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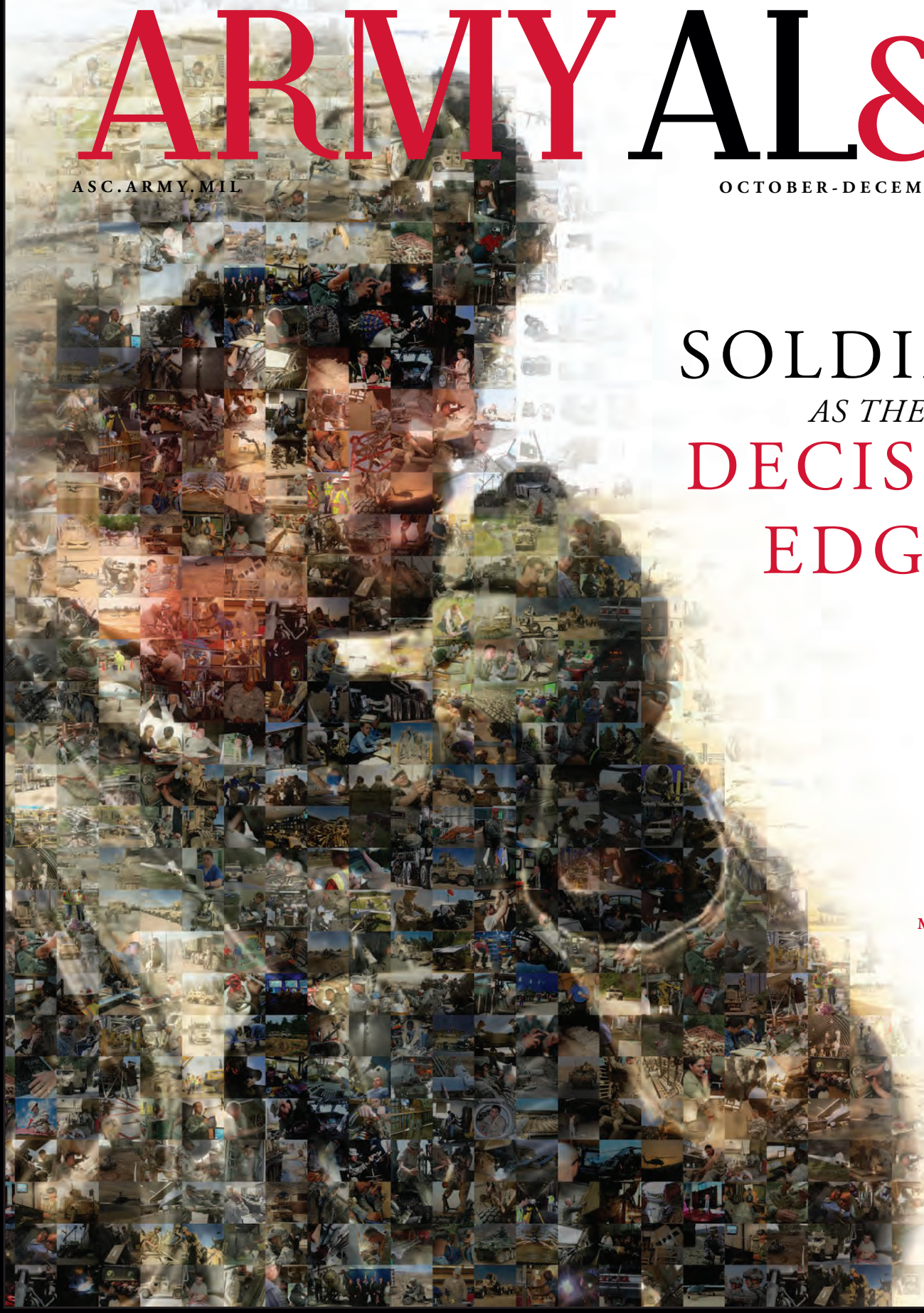
OCTOBER-DECEMBER 2011



SOLDIERS *AS THE* DECISIVE EDGE

From the Editor-in-Chief

The 38th Chief of Staff of the Army, GEN Raymond T. Odierno, recently highlighted his priorities by stating simply, "Soldiers are the strength of our Army." In that same vein, Ms. Heidi Shyu, the Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology, declared the acquisition theme for this year's Association of the United States Army (AUSA) Annual Meeting as "Soldiers as the Decisive Edge."

The focus on the Soldier after a decade of conflict in two wars is self-evident: It is the Soldier who wins wars, not a piece of equipment or a well-written policy. Enabling the Soldier with the capability to accomplish the mission is the key to making Soldiers the decisive edge. How well we, as Acquisition Corps professionals, seamlessly integrate the more than 650 acquisition programs we manage with the Soldier is more critical today than ever.

Thus, this issue focuses on how we, in acquisition, logistics, and technology, work to ensure that Soldiers are the decisive edge. We offer a wrapup of the first Network Integration Evaluation (NIE) in June and July, where more than 3,800 Soldiers tested the Army's tactical network, and a look ahead to the upcoming NIE 12.1 in October and November. From the use of networked smartphones to increase spot reports to the sharing of tactical information in real time, the NIE brought together six programs of record with 29 developmental and emerging capabilities, showcasing the ability of the Acquisition Workforce to integrate with our Soldiers.

Taking a deeper look at how the Army makes Soldiers the decisive edge and just in time for her presentation at the annual AUSA conference, Dr. Marilyn Miller Freeman, Deputy Assistant Secretary of the Army for Research and Technology, gives us a sneak peek at the seven pressing priorities for investment and execution by the science and technology community.

