abroad, travel, live a joyful life with my family and experience a different aspect of the Army through the Acquisition Workforce. I’m fortunate to have had these opportunities, and I have enjoyed experiences that many people won’t have in a lifetime. From a professional view, the Acquisition Workforce is not limited for career advancement, and there are many opportunities to lead Soldiers. For these reasons, I wouldn’t change my choice to

join the Acquisition Workforce. I would do it again if given the chance.

What’s the greatest satisfaction you have in being a part of the AL&T Workforce?

My greatest satisfaction has been seeing the fruits of our contracting efforts in action. Outside of a real-world humanitarian or disaster mission, providing contracting for training exercises abroad is probably the most difficult task for a contracting officer. Most of the exercises we support are short in duration but demanding in life support. We have very little room for error between acquisition planning and execution, and some requests are no-fail requirements.

Acquisition is a very broad term encompassing a lot of different job specialties, with many career tools available to them. What advice would you give to someone who wants to get where you are today?

Research what the Army has to offer and be proactive in reaching your goals. Don’t sit idle and wait for an opportunity to arise, but look into the different functional areas and talk to others who are doing what you want to do.

What’s something that most people don’t know about your job? What surprises outsiders most when you tell them about your job?

Surprisingly, most Soldiers do not know about the Acquisition Corps and what goes on behind the scenes with our equipment and gear. When they hear about the Acquisition Corps and how the Army has program executive offices that manage the life cycle of all our equipment and gear, they seem to be just as intrigued as I was years ago.

—MS. SUSAN L. FOLLETT



CLOSING THE DEAL

CPT Ural Jones of the Washington, DC, National Guard's 1946th Contingency Contracting Team finalizes a contract Feb. 26, 2014, while being assessed by CW3 Matthew Nolan, a contracting specialist, at the Camp Atterbury, IN, Contracting Center of Excellence during their monthlong pre-deployment training in support of contingency operations in Afghanistan. The conflicts in Iraq and Afghanistan showed the importance of preparing contracting professionals before they go into combat situations, because combat is not a training ground. (Photo by Timothy Sproles, Camp Atterbury Public Affairs)

WHAT WE LEARNED

Lessons learned in expeditionary contracting have vastly improved the capabilities and professionalism of the contingency contracting workforce. Now the Army must build upon those lessons to continually improve the enterprise.

by BG James E. Simpson

In the past decade, it has been an honor and a privilege for me to serve alongside great acquisition professionals who deployed time and time again to two vastly different theaters. Their deployments were a call to arms—not with weapons, but with pens and two books we fondly refer to as our contracting bibles, the Federal Acquisition Regulation (FAR) and the Defense FAR Supplement (DFARS).

I must thank our sons and daughters in the acquisition workforce, both civilian and military, who deployed to support our warfighters. I also need to thank our acquisition workforce families for the sacrifices they endured at home, supporting our civilian and military acquisition workforce on long and short tours overseas. Across the Army, we've learned that deployment doesn't just define those in theater; it also includes loved ones who remain at home providing stability and support to our men and women who deploy. And finally, I'd like to thank the entire acquisition workforce for taking on the extra work at home when their co-workers deployed.

Over the past 13 years, the Army contracting enterprise has learned many valuable lessons that will help us shape and train our acquisition workforce for future conflicts. Thirteen years of contracting in two unique theaters wasn't easy. As the Iraq campaign began, our acquisition workforce experienced some challenges, but certainly nothing prepared them for the urgencies of contracting in support of contingency operations.

From my foxhole, the most valuable acquisition lesson we've learned is the need for strategic patience. We learned you can't rush to failure; you can't execute contracts without a strategic plan; and you have to answer the strategic questions: Will we need to rely on local vendors? Who are the subcontractors? Do we need to worry that someone along the contracting chain is supporting the enemy? Have we executed the right contract? Do we have the right oversight? Do we have a plan to close the contract? Did we follow the rules in accordance with the FAR and the DFARS? Can we honestly say that we're good stewards of taxpayer dollars?



APPLYING LESSONS LEARNED

1LT Jordan Springer, COR for the 62nd Engineer Battalion, 36th Engineer Brigade, based at Fort Hood, TX, asks a Liberian worker about adjusting the pipe for a well at an Ebola treatment unit in Tubmanburg, Liberia, Jan. 13. Contracting support to Operation United Assistance in West Africa has demonstrated the improved flexibility of the Army's contracting workforce and its ability to serve as trusted advisers to operational commanders in situations often requiring split-second decisions. (U.S. Army photo by SGT Ange Desinor, 13th Public Affairs Detachment)

From my foxhole, the most valuable acquisition lesson we've learned is the need for strategic patience. We learned you can't rush to failure; you can't execute contracts without a strategic plan; and you have to answer the strategic questions.

FROM PAST TO FUTURE

More than a decade ago, contracting for war requirements was new to our acquisition workforce. We quickly realized the importance of ensuring that our contracting professionals deploy with the right contracting skills to meet the challenges of contingency contracting. Combat is not a training ground. In contingency operations, it is vital that our contracting professionals be great business advisers and know how to successfully execute any type of contracting action, as well as how to determine which actions are right for the requirement at hand.

We learned that our contracting leaders need to better understand the operational environment so that they can provide the operational commanders the best contracting advice. In contingency

operations, the battlefield often dictates split-second decisions, but in contracting, lack of strategic planning results in mistakes that are often very costly. By understanding the plan, contracting leaders can provide numerous options for the operational commander to satisfy the requirement, in many cases at significant cost savings. Now, looking back, I can see how often a contracting action could be executed without considering all phases of the plan.

One area of interest is part "lessons learned" and part "reminder" for future contingencies. That is the importance of proper contract oversight. For more than a decade, contracting was the subject of numerous reports and investigations that were very critical of the oversight processes. We learned a great deal from these reports and have worked hard to ensure

that we do not repeat our mistakes or waste taxpayers' dollars.

It all boils down to training. In theater, contracting officer's representatives (CORs) are the contracting officers' eyes and ears on the front lines. When we first hit the ground, proper contract oversight was lacking. As operations continued, we stepped up our game by providing much better pre-deployment training. Previous years saw COR responsibilities being added as an additional duty for Soldiers. Later, operational commanders recognized the COR's role and the importance of contract oversight, and supported the process by providing dedicated CORs to oversee their contracts.

'SPOT' ON ACCOUNTABILITY

We also made tremendous improvements in contractor accountability. Contractors are part of the total force—we depend on them for all of our life support requirements. We must account for them in all phases of the operation and communicate with them so they are made aware of changes in the operation and adjust accordingly.

In the early years of the wars, contractor accountability was sporadic—almost nonexistent, one could say. The Synchronized Predeployment and Operational Tracker (SPOT) helped us get a much better handle on our contractor population. SPOT, a Web-based system, is the central data repository for contractors deploying with the force; it holds contract capability information for use by federal contractors, government agencies and the military. It and other tools allow us to verify a person's identity in theater, track the person's movements and provide theater commanders up-to-date visibility into contractor assets and capabilities. We also put new policies in place to look for prime contractors and subcontractors

who might be engaging in human trafficking or aiding our enemies.

After three deployments, two in Iraq and a final deployment in Afghanistan, where I served as commander of U.S. Central Command's Joint Theater Support Contracting Command (C-JTSCC), I can proudly say that the acquisition workforce emerged as a leaner, more qualified, better-trained, more efficient and more valued workforce than when we headed into these conflicts more than a decade earlier. We learned that our personnel must have the proper contracting skills and that contractor oversight must not be an afterthought.

During my year in Afghanistan, I saw many of our processes and policies put

to work as we began the drawdown. Our deployed acquisition personnel had the tools in their rucksack to execute high-quality contract actions in support of the warfighter. We developed our acquisition workforce into a highly professional, skilled cadre of men and women, both civilian and military, who understand contingency contracting.

CONCLUSION

We must continue to improve because our future contingencies may take place in different environments under different conditions. For example, in the summer of 2014, we deployed a contracting support brigade to establish secure and disease-free troop life support areas and construct Ebola treatment centers in support of Operation United Assistance. Our



OPERATIONAL SUPPORT

From left, 1LT Jake J. Chaput of the 1st Cavalry Division (1st CAV), CPT William Bass, contracting officer with the 928th Contingency Contracting Battalion (CCBn), and LTC Kelsey A. Smith of the 1st CAV review emerging life support requirements in Latvia in support of Operation Atlantic Resolve in fall 2014. Operation Atlantic Resolve, led by U.S. Army Europe, is an exercise that demonstrates a commitment to the collective security of NATO allies in light of the ongoing Russian intervention in Ukraine. Soldiers from the 928th CCBn, based in Grafenwoehr, Germany, supported the 1st CAV's 1st Brigade Combat Team by conducting quality assurance of active contracts. (Photo by SSG Jonathan Robbins, 928th CCBn)

support to the Ebola crisis in West Africa demonstrated the improved flexibility of our highly trained workforce.

Today, Army contracting is well-positioned to support operations worldwide. A strong, well-trained and highly qualified Army contracting enterprise is essential to managing the risk associated with these strategic requirements. Ours is a force of military and civilian personnel deploying together on missions in support of our warfighters. With continued strategic patience, we will not rush to failure but will proceed to success shoulder-to-shoulder with our warfighters.

For more information on contingency contracting, go to the Defense Procurement and Acquisition Policy Contingency Contracting website at <http://www.acq.osd.mil/dpap/pacclcc/index.html>.

BG JAMES E. SIMPSON is director for contracting in the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology. He holds an MBA from the University of Texas at Arlington, an M.S. in national resource strategy from the Industrial College of the Armed Forces, an M.S. in administration from Central Michigan University, a B.S. in political science from Lander University and an associate degree in criminal justice from Piedmont Technical College. He served as commander, Defense Contract Management Agency, Central Pennsylvania and York, PA, and in Operation Iraqi Freedom from 2003 to 2006; as senior contracting official – Iraq, C-JTSCC, from 2011 to 2012; and as commander, C-JTSCC, Afghanistan, from 2013 to 2014. He is Level III certified in contracting and Level II certified in program management, and is a member of the Army Acquisition Corps.



SEASONED CADRE

Simpson, second from left, poses with the headquarters staff at C-JTSCC in June 2014 at the New Kabul Compound, Afghanistan. Over the course of three deployments, Simpson learned that operations in Afghanistan and Iraq have reshaped the acquisition workforce into a leaner, more qualified and more efficient organization. (Photo courtesy of C-JTSCC)



TRAINING MAKES THE DIFFERENCE

Simpson addresses the new 51C Senior Leadership Course at Fort Lee, VA. A well-trained, highly qualified Army contracting enterprise is essential to managing the risk associated with the nation's strategic requirements, and NCOs play a major role. (Photo by MSG Eric James Sears, U.S. Army Acquisition Support Center)

Finding CLOSURE

Rock Island contract closeout team returns more than \$320 million to customers, capturing lessons learned from 13 years of contracting in Southwest Asia.

by Mr. Jake Adrian and Ms. Andrea Kalb

On a daily basis, the Reachback Contract Closeout Team is effectively closing chapter after chapter of the long story that comprises the past 13 years of war in Southwest Asia. This team, located at Army Contracting Command – Rock Island, IL (ACC-RI), a subordinate organization of U.S. Army Materiel Command’s Army Contracting Command created in 2010 to process and close out approximately 220,000 fixed-price contracts awarded in Iraq and Afghanistan, has removed more than \$321 million and counting from contracts to return to customers for reuse. It is a textbook example of how the Army can clearly identify the challenges—and successes—of the past decade and apply lessons learned to future contingency contracting.

The team represents just one of many contracting missions created or brought to Rock Island in support of the wartime efforts in Southwest Asia. Since 2001, contracting at Rock Island Arsenal has grown from 222 professionals obligating \$1.7 billion to a high in 2011 of 547 personnel obligating more than \$14.2 billion, much of it in the contingency arena. The withdrawal from Iraq and Afghanistan has reduced total obligations and contract actions in recent years and it is now giving personnel some time to sift through and close 13 years of actions, and to leverage the past decade of work to streamline operations.



SORTING THROUGH WHAT'S LEFT

At the Forward Issue Turn-In Point at Kandahar Airfield, contractors load containers for shipment to Bagram Airfield. Retrograding equipment back into the Army's supply inventory saves taxpayer dollars and allows supplies to be moved out of Afghanistan. But closing out the related contracts can often be complicated by language barriers, currency conversion questions and lack of proper documentation. (Photo by SGT Adam Erlewein, 4th Sustainment Brigade)

REVERSING CONTINGENCY CONTRACTS

The Contract Closeout Branch fully recognizes that the contract files it is closing were awarded by contracting officers dealing with a variety of barriers. Working in a war zone is inherently tumultuous, and working with mainly foreign firms added to the complexity, bringing language barriers, currency conversions and various administrative misunderstandings.

The branch is now working through many of the same difficulties, which have been compounded by the passage of time. For example, personnel trying to process releases of claims, to verify there are no outstanding payments so that excess funds can be removed from the contracts, are finding no one to contact on the vendor's end nor on the government's behalf.

The biggest enhancement to contingency contracting now and in the future would be for contracting officers in the field to make sure they have all of the proper documentation, including

memorandums for record describing the facts of the situation to justify their actions. Having a DD 250 (Defense Material Inspection and Receiving Report)—which verifies that supplies were received or services were completed—was not always possible, but there needs to be verifiable correspondence acknowledging that the government accepted a service or supply.

Paperless contract files (PCF) and the Virtual Contract Enterprise (VCE) tools are huge enhancements that will improve accountability in contingency contracting. The contract files that the ACC-RI closeout team is currently closing out are all hard copies, many of which the team randomly discovered in boxes and containers with no background information.

In 2001, the Army didn't have VCE capability. The ACC-RI principal assistant for contracting required ACC-RI to use PCF for the first time in May 2009, and the U.S. Central Command's (CENTCOM's) Joint Theater Support

Contracting Command began using it in Afghanistan in 2013. As long as personnel in theater are uploading the necessary documentation into VCE—even if it is just a data dump—it's now there with appropriate backup. This is a critical enhancement for verification and accountability purposes.

FUTURE CONTINGENCIES

In addition to applying a contract closeout perspective to planning future contingency contracting the Global Reachback Contracting Division has already incorporated other takeaways into the contract actions it is executing.

One key lesson from the past decade of contingency contracting is that contracts should not be limited to a single country. Rather, they should be set up to allow use either theaterwide or worldwide. Several examples from ACC-RI show how expanding the use of these contracts is enhancing response time and reducing redundancy.

One example is a contract first awarded in September 2013, which expanded the CENTCOM Acquisition Support Services (CASS) program for worldwide use. This program provides contracted specialists in contracting for overseas environments. Prior to expanded use, four limited CASS contracts were in singular use for Kuwait, Iraq, Afghanistan and Qatar.

Those contracts were combined into a multiple-award, indefinite-delivery, indefinite-quantity (IDIQ) contract for use CENTCOM-wide and ultimately expanded for worldwide use. If a requirement were to come out of Africa or U.S. Pacific Command, all we would have to do is compete a task order for pricing and make an award.



TAMING A PAPER TIGER

The contract closeout warehouse at Rock Island Arsenal, IL, contains thousands of contract files that originated in Iraq and Afghanistan. ACC-RI's Contract Closeout Branch, Reachback Division, has processed and closed approximately 220,000 fixed-price contracts and returned more than \$321 million in current and expiring funds to customers for reuse. (Photo by Liz Adrian, ACC-RI)

Since 2001, contracting at Rock Island Arsenal has grown from 222 professionals obligating \$1.7 billion to a high in 2011 of 547 personnel obligating more than \$14.2 billion, much of it in the contingency arena.



CLOSING A 13-YEAR CHAPTER

Jake Adrian, chief of ACC-RI's Reachback Division, and Andrea Kalb, chief of the Contract Closeout Branch, visit the contract closeout warehouse at Rock Island Arsenal. These contract files originated in Iraq and Afghanistan and were shipped to the arsenal for processing, closeout and storage. (Photo by Liz Adrian, ACC-RI)

Another example of maximized resources was the combination of approximately 35 non-tactical vehicle leasing purchase orders for vehicles leased in Kuwait into four IDIQ contracts using multiple-award task order competitions. This replacement of purchase orders, completed in January 2008, resulted in increased competition, fewer contracts to manage and economies of scale saving \$36.6 million over the five-year life of the contracts.

After receiving requirements from individual units, the Area Support Group – Kuwait combined them to give ACC-RI a total number of vehicles for contract execution. ACC-RI then competed the entire requirement and in the process negotiated quantity and volume discounts, while also locking in the vendor

base. The result was a competition among just four vendors versus doing a whole new competition with different vendor bases every time we had a vehicle requirement.

CONCLUSION

The war in Southwest Asia has had a clear impact on the contracting function performed at Rock Island. In turn, ACC-RI's support of wartime missions has made it a recognized center of acquisition excellence. The center has postured itself to readily and effectively support contingency environments as requirements arise.

The Gansler Commission report and the Commission on Wartime Contracting both highlighted the fraud, waste and

abuse that can occur during contingency contracting. ACC-RI has demonstrated that it can perform contingency contracting from a U.S. location. The support of robust pricing and policy divisions along with Army Materiel Command – Rock Island Office of Counsel greatly reduces fraud, waste and abuse.

ACC-RI recommends that DOD or DA establish a program manager (PM) contingency (PM C) to work in concert with the PM for the Logistics Civil Augmentation Program (LOGCAP). To work effectively, PM C would be charged with having 100 percent visibility into all DOD agencies executing contracts in the area of responsibility, and be the overall requiring activity.

The PM would be responsible for an integrated acquisition strategy that would be responsive to Soldiers' needs and not recreate the process. It would decide—along with the LOGCAP PM—whether the effort should be placed under LOGCAP, use other existing contracts or be a new effort. This would greatly reduce redundancies in contracting efforts, decrease overlap of the same services at the same location and enhance responsiveness. Ideally, it would operate very much like the

One key lesson from the past decade of contingency contracting is that contracts should not be limited to a single country. Rather, they should be set up to allow use either theaterwide or worldwide.



CLOSING DOWN, MOVING OUT

The 1742nd Transportation Company, South Dakota National Guard, escorts a convoy through Qalat, Afghanistan, July 23, 2014, on the way to Kandahar Airfield as part of the Regional Command – South effort to close outlying bases and draw down forces. Closing out contracts related to operations in Afghanistan and Iraq has been both challenging and rewarding for the ACC-RI team. In the future, it could be simplified through the use of paperless contract files and VCE tools. (U.S. Army photo by SSG John Etheridge)

various PMs the Army has in the States, but would be the single portfolio manager for all services in theater.

Finally, the Army needs to maintain a reachback capability. The primary reason that the closeout mission has recaptured so much money is the constant turnover of deployed contingency contracting officers. Those who worked tirelessly in theater undoubtedly did the best they could, but when personnel rotate in and out in as few as four months with little to no overlap, knowledge, history and even basic personal connections are easily lost. This risk is greatly reduced by having a stable, enduring workforce that has experience with these types of contracts.

For more information, contact the ACC-RI at usarmy.ria.acc.mbx.acc-ri-pao@mail.mil.

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MS. ANDREA KALB is chief of the Contract Closeout Branch, Reachback Division, at ACC-RI. She holds an MBA from Northern Illinois University and a B.A. in international business from Bradley University. Kalb is Level III certified in contracting and is a member of the AAC.