In addition to the Army network and a number of other key capabilities, this issue of *Army AL&T* Magazine highlights acquisition career development. It explores, in a special section and in leadership columns, useful digital applications for the workforce, steps to maintain and further your acquisition career, and the qualifications for membership in the U.S. Army Acquisition Corps. For those interested in becoming world-class acquisition experts or seeking promotion within the field, these articles are must-reads.

This quarter's Critical Thinking section features insights from Mr. Frederick W. Smith, Founder, Chairman, President, and Chief Executive Officer of FedEx Corp. Smith explains how, like the Army, FedEx is meeting customer demands and excelling with fewer resources.

Finally, this issue introduces a new Spotlight section, an opportunity to recognize outstanding performance by a member of the AL&T Workforce. If you know someone you believe could be a Spotlight contender after reading our first profile, email me at the address below with your nominee.

As always, I hope you look to these articles to provide new guidance and knowledge and that you share them with other acquisition professionals. If you have any comments or suggestions, please contact me at **usarmy.belvoir.usaasc.list.usaascweb-army-alt-magaz-ltr@mail.mil**. I look forward to hearing from you.

Nelson McCouch III
Editor-in-Chief

TALK BACK

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CLARIFICATION

The article "Thought Leaders" (*Army AL&T* Magazine, July-September 2011) should have listed Mr. David Gorsich as the member of the Army Scientific Professional Corps (Army ST) for Modeling and Simulation and Ground Systems.

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OCTOBER–DECEMBER 2011

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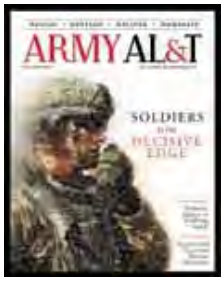

ON THE COVER
The technology, equipment, and programs developed, acquired, and fielded by the Army AL&T Workforce support "Soldiers as the Decisive Edge."

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OCTOBER–DECEMBER 2011

FEATURES

CONTRACTING

$ EFFICIENCIES

FIELD EXPEDIENT

COMMENTARY

ACQUISITION CAREER DEVELOPMENT

DEPARTMENTS

This medium is approved for official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By order of the
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FROM THE ARMY ACQUISITION EXECUTIVE
MS. HEIDI SHYU

Focusing on Soldiers as THE DECISIVE EDGE

Members of the U.S. Army Acquisition, Logistics, and Technology (AL&T) community are charged to perform the vital mission of developing, acquiring, delivering, supporting, and sustaining the most capable and affordable systems and services for our Soldiers. It is our solemn responsibility to enable Soldiers to dominate the battlespace safely and securely with unprecedented speed, accuracy, and lethality. Soldiers are our most important customers, and we work hard to provide them with the decisive edge—the first-look, first-strike advantage.

Continuous modernization—developing and fielding a versatile and affordable mix of equipment—is key to providing our Soldiers and units with an overwhelming advantage, the decisive edge, over any enemy they face. With ongoing operations in Afghanistan and Iraq and throughout the world, as well as the projections of a continued, complex operational environment, we are constantly building agile, adaptive, innovative, and streamlined processes and structures. We need to quickly identify emerging gaps and adjust program and budgetary priorities to rapidly field capabilities that will mitigate those gaps.

As a community, we have established several strategic initiatives to guide our modernization efforts, including:

- Lead Army Acquisition Transformation.
- Improve Force Protection and Soldier Survivability.
- Enable Rapid Army Modernization.
- Continue to Grow and Align the Acquisition Workforce.

LEAD ARMY ACQUISITION TRANSFORMATION

The AL&T community is deeply immersed in transforming the acquisition process by examining and streamlining its processes to gain efficiencies. We are a full partner in the DOD Better Buying Power initiatives. Additionally, at the request of the Secretary of the Army, a comprehensive Army Acquisition Review was conducted to assess strengths and weaknesses of the acquisition processes with the aim of furthering transformation.

As a result of the Army Acquisition Review, we are implementing 63 specific recommendations to improve the acquisition process. These recommendations include streamlining the requirements process to focus on more collaboration in order to properly align requirements and ensure greater affordability; examining technological maturity and realistic achievability of program goals; encouraging competition and driving down prices; codifying our rapid acquisition procedures; and introducing testing and prototyping earlier in the developmental cycle as a way to reduce costs and risks.

A major challenge to acquisition continues to be the need to properly prioritize, streamline, and collaborate on requirements at the front end of the process in order to emphasize technological maturity, affordability, and reliability at the end of the process. The revised Request for Proposal for the Ground Combat Vehicle is a prime example of the way we are approaching this challenge: Requirements were properly "tiered" and industry was given "trade space" designed to encourage innovation. The Army recognizes that the key to accelerating the timeline for the Ground Combat Vehicle is to address risk early and throughout the program. This includes

SUPPORTING THE SOLDIER

The Army is undertaking a number of strategic initiatives to provide Soldiers with the decisive edge, including efforts to lighten Soldiers' loads and improve force protection. Here, SPC Marcello Marcellino, 1st Battalion, 182nd Infantry Regiment, Massachusetts Army National Guard, provides security during a quality assurance check of several ongoing reconstruction projects in Paktya Province, Afghanistan. (Photo by SrA Wesley Farnsworth.)

an emphasis on competition and affordability in the vehicle's development, and increased reliance on mature technologies.

Part of the Army Acquisition transformation process hinges upon the results of the Army's Capability Portfolio Reviews (CPRs), which holistically examine existing requirements and revalidate them for groups of technologies and systems. A key emphasis of CPRs is to identify areas where efficiency can be increased and redundancies eliminated, recognizing that we will face a more constrained budget environment in the coming years.

We have continued to build the capability and capacity to manage systems-of-systems across their entire life cycle, and we work closely with the U.S. Army Materiel Command (AMC) as partners in the Materiel Enterprise. Likewise, we work closely with the U.S. Army Training and Doctrine Command (TRADOC), other Army entities, and combatant commanders to fully understand and anticipate emerging requirements for warfighter capabilities—through refinement, development, and production processes, and throughout the operational lifespan of systems.

IMPROVE FORCE PROTECTION AND SOLDIER SURVIVABILITY

In this area of critical importance, we are developing a host of cutting-edge technologies to include lighter-weight armor composites that will be fielded as rapidly as possible. We are currently experimenting with combinations of fibers, polymers, and other materials for tactical and combat vehicles to provide protection equal to that of traditional steel at a significantly lighter weight so that the vehicles can deploy and move more easily in full-spectrum operations with the best armor protection available. The focus of both air and ground vehicle survivability is on increased protection for the occupants from current and emerging threats.

We recognize that the weight our Soldiers must carry has a direct impact on their performance and stamina. The load carried by the average Soldier can be 130 pounds or more, depending on the mission. While training can help our Soldiers prepare for the physical demands of military operations, we are working to lighten this load. We are experimenting with lighter-weight materials in batteries, body armor, .50-caliber machine guns, rifles, and ammunition.

The Army is also developing the next generation of capabilities for our Soldiers. The Joint Light Tactical Vehicle is the next-generation, lightweight vehicle designed to provide Soldiers an unprecedented capability of protection, payload, and performance. We are fielding the Acoustic Gunshot Detection System to our individual Soldiers to assist them in determining situational awareness, as well as the distance and direction of enemy fire.

Additionally, the Army continues to push the boundaries of scientific and technological innovation to discover and deploy the best counter-improvised explosive device (IED) systems available. These technological capabilities include Mine Resistant Ambush Protected (MRAP) vehicles, counter-IED jammers, and aerial reconnaissance units such as Task Force ODIN – Observe, Detect, Identify, and Neutralize, as well as the Stryker armored combat vehicle with improved hull design to protect from IEDs and roadside mines. The Stryker double-V hull, with enhanced armor, wider tires, blast-attenuating seats, and improved suspension, progressed from concept to production in less than one year. It is saving the lives of our Soldiers in Afghanistan.

ENABLE RAPID ARMY MODERNIZATION

We work closely with G-8, TRADOC, AMC, the U.S. Army Test and Evaluation Command, and industry to ensure that weapon systems and equipment are delivered to our Soldiers as expeditiously as possible.

IMPROVING PROTECTION

Advances in technologies are allowing the Army to provide the next generation of tactical vehicles. The Joint Light Tactical Vehicle's first helicopter sling load transportability test with the Army's CH-47D Chinook and the U.S. Marine Corps' CH-53E Super Stallion was completed with four passenger General Purpose vehicles. (U.S. Army photo.)

MRAP TECHNOLOGY

The Army continues to advance technologies for counter-IED systems, including the MRAP vehicle. Here, SSG Roberto Delrio (center), Special Troops Battalion, 1st Armored Division, speaks to Soldiers from his unit about the features of the MRAP vehicle before a demonstration ride. (U.S. Army photo by SGT Jason Stadel, 16th Mobile Public Affairs Detachment.)

Modernizing for the future means we will continue to strengthen our focus on a system-of-systems approach, which recognizes the interdependent nature of our equipment. Last summer, the Army held the first in a series of Network Integration Evaluations (NIEs) at White Sands Missile Range, NM, and Fort Bliss, TX, designed to integrate and mature the Army's tactical network by placing a large number of emerging systems with Soldiers in operational scenarios.

The NIE is a key enabler in changing our way of doing business. The Army is developing an agile acquisition process to allow rapid evaluation of industry's Independent Research and Development (IRAD)-funded technologies and comparing them to programs of record. If the IRAD-funded technologies compare favorably to the programs of record at a reduced cost, the Army will consider procuring them. The other important benefit of NIEs is to obtain Soldiers' feedback on the operational utility of the equipment. At the heart of NIEs is an overarching effort to develop a single battlefield network able to push key information to our Soldiers and link them to command posts, vehicles on-the-move, and higher headquarters.

Our emphasis is on the successful integration of new equipment prior to troop deployment to ensure maximum interoperability.

CONTINUE TO GROW AND ALIGN THE ARMY ACQUISITION WORKFORCE

Our people are our most important asset. These professionals are located in our program executive offices, various commands, contracting offices, and other organizations across the Army. Our workforce manages more than one-quarter of every federal dollar and 38 percent of every DOD dollar spent on contracts. They have a direct impact on the products and services we procure for our Soldiers in theater and around the world.

To better support the Army, enable our combatant commanders, and increase our ability to do more without more, we are aligning the right skills to the work performed by the Army AL&T Workforce. We are also accelerating our work to institutionalize contingency contracting as a core competency to enable our dedicated professionals to develop the capacity to execute their missions effectively as a global expeditionary workforce.