DON'T LOOK BACK

DARPA's Aerial Reconfigurable Embedded System program aims to develop and demonstrate a modular transportation system built around a vertical takeoff and landing flight module operated as an unmanned aerial vehicle. The flight module would carry one of several different types of detachable mission modules, each designed for a specific purpose, such as intelligence, surveillance and reconnaissance, at top left; casualty evacuation, top right; and cargo resupply, top center and bottom. Gansler said the current requirements tend to look back, rather than ahead, to plan for advanced technologies, "and that's something we can't afford to do because the world is changing too fast." (Graphic courtesy of DARPA)



THE NEW 'GANSLER REPORT'



Seven years after the commission he chaired released its landmark report, Jacques Gansler assesses the current state of defense acquisition

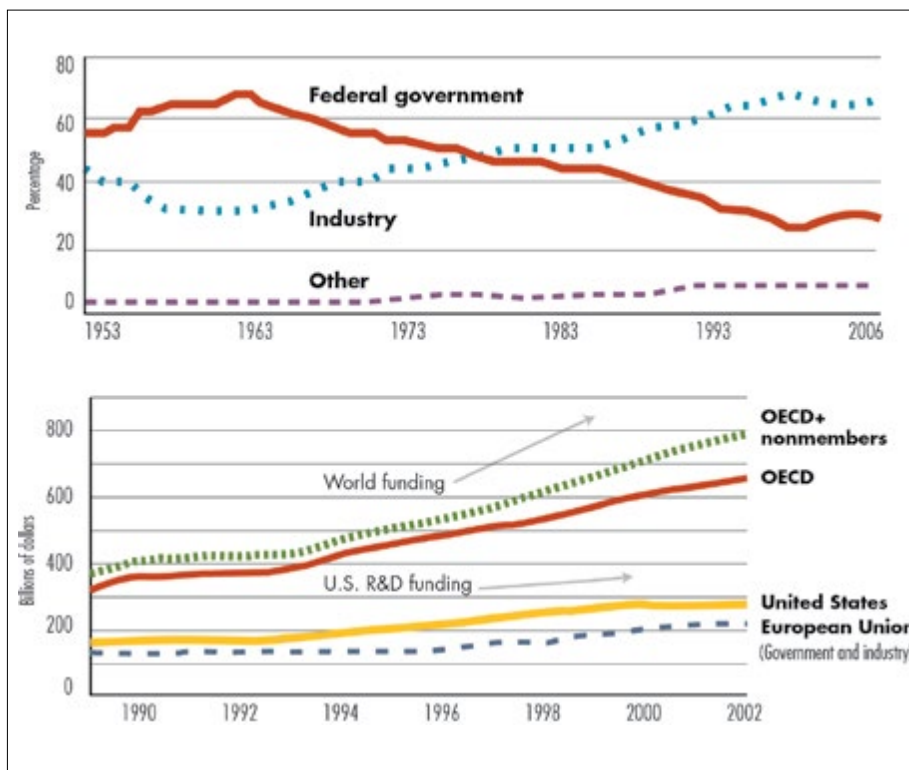
Army AL&T magazine usually looks outside the world of defense acquisition for our Critical Thinking feature, but for this issue, with its theme of revamping acquisition, we could think of no better person to address the topic than a former undersecretary of defense for acquisition, technology and logistics who has spent much of his professional life working in and studying defense acquisition—the Hon. Jacques S. Gansler. He's currently director of the Center for Public Policy and Private Enterprise at the University of Maryland School of Public Affairs, where he holds the Roger C. Lipitz Chair in Public Policy and Private Enterprise.

Gansler holds a Ph.D. in economics from American University, an M.S. in electrical engineering from Northeastern University, an M.A. in political economy from the New School for Social Research and a B.E. in electrical engineering from Yale University.

His name and reputation should be familiar to all Army AL&T readers. His role as undersecretary was not his first in government. He served for much of the 1970s as the deputy assistant secretary of defense for materiel acquisition and as assistant director of defense research and engineering for electronics, responsible for all defense electronics research and development (R&D).

Because of his expertise, Gansler has served on more than one committee that has looked into revamping acquisition. One in particular bears his name—the Commission on Army Acquisition and Program Management in Expeditionary Operations, which he

FIGURE 1



LOSING OUR EDGE

Gansler is just one of many experts decrying the shortage of R&D funding and uses these charts in his presentations to drive the point home. The top chart shows that U.S. government funding for R&D used to be twice that of industry; now it is half that. He uses the lower chart to show that U.S. research funding is far outpaced that of Organization for Economic Co-operation and Development (OECD) members, which include many European Union countries and other allies and partners of the United States. Less friendly nations outpace United States spending even further. (SOURCES: Top figure, David Mowery, "Military R&D and Innovation" (University of California Press, 2007); bottom figure: National Science Foundation, "Science and Engineering Indicators 2006," and OECD, "Main Science and Technology Indicators" database, November 2004)

chaired and which produced the October 2007 report "Urgent Reform Required: Army Expeditionary Contracting."

He talked with Army AL&T Feb. 13 about the commission's work, what's happened since then and many other aspects of revamping acquisition.

Army AL&T: Do you think that the Defense Acquisition System is out of date? If so, is it possible to bring it up to date?

Gansler: Yes. It can be significantly improved, but it's a challenge. [Niccolò di Bernardo dei] Machiavelli warned us that trying to make change in government is hard. [Former] Defense Secretary [Chuck] Hagel made it very clear that we are, in many areas, losing our strategy, which is technological superiority. [See Figure 1.] He said it in terms of air, ground, sea and space. But the major areas that I think we need to address in terms of change are the ability

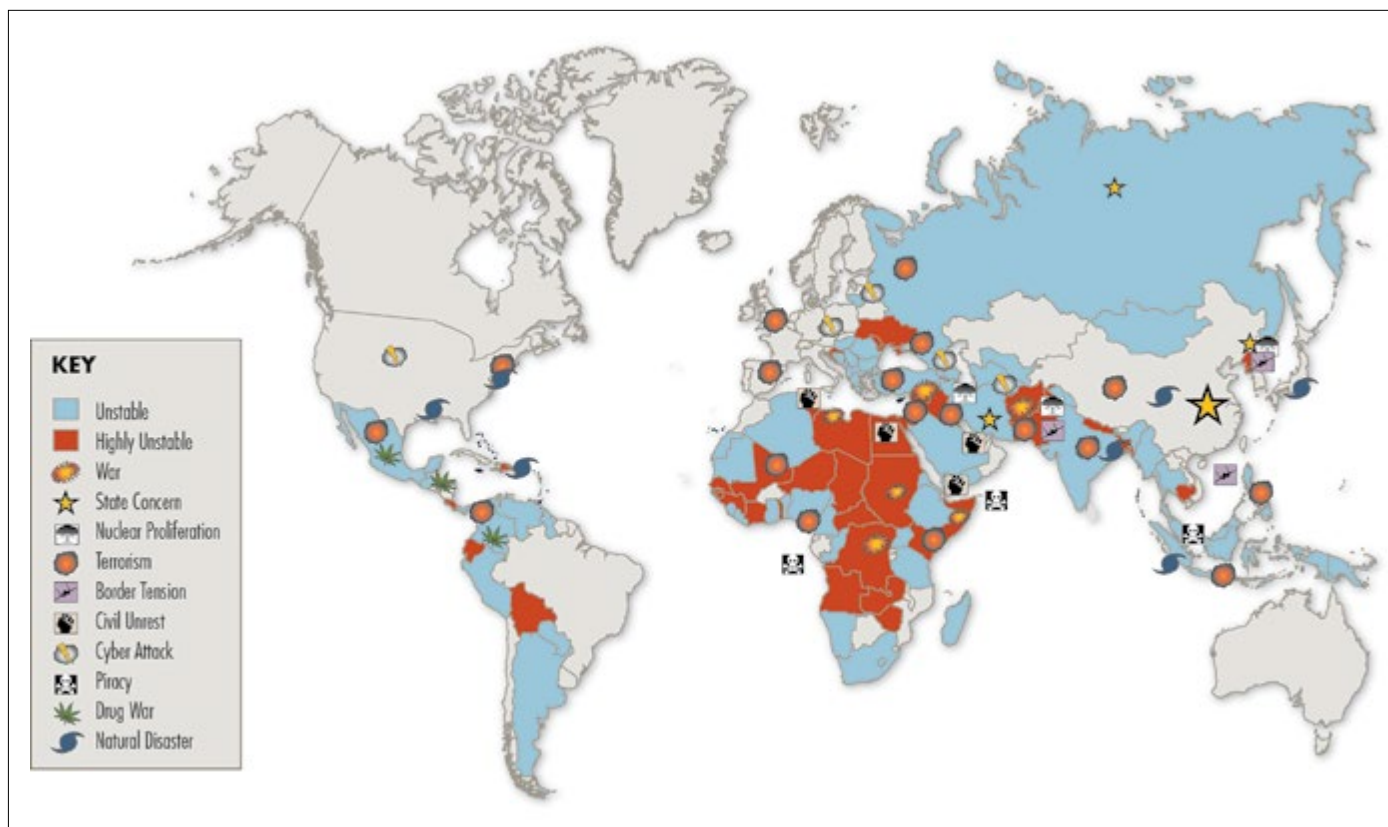
to buy commercial, the ability to have civil-military-industrial integration and the ability to take advantage of [an] international, global [marketplace].

There are a significant number of areas where the Department of Defense is no longer technologically ahead. The most obvious fix for this is not necessarily changing the rules, but looking at where the budget's going. We're buying ships, planes and tanks from the 20th century instead of doing research for the 21st century, and we're not even shifting the types of things that we're going to see in the 21st century. Cybersecurity, for example, is a major issue for the 21st century. [GEN Sir] Rupert Smith wrote a book ["The Utility of Force: The Art of War in the Modern World," 2005], saying that what we should think about is that we're shifting from tank-on-tank [warfare] to war among the people. That's another area. [See Figure 2.]

Another thing that's happening in the world, and certainly in America in defense, is a shift from a focus on goods to a focus on services. I did a Defense Science Board study in 2011 or so, in which I looked at the total expenditures in the acquisition area for DOD, and found that 60 percent of the dollars are going to buying services. Yet all of our rules, our policies and our practices are based upon buying goods. There's a big difference between buying an engineer and buying a tank: You don't need to put the engineer through live-fire testing.

If we are focusing mostly on services, one of the examples is information technology. The commercial world is way ahead of the Defense Department in buying IT. If we learned how to do civil-military-industrial integration, we could take full advantage of it.

FIGURE 2



THE STATE OF GLOBAL AFFAIRS

According to Gansler, the numerous, asymmetric and persistent threats to world peace affect not only how the United States should be planning its future defenses but also how the acquisition workforce should go about procuring those defenses. (Image courtesy of Exelis Analysis)

The proof that we have big obstacles to doing that is two things: One is the example of Boeing, which was forced to split their commercial and military transports. They had been co-producing them in Wichita, KS. Instead, they moved the commercial to California, left the military in Kansas, and the price of both went up because they lost the economies of scale from putting them together. Another proof of it is in the Better Buying Power [initiative]. It's even got a special line item for removing the barriers to buying commercial.

Also, when Boeing was going to ship a 767, a commercial transport, out of the country, it had to pay an extra \$15 million because there was a chip inside its electronics that also happened to be in the Maverick missile. Congress passed a law that says that any subsystem in a [DOD] system is not allowed for export, [just] like a weapon system—you're not

allowed to export it. So that chip ... couldn't be exported—not because it was inherently sensitive, just because it was in the missile. And so, therefore, the total commercial airplane was under export control.

That's just one of the many "barriers." There's a whole pile of regulations. The Code of Federal Regulations is now 186,000 pages. [See Figure 3 on Page 116.] If you were a commercial supplier and weren't allowed to export and you had to meet all of these regulations, would you really want to do the business in the Defense Department?

I'd say that the barriers to collaboration between both the commercial and the global market and the defense market are primarily things that Congress introduced. There's one other big barrier that Congress has recently introduced, which is

elimination of public-private competitions ... for work that's not inherently governmental. For example, would you say that wrench-turning is inherently governmental?

Congress passed a law that says 50 percent of all depot maintenance work must be done by government workers—sole source, of course—in government depots. Well, if you had one of them in your district, you'd understand why that law was passed. The House Military Depot, Arsenal, Ammunition Plant, and Industrial Facilities Caucus is the largest caucus on Capitol Hill—135 members—and they insist that all this depot maintenance work be done by government workers. But where they've had thousands of competitions between the public and private sectors, the average savings has been over 30 percent, and the performance, when measured, has improved.

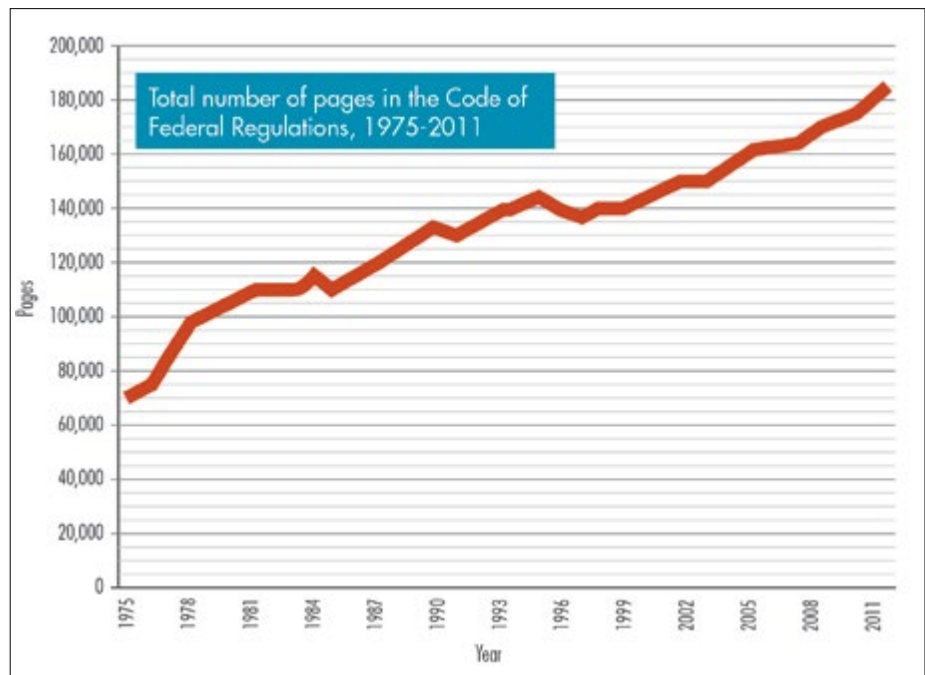
If you think about the barriers on a global basis, there clearly are some areas where the U.S. is no longer ahead.

The largest killer of Americans today [in combat] is roadside bombs. And so we decided we would armor those vehicles, and we got the armor from the country that has the most unfriendly neighbors in the world. Who do you think that is? Israel. So we are now using this Israeli armor on our infantry fighting vehicles, and that makes sense—to take advantage of the technology that exists in different parts of the world. And the Israeli company fortunately set up their factory in Vermont.

Army AL&T: Is government R&D losing the relevance it once had? Should the government just leave it to the private sector?

Gansler: There's no evidence that the government is leading the research.

FIGURE 3



MORE REGULATIONS NOT THE ANSWER

Gansler maintains that one of the biggest hindrances to effective acquisition is some 186,000 pages of federal regulations. He uses this slide to demonstrate the absurdity of trying to abide by a body of regulations that no single person could actually master. (SOURCE: Senate testimony of Patrick A. McLaughlin, Mercatus Center, George Mason University)

There is lots of evidence that, for example, what DARPA [the Defense Advanced Projects Research Agency] funds does lead in many areas. But there's still significant cultural resistance in the question of what we buy.

There are four parts to acquisition. The first question is, "What do I buy?" And that should relate to the future, not the past. The past is based on cultural bias: I want another airplane, I want another ship, I want another tank—that kind of thing. Congress likes that because it's being built in their districts. So the first issue is a question of, "How do I spend my money?" And I think there's an example of where [doing] research versus buying some old stuff is one of the key questions.

Then the second question that relates to that is, "Who will I buy it from?" And that relates to buying commercial and buying foreign, and buying from a defense industry that is highly competitive and state-of-the-art. Those are the options you have, and you want to create a defense industry that is state-of-the-art, that is highly competitive, and by that I mean at least two companies in each area that is critical. In many areas, we've gotten below that. That's a question of what should the defense industrial base be for the future, and should it include commercial? Should it include civil-military integration, like the example I gave about Boeing having to split up? Should it include any foreign sources? And should you plan on making sure that it always

There are a significant number of areas where the Department of Defense is no longer technologically ahead. The most obvious fix for this is not necessarily changing the rules, but looking at where the budget's going.

has competition at least in all critical areas or next-generation critical areas? That's the kind of thing that we try to research in our research center here [at the University of Maryland]. So the second question, who do you buy it from, is [related to], "What do you want for your industrial base?"

And then the third question is, really, "Who does the buying?" And there's one of the biggest problems we have right now—the experience of the acquisition workforce. You really want your senior people, experienced people, knowledgeable people to be making those decisions. But unfortunately, we have had an aging workforce, and they were replaced by "interns." In fact, today 55 percent of the DOD's acquisition workforce have less than five years of experience, with few mentors remaining to help them.

Army AL&T: Do you think that the Better Buying Power (BBP) initiative of building the professionalism of the workforce is really making a difference, or is it too early to tell?

Gansler: Well, it's an important initiative—let's start it that way.

In order to try to address this need, here in my research center, we're running a program on acquisition specialization for graduate students—case studies and things like that, which we're teaching and

getting certified. But even the Defense Acquisition University is somewhat resistant to the needed change in the sense that they don't teach the best practices of the commercial world, and there are many areas where commercial best practices truly are the best. They teach, "Here's how we do it," the 186,000 pages of the Code of Federal Regulations. And they teach buying goods and not buying services.

The BBP professionalism initiative is something we should be doing, because there aren't mentors out there nowadays. One thing we might want to think about is creating an organization that has some experienced people who can help as counselors or mentors for the contracting and acquisition practices. I think that's a step we need to take. The world changes. Why are we teaching the way we used to do it, instead of recognizing that technology's changed, the scenarios have changed, the threat has changed?

We didn't have to worry about cybersecurity 15 years ago. And the sort of things that you could have—automation and other techniques, robotics, things like that—we want to make sure we're taking full advantage of from the commercial world or even the global world, and not just constraining ourselves to the way we used to do it.

Army AL&T: Who would be the best entity to take up that responsibility for

providing experienced counsel, then? Would it be academia?

Gansler: Well, that would be in the right direction. And you also need to make sure you've got some of the creative and senior experienced government and industry people doing it, because the old way isn't giving much authority to the program manager. The contracting people now tell them what to do, and you'd like to have the program manager experienced as well as the contracting people. You'd like to have the program manager be able to have some flexibility to make some choices instead of having the old laws and rules dictate the way we do it.

Army AL&T: You've said, to quote the Gansler Commission report, that contracting people are "understaffed, overworked, undertrained, under-supported and, I would argue, most importantly, undervalued." Given all that government civilian employees have been through over the last year with furloughs and sequestration, why would someone want a government job?