The Army AL&T community is hard at work providing our Soldiers with leading-edge technologies and advanced capabilities for success in current missions while simultaneously preparing them for the future. Soldiers are our most important customers. We will not let them down.

AGILITY MATTERS

First Network Integration Evaluation affirms Army's newly synchronized and streamlined evaluation and feedback process for its No. 1 modernization priority

by BG(P) N. Lee S. Price, BG Michael E. Williamson, and COL John Wendel

For six weeks this summer, the Army tested its tactical network the way an Army network should be tested—in a completely integrated manner, using Soldiers conducting realistic missions to determine performance.

We went to White Sands Missile Range, NM, and purposely exposed the network to the communications challenges posed by the installation's high mountains and vast, rugged desert terrain during the Army's first Network Integration Evaluation (NIE). We leveraged one brigade combat team, the 2nd Brigade, 1st Armored Division (2/1 AD), with more than 3,800 Soldiers divided into various formations and a diverse set of vehicles and equipment. Most important, we brought together six programs of record with 29 developmental and emerging capabilities in an integrated environment, so that each component could be evaluated as part of the larger, overarching network.

This unprecedented approach is a major leap forward in maturing the Army's network. The network is the Army's No. 1 modernization priority; to meet that challenge, we must transform our traditional acquisition process. Rapid technological progress means we cannot afford to view networked systems as individual devices with their own distinct requirements and acquisition timelines. Instead, we must integrate and deploy networked capabilities as they become mature and are proven operationally relevant to the Soldier.

Senior leaders describe the new approach as "buy less, more often." For the program executive offices (PEOs), it means an entirely new way of interacting with the test, doctrine, and user communities—essentially a new way of doing business. Uniting these communities at White Sands twice a year will synchronize and streamline the evaluation and feedback process. Already, it has provided valuable user feedback on a number of major systems involved in the first NIE, including the Joint Tactical Radio System (JTRS) Ground Mobile Radio (GMR) and Handheld, Manpack, Small-Form Fit (HMS) Rifleman and Manpack radios, as well as the Joint Capabilities Release (JCR) of Force XXI Battle Command Brigade and Below (FBCB2)/ Blue Force Tracking (BFT).

For these program-of-record capabilities and the larger number of developmental and emerging systems, we received the kind of frank input you get only from direct engagement with Soldiers who need these products to fulfill their missions. Rapidly incorporating their candid feedback will allow the Army to avoid potentially costly system changes in later stages of development.

IMPROVING APPS

PFC Nicholas Johnson, a Soldier with the 2/1 AD who developed a medical evacuation application for smartphones as part of the Connecting Soldiers to Digital Applications initiative, demonstrates software for another application called Ringtail. (U.S. Army photo.)

NETWORK BASELINE

The June-July NIE also notched progress toward establishing an Objective Integrated Network Baseline. As we encountered integration challenges between military and commercial equipment, or in bringing select hardware and software into the network for the first time, engineers were able to troubleshoot these issues on the ground at White Sands and nearby Fort Bliss, TX. While this sometimes proved difficult because of the complexity of the network and the sheer

WIN-T INCREMENT 2

Two Point of Presence vehicles provide communications capability in the six-week WIN-T Increment 2 Production Qualification Test-Government (PQT-G) at Aberdeen Proving Ground, MD. While WIN-T Increment 2 does not undergo formal operational testing until spring 2012, more than a dozen sets of the equipment have been installed on vehicles for use in NIE 12.1 in October and November. The PQT-G, which concluded in August, was based on an operational mission set that is fundamentally built around the unit structure of 2/1 AD. (U.S. Army photo.)

size of the exercise, it was far better for the PEOs to do this work now rather than asking our deployed troops to wrestle with it later.

The network architecture in use at White Sands was significantly more complex than during any previous test the Army has conducted. It comprised roughly 25 terrestrial satellite systems, more than 100 vehicle-mounted networking radios that pass data as well as voice communications, an aerial tier of JTRS radios attached to Unmanned Aerial Systems (UAS), and a commercial 3G network to evaluate smartphones.

The Aerostat blimps used in the NIE carried a four-channel, software-programmable JTRS GMR, as well as two-channel JTRS HMS radios. The Shadow UAS were engineered to carry single-channel JTRS Rifleman Radios. The aerial tier increased the range of the Wideband Networking Waveform (WNW) and Soldier Radio Waveform (SRW) waveforms and expanded the overall network. The software-programmable JTRS radios, which can use encryption to safeguard information, are built to send Internet Protocol packets of data, voice, video, and images via multiple waveforms between static command centers, vehicles on the move, and dismounted individual Soldiers on patrol.

WNW and SRW software performed very well during the NIE, providing reliable, near-continuous tactical networking during the six-week event. Feedback from Soldiers indicated that they significantly increased mission effectiveness, particularly in maintaining situational awareness at all levels of the chain of command while increasing the range and speed of networking connectivity for all missions. Soldiers were also able to plan and manage JTRS networking waveforms successfully for the first time in an operationally focused large-scale evaluation using JTRS network manager software. This indicates we are on the right track for delivery of networking capabilities that can be effectively employed by deployed Soldiers.

The NIE also illustrated the operational benefits of JCR, the next-generation FBCB2 software that features a faster satellite network, secure data encryption, and advanced mapping kits. Soldiers in combat rely on FBCB2 for situational awareness, viewing blue icons on a computer screen inside their vehicle to locate their teammates. They can plot improvised explosive devices and enemy locations with red icons on the same computerized topographical map, alerting other friendly units nearby.