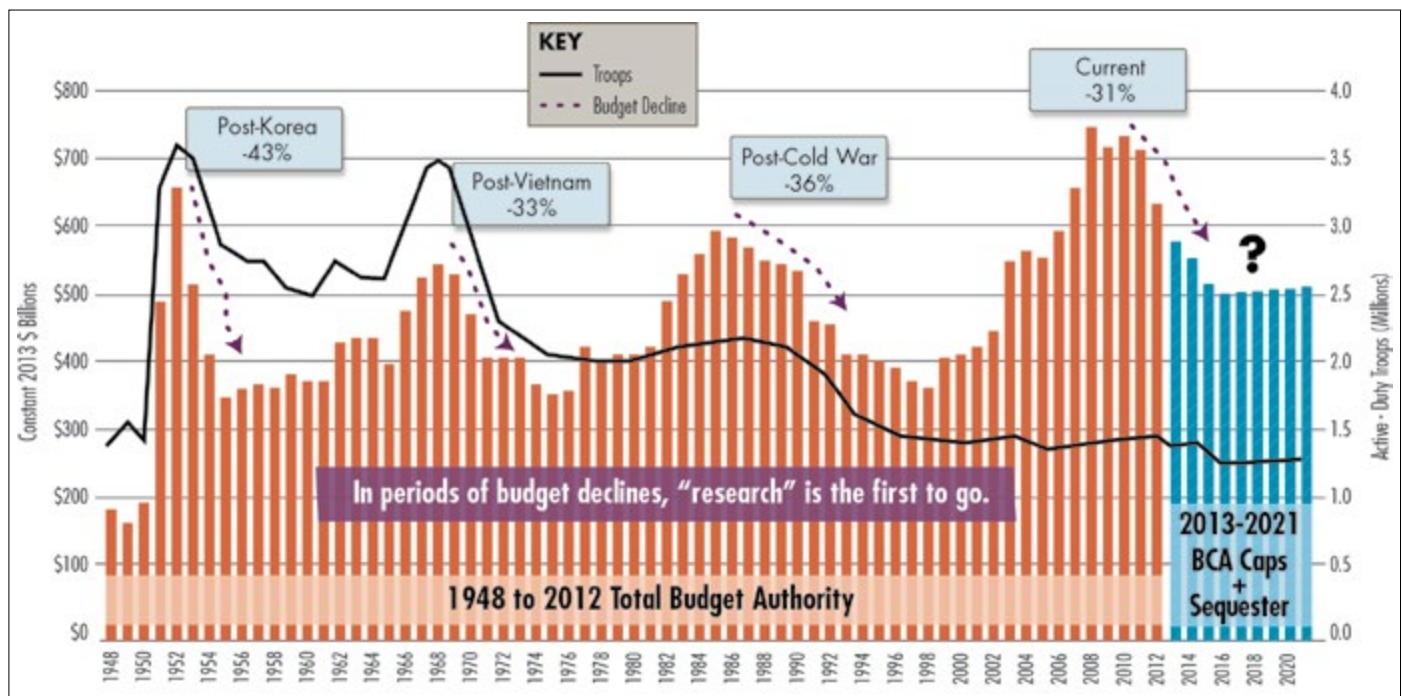
Gansler: Especially with what it pays, you mean, besides that.

Army AL&T: Besides that.

Gansler: My son [Douglas F. Gansler] was attorney general of Maryland [from 2006 to 2014], and he's just gone to work for a law firm and his salary has skyrocketed. I was impressed with that. It makes the point you're making. I think what you need now is for [Secretary of Defense Dr.] Ash Carter to sort of take the lead in emphasizing the importance of an acquisition workforce career path, and they will be listened to.

Army AL&T: It seems as though government employees are often maligned as

FIGURE 4



BUDGET: PREDICTABLY UNPREDICTABLE

In periods of budget decline, research is the first to go. Gansler said. In this graphic, the black line represents the number of active-duty troops in millions, while the red bars represent the total budget authority from 1948 to 2012. Predicting the near-term future is difficult because of the Budget Control Act (BCA) and sequestration. (SOURCE: Center for Strategic and International Studies, "Preparing for a Deep Defense Drawdown," Feb. 8, 2013)

bureaucrats in a bloated bureaucracy and, while there are bad apples everywhere, you look around and it's hard not to respect members of the acquisition workforce. How do you respond to that kind of a slap against the government workforce?

Gansler: I agree with your assessment totally. That was my experience when I was in the government twice, the first time in charge of electronics R&D. At the time I was a vice president at ITT, and [then-Secretary of Defense] Bill Perry called me and asked if I would come to the Pentagon and run electronics R&D. And so I did. At that time, I took only an 80 percent salary cut.

The next time, when I came as an undersecretary, I took a 90 percent salary cut. But I found the government people to be extremely qualified, extremely dedicated and extremely competent.

A lot of those people have retired. Now we clearly need to focus on trying to have people come from the private sector and/or universities into these jobs and not make barriers to them doing it and leaving when they're finished.

I think there are people in industry—maybe in the think tanks or even in the labs of industry—who could make some significant contributions but aren't being encouraged, as you suggested with your question, to take the job, because then they're the "bureaucrats." That's why I think we need more flexibility in the decision-making process—because we need to have the ability to work across the sectors. There are people in the government who need to have industry experience, commercial experience, preferably even some global exposure. It really is different in the rest of the world. When I was a vice president of ITT, obviously a global company, I was forced to see the rest of the world. To the extent we can, [we need to] get people coming into the

I'd say that the barriers to collaboration between both the commercial and the global market and the defense market are primarily things that Congress introduced.

government who have industry experience, global experience and preferably even commercial experience, because today the commercial world is ahead in many areas.

We need to clearly stress the education and training aspects. I just completed a National Academy of Engineering study where I was shocked to find that the government has been questioning the value of paying for people to get master's and doctoral degrees—even via distance learning. That just shocked me, because I think there's no question that understanding what it is you're doing makes sense.

I got my Ph.D. while I was working in the government. And now we're running this acquisition specialization as part of the master's and doctoral degrees here at the University of Maryland, and that usually is paid for by the company or the government. I had both of my master's degrees paid for by the company I was working for, and my Ph.D. by the government. [Otherwise] I probably wouldn't have done it—I couldn't have afforded it.

Army AL&T: The Gansler Commission put a lot of emphasis on the need for leadership, particularly senior military leadership, to raise the visibility and importance of a professional contracting corps. Is there anyone in your eyes who's exemplifying that leadership for the Army?

Gansler: I think there are people in the Army, retired as well as current, who have really stressed that. But I'd rather not name one or two. There's still a set of controls over them in this 186,000 pages of the Code of Federal Regulations, and by Congress. When Congress brings them up on the Hill to attack them for screwups on the programs, Congress

keeps writing corrective actions by adding more pages to that document. They fix things, they think; but they're not giving the flexibility or the value of the acquisition workforce that they should be. Instead of attacking them and writing new laws to control them, they need to give them the experience and flexibility and recognition.

Army AL&T: You've said that people don't think that cost is a requirement, but that cost should absolutely be a requirement.

Gansler: Absolutely. When you buy something today in the real world, you have a design-to-cost objective: This



CYBER LEADERSHIP

ADM Michael S. Rogers, commander of U.S. Cyber Command and director of the National Security Agency, speaks to cadets, staff and faculty Jan. 9 during a leader professional development session at the United States Military Academy (USMA) at West Point, NY. "There are a lot of things we could be doing better," Gansler said, to protect against terror and cyber threats, "in the sense of better integration of intelligence activities," among other things. (Photo by SFC Jeremy Bunkley, USMA Public Affairs)

One thing we might want to think about is creating an organization that has some experienced people who can help as counselors or mentors for the contracting and acquisition practices.

is how much I'm willing to spend. Do you pick your heart surgeon on the basis of the lowest hourly rate? You wouldn't make that your basis. You'd use prior experience, and you'd say, "What kind of references do they have?" and things like that. Why can't the government do that? The government doesn't do a very good job of keeping past performance data, for example. That's something the government should be making "best-value" judgments on the basis of—a combination of performance, reliability and cost—not just the cheapest. And yet, there's been a move in that direction, even more so in the services area, where professional, skilled services really matter. If they have experience to provide that service, don't go for the lowest hourly rate.

But that's unfortunately what I hear from a lot of the service companies. The thing I hear from the small businesses, where a lot of innovation comes from—I

get calls all the time from the man or woman who runs a startup company, saying, "Can you get these auditors off my back? I'm spending all my time just trying to satisfy the specialized cost accounting rules." Or, "The auditor's running through my factory and asking me questions and tying up my personnel." It's a lack of trust.

If you want to go back to the original question about cost being a requirement, the JDAM [Joint Direct Attack Munition] missile's a perfect example, where we allowed them to use commercial parts for [about] 30 percent of the sensors and actuators and things like that, and then the independent cost analysis went down dramatically. The Air Force had estimated that a single GPS receiver would be something like \$150,000 per airplane. Now, you and I carry a GPS receiver around in our iPhone, and we didn't pay \$150,000 each for that chip.

The chief of staff of the Air Force said there were only three requirements for the JDAM weapon. Because we have so many of them, it should cost under \$40,000 each, and because the important point is to hit the target, it should have proven accuracy. And then the other important consideration is [that] when I push the button, it works. The guidance system for the JDAM missile went from the independent cost analysis, using military parts, of \$68,000 each, to \$18,000 each as a result of using commercial parts—rather dramatic—and also using competition, which is another thing that the government needs to emphasize more.

So you want performance, reliability and low cost. And so people always say, "Well, gee, can you really get higher performance and lower cost?" Of course you can. That's what innovation's all about.

Lanchester's law says the total force effectiveness is proportional to individual weapon effectiveness times their numbers squared. Numbers are more important than the individual weapon's performance, and numbers are directly correlated with unit cost. And so it really matters what things cost: if you can get enough of them within the budget and if you plan ahead for what we'll need in the future.

That's one of the things that I think we need to place more emphasis on, the programming aspect of the budgeting process, the five-year plan: thinking about what we'll need in five years and making sure we're thinking about that for the future. [See Figure 4 on Page 118.] That's the purpose of research, and that's one of the reasons that you want to get some of the university people who are looking at global research to take part in that planning process. I think it's very clear that we don't have a requirements process that is looking ahead. It tends to be more looking back, and that's something we can't afford to do because the world is changing too fast.

Army AL&T: Can you point out any country that does acquisition especially well?

Gansler: My impression is Israel, because they're in an unfriendly neighborhood. They're forced to do things faster and cheaper. They have to figure out a way to respond rapidly to their unfriendly neighbors [who are] shooting rockets and missiles at them. They developed the defense system, including electronic warfare and missile defense and things like that, fast, and they had to do it well because their own society is being threatened—the whole country, literally.

Army AL&T: So it's the existential threat that drives them?

TEAMING WITH INDUSTRY

Tina Hamilton, an explosives production worker in the Ammunition Operations Directorate at McAlester Army Ammunition Plant (MCAAP), OK, works on the BLU-108 “smart” submunition. Intended to defeat soft and heavy armored targets on land or at sea, the BLU-108 is assembled by MCAAP employees as part of a public-private partnership contract that the Army has with Textron Defense Systems. The more flexibility Congress allows in operations of the organic industrial base, including the involvement of and even competition with the private sector, the greater the potential for cost and performance efficiencies, Gansler said. (Photo by Kevin Jackson, U.S. Army Materiel Command)



Gansler: Exactly. We, right now, are facing as much of an existential threat. You figure North Korea and Iran—that’s one set of potential existential threats, with their missiles and their nuclear weapons. And then the other end of the spectrum is the terrorist threat and even the cybersecurity threat. We have to figure out ways to protect against each of those. There are a lot of things we could be doing better in that area, like the terrorism threat in the sense of better integration of the intelligence activity. The president just announced we’re going to set up a new organization for cybersecurity, and that’s helpful because it’s clear that that’s one of the real current threats.

Army AL&T: Is there anything that you’d like to add?

Gansler: I think it’s very important that we learn how to streamline our regulations. It’s very important that we continue to focus on affordability. We have a history of continuous cost growth of our weapon systems. The largest program in history right now is the F-35, and that,

when it was started as a DARPA program, had a design cost of \$35 million. Now its estimated cost is over \$100 million, and so we keep not emphasizing cost as much. And the way that emphasis has been interpreted is: Let’s get cheap—and that’s not what I’m talking about. I’m talking about “best value,” getting higher and higher performance, higher and higher reliability, and lower and lower cost.

One lesson learned that we should have followed is to look at the actual data on the so-called “great engine war” for the F-16 and -15. They had two engines competing continuously, GE and Pratt & Whitney, and both of them got higher and higher performance, higher and higher reliability, and lower and lower cost because of the continuous incentives for innovation. Now with the F-35, the decision was made not to dual-source the engines. How do you throw out all that historic data?

Same thing with the public-private competition that I mentioned earlier. When we’ve had thousands of examples with

average cost savings of over 30 percent, it’s now against the law. I come up with a lot of cases where the facts should be used, and the same thing with flexibility and management judgment—if you have senior, experienced people in the acquisition workforce, both the program managers and the contracting people, allow them some flexibility so they don’t always have to “follow the rules” if the rules aren’t the best answer.

We can make change, and that’s the leadership challenge. And I think we need to stress that. I talked to [Rep.] Mac Thornberry [R-TX, chairman of the House Armed Services Committee] yesterday and offered to help in any way we can. I think that there’s still lots of opportunity, and there’s lots of need for the future. If we’re going to maintain our strategy of technological superiority with fewer dollars, we have to take some actions. And one obvious step is making sure we’re adequately funding research. ?



MR. THOMAS C. 'TOM' WALLACE

COMMAND/ORGANIZATION:

Product Manager for Sets, Kits, Outfits and Tools, Project Manager for Force Protection, Program Executive Office for Combat Support and Combat Service Support

POSITION AND OFFICIAL TITLE:

General engineer

YEARS OF SERVICE IN WORKFORCE: 6

YEARS OF MILITARY SERVICE: 21

EDUCATION:

M.S.M. in systems engineering and MBA in international operations, St. Mary's University; Lean Six Sigma Master Black Belt Certificate, Villanova University; U.S. Navy Test Pilot School, Experimental Engineering Test Pilot Program; B.S., United States Military Academy at West Point

DAWIA CERTIFICATIONS:

Level III in program management, test and evaluation, and systems engineering, research and development

AWARDS:

Military: Legion of Merit, Meritorious Service Medal, Good Conduct Medal, Master Aviator Medal

Civilian: Army Lean Six Sigma Excellence Award Program (LEAP) Honoree, Project Mentor Enterprise Team; LEAP Honoree, Project Owner Enterprise Team

“In God we trust. All others bring data.” That’s the main lesson that Tom Wallace learned from conducting airworthiness flight testing as an Army test pilot. Now that he is out of the cockpit and part of the Program Executive Office for Combat Support and Combat Service Support (PEO CS&CSS), that lesson—“the fundamental importance of collecting sound, healthy data and the utilization of systematic analysis techniques to convert that data into meaningful and actionable management information,” as Wallace puts it—still guides his work, which has earned him and his team recognition from the Army Lean Six Sigma (LSS) Excellence Awards Program, known as LEAP.

Wallace led a team that used Lean Six Sigma tools to develop a multigeneration project plan (MGPP), a group of synchronized but independent projects and events that together explore a larger challenge—in this case, the use of special tools to execute field-level maintenance across the Army, with the goal of increasing Soldier-maintainer effectiveness and efficiency while reducing life-cycle costs and the total logistics footprint. The 2013 award is the second LEAP honor for the team, which was also recognized for its work on the Special Tool Accountability Project in 2012.

For Wallace, serving the Army is part of who he is. He spent 21 years on active duty, retiring as a lieutenant colonel, and

comes from a family with a long history of Army service. “My grandfather and father retired as Army colonels, and my father, my nephew and I all graduated from the U.S. Military Academy. Bottom line: Army service was always in my blood.”

What do you do, and why is it important to the Army or the warfighter?

As a Master Black Belt, my primary responsibilities are teaching LSS skills, mentoring continuous process improvement initiatives and leading LSS-related projects. The body of knowledge and projects executed within the LSS environment directly address the Army initiative to realize improved efficiency and effectiveness in support of Army warfighters.

How did you become part of the AL&T Workforce, and why?

My early aspiration to become an experimental test pilot drove me to schools and subsequent assignments within the AL&T Workforce. The diverse opportunities and professional challenges kept me within the AL&T environment throughout my career. I was accessed into the Army Acquisition Corps [AAC] as an Army officer in 1993 and earned Level III certifications in program management, test and evaluation, and systems engineering. Most of my Army career was spent conducting airworthiness flight testing as an experimental test pilot and as an international research and development

[R&D] coordinator. After retiring from the Army, I worked for a defense contractor providing LSS capabilities to the Army. I earned a master's certification in LSS from Villanova University, and when I returned to the workforce as a DA civilian 10 years ago, my LSS skill set was immediately put to use supporting the Project Manager for Joint Combat Support Systems.

What do you see as the most important points in your career with the Army AL&T Workforce, and why? Is there a program or opportunity you wish you had pursued but didn't?

Having the opportunity to participate as a team member on airworthiness test and evaluation projects was certainly the highlight of my early career. The wide variety of highly technical test programs, extremely competent co-workers and the varied nature of test objectives proved highly rewarding. In the middle of my career, my last tour on active duty as an international research and development coordinator for the Army Materiel Command proved an awesome assignment.

The primary objective was to seek out, identify and facilitate formalizing cooperative research and development opportunities between the Army, European allies and industry in the fields of aeromechanics, simulation, hypervelocity and unmanned systems. Finding just a few golden nuggets where cooperation

provided immediate mutual advancement in engineering capabilities and technology was both challenging and professionally rewarding.

Leading an enterprisewide Army initiative to investigate, quantify and recommend fixes for the logistics burden that special tools place on our Soldiers remains the highlight of the later phase of my career. Originally seen from the trenches of a product office as a "bridge too far," the global objectives became realistic and achievable once senior Army leadership became aware of potential operational and financial benefits.

The one opportunity that I regret not seizing was assignment as the systems integration and maintenance officer for the 160th [Special Operations Aviation Regiment (Airborne)] "Night Stalkers." The position provides airworthiness engineering oversight at the point where cutting-edge technology is first operationally deployed. Unfortunately, at the time, outside influences dictated that it was time for me to transition out of the military.

What's the greatest satisfaction you have in being a part of the AL&T Workforce?

The ability to make a real and tangible difference through leading LSS projects, and mentoring and training other aspiring LSS professionals, are major sources of professional job satisfaction.

Successfully mentoring Green and Black Belt candidates through their training, initial projects and certification is highly satisfying. The greatest satisfaction is seeing enterprise-level change taking place as a direct result of LSS projects that I own as the project leader or mentor as a Master Black Belt.

Acquisition is a very broad term encompassing a lot of different job specialties, with many career tools available to all of them. What advice would you give to someone who wants to get where you are today?

If there is one skill set that must be mastered, regardless of career field, it is program and project management. Being technically competent in your chosen field is a given. Success requires attaining the leadership skills and experience to effectively lead integrated product teams, facilitate meetings, manage schedules and lead others. Never stop acquiring new management skills through observation. Study and emulate the great leaders you admire.

What's something that most people don't know about your job? What surprises outsiders most when you tell them about your job?

Most outsiders don't realize that the Army maintains a mature continuous process improvement environment that's driven by Better Buying Power, value engineering and Lean Six Sigma initiatives. What surprises most people is the ability of someone at my level within a product office to actually drive change at the Army enterprise level through use of LSS initiatives.