Both the speed and accuracy of FBCB2's satellite network have improved with JCR due to BFT 2, a new satellite infrastructure that can handle significantly more data. This capacity increase allows for more frequent and larger message traffic, and in many cases cuts the system's refresh rate from minutes to seconds—a welcome change for users from the 2/1 AD. Soldiers also praised changes to the user interface, saying that JCR is easier to learn and operate than the first FBCB2. JCR is the predecessor to Project Manager FBCB2's Joint Battle Command-Platform.

THE ULTIMATE TEST

After the formal tests in Weeks 1 through 4 of the exercise were complete, the final two weeks featured a capstone event focusing on technical integration and ensuring that different systems could function together seamlessly.

That required PEO Command, Control, and Communications-Tactical (PEO C3T), as the network lead, and PEO Integration, as the overall event lead, to combine network aspects ranging from the voice and mission command architectures to the data products and configurations that "glue" it all together, routing information to the right individuals at the right time to execute the mission.

The network we built at White Sands provided unprecedented connectivity to our commanders and Soldiers across all echelons of the Brigade. Seeing it come together was rewarding and a good reminder of what is at stake in getting this right.

THE NEXT NIE

Leveraging the momentum and lessons learned from the first event, we are immersed in preparations for the second NIE, termed the Network Integrated

RAPID TECHNOLOGICAL PROGRESS MEANS WE CANNOT AFFORD TO VIEW NETWORKED SYSTEMS AS INDIVIDUAL DEVICES WITH THEIR OWN DISTINCT REQUIREMENTS AND ACQUISITION TIMELINES.

TRACKING FRIENDLY FORCES

A 2/1 AD Soldier uses the new version of the Army's friendly-force tracking and messaging software, known as FBCB2 Joint Capabilities Release (JCR), inside his vehicle. Soldiers in the first NIE this summer said that JCR offered faster updates and improved situational awareness for tracking fellow Soldiers' vehicles. (U.S. Army photo.)

Evaluation 12.1, to be conducted in October and November 2011. This installment will also involve the 3,800 Soldiers of the 2/1 AD and nearly 1,000 vehicles. NIE 12.1 is the second of four events leading up to a fully integrated Brigade Combat Team Network Evaluation at the end of 2012.

NIE 12.1 will leverage the network end state from the first NIE as the baseline for additional capabilities and will continue evaluations in support of program-of-record milestones, while introducing industry participation with several commercial-off-the-shelf systems. We are introducing industry participation into the NIE evaluation cycle based on capability gaps identified by the U.S. Army Training and Doctrine Command (TRADOC).

To evaluate which systems to include in each exercise, the Army sent "Sources Sought" requests asking industry to propose technological solutions to meet those gaps. PEO Integration led the effort to assess those submissions, match them to known requirements, and assess the maturity and integration potential of each technology.

This adaptive and quick-reaction acquisition methodology, referred to as the Agile Process, will allow our network modernization to keep pace with industry advances. At the same time, it will maintain the government's role as lead integrator to ensure that the solutions are interoperable with one another and are inserted on a timetable aligned with the Army Force Generation cycle.

One major development for NIE 12.1 is the participation of Warfighter Information Network-Tactical (WIN-T) Increment 2, which for the first time will provide on-the-move network communications all the way down to the company level. While WIN-T Increment 2 is not under formal test until spring 2012, more than a dozen sets of the equipment have been installed on vehicles for use in the NIE 12.1.

One of the key strengths of WIN-T Increment 2 lies in its ability to adapt to changing mission conditions in real time. By taking advantage of both terrestrial and satellite communications, units in austere environments, such as mountainous regions, can still connect and communicate through this self-forming, adaptive network. Should a component

INTEGRATING RADIOS

Soldiers with the 2/1 AD show how the Rifleman Radio was integrated into the wing of the Shadow UAS, during the NIE VIP Day. The Rifleman Radio aerial tier, as enabled by the Shadow, provided range extension during the JTRS HMS Manpack Limited User Test. (Photo by Ashley Blumenfeld, JPEO JTRS.)

of the network become inoperable, it restructures itself and continues providing the seamless communication needed to complete dynamic operational missions.

While the recent Production Qualification Test-Government at Aberdeen Proving Ground, MD, focused on technical functionality, the spring 2012 initial operational test and evaluation (IOT&E) at White Sands will focus on how WIN-T Increment 2 benefits the overall execution of the Soldier's mission. The IOT&E will demonstrate whether or not the network speeds decision cycles, enables increased operations tempo, and increases speed of maneuver. Delivering WIN-T Increment 2 assets to 2/1 AD for the NIE 12.1 provides an additional venue for Soldiers to get hands-on exposure, as well as early insights on this important upgrade to the network backbone. Before the NIE model, this flexibility might not have been possible.

Three of the JTRS hardware products—the HMS Rifleman Radio, the two-channel HMS Manpack and the GMR—will also be integrated into the NIE 12.1 network architecture, running various configurations of the WNW and SRW waveforms. These networking capabilities will operate within a variety of relevant scenarios, including close-air support with UAS, medical evacuation, and convoy operations.

With the HMS program's achievement of Milestone C in June, the Army was authorized to procure a low-rate initial production lot of up to 6,250 Rifleman Radios and up to 100 Manpack Radios. The Rifleman Radio's IOT&E event will be part of NIE 12.1. The Rifleman is a key component to building the ground-level lower tactical network, bringing the most communication-disadvantaged users—the small unit down to the individual user—into the network. HMS radios provide the means to conduct voice, data, image, and video communication securely between the individual user and team leader, resulting in more efficient mission command at the lowest echelons. They will give ground troops the kind of information dominance previously available only at much higher echelons.