—MS. SUSAN L. FOLLETT

ONE (OF TWO) FOR THE TEAM

Wallace, center, accepts a LEAP award on behalf of his team from Undersecretary of the Army the Hon. Brad R. Carson and LTG Thomas W. Spoeher, director, Office of Business Transformation, Office of the Undersecretary of the Army, Sept. 4, 2014, at a ceremony in the Pentagon's Hall of Heroes auditorium. (U.S. Army photo by SSG Bernardo Fuller)



GROUND TRUTH

Harnessing lessons learned through Better Buying Power initiatives

by Ms. Gail Cayce-Adams

The Army Acquisition Lessons Learned Portal is a valuable resource for sharing best practices and innovative solutions that have the potential for implementation throughout Army acquisition. The following are lessons learned from successful Better Buying Power (BBP) initiatives in affordable programs, capabilities development and production, hardware refresh cycles, incentivizing contractors and getting a better return on investment.

BBP is based on the premise that the best way to improve the performance of the defense acquisition system is to look for ways to encourage continuous improvement. Launched in 2010 with subsequent iterations released in 2012 and 2014, BBP implements best practices to strengthen DOD's buying power by focusing on affordability, cost control, eliminating unproductive processes and bureaucracy, promoting competition, and encouraging productivity and innovation in industry and government.

ACHIEVE AFFORDABLE PROGRAMS

LL_307: Review and re-evaluate requirements that may be beyond a reasonable reach and ask if the requirement is more than what is actually needed.

Background

A team of engineers and program managers presented a series of trade-offs to a program's configuration steering board, detailing an ambitious series of changes designed to cut costs, reduce system weight, enhance capabilities and better allow the system to keep pace with technological advances. An essential aspect of the rationale upon which these adjustments were made was integrating commercial off-the-shelf (COTS) technologies.

Requirements were re-examined and refined in some cases or eliminated altogether in order to streamline the program. Waived requirements related to capabilities that were determined to be less crucial to the program and therefore would allow for effective, informed requirements trade-offs. Restructuring the technology and blending key elements of the program of record with COTS technologies resulted in a reduction of more than \$380 million in procurement cost and \$880 million in total savings over the lifetime of the program.

Recommendation

Review and re-evaluate requirements and consider all trade-off options in looking for ways to conserve resources.

LL_52: Assess production line capacity and timelines for similar systems with the same configuration to possibly modify production purchases and reduce cost.

Background

Better buying power was achieved through the implementation of economic order quantity with international partners, resulting in \$62 million in savings in FY12. By assessing production line capacity and timelines for missiles with the same configuration, additional missiles could be incorporated as part of the production buy, thereby reducing the average unit procurement cost for U.S. and international partners.

Recommendation

Look for contract synergy when possible, given the stage of the product in the acquisition life cycle, for U.S. and international contracting opportunities.

CONTROL COSTS THROUGHOUT THE PRODUCT LIFE CYCLE

LL_179: When negotiating enterprise software contracts, define the scope of the enterprise, understand the software you are buying and have an immediate need or guaranteed funding for some portion of the licenses to realize cost savings.

Background

Economy of scale in procuring enterprise software licenses and services is an obvious mechanism to cut costs. In practice, however, it is extremely difficult to

achieve in the Army environment where commands, appropriations, existing contracts, programs and implementation schedules often operate separately.

Recommendation

Define the scope of the enterprise. The boundary should be where the business processes become more different than alike. Additionally, understand the software you are attempting to buy; become familiar with its capabilities and how it is sold. Obtain 100 percent firm commitments for how much each organization can pay now and in the future. Agreements should be structured such that the government does not



TECH REFRESH

The National Guard's C Signal Company, 29th Infantry Division, receives training on Warfighter Information Network – Tactical (WIN-T) Increment 1 technical refresh upgrades at Pikesville, MD, Jan. 14. While WIN-T is highly specialized DOD software with its own costs, the costs of COTS software licenses can be significantly reduced through economies of scale and purchasing for the enterprise; however, such savings can be difficult to obtain given the Army environment in which commands, appropriations and implementation schedules often operate separately. (U.S. Army photo by Amy Walker, Program Executive Office Command, Control and Communications – Tactical)



COST-CUTTING EFFORT

Wallace Horn clips the band from a pallet of M1 Abrams tank parts at the Combat Vehicle Repair Facility of Anniston Army Depot (ANAD), AL. Data from the Army Lessons Learned Portal suggest that assessing production line capacity and timelines for similar systems with the same configuration can lower costs and improve purchasing decisions. (Photo by Mark Cleghorn, ANAD)

obligate ahead of need. Demonstrate immediate need for credibility at the negotiating table.

LL_690: Providing government-furnished equipment (GFE) to the contractor can reduce both cost and schedule.

Background

As quick reaction capability (QRC) platforms are being demobilized and retired, Army programs can capitalize on investments made in these systems through reuse of GFE in future programs. In many cases, the cost-benefit analysis of purchasing new equipment versus refurbishing existing equipment supports the refurbishment option. In addition, reuse of GFE is often advantageous from a schedule perspective because many GFE products are considered long-lead-time items. The government can save millions of dollars through reuse of GFE from QRCs for a program of record. In addition, approximately two- or three-week schedule savings have been realized where the integration of GFE was on the critical path and the contractor could not procure the items in time to meet the schedule.

Recommendation

Review both cost and schedule benefits of supplying GFE to the contractor. Capitalize on reuse of GFE from demobilized and retired programs for future programs or spares. Analyze the costs and benefits of purchasing new equipment versus refurbishing existing equipment, and consider the benefits of reuse on program schedules. Review risks and benefits associated with the government providing GFE. Finally, where GFE is not included in the performance work statement, ensure that the government gets consideration of any reduction in overall program costs.

INCENTIVIZE PRODUCTIVITY AND INNOVATION IN INDUSTRY, GOVERNMENT

LL_219: Contracts should incentivize cooperation between contractors with interdependent products.

Background

Current Army programs often rely on or integrate technologies produced by multiple contractors, requiring cooperation and knowledge sharing. Clear and open communication between program offices and associated contractors and subcontractors must be encouraged to support the successful integration of these key technologies.

Recommendation

Contracts should incentivize cooperation between contractors with interdependent products. Crafting appropriate contract language may require coordination between program offices.

Sample contract language: “As directed, both contractors shall develop and implement an integrated porting plan that is agreed upon by both companies. [Vendor 1] and [Vendor 2] shall provide the necessary hardware, software, technical data, engineering, program and facility resources necessary to achieve the objective.”

LL_716: The use of specialized laboratories such as the Joint Test and Integration Facility (JTIF) and the Developmental System Integration Lab (DSIL), both in Aberdeen, MD, have allowed sophisticated Army intelligence programs to reduce risks related to sensor and software integration.

Background

The DSIL and JTIF allowed on-site subject-matter experts and external



ON-SITE TESTING

A mock-up of the Enhanced Medium Altitude Reconnaissance and Surveillance System resides in the JTIF at Aberdeen Proving Ground, MD, where on-site subject-matter experts can rapidly develop prototypes and jointly integrate and test C4ISR systems. Data submitted to the ALLP indicate that programs with complex integration plans can benefit from using JTIF or a similar laboratory for design and testing. (U.S. Army photo)

stakeholders to jointly integrate, test, validate and calibrate systems for command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR). The DSIL and JTIF allowed for rapid prototyping to review and verify design and human factors; perform software testing in the intended environment; conduct reliability, availability and maintainability testing; and collect reliability data. These laboratories also allowed the program to assess different materiel and technological options to determine the best solution, and to work in a collaborative environment with complementary programs and industry partners to resolve performance, security, integration and interoperability issues before fielding.

Recommendation

Programs with sophisticated integration plans should use JTIF, DSIL or a similar laboratory for initial design, prime mission equipment testing and interoperability testing with complementary programs.

ELIMINATE UNPRODUCTIVE PROCESSES AND BUREAUCRACY

LL_665: Early planning with milestone decision authority (MDA) acquisition policy staff can provide an opportunity for tailoring documentation requirements to remove those that add little value or are not applicable to the program.

Background

Documentation requirements for Milestone (MS) C were informally discussed in encounters with MDA staff during program execution, but expectations and agreements were never formally documented. Some of the regulatory requirements that could be waived for the program were discussed, but a full discussion of all regulatory and statutory documentation requirements did not take place early in the program. It was not until three months before the planned MS review that meetings with the MDA's acquisition policy staff were held to formally establish milestone review documentation

BRASS OFF

A Soldier fires 7.62 mm ammo from an M240 machine gun during a field training exercise in Saber Strike 2014. Held June 16, 2014, the joint, multinational military exercise spanned multiple locations in Lithuania, Latvia and Estonia, and involved approximately 4,700 personnel from 10 countries. More than 80 percent of the ammunition used by U.S. services, including the 7.62 mm round, is produced at the Lake City Army Ammunition Plant, MO, which is undergoing a modernization effort developed by the Program Executive Office for Ammunition and aimed at improving production reliability, availability and maintainability. (U.S. Army Europe photo by SPC Joshua Leonard)



expectations, which was too late to be of benefit.

Recommendation

Coordinate with the MDA acquisition policy staff early and often during program planning stages to establish documentation expectations for the next major milestone review. Document these expectations in the acquisition strategy by listing what will be required in a complete milestone package, and specifically identify those statutory and regulatory documents that are not applicable to the program and will be waived, along with the rationale for each.

LL_806: Feedback from unofficial gatekeepers en route to MDAs can adversely affect a program.

Background

Project managers (PMs) must go through official channels to meet with MDAs. However, the number of unofficial gatekeepers—those who review documents, reports and briefings and provide

feedback on behalf of the MDA—often causes program delays by stopping progress toward MDA meetings to resolve issues. Additionally, the guidance and feedback offered by these unofficial gatekeepers may not align with those of the MDA, which could lead to greater program delays because of unnecessary course corrections.

Recommendation

Clearly identify the official gatekeepers with whom PMs must work en route to MDAs, and eliminate the unofficial gatekeepers from the walk-up process.

PROMOTE EFFECTIVE COMPETITION

LL_49: Early communication and interaction with industry are imperative to improve responses and competition during contract source selection.

Background

A program began discussions with industry 24 months before the anticipated award date. By starting early,

program officials were able to engage industry with their requirements and gather information about best practices, optimal contract vehicles, labor rates, the context of the performance work statement (PWS), and development and deployment methodologies, which proved instrumental in building a comprehensive PWS that addressed all requirements. In addition, the program generated interest from a wide variety of industry partners. During the program's due diligence sessions, 19 companies came to discuss the draft request for proposals; in the past, just two had participated.

Recommendation

To promote competition for software development and integration contracts, begin the market research process very early, and build time into the schedule for protest. Apply the “myth busters” approach to resolving misunderstandings between industry and government during the acquisition process, which is detailed in the “25-Point Plan to Reform Federal Information Technology



Management” that was released by then-U.S. Chief Information Officer Vivek Kundra on Dec. 9, 2010 (<https://cio.gov/wp-content/uploads/downloads/2012/09/25-Point-Implementation-Plan-to-Reform-Federal-IT.pdf>).

LL_691: Use an acquisition approach that leverages a competitive environment, when possible, to maximize return on investment (ROI) for the government.

Background

The Program Executive Office for Ammunition developed an acquisition strategy for the production of small-caliber rifle ammunition and the operation, maintenance and modernization of the Lake City Army Ammunition Plant (LCAAP) in Independence, MO. The seven-year, \$242 million modernization effort aimed to improve production facilities at LCAAP, the only remaining DOD-owned small-caliber ammunition plant in the United States, which produces more than 80 percent of the ammunition used by U.S. military services. Operations in Iraq and Afghanistan increased demand for ammunition from approximately 400 million rounds per year to more than 1.5 billion rounds per year. However, many of LCAAP’s production lines had had few or no upgrades in more than 60 years, and the increased demand exposed vulnerabilities in the facilities.

The modernization plan will ensure an annualized production capability of 1.6 billion cartridges for 5.56 mm, 7.62 mm and

.50-caliber weapons, and will greatly improve production reliability, availability and maintainability, as well as safety and environmental performance.

An acquisition strategy focused on incentivizing industry through a long-term contract that transferred risk and ROI to the contractor achieved success, and resulted in the contractor investing its own capital and resources in addition to Army investments.

Recommendation

Push relevant information out to industry as soon as possible, and encourage full and open competition. Obtain intellectual property rights, and incentivize government and commercial use of facilities with compensation back to the government.

For more information on these and other Army lessons learned within ALLP, go to <https://allp.amsaa.army.mil>.

MS. GAIL CAYCE-ADAMS is an operations research analyst with the U.S. Army Materiel Systems Analysis Activity at Aberdeen Proving Ground, MD. She holds an M.S. in systems management and operations research from the Florida Institute of Technology and a B.S. in computer science from the University of Maryland Baltimore County. She is Level III certified in engineering and Level I certified in program management.

ARMY ACQUISITION **LEADER** PREPARATION COURSE



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FROM THE DIRECTOR,
ACQUISITION CAREER MANAGEMENT
LTG MICHAEL E. WILLIAMSON

SETTING *the* CONDITIONS *for* LEADERSHIP SUCCESS

Pilot course focuses on tackling challenges across
acquisition with real-world lessons learned

As the director of acquisition career management, I find it very important that our leaders about to take command have the skills, knowledge and mindset necessary to effectively address the leadership challenges they are likely to confront in their new roles.

Setting the conditions for leadership success is the central goal of a three-day pilot Army Acquisition Leader Preparation Course scheduled for April 13-16 in Leesburg, VA. The pilot includes 25 military and civilian professionals—centrally selected program managers, acquisition directors, contracting commanders and product directors who recently took command or are about to do so. The course will introduce the participants to a community of senior leaders and experienced practitioners across business, government

and academia from whom they can learn and on whom they can rely for advice as they formulate and implement real-world solutions to real-world problems.

Our acquisition process produces the most capable weapon systems and equipment in the world. This has been true throughout history, especially in the last 13-plus years of war in two theaters for which the Army designed and developed many capabilities to meet the urgent demands of our men and women in uniform. These weapon systems and equipment were possible because of a combination of factors that included a well-trained, educated and experienced Army acquisition workforce; healthy organic and commercial industrial bases; stable and predictable funding from Congress; and the training and skills of Soldiers who successfully took our weapon systems and equipment to war.



MANAGING MATERIEL

Matthew Thomas tests an FIM-92E Stinger missile on the Guided Missile Intercept Aerial test equipment at McAlester Army Ammunition Plant, OK. Components that successfully pass the examination will be used in the upgrade to the FIM-92J variant. Effective acquisition program management requires an understanding of the industrial base, which the pilot leadership course aims to instill in future acquisition workforce leaders. (Photo by Kevin Jackson, U.S. Army Materiel Command)



PROGRAM CLOSE-UP

Darren Ward, left, fire control lead for Program Executive Office (PEO) Soldier's Project Manager for Soldier Weapons (PM SW), shows the PEO, BG Brian P. Cummings, center, the optical collimators used to precisely measure rifle barrel alignment, Jan. 29. At right is COL Michael Sloane, PEO Soldier's PM for Soldier Sensors and Lasers. Cummings was making his monthly visit to Picatinny Arsenal, NJ, where PM SW is located. (Photo by Peter Rowland, PM SW)

Now, as a community, we must expand the aperture, look beyond conventional schoolhouse solutions and learn from the successes and failures of others in order to build high-quality leaders and high-performance organizations. Our new leaders need to learn how to operate effectively in a complex, dynamic environment that is a lot less structured than is commonly perceived, understand their roles in managing talent and leading at the organizational level, shape outcomes and deliver results.

The pilot course is designed to allow participants to think critically about the strategic-level challenges they are likely to confront in their jobs, and reflect on innovative ways to effectively approach those challenges. They will engage with some of our nation's most accomplished leaders and experts who will share real-life lessons learned in several areas of significance to acquisition professionals, including leadership, communication, risk identification and management, talent and organizational management, understanding budgets and operating effectively in a complex, uncertain environment.

To allow course participants the greatest possible opportunity to learn, each topic will be introduced in a plenary session in which an Army or DOD senior leader will share firsthand accounts of how he or she successfully addressed challenges in that particular area. Subsequently, the participants will engage in four or five, 30-minute "speed dating" sessions with their peers, facilitated by experienced practitioners in business, government and academia who will share their unique perspectives on the issue, stimulate dialogue and ask, as well as answer, questions.

A side benefit of this pilot is that participants will become acquainted with senior leaders, experts and practitioners whom

they may never have had an opportunity to meet in their daily routine. The students will not only learn from them during specific segments of the three-day pilot but will also be able to reach back to them for additional advice, counsel and mentorship, as needed.

Throughout the three-day program, the participants will be asked to jot down their impressions, capturing key takeaways and lessons learned from a wide range of perspectives. I plan to collect their journals, personally read the journal entries and assess how well they synthesized the topics presented during the program.

In the end, successful acquisition depends on experienced, knowledgeable leaders and professionals who are decisive in a dynamic environment, who can build talent, who understand the technical nature of extraordinarily complex systems, who use critical thinking skills and who can use persuasion skills to shape outcomes and succeed in spite of all the challenges. It is a tall order, and extremely difficult to achieve on one's own.

As the Hon. Frank Kendall, our undersecretary of defense for acquisition, technology and logistics, has said, "Defense acquisition is a human endeavor that requires a high degree of professionalism in multiple disciplines for success." It is my intent to develop and institutionalize this course because it will help to set the conditions for success for those who take command. They will have the opportunity to hear about valuable lessons learned from those who came before them and interact with experienced practitioners who have dealt with similar challenges operating across different sectors, roles and circumstances. Priceless!



TRAINING INNOVATION

Archie Johnson, product support manager for the Common Remotely Operated Weapon Station (CROWS) under PEO Soldier's PM for Crew Served Weapons, demonstrates CROWS technology provided by the U.S. Army Game Studio in Huntsville, AL, to simulate the system and thereby economically train Soldiers. Program managers need to continuously seek out and be aware of innovations in their fields. (U.S. Army photo)



'WOLVES' ON THE PROWL

Soldiers from the 1st Stryker Brigade Combat Team, 25th Infantry Division "Arctic Wolves" transport more than 600 vehicles from the rail yard in preparation for their deployment validation at the National Training Center at Fort Irwin, CA, Jan. 10. For acquisition program managers, the ultimate goal is to provide Soldiers with the weapon systems and gear they need to succeed in their missions. (U.S. Army photo by SGT Christopher Prows, 5th Mobile Public Affairs Detachment)

EQUIPPED TO WIN

Soldiers of 1st Battalion, 38th Infantry Regiment, 1st Stryker Brigade Combat Team, 4th Infantry Division (1/4 ID) prepare their remote weapon systems Aug. 21, 2014, during the company's first Stryker gunnery, for the completion of operator new equipment training. As a battalion, brigade and division command sergeant major, Malloy has seen how the equipment provided by the Army Acquisition Workforce gives Soldiers the tools for success on the battlefield. (Photo by SGT William Howard, 1/4 ID Public Affairs)





FROM THE ASA(ALT) SGM
SGM RORY MALLOY

WHERE *our* **RUBBER** MEETS *their* **ROAD**



The new ASA(ALT) sergeant major's first 90 days

Change seems to be an everyday occurrence within our Army. At the helm of Army change is the Soldier, led by very capable noncommissioned officers. From the very beginnings of our Army, senior leaders have recognized the value and importance of NCOs. In 1776, GEN George Washington established the position of sergeant major as part of our first standardized regiments. Later, during the winter of 1778 at Valley Forge, PA, Inspector General Friedrich von Steuben first defined the duties and responsibilities of NCOs in a regulation historically known as the "Blue Book."

Although the Army no longer has a "von Steuben" to define roles of newly created NCO positions such as mine, it does have a history of excellence within its NCO Corps and talented officer and civilian leaders to shape what I see as an influential role that has long been vacant. The vision of an excellent leadership team, and the advice and influence of the world's finest NCO Corps, will define how, in this position, I can best serve our acquisition team and Soldiers.

I am honored and humbled to serve as the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASA(ALT)) sergeant major, and I appreciate the



THE WHAT, HOW AND WHY

Alexander Pilott, a new equipment instructor with the Program Executive Office for Soldier, briefs the use and care of the Soldier Plate Carrier System and Modular Lightweight Load-Carrying Equipment medium rucksack to paratroopers assigned to the 2nd Brigade Combat Team, 82nd Airborne Division (2/82 ABN), Oct. 27, 2014, during the brigade's Rapid Fielding Initiative at Fort Bragg, NC. For Malloy, the first step in opening up effective two-way communication between Army acquisition and the force is to tell Soldiers "what we do and how we do it." (Photo by SGT Eliverto Larios, 2/82 ABN Public Affairs)

warm welcome I have received from the team. I am grateful to Ms. Heidi Shyu, LTG Michael E. Williamson and Mr. Gabe Camarillo for having the confidence in me to serve in such a critical and strategic position as your sergeant major.

I am often asked how I would like to be introduced during speaking events. I understand that, more often than not, this introduction is done to provide the audience a little bit of relevance and credibility as to why I am speaking in the first place. Therefore, please allow me to introduce myself to our ASA(ALT) team. I am Rory Malloy, born and raised in a small town in southern Indiana where I met my best friend, Deborah, in the fourth grade. I married her shortly after joining the Army 30 years ago. My wife and I are blessed to be the parents of two wonderful young adults and are thrilled to finally be grandparents.

I am an infantryman and have served on the line for the majority of my career, in virtually every leadership position my career field offers, from machine gunner to command sergeant major. Should you be further interested in the details, my complete biography is on the ASA(ALT) website at <http://www.army.millasaalt>.

A FIELD SOLDIER'S VIEW

Like most leaders, I have been groomed to perform an organizational assessment within my first 90 days in position. As expected, my assessment comes through the lens of a person who has viewed life and the Army through a field Soldier's optics. My views are based not only on what I see now but also on what I saw when my Soldiers and I used the products produced by the acquisition workforce. Those views have been both expanded and tempered through my engagements with the leadership from across the Army. I truly know the value

the acquisition team brings to the fight. As a battalion, brigade and division command sergeant major, I saw how the equipment provided by the acquisition team gave my Soldiers and the Army the tools for success on the battlefield. In that light, the theme for this edition of Army AL&T magazine, "Revamping acquisition," is a most appropriate focus for my first topic.

Our sole purpose—and literally our reason for existence—is to equip our Army and the Soldier with the capability to destroy our enemies and win any war when asked by our nation. The Soldier is, and always will be, the focal point of all decisions and recommendations I may provide about products and processes. We must never lose sight of the fact that our customer is the American Soldier. When in doubt about priorities or what direction to take, ask yourself, "How does this help the Soldier?"

Feedback and communication are vital to our processes. Without effective, two-way communication between us and our customers, we will be working in a vacuum and they will be operating in a fog. My number one priority is opening up effective two-way communication. My first task in this effort is to start by communicating to the force what we do and how we do it. Secondly, I will work across all of our programs to develop ways to better receive timely and relevant input from the force we ultimately serve. Only by solidifying this critical information and feedback loop can we develop and acquire the tools the force needs to execute their missions.

This may seem like a simple enough task. However, as most of you may have experienced, there are difficult hurdles that must be overcome. I have already mentioned the first: a lack of education on



FRONT-LINE RESPONSIBILITY

Two 3rd Cavalry Regiment Soldiers assigned to Train, Advise, Assist Command – East (TAAC-E) provide security for U.S. advisers Jan. 6 in a rural area near the Nangarhar, Afghanistan, police Regional Logistics Center. From the very beginning of the U.S. Army, senior leaders have recognized the value and importance of NCOs. (U.S. Army photo by CPT Jarrod Morris, TAAC-E Public Affairs)

our processes. The force must know our processes so it knows how and when to inject feedback into the system. The second hurdle is effectively engaging strategically important players to our process, not the least of which is the U.S. Army Training and Doctrine Command (TRADOC). As the architect for the Army, TRADOC formally develops and provides the requirements that tell us what capabilities the force needs. The blueprint TRADOC draws comprises the design plans from which we must build.

Lastly, and what I hold as the highest hurdle, is receiving Soldier feedback—ground truth—about what we have done. This occurs when we both test and send to the force the products we develop and acquire. Only with this feedback can we ensure that what we have done meets that formally defined capability and the needs of our Soldiers. We must actively pursue that feedback. We must give Soldiers a voice in the process.

FROM GROUND TRUTH TO ACTION

For years, people attempted to convince me that 48 pounds of lightweight infantry gear was indeed lightweight, and perhaps even lighter than 48 pounds. Trust me, they never convinced

me. I am sure all who have deployed will agree: The Army must reduce the quantity and weight of the “lightweight” equipment it expects Soldiers to carry on the battlefield.

During a recent visit to Fort Bragg, NC, I met with LTC Mark Purdy, a deputy brigade commander in the 82nd Airborne Division. We discussed several challenges his Soldiers faced during their most recent deployment to Afghanistan. His concerns ranged from personal equipment load to the Army’s ability to expeditiously deploy necessary equipment.

I left Fort Bragg with some useful recommendations. He offered a holistic approach to reducing Soldier loads by developing systems that could use universal or interchangeable parts. By fielding systems such as radios, vehicles and even weapons that could use the same batteries for power or charging, the Army could reduce a Soldier’s individual load and the need to carry more spares than necessary on missions. Obviously, there are design challenges in achieving this goal, but, by listening to these challenges, recognizing and meeting them, we could enhance the effectiveness of our Soldiers on the battlefield.

The vision of an excellent leadership team, and the advice and influence of the world's finest NCO Corps, will define how, in this position, I can best serve our acquisition team and Soldiers.

Another fruitful benefit of our exchange was informing LTC Purdy about the progress we have made in specific areas of concern to him. He was pleased to hear about our efforts to lighten his Soldiers' load with improved rucksacks and longer-range radios. He also expressed how valuable a recent visit from a program manager (PM) was for him and his Soldiers. The visit allowed them the opportunity to provide valuable feedback on where our rubber meets their road. I was most pleased that he felt that what his people said was taken seriously by our PM. This tells me that we know how to communicate—we just need to do more of it.

CONCLUSION

I will continue to seek out and use such conversations and this magazine to discuss with the force how we can better serve and inform the Soldier. I will also reach within, to members of our own acquisition team, to do the same. My email address is rory.l.malloy.mil@mail.mil, if anyone has a concern that he or she wants to raise with me.

I live by the adage that “good enough” is the archenemy of excellence. We can always do better. By leveraging input from the force and our own internal talents, I am sure we can effectively revamp acquisition processes to serve those who deserve the best even better. Change is never easy, but if it were easy, it wouldn't be called work.

Thank you all for what you do on a daily basis. We have the best Army in the world because of the efforts of this great team. As a lifelong infantryman, I am sincerely honored and proud to now serve alongside the Soldiers, NCOs, officers and civilians of the Army Acquisition Workforce. My promise to each of you is that I will work tirelessly with you and our stakeholders to meet the highest goals and standards that have been laid out for us. Army Strong!

SGM RORY L. MALLOY assumed duties as the sergeant major to the principal military deputy, ASA(ALT) on Nov. 5, 2014. He holds an MBA in human resource management, summa cum laude, from Trident University International and a B.S., cum laude, in business management from Excelsior University. He has served in every infantryman leadership position from team leader to sergeant major, including 12 years as a command sergeant major, drill sergeant, Drill Sergeant of the Year, Reserve Officers' Training Corps (ROTC) senior instructor, operations sergeant, battalion command sergeant major (Operation Iraqi Freedom (OIF) 1, 2003-04), brigade combat team command sergeant major (OIF 4, 06-07), Junior ROTC and Fort Polk, LA, post command sergeant major, division command sergeant major (OIF 09-10) and the 20th commandant (second enlisted commandant), U.S. Army Sergeants Major Academy.



LIGHTENING THE LOAD

SGT Craig Dockery, left, and SSG Jeremy Knight, mortarmen from the 1/19 Infantry Battalion at Fort Benning, GA, assemble the lightweight M252A1 81 mm mortar system developed by the Program Executive Office for Ammunition, during the 81 mm Technical Manual Validation and Verification March 20, 2014, at Picatinny Arsenal. The system is 12 pounds lighter than its predecessor, responding to Soldiers' and Marines' need for a lighter load, a theme that is all too familiar to Malloy, who urges the acquisition workforce: “When in doubt about priorities or on what direction to take, ask yourself, ‘How does this help the Soldier?’ ” (U.S. Army photo)

INDUSTRY INSIGHT

Revamping acquisition: Once more unto the breach

by Mr. Will Goodman

Editor's Note: Industry Insight is an occasional column in which Army AL&T magazine gives members of the defense industry an opportunity to share their perspectives from "the other side of the fence" on how industry can work with the Army and DOD to provide essential capabilities for the warfighter.

Recently, my organization, the National Defense Industrial Association (NDIA), hosted a meeting of universities and nontraditional suppliers looking for ways to get their innovative products into the defense supply chain. The conversation took the usual course of such meetings, with participants expressing frustration with laws and regulations, the slow pace of the acquisition system, the disconnect between operational needs and programs of record, and the apparent inability of the Pentagon to understand the business cycle of Wall Street or the development cycle of Silicon Valley.

Of course, someone was to blame. Congress, naturally. Acquisition policymakers in the Pentagon. The acquisition workforce. And, since this meeting involved only nontraditional suppliers, the major primes and the traditional defense industrial base. If only each of them could see the perspective of commercial firms, of universities, of Wall Street and of high-tech innovators, and just do the right thing, the whole process would sort itself out.

Perhaps I have had a charmed career working in the Pentagon, in Congress and now in the defense industry, but I have yet to meet the people acting in bad faith who work tirelessly to undermine the national interest through a nightmarishly turgid and broken defense acquisition system. Instead, I have encountered individuals serving their country in good faith, reacting to the incentives and pressures of their roles and, frankly, acting as any of us would if we found ourselves in similar circumstances. If



PICKUP ARTIST

U.S. Army Reserve SSG Morton Pegues directs the arm operator of the Buffalo Mine Protected Clearance Vehicle while Soldiers hone their skills on the arm July 20, 2014, at Fort Chaffee, AR, during Operation River Assault. More than 13 years of war have changed the defense acquisition system, but there's a danger that this momentum will cease, allowing boundary conditions to push the system back to its status quo ante. (U.S. Army photo by SSG Debralee Best)

my experience is indicative, and our current acquisition process is the consequence of the broader political and governance system that it inhabits, it begs several questions: Can we revamp acquisition? What are the incentives and pressures that drive behavior? Can we change them? If so, how, and why haven't our earlier efforts succeeded?

While some have greeted the current congressional effort at acquisition reform by groaning, "Not again," perhaps the most refreshing element of this new effort is that our political leaders have begun by asking the right questions. The House and Senate Armed Services Committees began their legislative process last year by looking past procedures and organizations to ask about the incentives that actually drive human behavior in the defense acquisition system.

As part of our contribution to their acquisition reform effort, NDIA concluded that if the Pentagon and Congress have tried

to reform acquisition innumerable times, and those efforts have not produced the success we hoped for, some force or forces more powerful than law or policy must be holding the acquisition system in a state of equilibrium.

We call those forces "boundary conditions," a term coined by NDIA Senior Fellow Jon Etherton. Boundary conditions are forces outside of the acquisition system that reform efforts cannot touch, but which nevertheless undermine efforts to improve acquisition outcomes. In testimony before the Senate Armed Services Committee last April (<http://www.armed-services.senate.gov/hearings/14-04-30-reform-of-the-defense-acquisition-system>), Etherton provided an illustrative list of factors that work against acquisition reform. His boundary conditions included the personnel systems we use to manage military and civilian public employees, which make it hard to reward program officials and even harder to hold them accountable. They included the federal budgeting, program planning and appropriations

processes, which can cause significant and even decisive program inefficiencies for reasons wholly unrelated to a program but instead tied to political or policy imperatives.

Industry's own incentives, particularly as they pertain to the need to demonstrate a return on shareholder investment, form another boundary condition, as do the audit and oversight structures whereby Congress and DOD's inspectors general (IGs) tend to measure program effectiveness; many helpful and even essential authorities are one congressional hearing or IG report away from termination, fair or not. And of course, the media and outside groups amplify every significant program misfire, creating an imperative for broad corrective action whether the specific misfire was an isolated incident or indicative of a trend.

These boundary conditions are bigger than the defense acquisition system; they are integral elements of our political system, and the impacts they create



A DESIGN THAT NEEDS WORK

The defense acquisition system is alive and functioning, as the exhibit hall floor of the Association of the United States Army (AUSA) 2014 Annual Meeting and Exhibition demonstrated. But it could function better, the author says. (Photo courtesy of AUSA)

I have encountered individuals serving their country in good faith, reacting to the incentives and pressures of their roles and, frankly, acting as any of us would if we found ourselves in similar circumstances.

are a feature of the system, not a bug. According to the 51st Federalist Paper, the framers deliberately decided that “the defect [in our government] must be supplied,” so that “Ambition [is] made to counteract ambition.” With individual prerogatives in our society and government thus deliberately set at odds, it is no surprise that a complex and challenging process like major weapon system acquisition is less efficient than we would like it to be, and sometimes it is a complete surprise that the process functions at all.

For that reason, my meeting of nontraditional suppliers is not unique. If you dropped in on a similar meeting of any other group involved in the acquisition

process, they might similarly ask why nontraditional suppliers or any other group (besides them) acts in ways that thwart good acquisition outcomes.

Yet the last decade of war demonstrates that pressures do exist that are more powerful than these boundary conditions and the equilibrium in the acquisition system that they create. The loss of American lives to improvised explosive devices (IEDs) in Iraq powerfully disrupted the acquisition system and led to the creation of the Joint IED Defeat Organization (JIEDDO), an entity exclusively devoted to protecting troops from the IED threat. The need to meet operational requirements led then-Deputy Secretary of Defense Dr.



REQUEST FOR INFORMATION

U.S. Rep. Mac Thornberry, R-TX, poses a question to Deputy Defense Secretary Robert Work, Navy ADM James A. “Sandy” Winnefeld Jr., vice chairman of the Joint Chiefs of Staff, and Michael J. McCord, the DOD’s comptroller, as they testify on the FY15 budget request for overseas contingency operations before the House Armed Services Committee July 16, 2014. There is reason to be hopeful that meaningful acquisition reform will take place, led by Thornberry in the House and Sen. John McCain, R-AZ, in the Senate. (DOD photo by U.S. Navy PO1 Daniel Hinton)

Paul Wolfowitz to create the Joint Rapid Acquisition Cell and the joint urgent operational needs process, demonstrating that evident operational needs can shake up the system. In 2007, then-Defense Secretary Dr. Robert Gates demanded Mine Resistant Armor Protected vehicles and got them. He also created operational integration groups that spawned the joint emergent operational needs process, demonstrating the power of a determined senior leader.

The risk we face today is that this kind of systemic disruption will end, allowing the boundary conditions to push us entirely back to our earlier status quo. While some suggest replacing our long-term planning and acquisition process with one of the rapid processes developed during the last decade, such a

proposal fails to consider why we have our current burdensome process in the first place. To quote GEN Montgomery Meigs, “The legislation on this subject is already complicated and the additional guards intended by this bill will still more embarrass officers and people in the transaction of the public business. Every additional obstacle adds to the delay and to the cost of procuring military supplies. The department needs tools to work with. Regulations, laws, customs, prescriptions as to its manner of doing business already exist in abundance.” I should be clear: this GEN Montgomery Meigs was not the one who led JIEDDO, but his forebear, who served as the Quartermaster General of the Army—speaking in 1864.

Understandably, many call the problem intractable. But we have seen periods of

progress—when senior leaders’ determination overcame the natural tendencies of our political process and did meaningful good. Those circumstances are exactly the ones in place today. There is an opportunity to make real change with Chairmen Mac Thornberry, R-TX, and John McCain, R-AZ, leading the charge in the House and Senate, respectively; with Secretary of Defense Dr. Ashton B. Carter, Deputy Secretary Robert Work, Undersecretary of Defense for Acquisition, Technology and Logistics Frank Kendall; and three capable and experienced service acquisition executives leading their respective portfolios.

Revamping acquisition in this environment will result from senior leaders’ commitment to three principles: giving individuals in the acquisition process the authority they need to get the job done and holding them accountable for outcomes; stripping out the embedded overhead requirements of the acquisition process until we have balanced those requirements with the resources available

The media and outside groups amplify every significant program misfire, creating an imperative for broad corrective action whether the specific misfire was an isolated incident or indicative of a trend.



POWER OF DETERMINATION

A Soldier assigned to the 498th Transportation Company guides a Mine Resistant Ambush Protected (MRAP) vehicle through a motor pool at Bagram Airfield, Afghanistan, Aug. 6, 2014, as part of participation in convoy escort team training. DOD's rapid development and procurement of MRAPs, initiated in 2007 by then-Defense Secretary Dr. Robert Gates, illustrates the power that a determined senior leader can have in changing acquisition processes. (Photo by SFC Luis Saavedra, 10th Sustainment Brigade Public Affairs Office)

to meet them; and making decisions about acquisition policy based on evidence, not opinion. In our November 2014 NDIA report, "Pathway to Transformation", we detail specific proposals in each area, which I encourage the readers of this magazine to review. To view the report, go to: <http://www.ndia.org/Advocacy/AcquisitionReformInitiative/Documents/NDIA%20Pathway%20to%20Transformation%20Acquisition%20Report.pdf>

Those proposals are options to get the process started; they are by no means the only options, nor will they fix everything that is wrong with the system. No single set of proposals will. What we need is durable, sustained effort—we need our senior leaders to keep their attention focused, learn what is causing problems and cost in the acquisition system and then fix those issues over time. Sustained effort is our only hope to resist the power of boundary conditions on the acquisition process. Single-shot law or policy will not do the trick. It has not before, and it will not this time.

The overwhelming majority of the people working in the acquisition system—in DOD, industry and in Congress—respond in good faith to the pressures they face and the prerogatives at their

disposal. If we want to revamp acquisition, we need to introduce new pressures and prerogatives more powerful than those creating the system's present equilibrium. The last decade of war demonstrated that an evident need and sustained leadership can do the trick. We have both today, and now is the time to act.

MR. WILL GOODMAN is the assistant vice president for policy at NDIA, the defense industry's oldest and largest association. Before joining NDIA, Goodman worked as senior defense adviser to Sen. Patrick Leahy, D-VT, the Senate's most senior defense appropriator, and before that as an assistant for plans in the Office of the Undersecretary of Defense for Policy. Goodman has an M.A. in security studies from Georgetown University and a B.A. in English from the University of Florida.

If you're a defense industry professional and would like to provide insight from your perspective, send an email to armyalt@gmail.com and describe the Industry Insight commentary you'd like to write. Army AL&T editors will provide further direction.

READY FOR ACTION

Tugboats guide the container ship MV Cape Ray away from a pier at Naval Station Rota, Spain, June 25, 2014. The Cape Ray deployed to Rota in February of that year to await the chemical warfare materiel removed from Syria. (U.S. Navy photo by Petty Officer William Clark)





Clearing *the* AIR

The Field Deployable Hydrolysis System came together on short notice, thanks to a team that built on the expertise of its members to develop, test and deploy a new technology within a year, with a mission to remove hundreds of tons of chemical weapons from the international stockpile.