The two-channel HMS Manpack will run voice and video using SRW and will be assessed for its ability to provide live UAS video feeds to platoon vehicles and dismounted forces. The HMS Manpack will also be assessed on its ability to access Secure Internet Protocol Router email and the Tactical Ground Reporting (TIGR) database, as well as the operational benefit of providing this capability to platoon vehicles on the move. Updated versions of WNW and SRW will also be tested in NIE 12.1 as well as the initial phase of the JTRS Enterprise Network Manager, combining the capabilities of the WNW and SRW Network Managers into a single system. We will also add commercially developed JTRS radios that have integrated JTRS networking capabilities, for the first time using software from our Information Repository through the JTRS Enterprise Business Model in NIE 12.1.

A WHOLE NEW APPROACH

The bottom line is that the Army is making significant changes in how we evaluate and integrate capabilities—both programs of record as well as non-programs of record—for a total networked Force.

Individual success for hardware systems such as WIN-T, GMR, and HMS, or for networking waveforms such as WNW and SRW, is no longer sufficient. They must work together seamlessly along with the critical content that rides the network, including battlefield applications such as JCR and TIGR, while proving operational relevance when placed in Soldiers' hands.

As part of the Agile Process, the NIE concept provides the Army with a framework to incrementally and systematically deploy new networking capabilities and technologies with reduced risks, reduced costs, and greater efficiency. This is an effective and essential change in the way we do business.

TESTING THE NETWORK

This MRAP All-Terrain Vehicle was used to test the networking capabilities of the Single Channel Ground and Airborne Radio System, SRW, and Satellite Communications waveforms during the Manpack Limited User Test. (Photo by Ashley Blumenfeld, JPEO JTRS.)

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On the Spot

Army eyes smartphone capabilities and risks in tactical communications

by Kris Osborn

Through a series of ongoing evaluations called Connecting Soldiers to Digital Apps (CSDA), the Army is finding that the use of smartphones leads to an increase in spot reports (SPOTREPs), wherein Soldiers share tactically relevant information across the force in real time.

CSDA is an initiative that places smartphones and personal digital assistants (PDAs) in the hands of Soldiers in mock operational scenarios. Army officials are learning that sharing data, images, and even video instantaneously can provide a tactical advantage on the battlefield.

"Think of Mission Command. Part of what we have to have is shared understanding. This is another way for the individual Soldier to send something back to his squad leader or fellow squad members," said Rickey Smith, Director of the Army Capabilities Integration Center-Forward.

Soldiers who went through mock combat exercises with mobile smart devices achieved as much as a 40 percent increase in SPOTREPs, which included taking photographs and sharing data within their formations.

DESIGNING APPLICATIONS

PFC Nicholas Johnson (left) of 1st Battalion, 35th Armor Regiment, 2nd Brigade Combat Team, 1st Armored Division demonstrates an application he designed to GEN Robert W. Cone, Commanding General, U.S. Army Training and Doctrine Command, during the Network Integration Evaluation at White Sands Missile Range, NM, in June. (U.S. Army photo by Annie Gammell.)

MULTIPLE CAPABILITIES

"As much as possible, this ability to get information in real time horizontally and vertically is important. A smartphone is a camera, it is a voice communication device, and it provides chat text. You can send or receive photos, graphics, and videos," Smith said.

During evaluations, Soldiers take pictures and send them back to headquarters, or speed up the pace of a medical evacuation by providing location information quickly.

In addition, the Army has had success running situational awareness Battle Command applications on smartphones. These applications include Joint Battle Command-Platform, a next-generation force-tracking program that can show the locations of friendly forces.

One of the applications Soldiers experimented with is Soldier Eyes, which uses mapping technology to show Soldiers their locations in relation to their fellow Soldiers and the surrounding terrain,

PUTTING APPS TO WORK AGAINST INSURGENTS

(Left) SSG Reag Wood of 1st Combined Arms Battalion, 5th Brigade, 1st Armored Division illustrates how he uses an iPhone to obtain a visual image of a mock insurgent activity during a CSDA field training exercise at White Sands Missile Range, NM, last December. (Right) COL Marisa Tanner, Chief of Mission Command Capabilities Division, Future Force Integration Directorate, demonstrates an application that can provide situational awareness and information on high-value targets, during a "digital rodeo" last summer at Fort Bliss, TX. (U.S. Army photos courtesy of Fort Bliss Public Affairs Office.)

said Michael McCarthy, Director of Operations at the Brigade Modernization Command, Mission Command Complex, Fort Bliss, TX.

The Army is also looking at innovative ways to power cell phones, such as the use of an experimental micro fuel cell containing a one-ounce cartridge of methyl alcohol, McCarthy said. The cartridge goes in the bottom of the phone. "One ounce will give me enough power to keep five to six phones working for five to six days," he explained.

NEXT STEPS

The Army is conducting cost-benefit analyses of the use of various smartphones and applications; some of the applications use icons and maps with key location-related information, Smith said.

At the same time, there are Information Assurance challenges with the use of smartphones, he said. "You don't want to use a device that might give away your locations to a potential enemy." Through CSDA, the Army is considering various types of encryption and other methods to mitigate these concerns, Smith said.