*by Mr. Spencer D. Chambers, Ms. Vanessa R. Williams
and Ms. Jessica L. Peterson*

As reports started to flood in about the war raging between rebels in Syria and the government of President Bashar Assad, a forward-thinking team from a handful of agencies was already in action, planning for the possibility that the Syrian government would relinquish an estimated thousands of tons of chemical weapons that it was suspected of using on its own people. Disposing of those weapons would require a solution that was agile and fast-moving. In just a year, the team combined interagency cooperation and DOD partnerships with rapid development and acquisition to solve the problem as quickly as it unfolded.

In 2013, the world learned that Assad's government had used chemical weapons against his own citizens during the country's brutal civil war. Investigations by a United Nations (U.N.) fact-finding mission and the U.N. Human Rights Council both concluded that the Syrian government, under Assad's direction, had used sarin, a lethal nerve agent, in Khan al-Assal province in March 2013 and in Saraqeb and

Once the materiel was transferred aboard the MV Cape Ray, the ship sailed to international waters in the Mediterranean Sea, where the FDHS crew and support personnel conducted round-the-clock destruction operations in 12-hour shifts.

al-Ghouta in April 2013 and August 2013, respectively, killing 1,400 civilians. (See sidebar below.) These were in addition to a host of other attacks during the war that began in 2011. Syria's stockpile of chemical agents also included mustard gas. To avoid international repercussions, including a possible attack by the United States, the Assad government agreed to turn over some 600 metric tons of chemical weapons materials for destruction.

A TEAM COMES TOGETHER

But it was in 2012—before the atrocities had been confirmed—that then-Deputy

Secretary of Defense Dr. Ashton B. Carter asked Undersecretary of Defense for Acquisition, Technology and Logistics the Hon. Frank Kendall to form a senior integration group to look at the technologies and requirements needed to address the Syrian chemical weapons stockpile.

“There was a recognition that something was going to happen in Syria, in all likelihood, that would require us to do something with those chemical materials that were known to be there,” Kendall said in January 2014. The group's initial inquiries determined that such a

disposal capability did not exist in the United States.

The team decided on a modular system that would be easy to transport on a common platform and assemble on-site. It had to be able to process a high volume of material compared with other technologies, and to safely handle chemical agents and precursors stored in nonweaponized containers. The Defense Threat Reduction Agency (DTRA) formulated these and other requirements, and assigned the task of designing the system to agencies with experience in eliminating chemical weapons.

Also in 2012, the U.S. Army Chemical Materials Agency (CMA) Project Manager for Chemical Stockpile Elimination completed its mission, which was spelled out in the Chemical Weapons Convention Treaty of 1997: to dispose of 90 percent of the U.S. government's 30,500-ton supply of chemical warfare agents. One of its facilities was at Aberdeen

INTRO TO CHEMICAL AGENTS

Following is a quick rundown on agents destroyed using the Field Deployable Hydrolysis System.

MUSTARD GAS

Also known as sulfur mustard, it initially was used as a medical treatment for psoriasis. It is considered a blistering agent and can take the form of a clear, brown or yellow liquid or solid. While it can be odorless, this chemical warfare agent typically gives off a mustard, onion or garlic scent. Mustard gas can be released into the air as a vapor or used as a liquid to contaminate water and food sources. Exposure to mustard gas is not always fatal, but it can damage DNA and cause severe chemical burns and tissue damage to eyes, skin and the respiratory system.

SARIN

Sarin was developed as a pesticide in 1938. This highly volatile nerve agent, which can be fatal in very small doses, is clear, odorless and tasteless. Sarin works by attacking the nervous system and blocking the signals that would normally stop muscles from contracting. The muscles thus cannot relax, making breathing difficult for the victim and often causing asphyxiation. Sarin can be used in its liquid form as a spray to contaminate food and water. It also can be evaporated into the air and released into the environment; once vaporized, it dissipates quickly. The length, method and amount of exposure to sarin can determine whether recovery is possible. With proper treatment, those who have a mild exposure have a chance to make a full recovery.

—JPEO-CBD



AIR HANDLING

An environmental enclosure inside the Cape Ray contains two FDHS units. Each \$5 million system is capable of processing 5 to 25 metric tons of material daily. The enclosure is a standard part of chemical remediation, providing a safe and contained work environment. Its atmospheric controls are separate from the rest of the vessel and can mitigate any accidents or exposures involving contaminants within the enclosure. (DOD photo by C. Todd Lopez)

Proving Ground, MD, home to the Edgewood Chemical Biological Center (ECBC), which has dealt with chemical threats for nearly a century. ECBC's mission is to provide materiel management assistance that includes risk management and agent detection, testing and decontamination.

From the CMA, the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) formed the Joint Project Manager for Elimination (JPM-E) under the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD) to retain a DOD chemical warfare material destruction capability.

Thus, the team was set: the JPEO-CBD, with JPM-E and more than 40 years of

experience in the destruction of U.S. chemical weapons stockpiles and recovered chemical warfare materiel; ECBC, which employed its rapid prototyping capabilities and field operational experience to construct a functional prototype; and DTRA, which partnered in validating requirements, provided funding for the first prototype and integrated development into the larger military planning effort.

Sharing a location and a long history of working together, ECBC and JPEO-CBD collaborated to find a portable solution to the Syrian weapons dilemma. The team started with a monthlong analysis of the available technologies.

“Since we knew at the time that an overwhelming majority of the chemical

weapons were bulk liquid, we had to basically do a search around the globe on what capabilities exist today and what capabilities the U.S. owns that could deal with the chemical weapons in Syria,” said Carmen J. Spencer, the joint program executive officer for CBD. “We [were] very excited about this opportunity. It [would mean] one less nation on this planet that will then possess chemical weapons.”

Ultimately, the rapid pace of events and the need for simplicity were among the factors that led the team to determine that hydrolysis was the right technology. Hydrolysis is the process of using water to neutralize chemical agents and precursors. The Army has used hydrolysis to destroy more than 7,000 tons of chemical materiel in the United States since

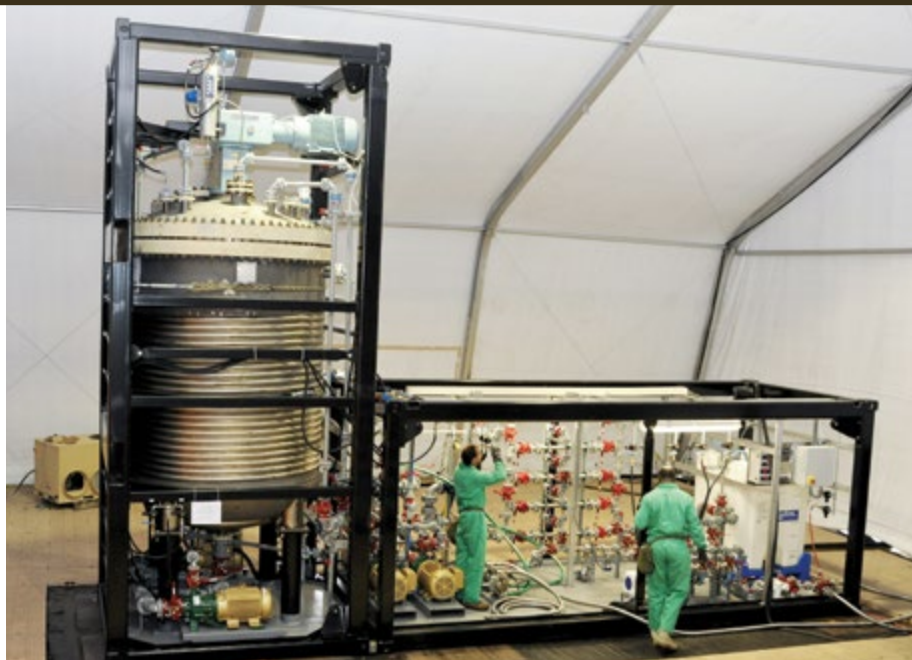
the early 1970s. CMA previously had used hydrolysis to destroy nerve agent at its chemical agent destruction facility in Newport, IN, and mustard agent at its destruction facility at Aberdeen Proving Ground. This experience provided the greatest lesson on how to deal with the Syrian threat.

Within a month, the team made recommendations to the National Defense University and national security staff, and received authorization and funds to start development, with a deadline of six months to achieve an operational system. It would be called the Field Deployable Hydrolysis System (FDHS).

FROM SHORE TO SHIP

In July 2013, Syria agreed to surrender its stockpiles of chemical warfare materiel. Other government agencies, including the U.S. State Department, negotiated with European and Middle Eastern countries about where to host the neutralization effort. All countries declined to host the FDHS on their land. As a result, FDHS would be housed on a ship operating in international waters.

Beginning in November 2013, crews led by ECBC's Chemical Biological



DESTROYER

FDHS was successfully installed aboard the MV Cape Ray to destroy some 600 metric tons of Syria's declared chemical weapons. (DOD photo by C. Todd Lopez)

Application and Risk Reduction Business Unit fitted the MV Cape Ray, a 650-foot cargo ship of the U.S. Department of Transportation's Maritime Administration, with two FDHS units and mobile laboratory facilities, as well as additional living quarters and support facilities. The ship was also loaded with 220, 6,600-gallon containers that held the reagents used in the disposal process and were used afterward to hold the 1.5 million gallons of waste effluent generated by the hydrolysis process.

After the team conducted sea trials in January 2014, the MV Cape Ray deployed to Rota, Spain, in February, where it remained, awaiting the chemical warfare materiel removed from Syria under the purview of the Organisation for the Prohibition of Chemical Weapons.

On July 1, 2014, the MV Cape Ray arrived in Gioia Tauro, Italy, where it took possession of some 600 metric tons of Syrian chemical warfare material removed from Syria aboard the Danish

freighter Ark Futura. Once the materiel was transferred aboard the MV Cape Ray, the ship sailed to international waters in the Mediterranean Sea, where the FDHS crew and support personnel conducted round-the-clock destruction operations in 12-hour shifts. (See sidebar on Page 150.) On Aug. 17, 2014, after 42 days of FDHS operations with no serious injuries or incidents, the team completed destruction operations at sea.

CONCLUSION

FDHS was created, fabricated and deployed within a year—an exceptional timeline accomplished through DOD's previous chemical weapons remediation experience, local fabrication and the use of existing equipment. "The entire process showed the government has the ability to meet urgent needs and tailor acquisition requirements," said JPM-E's Brian O'Donnell, director of infrastructure decontamination and recovery.

With the mission complete, the FDHS team has earned praise from the

With the mission complete, the FDHS team has earned praise from the international CBRN community.

international chemical, biological, radiological and nuclear (CBRN) community. In December 2014, CBRN-UK, a British CBRN industry group, honored the team with the Tim Otter CBRN Innovator of the Year Award, marking the first time it has been given to an organization outside of the United Kingdom.

“The international recognition is a tribute to the talent, energy and commitment of the federal government employees,” said Tim Blades, director of ECBC’s Chemical Biological Application and Risk Reduction unit and commander of the chemical operations team aboard the Cape Ray. “They handled everything from conception, design, procurement, installation and operations under very tight guidelines and fast-moving time constraints.”

For more information, contact Cicely Levings-ton, chief, Strategic Plans and Communications Division, JPEO-CBD, at 410-436-9799 or go to www.jpeocbd.osd.mil.

MR. SPENCER D. CHAMBERS is a bio-media technician for Engility who provides strategic communications contract support to the JPEO-CBD at Fort Detrick, MD. He has a B.S. in communications from Kutztown University.

MS. VANESSA R. WILLIAMS is a bio-media technician for Engility. She provides strategic communications contract support to the JPEO-CBD. She has a B.A. in English from Virginia Tech.

MS. JESSICA L. PETERSON is a bio-media technician and provides strategic communications contract support to the JPEO-CBD for TASC Inc. She holds a B.S. in biomedical photographic communications from Rochester Institute of Technology.



NEWSMAKERS

Rob Malone, an environmental engineer for the JPEO-CBD at Aberdeen Proving Ground, MD, discusses the Cape Ray’s mission to destroy chemical materials during a news conference in Portsmouth, VA, Jan. 2, 2014. With Malone were Rick Jordan, center, captain of the Cape Ray, and Adam Baker, ECBC chemical engineer. (DOD photo by C. Todd Lopez)



CHEMICAL STORAGE

Tanks aboard the Cape Ray were part of the process of neutralizing the chemical materials from Syria. (DOD photo by C. Todd Lopez)

FDHS: HOW IT WORKS

The Field Deployable Hydrolysis System (FDHS) is an environmentally secure, high-throughput system used to destroy chemical warfare materiel. It neutralizes chemical agents and their precursors through a process known as hydrolysis, a reaction in which water, mixed with reagents and heated, irreversibly converts these chemicals into compounds not usable as weapons.

Two modular FDHS units aboard the MV Cape Ray hydrolyzed HD, also known as sulfur mustard or mustard gas, and DF, a sarin precursor, from Syria under environmentally secure conditions that ensured the safety of FDHS operators, the ship's crew and the surrounding environment. An on-ship chemical analysis laboratory verified the required destruction levels of all chemicals.

Following are the key steps in the processes for HD and DF.

HYDROLYZING MUSTARD

First, hot water is added to the FDHS large mixing tank; then HD is fed into the water and mixed vigorously. Hydrolysis of HD removes reactive chlorine atoms, resulting in a waste product called hydrolysate, which, in this case, includes thiodiglycol, a chemical used in ink, and hydrochloric acid (HCl), a chemical often used to clean concrete or remove rust. The hydrolysis process is irreversible; HD cannot be recreated from hydrolysate.

The hydrolysate is then pH-adjusted with sodium hydroxide—a caustic, or base—which neutralizes the HCl. The end product is a solution of thiodiglycol, sodium chloride (NaCl, common salt), and water.

Finally, the hydrolysate, which is neither explosive nor flammable, is stored on the ship until it is moved to an approved disposal facility for additional treatment.

HYDROLYZING SARIN

First, DF is mixed directly with room-temperature water in the FDHS static mixer. A two-step reaction occurs, which removes reactive fluorine atoms. The resulting hydrolysate is a solution of methylphosphonic acid and hydrofluoric acid. This is an irreversible process; DF cannot be recreated from the hydrolysate.

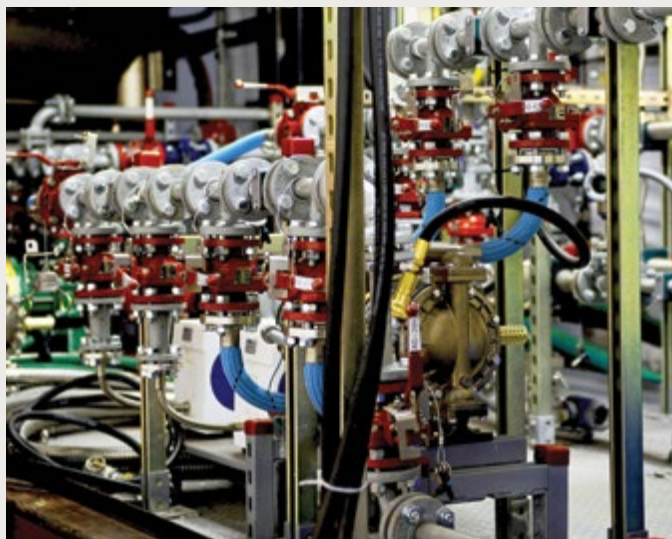
The hydrolysate is pH-adjusted with sodium hydroxide to form an aqueous solution of sodium fluoride and methylphosphonate, a salt.

Finally, the hydrolysate is stored on the ship until transfer to an approved disposal facility for additional treatment.

FDHS operators store all waste generated from this process in approved containers aboard the ship. There is no discharge of FDHS liquid waste into the water. When operations are complete, the containers are offloaded for delivery to disposal facilities in Finland and Germany selected by the Organisation for the Prohibition of Chemical Weapons.

All of the air surrounding the FDHS process is directed through a filtration system before it is released back into the environment. Thus, the air that exits the ship is cleaner than the air that enters the ship.

—JPEO-CBD



RAPID FIELDING

One of two FDHS units is installed aboard the Cape Ray in Portsmouth, VA, Jan. 2, 2014. FDHS was created, fabricated and deployed within a year. (DOD photo by C. Todd Lopez)

Solutions to Protect Our Forces, the American People, U.S. Assets and Interests at Home and Abroad.



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WORKFORCE



SPOTLIGHT:

MS. MARIE I. SALINAS

Everything comes back to logistics

MS. MARIE I. SALINAS

COMMAND/ORGANIZATION:

Project Manager for Unmanned Aircraft Systems, Program Executive Office for Aviation

TITLE:

Logistics management specialist

YEARS OF SERVICE IN

CIVILIAN WORKFORCE: 3

YEARS OF MILITARY SERVICE: 25

EDUCATION:

B.S. in multidisciplinary studies, Grantham College; associate degree in supervisory leadership, Hawaii Pacific University

DAWIA CERTIFICATIONS:

Level III in life cycle logistics; Level I in program management

AWARDS:

Civilian Awards: Commander's Award for Civilian Service; LATINA Style Meritorious Service Award

Military Awards: Bronze Star Medal, Meritorious Service Medal, Army Commendation Medal, Army Good Conduct Medal, Army Reserve Components Achievement Medal, National Defense Service Medal, Afghanistan Campaign Medal, Global War on Terrorism Service Medal, NATO Medal, Southwest Asia Service Medal, Armed Forces Reserve Medal and Kuwait Liberation Medal (Saudi Arabia and Kuwait)

Rolled out more than 30 years ago, the “Be All You Can Be” campaign continues to pay dividends for the Army. That slogan, along with a persuasive Army recruiter, motivated Marie Salinas to enlist right out of high school in 1985. In her 28 years of combined military and civilian service, she has amassed considerable logistics experience that she now uses as a logistics management specialist for the Project Manager for Unmanned Aircraft Systems (PM UAS), part of the Program Executive Office (PEO) for Aviation.

“That slogan might be old, but it’s effective,” said Salinas. “I’ve done and seen much more in the Army than I ever expected I would.” She transferred from the active component to the Army Reserve in 1997 and retired in 2010 at the rank of master sergeant. Salinas served in Operations Desert Shield and Desert Storm, and later in Operation Enduring Freedom.

“For me, everything comes back to logistics: moving people and equipment. As a Soldier, I had no idea how involved the process was for getting equipment to the people in the field. But now I know about that process and about what Soldiers need while they’re deployed, and I think that’s why I’ve been able to do my job well.”

What do you do, and why is it important to the Army or the warfighter?

I serve as the logistics lead in the Operations Branch of PM UAS. I plan, coordinate and evaluate the logistical requirements to support a specific mission, weapon system or other designated programs supporting the warfighter. I’m currently working on manpower and personnel issues related to operators and maintenance personnel who support systems for the warfighter downrange.

How did you become part of the AL&T Workforce, and why?

I enlisted in the Army right out of high school. A visit from a recruiter piqued my interest in the Army as a career. Most of my Army career was logistics-related, which made acquisition a good fit for me. My first MOS [military occupational specialty] was 92A, automation logistics specialist. I worked as a battalion S-4 as a 92Y supply sergeant, and I led a deployment of people and equipment to Thailand as the 45th Group S-4 NCO. Once I transitioned to the reserves, I worked as a civilian as a materiel handler at



an equipment concentration site in Waco, TX, as an aircraft production controller with an aviation support facility at Fort Hood, and as a supply technician with the Corps of Engineers in Fort Worth. I joined the Tank-Automotive and Armaments Command [now the TACOM Life Cycle Management Command] in early 2010 as a materiel fielding manager, and then transferred to PM UAS in 2011.

What do you see as the most important points in your career with the Army AL&T Workforce, and why? Is there a program or opportunity you wish you had pursued but didn't?

My most important career move was in 2011: I accepted a position on a materiel fielding team at TACOM that required me to relocate from Texas to Michigan. That position required me to focus on logistical approaches from a higher level and also to incorporate my real-world experiences, and eventually led me to my current position here at PM UAS.

I would have loved to work in the Defense Contract Management Agency (DCMA) program. DCMA professionals serve as “information brokers” and in-plant representatives for the military.

All of my career moves have pushed me out of my comfort zone, challenging me and making me think outside the box. Additionally, I've been fortunate to have great mentors who challenged me along

the way and encouraged me to pursue other positions within the logistics field.

What's the greatest satisfaction you have in being a part of the AL&T Workforce?

There are a handful of things I'm proud of. As a supply sergeant, I was in charge of receiving new equipment and phasing out obsolete materiel. I often wondered who was testing and approving that equipment before it was added to the Army's inventory. Now that I'm on the other side of the process, I make sure I can identify and recommend solutions to concerns that a warfighter might have. For example, I know from my own deployments what Soldiers might not have access to, and can better anticipate what supplies they might need even though they're not sure exactly how long they'll be gone.

When I worked with TACOM, our team fielded 15 skid-steer loaders (SSLs) to a unit in Louisiana. Two weeks later, the unit commander called to thank our team for their new equipment. Shortly after their new equipment training and fielding, the unit used the SSLs to prevent a levee from breaking. I'm glad we had a hand in that.

In Afghanistan, I had a great opportunity to be part of a team supporting the Robotic Systems Joint Project Office in

the counter-IED [improvised explosive device] fight. I enjoyed talking with the warfighters who were putting our capabilities to the test; they provided invaluable feedback for possible improvements.

Acquisition is a very broad term encompassing a lot of different job specialties, with many career tools available to all of them. What advice would you give to someone who wants to get where you are today?

It takes a lot of hard work, dedication and personal sacrifice to progress in this field. Seek out a supply chain and logistics management degree if you don't have any military experience. The Logistics Management Intern Program at Fort Lee, VA, offers permanent positions with the federal government with opportunity for upward mobility. Also, don't hesitate to try a new position: There is always something else to learn in logistics. Finally, seek out a mentor and soak in all the knowledge you can. Logistics is constantly evolving.

What's something that most people don't know about your job? What surprises outsiders most when you tell them about your job?

Most people are amazed that logisticians provide support in so many different areas across the life cycle—we're able to collaborate with acquisition, engineers and contracting experts to address various concerns. Here at PEO Aviation, we're all under one umbrella, so we can see a problem all the way through: from when it's initially reported from the field to when a solution—in the form of a new part, maybe, or a modification to a training requirement or a manual—goes out to the warfighter.

—MS. SUSAN L. FOLLETT

FIRSTHAND EXPERIENCE

During a 2006 deployment to Afghanistan, Salinas served as the NCO in charge of the Joint Robotic Repair Detachment. Salinas counts that experience among the most satisfying of her logistics career, as it allowed her to talk with warfighters in theater who were putting the capabilities she worked on to the test. (Photos courtesy of PM UAS)



AWARDS

Army acquisition professionals win top DOD honors

by Mr. Robert E. Coultas

Three Army acquisition professionals and the U.S. Army Contracting Command – Rock Island, IL (ACC-RI) are among the recipients of the 2014 Defense Acquisition Workforce Individual Achievement and Workforce Development Awards. Undersecretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)), the Hon. Frank Kendall presented 16 individual and six organizational awards at a Pentagon ceremony Dec. 9, 2014, recognizing members of the defense acquisition workforce who have demonstrated excellence in providing support to the warfighter.



TEAMWORK

USD(AT&L) the Hon. Frank Kendall presents the ACC-RI team with the Defense Acquisition Workforce Development Bronze Award for a large organization to, from left, Melanie Johnson, ACC-RI executive director; Michelle Breitbach, procurement analyst; and Amy Hayden, ACC-RI civilian deputy director. At right is Gabriel Camarillo, principal deputy assistant secretary of the Army for acquisition, logistics and technology (ASA(ALT)). (Photos by Leroy Council Jr.)

WORKFORCE DEVELOPMENT AWARD

Bronze Award (large organization)—ACC-RI. **Adelaide Tkatch**, chief of the Policy, Review and Compliance Branch, led a team that included **Michelle Blocker-Rosebrough**, **Michelle Breitbach**, **Karen Gatton-Zarn**, **Myrna Dowell**, **Gene Harrison**, **Lynn Burris**, **Sarah Herrera** and **Beth Nowack**. “We are extremely honored to have won this award,” said Tkatch. “It was truly a team effort.” The team was recognized for the training, education and developmental opportunities it created and provided to more than 40 interns at ACC-RI, as well as ensuring that the existing workforce received training and education to enhance their skills and abilities.

INDIVIDUAL AWARDS

Engineering—**Daniel Dittenber**, Unmanned Aircraft Systems (UAS) Project Office, Program Executive Office (PEO) for Aviation. Dittenber is one of the Army’s premier UAS experts. He led the effort to acquire the Gray Eagle, DOD’s first medium-altitude, endurance-class UAS, and used his technical expertise to ensure that the purchase was competitive and cost-effective. Additionally, Dittenber addressed technical challenges leading to the full-rate production decision in 2013 and, in overseeing



the development of the Gray Eagle system, ensured that it was reliable and thoroughly tested. Gray Eagle systems have been fielded in Afghanistan and stateside at Forts Hood, TX; Riley, KS; Drum, NY; Stewart, GA; and Campbell, KY.

Facilities Engineering—Leland “Allen” Fincham, Facilities Engineering Division, Directorate of Public Works (DPW), Blue Grass Army Depot (BGAD), KY. Fincham, a retired Kentucky Army National Guard officer who has led his division for more than 11 years, is one of the first in the DPW to reach Level III certification in his career field. He leveraged his leadership skills and abilities, notably a steady, no-nonsense approach, through the 13-plus years of conflict in Afghanistan and Iraq to accomplish A-76 studies, depot growth and the June 2013 reduction in force at BGAD. Fincham helped the depot control expenditures during the mandated sequester and furloughs, and his efforts resulted in a 15 percent decrease in facilities expenditures without significant impact on end users.

Business—Maryellen Lukac, business manager for the Project Manager for Combat Ammunition Systems (PM CAS), PEO for Ammunition. She provided acquisition resourcing, program support and analysis essential to managing 99 products—51 active and 48 in sustainment—that support the Army and other services, totaling more than \$2.2 billion across the FY14 federal budget. Lukac exercised superior acquisition planning and strategy development in contract management support for all PM CAS products, resulting in the award of 401 new contracts, options and modifications as well as orders worth \$663 million to government-owned, government-operated industrial base production plants. Her efforts contributed directly to nine completed initiatives leading to \$1.1 billion in cost savings and avoidance, and 27 planned initiatives estimated to save or avoid \$283 million in costs through FY25.

For the full list of award winners, go to <http://hci.dau.mil/index.html>. To read about the winners of the 2014 David Packard Excellence in Acquisition Awards, go to <http://www.dau.mil/AcqAwards/Pages/packard.aspx>.

MR. ROBERT E. COULTAS is the Army AL&T magazine departments editor and an Access AL&T editor. He is a retired Army broadcaster with more than 40 years of combined experience in public affairs, journalism, broadcasting and advertising. He has won numerous Army Keith L. Ware Public Affairs Awards and is a DOD Thomas Jefferson Award recipient.



ENGINEERING

Daniel Dittenber accepts the Defense Acquisition Workforce Individual Achievement Award from USD(AT&L) Frank Kendall. At center right is Gabriel Camarillo, principal deputy ASA(ALT); at right is COL Courtney P. Cote, project manager for UAS.



FACILITIES ENGINEERING

Leland “Allen” Fincham, chief of the Facilities Engineering Division at the BGAD DPW, receives the Defense Acquisition Workforce Individual Achievement Award from USD(AT&L) Frank Kendall. At center right is Gabriel Camarillo, principal deputy ASA(ALT); at right is COL Lee G. Hudson, BGAD commander.



BUSINESS

Maryellen Lukac receives the Defense Acquisition Workforce Individual Achievement Award from USD(AT&L) Frank Kendall. At center right is Gabriel Camarillo, principal deputy ASA(ALT); at right is Peter Burke, deputy project manager for CAS.



GETTING IT WRITE

2014 ALTies honor a wide variety of talent

Readers and contributors have voted, and the results for the 2014 ALTies Awards are in.

The winners are a diverse group: researchers and program managers, Soldiers and civilians, writers and photographers. All of them had a hand in contributing the articles and images that make AL&T magazine the go-to source for actionable information on issues affecting the acquisition workforce.

The annual ALTies Awards honor outstanding contributions to Army AL&T magazine in five categories: articles, commentaries, graphics, photographs and advertisements.

“What makes Army AL&T unique is the vast array of talented writers who contribute to the magazine. Unlike many publications, Army AL&T doesn’t have a newsroom where the articles are conceptualized, researched and written,” said editor-in-chief Nelson McCouch III. “We rely heavily on the field commands to supply relevant

articles along the line of our quarterly theme.

“All of our contributors have unique perspectives and experiences, and their contributions give our readers an edge in overcoming challenges and achieving mission success,” he added. “This diversity ensures that each issue of the magazine is better than the last. We look forward to another year of solid contributions from all of our readers, and an even more diverse crowd of winners next year.”



*This year's **ALTies** go to:*

BEST ARTICLE

WINNER

“Evolving Innovation”

LTC Joel Dillon, Office of the Deputy Assistant Secretary of the Army for Research and Technology; **Dr. Jason Augustyn**, FutureScout LLC; **Ms. Julia Kim**, University of Southern California Institute for Creative Technologies; and **Mr. Dominic Ju**, Virginia Tech Applied Research Corporation.
April – June 2014

RUNNER-UP

“The Academic Angle”

COL Michael E. Sloane, **MAJ Toby Birdsell** and **CPT(P) Tom Beyerl**, Program Executive Office (PEO) for Soldier
April – June 2014

RUNNER-UP

“Lessons Outside the Lines”

Mr. Thom Hawkins and **Ms. Cheryl McCullough**, PEO for Command, Control and Communications – Tactical (PEO C3T)
October – December 2014

RUNNER-UP

“Case in Point”

Mr. Michael V. Doney, **Mr. William Salazar** and **Dr. Christina Bates**, PEO for Intelligence, Electronic Warfare and Sensors
January – March 2014

BEST COMMENTARY

WINNER

“Time to Think”

Mr. Harry P. Hallock, Deputy Assistant Secretary of the Army for Procurement
October – December 2014

RUNNER-UP

“A Plan to Make—and Break”

Mr. Dale A. Ormond, then-director, U.S. Army Research, Development and Engineering Command
April – June 2014

BEST PHOTO (TIE)

WINNER

Toward Greater Interoperability
Nancy Jones-Bonbrest, PEO C3T
April – June 2014

WINNER

Integrating Lessons
Amy Walker, PEO C3T
October – December 2014

RUNNER-UP

In the Driver’s Seat
Office of the Deputy Assistant Secretary of the Army for Procurement
October – December 2014

BEST GRAPHIC

WINNER

Quick-Change
Nick Bradley, PEO Soldier
April – June 2014

RUNNER-UP

Drilling Down
PEO C3T
October – December 2014

BEST ADVERTISEMENT

WINNER

Times Change
PEO Soldier
October – December 2014

RUNNER-UP

Connecting Our Soldiers
PEO C3T
April – June 2014

RUNNER-UP

Connecting the Global Force
Product Manager for Power Projection Enablers, PEO for Enterprise Information Systems
January – March 2014



CAREER CORNER

USAASC PERSPECTIVE

FROM THE DIRECTOR,
U.S. ARMY ACQUISITION SUPPORT CENTER

REORGANIZING *for* SUCCESS

It has been nearly 10 years since I took the reins of the U.S. Army Acquisition Support Center (USAASC) as its director and as the deputy director for acquisition career management. Since then, we've effectively had the same organizational structure for conducting business with our program executive offices, our stakeholders and individual Army Acquisition Workforce members.

Over time, our mission, goals and environment have evolved with many changes, including targeted reductions; adding, changing and eliminating programs; and adjusting the framework for how, why and where we work. Because of these factors, it made sense to take a long, hard look at our organizational composition and identify the best structure to address our priorities and continue as a robust, effective and efficient organization serving our customers and stakeholders.

In early 2014, we started analyzing our mission set and contemplating what USAASC should look like under the



Craig A. Spisak
*Director, U.S. Army
Acquisition Support Center*

new construct. We took a reengineering approach; we considered our current scope, mission, responsibilities and commitments and imagined the future.

We looked at some of the factors that have influenced our growth and structure and where we could capitalize on the talents of the USAASC staff. We also received direction from our higher headquarters, the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology (OASA(ALT)), which was also evaluating and trying to improve its organizational structure. When OASA(ALT)

made changes that would affect us as its direct reporting unit, we, in turn, assimilated those factors into our plan.

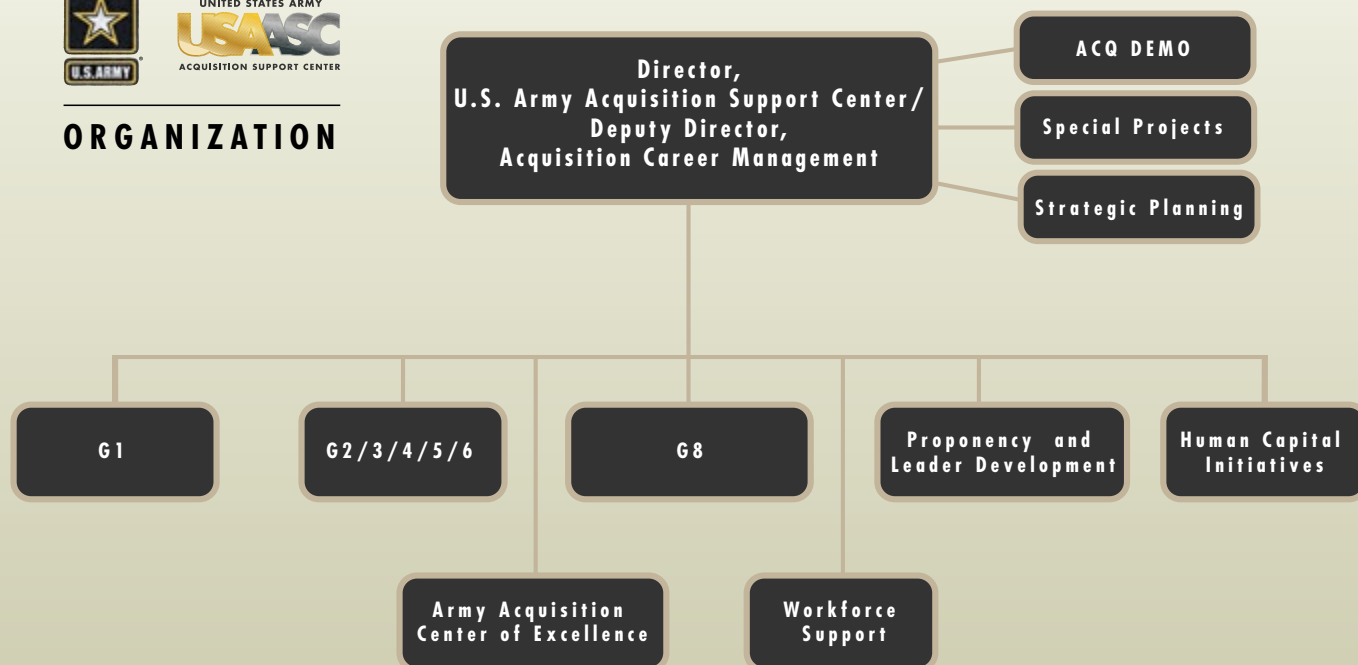
WORK IN PROGRESS

When our reengineering is complete, USAASC will emulate the traditional Army unit structure, organized with G-staff elements and providing support for its particular proponenty branch and schoolhouse.

One of the major roles of the DACM office is supporting the functional area (FA) 51 proponent for acquisition officers and the 51C military occupational specialty (MOS) for our noncommissioned officers (NCOs). Although this FA is not one of the basic Army branches (like infantry or artillery), we still have the responsibility that Army schoolhouses have in supporting the branch, including leader and professional development, proponenty, certifications, accessions, Army Acquisition Corps membership and NCO reclassifications, to name just a few. We have the responsibility to evaluate, analyze and strategically support the military



ORGANIZATION



PREPARING FOR THE FUTURE

<http://asc.army.mil>

THE NEW ORGANIZATION

USAASC's new organizational structure caps a reengineering effort that began last year. When the new construct is fully in place, USAASC will emulate the traditional Army unit structure, organized with G-staff elements and providing support for its particular propensity branch and schoolhouse. (SOURCE: USAASC)

FA and MOS, as well as the civilian acquisition career fields, to maintain a healthy, productive and effective Army Acquisition Workforce.

This is the first major organizational change for USAASC in 10 years, and I view it in the same context as hiring people. I truly believe that it's to our advantage to bring the best and brightest into the Army Acquisition Workforce. When you can find talent that is exceptional—smart people who are experts at what they do—then it makes your job easier and much more successful when you put that talent in the right place at the right time.

I think the same is true in an organizational design. You want to make it so you're posturing for success. It is to my and every employee's advantage to make this organization work as smoothly and effectively as possible. If you see a way to enhance your job, I suggest you start doing it better, faster, cheaper and easier.

Though the reorganization plan is a solid 90 to 95 percent solution of what we are going to look like, we are still determining many of the mechanics to complete implementation—no small endeavor. Some people will have new supervisors. Some may change jobs with a new set of duties, a transition that will take time as one person hands a program or project to another to ensure continuity for our customers. Others may move to new workstations, which will require a new link to the network and possibly a new phone number for customer contact. Additional administrative details include documenting job changes in the personnel systems. When all of this is said and done, we will still have three to four months of implementation remaining.

FEEDBACK AND BALANCE

In any big reorganization like this one, you can't always anticipate every single second-, third- and fourth-order effect, so it's always good to hear from our customers and stakeholders. After

implementation of this reengineering is complete, we will be setting up a feedback mechanism to receive these assessments of our efforts: Did we accomplish what we set out to do? Is it working?

When feedback starts coming in, it's likely there will be some marginal tweaks. But, because we took our time, we contemplated what most of the feedback would probably address and factored it into the reengineering plan. I expect the changes to be a lot less painful than the quick restructuring plans that some organizations implement.

If the reorganization does what it is intended to do, it will be transparent to a lot of our customers. About 75 percent of the USAASC staff who work with specific customers or are in charge of a particular area of responsibility will remain the same. But in some cases, there may be slight changes in how we do business. For example, a customer may now work with one person on several different matters, whereas, after the restructuring, that

customer may deal with two or three people on these areas. So there will be some adjustments in behavior and habits for the customer and USAASC staff, as well as a rebalancing of the workload.

Over the years, USAASC divisions and branches had become fairly lopsided in terms of size and construct. We had some division chiefs with smaller core staffs, compared with other division chiefs who in some cases had many times more people. This reengineering will bring better parity of responsibilities in terms of span of control and mission set among the GS-15-level division chiefs.