With this in mind, the Defense Advanced Research Projects Agency has Soldiers in Afghanistan using a smartphone/PDA-type device that translates Pashtun into English and vice versa; however, the "phone" function on this device is turned off for now to mitigate security risks, Smith said.

The Army also is exploring another option in the use of portable cell towers to establish a mobile, ad hoc cell network for deployed forces; this technique creates a mobile "hot spot" that can be extended by adding nodes to the network. As part of these evaluations, the Army is assessing whether ad hoc mobile cell networks can successfully integrate with an existing tactical network that includes software-programmable radio, satellites, and other communications technology.

The CSDA initiative also is demonstrating success in using smart devices for training materials, which can be pulled down and used by students at the place and time of the student's choice, Smith said. Materials such as the Army Blue Book instruction manual for new Soldiers, Military Police basic officer courses, and Patriot missile launcher crewmen courses are linked to smartphone applications.

"We can postulate a future where smart devices are with every Soldier. We are thinking in terms of capability. The real key is whether the benefit outweighs the cost," Smith said.

KRIS OSBORN is a Highly Qualified Expert for the Assistant Secretary of the Army for Acquisition, Logistics, and Technology Office of Strategic Communications. He holds a B.A. in English and political science from Kenyon College and an M.A. in comparative literature from Columbia University.

Reality Check

Combat-like scenarios put gear to the test

by Kris Osborn

THE REAL DEAL

In addition to the Afghan terrain, the Army's first Network Integration Evaluation at White Sands Missile Range, NM, sought to replicate the typical variety of combat missions for Soldiers from 2nd Brigade, 1st Armored Division, including route clearance, reconnaissance, scout missions, interdiction, time-sensitive raids on the enemy, and efforts to neutralize improvised explosive devices. (U.S. Army photo by SPC Latoya Wiggins.)

SGT David Johnson stood attentively inside a Tactical Operations Center (TOC) put up in a test "mountain village" strategically nested between hills on White Sands Missile Range, NM. Designed to replicate Afghanistan's desert terrain, the TOC enabled Johnson to pinpoint the location of an enemy sniper team with machine guns and rocket-propelled grenades (RPGs) and to share real-time, combat-relevant intelligence across the force using networking gear evaluated during the Army's first Network Integration Evaluation (NIE).

"The platoon leader was able to send information up to us and give our commanders the intel that we've got guys with machine guns and RPGs in a building. He was able to prep the fire mission for artillery and go ahead and hit the building without having to endanger Soldiers on the ground," Johnson explained.

This scenario, wherein battle-relevant information is transmitted instantly across the force in real time from dismounted units conducting counterinsurgency reconnaissance missions to vehicles on the move and static command posts, represents the very heart of what the Army's ongoing NIE aims to accomplish.

REAL-TIME COMMUNICATIONS

The information in the scenario, appearing as an icon on a laptop display screen

GROUND WAVELENGTHS AND BUILDING RELATIONSHIPS

(Left) The JTRS GMR. (U.S. Army photo.) (Right) Soldiers from 2nd Brigade, 1st Armored Division participated in a mock key leader engagement (KLE) during the Network Integration Evaluation at White Sands Missile Range, NM. Opposing forces, or "Red," Soldiers played the role of local villagers, while "Blue" forces Soldiers sought to develop a friendship with locals. KLEs have helped commanders and diplomats alike in furthering their objectives. (U.S. Army photo by SPC Latoya Wiggins.)

inside the TOC, was sent using Joint Tactical Radio System (JTRS) Ground Mobile Radio (GMR), a four-channel, multi-waveform, software-programmable radio that can transmit voice, data, images, and video across the force in real time.

Using a high-bandwidth waveform called Wideband Networking Waveform, which draws from a larger part of the available spectrum than legacy waveforms to move information farther, faster, and more efficiently, the GMR transmitted and received the data through a mobile command post set up inside a Caiman Mine Resistant Ambush Protected vehicle.

In the case of GMR and some of the other systems that were tested and evaluated, the Army is assessing the technology in its current configuration, as well as exploring additional hardware and software solutions that might perform the same or similar functions more efficiently or effectively.

The display screen in the TOC used Force Battle Command Brigade and Below force-tracking technology, augmented by new software that also was evaluated, called Joint Capabilities Release.

INSIDE 'AFGHANISTAN'

Mock enemies, or "Red" forces, were dispersed through the countryside, placed in caves, "villages," and other strategic locations with the mission to challenge, attack, and disrupt the U.S., or "Blue," forces set up at various locations across White Sands.

The mock villages included Afghan-style tribal leaders who participated in "key leader engagements" with U.S. forces to replicate realistic counterinsurgency scenarios. The village even had a mock Taliban shadow government similar to those in theater, said LTC Matthew Fath, Commander, 1st Battalion, 35th Armor Regiment.

Blue forces stationed at the "mountain village" outpost performed the typical variety of combat missions during the NIE, including route clearance, reconnaissance, scout missions, interdiction, time-sensitive raids on the enemy, and efforts to neutralize improvised explosive devices, Fath said.

MOVING FORWARD

To begin evaluating which systems to include in subsequent exercises, the Army has sent three "Sources Sought" requests to industry, asking for proposed technological solutions to numerous identified networking capability gaps. So far, Program Executive Office Integration is assessing more than 70 white papers submitted by industry in response, said spokesman Paul Mehney.