I believe that over the long haul, we will see marginal, incremental and in many cases major effects that will help make this institution successful. Our ultimate goal is to actually increase our effectiveness and efficiency by improving synchronization inside the walls of USAASC.



UNITED STATES ARMY

DACM

DIRECTOR, ACQUISITION CAREER MANAGEMENT OFFICE

CAMP

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The Office of the Army Director of Acquisition Career Management (DACM) is everything career-related. The DACM Office website is chock-full of career tools and news that you can use to further your Army acquisition career. From suggested paths, to career success, to the Workforce Minute, to the DACM Newsletter, you can find it all at <http://asc.army.mil/web/dacm-office/>.

WORKFORCE 00:01:00

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Army Career Management Office

HOT TOPICS

CIVILIAN Career Planning Steps

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ON THE MOVE



CHANGE OF LEADERSHIP AT TRANSPORTATION SYSTEMS

Program Executive Officer for Combat Support and Combat Service Support Scott J. Davis presents **COL William Boruff**, outgoing project manager for transportation systems, the Legion of Merit in a Jan. 20, 2015 change-of-leadership ceremony held in Warren, MI. (Photo by Greg Pici, U.S. Army Garrison-Detroit Arsenal)



TRIPLE-PLAY RETIREMENT AT PEO EIS

The Technology Applications Office (TAO) in the Program Executive Office for Enterprise Information Systems (PEO EIS) celebrated a “triple play” retirement on Dec. 8, 2014, for **Patricia Little**, **Dennis Kiser** and **Faye Ganoe**. At the retirement luncheon at the Community Activity Center at Fort Detrick, MD, the three received Superior Civilian Service Awards signed by PEO EIS Douglas K. Wiltsie, U.S. flags that had been flown over the Pentagon in their honor, certificates of retirement, certificates of appreciation and TAO coins from TAO Director John Swart.

Little served as the TAO lead voucher examiner in the Business Management Division, serving TAO for 22 of her 33 years of service. Kiser was an administrative assistant in the Operations Support Division, and worked at TAO for the last 11 years of his 20 years of federal service. Ganoe served TAO as the senior budget analyst in the Business Management Division since 2010. Her federal service career spanned nearly 30 years. (Photo by Sharon Kollman)



Faye Ganoe

receives the Superior Civilian Service Award signed by the Program Executive Officer, Douglas K. Wiltsie. (Photos by Eric Kelley)



Dennis Kiser

receives the Superior Civilian Service medal.



Patricia Little

receives an American flag that was flown over the Pentagon.



INDIRECT FIRE CHANGE OF CHARTER

Introductions are made at the Indirect Fire Protection Capability Increment 2-Intercept change-of-charter ceremony, held Feb. 5, 2015, at Redstone Arsenal. Outgoing IFPC Increment 2 Product Manager **COL Mark Talbot**, left, is pictured with **COL Terrence Howard**, Cruise Missile Defense Systems Program Manager, and incoming Product Manager **LTC Michael Fitzgerald**. (Photo by Laura Brezinski, Solari Creative, contractor with the Cruise Missile Defense Systems project office)



IAMD CHANGE OF CHARTER

Program Executive Officer for Missiles and Space **BG L. Neil Thurgood**, center, officiates the Integrated Air and Missile Defense (IAMD) Project Office change of charter with **COL Robert A. Rasch**, outgoing project manager, and **Michael R. Chandler**, incoming project manager. Chandler comes to the project office from the Army's Air Traffic Control Product Office, where he served as the business director. Rasch, who had been the IAMD project manager since October 2011, is now the chief of staff for the Army acquisition executive. (Photo by Stefanie McCrary)

PD RCAS GETS A NEW DPD

Sajjan (Saj) George, then a lieutenant colonel, now retired, far right, was introduced as the new deputy project director for the Project Directorate Reserve Component Automation Systems (PD RCAS) during a Dec. 15, 2014, all-hands event hosted by **Ralph Ocasio**, project director for RCAS. PD RCAS is a part of PEO EIS, and provides integrated, Web-based software solutions and support services that enhance the efficiencies of the Army National Guard and the U.S. Army Reserve. (Photo by Pete Van Schagen, RCAS)



SCHWEMMER RETIRES

Harry Hallock, deputy assistant secretary of the Army for procurement, presents **Daniel J. Schwemmer** with a certificate of retirement at a reception on Jan. 8, 2015.

Schwemmer, program manager for the Armywide Government Purchase Card (GPC) Program, promised himself he wouldn't get emotional at his retirement ceremony, but soon broke that promise as he listened to well wishes and appreciation from many current and former colleagues from his 41 years of military and civilian service. After a four-year stint in the U.S. Air Force, Schwemmer began his Army career as a contracting intern, first in the United States and then in support of Army contracting missions in Germany and Belgium for 13 years. He returned stateside in 2001, serving as the Army liaison in the GPC Program Management Office. He became program manager for the Armywide GPC Program in 2004, assigned to the Office of the Deputy Assistant Secretary of the Army for Procurement. (Photo by Leroy Council, Army Multimedia and Visual Information Directorate)



RETIREMENT HAT TRICK

Procurement Analysts **Rosemary Kemp**, **Kathleen Jones** and **Rachel Ballen**, left to right, recently retired from the Office of the Deputy Assistant Secretary of the Army for Procurement (DASA (P)). Harry Hallock, DASA (P), hosted a triple retirement ceremony on Jan. 27, 2015, and LTC Paul Mazure served as master of ceremonies. Hallock commended the women—who had a combined 87 years of service—for their commitment to the Army’s contracting mission.

Jones began her career in 1980 at the U.S. Army Communications-Electronics Command, and spent eight years at Army contracting centers in Frankfurt and Wiesbaden, Germany, and one year at the U.S. Army Garrison Fort Buchanan in Puerto Rico. She then transferred to the National

Capital Region and served in various assignments for 14 years, most recently as an AbilityOne subject matter expert.

Kemp’s comprehensive technical knowledge of the Past Performance Information Retrieval System, the Contractor Past Performance Assessment and Reporting System and the Electronic Subcontractor Reporting System was invaluable to internal and external stakeholders.

Ballen served in several federal agencies throughout her career, helping to solve many complex contracting issues. (Photos by Margaret Boatner, DASA(P))

GENERAL OFFICER ANNOUNCEMENTS

The Chief of Staff, Army announces the following officer assignments:

BG Donald E. Jackson Jr. to deputy commanding general (DCG) for Military and International Operations, U.S. Army Corps of Engineers, Washington, DC. He most recently served as director, Joint Engineering Directorate, U.S. Forces-Afghanistan and commander, Transatlantic Division Forward in support of Operation Enduring Freedom, Afghanistan.

BG Joseph M. Martin, DCG, U.S. Army Combined Arms Center (USACAC), U.S. Army Training and Doctrine Command (TRADOC), Fort Leavenworth, KS, to commanding general (CG), National Training Center, and Fort Irwin, CA.

BG Timothy P. McGuire, deputy director for operations, U.S. Central Command, MacDill Air Force Base, FL, to CG, Joint Readiness Training Center, and Fort Polk, LA.

BG Mark J. O’Neil, DCG for operations, 10th Mountain Division (Light), Fort Drum, NY, to DCG, USACAC, TRADOC, Fort Leavenworth, KS.

MG James H. Dickinson, deputy inspector general, Office of the Secretary of the Army, Washington, DC, to deputy director for test, Missile Defense Agency, Redstone Arsenal, AL.

BG Kent D. Savre, CG, U.S. Army Engineer Division, North Atlantic, NY, to CG, U.S. Army Maneuver Support Center of Excellence, and Fort Leonard Wood, MO.

MG Scott D. Berrier, deputy chief of staff, intelligence, Resolute Support Mission, North Atlantic Treaty Organization/Deputy Director, Plans, J-2, U.S. Forces-Afghanistan, to CG/commandant, U.S. Army Intelligence Center of Excellence, and Fort Huachuca, AZ.

MG Mark W. Yenter, assistant chief of staff, C-3/J-3, United Nations Command/Combined Forces Command/U.S. Forces Korea, Republic of Korea, to DCG for Military and International Operations, U.S. Army Corps of Engineers (USACE), Washington, DC.

BG Roger L. Cloutier Jr., director of force management, Office of the Deputy Chief of Staff, G-3/5/7, U.S. Army, Washington, DC, to CG, U.S. Army Training Center, and Fort Jackson, SC.

BG Anthony C. Funkhouser, commandant, U.S. Army Engineer School, U.S. Army Maneuver Support Center of Excellence, Fort Leonard Wood, MO, to DCG for Initial Military Training, U.S. Army Center for Initial Military Training, TRADOC, Joint Base Langley-Eustis, VA.

BG Douglas M. Gabram, DCG for support, 1st Cavalry Division, Fort Hood, TX, to deputy chief of staff, G-3/5/7, TRADOC, Joint Base Langley-Eustis, VA.

BG Donald E. Jackson Jr., DCG for Military and International Operations, USACE, Washington, DC, to DCG for Civil and Emergency Operations, USACE, Washington, DC.

BG John S. Kem, CG, U.S. Army Engineer Division, Northwestern, OR, to deputy commandant, U.S. Army Command and General Staff College and DCG, Leader Development and Education, USACAC, Fort Leavenworth, KS.

BG William E. King IV, assistant deputy chief of staff, G-3/5/7 (readiness), U.S. Army Forces Command, Fort Bragg, NC, to CG, 20th Chemical, Biological, Radiological, Nuclear and Explosives Command, Aberdeen Proving Ground, MD.

BG Christopher P. McPadden, director, concept development and learning, Army Capabilities Integration Center, TRADOC, Joint Base Langley-Eustis, VA, to deputy director, Strategy and Policy, J-5, Joint Staff, Washington, DC.

BG Leopoldo A. Quintas Jr., DCG for support, 1st Armored Division, Fort Bliss, TX, to director, concept development and learning, Army Capabilities Integration Center, TRADOC, Joint Base Langley-Eustis, VA.

BG Scott A. Spellmon, CG, U.S. Army Operational Test Command, Fort Hood, TX, to CG, U.S. Army Engineer Division Northwestern, OR

RETIREMENTS

The following general officer was placed on the retired list effective Feb. 1, 2015:

LTG James O. Barclay III concluded more than 36 years of service as the deputy chief of staff, G-8, U.S. Army, Washington, DC.

PRODUCT DIRECTORS SELECTED IN FIRST-EVER BOARD

Fourteen candidates from the Army Acquisition Corps were chosen from the first-ever product director centralized selection board held Dec. 4-5, 2014, at Fort Knox, KY.

In February, the Army Director for Acquisition Career Management (DACM) LTG Michael E. Williamson presided over a board of directors for slating, which also included Deputy DACM Craig A. Spisak and the 12 program executive officers (PEOs).

The civilian-only centrally selected product director board is one of Williamson's first major talent management initiatives, providing an opportunity to select high-performing civilians with leadership potential while building a larger talent pool for future senior leader requirements.

The new product directors are:

Paul Boak, Mounted Maneuver Support, PEO Ground Combat Systems, Warren, MI.

Anthony Budzichowski, Joint Biological Tactical Detection System, Joint PEO Chemical and Biological Defense, Aberdeen, MD.

Robert Long, Fixed Wing Special Electronic Mission Aircraft, PEO Aviation, Redstone Arsenal, AL.

Matthew Maier, Medical Communications for Combat Casualty Care, PEO Enterprise Information Systems, Fort Detrick, MD.

George Mitchell, Test, Measurement and Diagnostic Equipment, PEO Combat Support and Combat Service Support, Redstone Arsenal, AL.

Brian Raftery, Army Human Resources Systems, PEO Enterprise Information Systems, Fort Belvoir, VA.

Michael Switzer, Cargo Helicopter International Program, PEO Aviation, Redstone Arsenal, AL.

Timothy Vinson, Aviation Networks and Mission Planning, PEO Aviation, Redstone Arsenal, AL.

Michael Wills, Long Range Precision Fires, PEO Missiles and Space, Redstone Arsenal, AL.



THEN & NOW

1991 & 2015



THE Most Enduring Lesson: PEOPLE

by Dr. James A. Blackwell, Dr. Michael J. Mazarr
and Dr. Don M. Snider

The November-December 1991 issue of Army AL&T magazine's predecessor publication, Army RD&A Bulletin, was themed "Lessons Learned from the Gulf War," and in that issue we ran an article titled "Military Lessons from the Gulf War." That article, in turn, cited a report titled "The Gulf War: Military Lessons Learned," the interim result of a six-month study that drew upon the collective expertise of a 55-member team and was eventually published as a book. The study group, headed by Jim Blackwell, Mike Mazarr and Don Snider, was composed of analysts from the Center for Strategic and International Studies (CSIS) and subject area experts from industry, government and the military. Their report outlined seven major lessons that the authors predicted "will impact future decisions regarding force structure and defense procurement."

Since they wrote the book on lessons learned, Army AL&T reached out to the authors and asked for their perspective now, in light of more recent events, on their lessons learned in 1991.

Over 20 years ago, when the three of us were colleagues in the CSIS Political-Military Studies Program, we produced a report on the lessons learned from the Gulf War for future defense planning. Few could have imagined the course U.S. national security policy would take in the years after 1991—a decade of “peace operations” and humanitarian interventions, NATO’s Kosovo campaign, the tragedy of 9/11, the invasions of Afghanistan and Iraq, and a decade of large-scale stability, counterinsurgency and nation-building operations. Happily, a number of our lessons learned remain relevant to the current era—none more so than the central importance of people. If there is any enduring lesson learned from military operations from 1989 to 2015, it is that, as we wrote at the time, we must “place the greatest emphasis on the quality of military personnel.”

We produced our report in the heyday of the Revolution in Military Affairs, which focused on precision-strike networks and other advanced technologies as transformative tools to provide U.S. forces a decisive advantage on the battlefield. It is therefore unsurprising that we

WALKING THE LINE

Platoon leaders and sergeants with the 1st Squadron, 9th Cavalry Regiment "Headhunters," 2nd Brigade Combat Team, 1st Cavalry Division (2-1 CAV) conduct a two-mile road march during the Headhunter leadership challenge at Fort Hood, TX, Aug. 15, 2014. No element of military strength matters more in building and preserving capability than the overall quality of personnel, the authors assert. (U.S. Army photo by SGT Quentin Johnson, 2-1 CAV Public Affairs)





SAGE ADVISERS

MG Camille M. Nichols, then deputy commanding general for operations and chief of staff, U.S. Army Installation Management Command (IMCOM), welcomes mentors and mentees to the IMCOM Headquarters Centralized Mentoring Program during a three-day orientation at Fort Hood, TX, last summer. The authors have found that the services need to build their knowledge of what practices—assignments, education, mentoring—actually produce the kind of competent, ethical and dedicated personnel they want for the future. (Photo by Amanda S. Rodriguez, IMCOM)

emphasized a few themes closely related to that concept—the role of networked, precision approaches to warfare, for example. We highlighted the importance, in a precision-strike era, of dispersed operations, of finding ways to achieve military effects without massed forces—a challenge that has been brought home again in an era of contested operational environments and anti-access, area denial technologies. We wrote of the dangers of counting on deterrence to work in practice as it did in theory, stressed the importance of allies and partners and pointed to the growing role of ballistic missiles.

But we placed greatest emphasis on what we might now call the “first principle of defense policy.” Especially given the complex, technology-heavy and conceptually nuanced environment of today’s military, the quality of military personnel is the dominant form of competitive advantage. Military personnel policies and the overall quality of personnel, we argued, would be the single largest determinant of future U.S. military capability during the coming build-down. We believe that this lesson has been borne out manyfold in the past 13 years, and it is no coincidence that all the services today place maintaining a high-quality force at the top of their list of priorities.

At least two things have changed over the past two decades, however, to alter the context and significance of our recommendation. First, the role of personnel policies has become even more important for a related and somewhat paradoxical reason: The cost of human capital is crowding out options for

robust acquisition or modernization strategies. Partly because of expanding benefits and a growing retiree base, the daunting magnitude of prospective growth in personnel costs threatens the potential for a balanced defense investment strategy. Our challenge today is therefore to both reaffirm and invest in the role of high-quality personnel, even as we reform various aspects of pay and benefits.

Second, as Chairman of the Joint Chiefs of Staff GEN Martin E. Dempsey and many others have recognized, persistent leadership challenges in all the services have placed new emphasis on specific aspects of personnel quality. Back in 1991, we described the personnel needed as “competent and well-trained.” Under the shadow of a series of ethical challenges, we must emphasize that they be both operationally competent and competent of character, military professionals serving under a personal calling. The quality of our “humanware,” including its moral character, is now of even greater importance relative to the quality of our hardware and software.

Each service has an impressive array of programs to affirm the central importance of world-class personnel. Going forward, in addition to sensible reforms to keep personnel costs in line, we would recommend three additional areas of emphasis. The first is a continuation of the dialogue on military professionalism and the ethical demands on the military profession. Second, as much as the services have spoken at length about the attributes and skills they need in a 21st-century force, we

have little detailed knowledge of what practices—assignments, education, mentoring—actually produce those attributes, and the enduring character that manifests them. We need a new research agenda to find out. And finally, developing and retaining the best leaders for a complex era will call on the services to experiment with innovative new career trajectories, opening the aperture for the kinds of experiences that can lead troops and officers to senior ranks.

The views expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Air Force, the Army, the Department of Defense or the U.S. government.

DR. JAMES A. BLACKWELL is special adviser to the Air Force assistant chief of staff for strategic deterrence and nuclear integration. He served in the Army as an armored cavalry officer until medical retirement in 1987, when he joined CSIS. His work focuses on deterrence at the operational level of war as well as the institutional challenges of the nuclear enterprise. He holds a Ph.D.

in international law and diplomacy and an M.A. in law and diplomacy from the Fletcher School of Law and Diplomacy at Tufts University.

DR. MICHAEL J. MAZARR is a senior political scientist with the RAND Corp. He holds a Ph.D. in public policy from the University of Maryland School of Public Affairs, an M.A. in security studies and B.A. in government from Georgetown University. He has written a number of books and articles on all aspects of U.S. defense policy.

DR. DON M. SNIDER (COL, USA Ret.) is professor emeritus of political science at the United States Military Academy at West Point, from which he retired in 2008. He is currently professor of Army profession and ethic for the Strategic Studies Institute at the U.S. Army War College, and a senior fellow in the Center for the Army Profession and Ethic at West Point. A graduate of West Point, he holds a Ph.D. in public policy from the University of Maryland and M.A. degrees in economics and public policy from the University of Wisconsin.

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USAASC core functions include:

- Institutional management of the AAW and the Army Acquisition Corps (AAC) including career management and workforce development.
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- Subject matter expertise and analytical support regarding acquisition issues and initiatives to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) and various DoD elements.

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For more on the U.S. Army Acquisition Awards, including nomination forms and guidance, go to <http://asc.army.mil/web/acquisition-awards/>.

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- **Specialized Services and Construction Contracting Award (Individual)**
- **Contingency Contracting Award (Individual)**
- **Installation-Level Contracting Office – Directorate of Contracting Award (Unit/Team)**
- **Systems, R&D, Logistics Support (Sustainment) Contracting Award (Unit/Team)**
- **Specialized Services and Construction Contracting Award (Unit/Team)**
- **Contingency Contracting Award (Unit/Team)**

For more on the U.S. Army Acquisition Awards, including nomination forms and guidance, go to <http://asc.army.mil/web/contracting-awards/>.

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Heidi Shyu

*Assistant Secretary of the Army
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