"We are beginning an assessment of the white papers to match them up to known requirements and assess whether the capability is technically mature. We are also taking a look at the integration requirements. Can this capability integrate into the hardware and software infrastructures we are working with?" Mehney said.

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ELECTRONIC WARFARE TEST

SFC Charles Corley, Electronic Warfare Officer with 2nd Squadron, 108th Cavalry Regiment, 224th Sustainment Brigade, 103rd Sustainment Command (Expeditionary), checks equipment for a convoy escort team at Contingency Operating Base Adder, Iraq. PEO Simulation, Training, and Instrumentation tested electronic warfare systems against new threats during the Army's first Network Integration Evaluation. (U.S. Army photo by SGT Alan Smithee.)

THREAT TEST

Realistic electronic warfare and computer network operations environment supports Network Integration Evaluation

by William H. Spinks Jr., Jim Wood, and Chip Brown

As the Army's tactical network has evolved into a system-of-systems architecture with advanced cyber technologies, a cohesive information operations (IO) capability—especially electronic warfare and computer network operations—is required to test against new threats and to ensure that the Army's tactical systems are resilient and survivable against adversaries with developing IO capabilities.

To help achieve these capabilities, the U.S. Army Program Executive Office for Simulation, Training, and Instrumentation (PEO STRI) provided key support to the Army's first Network Integration Evaluation (NIE) this summer through its Project Manager Instrumentation, Targets, and Threat Simulators (PM ITTS) office.

With the NIE's focus on an integrated network, the U.S. Army Test and Evaluation Command (ATEC) implemented a test plan calling for a robust and viable threat force and technically advanced instrumentation equipment. To satisfy the NIE's threat needs, PM ITTS established and fielded a robust electronic warfare and computer network operations environment, deploying threat systems and personnel to White Sands Missile Range, NM, to provide threat signal intelligence, direction finding, and jamming representation consisting of signal analysis systems, a Threat Computer Network Operations Team (TCNOT) under the purview of 1st Information Operations Command (1st IOC), and a suite of six threat jammer assets.

"Our support to NIE represents the largest deployment of threat equipment to a single event in over a decade and is a direct result of several years of successful acquisitions and planning to stay synchronized with Army needs," said Brian Hill, Acting Director of PM ITTS' Threat Systems Management Office (TSMO).

PROTECTING ESCORT TEAMS

SPC Harold Davis, a Computer Detection Systems Repairer with the 749th Combat Sustainment Support Battalion, 4th Sustainment Brigade, 103rd Sustainment Command (Expeditionary), upgrades a Counter Remote Control Improvised Explosive Device Electronic Warfare system at Contingency Operating Base Adder, Iraq. Specialists such as Davis work to keep convoy escort teams safe from remote-controlled improvised explosive devices in Iraq and Afghanistan. These devices were tested against new threats during the NIE. (U.S. Army photo courtesy of 4th Sustainment Brigade.)

INTEGRATED THREAT FORCE

Because PM ITTS' support to NIE is expected to increase with follow-on NIE events, PM ITTS is developing solutions that will enable the fielding of the Army's first Integrated Threat Force (ITF).

The ITF is designed as a test and evaluation solution to augment threat mission control, situational awareness, threat fidelity, and reporting of threat force portrayal. The ITF accomplishes this by seamlessly integrating individual threat-faithful systems into one cohesive threat force capable of providing the following capabilities: mission control, communications, situational awareness visualization, and collaboration.

ITF is designed to support various test sizes and constructs using the following threat systems:

- **Networked Electronic Support Threat Sensors,** a suite of electronic surveillance capabilities that includes direction finding, signal collection, and signal exploitation. The system provides ITF the ability to detect, locate, and identify Blue Force emitters.
- **Threat Signals Injection Jammer (TSIJ),** an electronic attack system that allows tactical radios to be jammed and evaluated without conducting disruptive open-air electronic warfare testing. The program develops and procures state-of-the-art threat signal injection jammers with remote control capability. The TSIJ program consists of two components: the Control Signal Transmitter (CST) and Remote Jamming Unit (RJU). The CST controls the amplitude of the injected waveform, as well as the selection of the jamming waveform. The RJU is a jamming component that is connected directly to the system under test. It can perform jamming on communication and GPS signals.
- **Network Exploitation Test Tool (NETT),** a comprehensive computer network operations capability that delivers an integrated suite of open-source exploitation tools. It is designed to enable information warfare professionals to conduct live penetration and distribution tests on friendly

force systems for vulnerability analysis and system evaluation. The NETT system allows for the security testing of computer network-based systems, whether they are enterprise- or battlefield-focused platforms.

- **Threat Intelligence Electronic Warfare Environment (TIEW-ENV),** which supports the establishment of a wrap-around threat environment to evaluate, demonstrate, and employ the electronic warfare capabilities of enemy forces in simulated real-world test and training events. TIEW-ENV provides the capability to import vignettes, establish virtual entities, connect live assets, and interact among the live, virtual, and constructive environments.
- **Mobile Commercial Network Infrastructure Test Range,** a closed-loop cellular network infrastructure capable of generating a realistic electromagnetic environment that provides a wireless network capable of supporting voice and data communications across the 2-2.75 Generation Global System for Mobile Communications and 3G Universal Mobile Telecommunication Standard for cellular devices.
- **CICADA,** a highly mobile, state-of-the-art communications jamming system capable of jamming numerous active radio nets, including frequency hoppers. It features several jamming modes that can be used against frequency hoppers, cell phones, and satellite navigation. The jammers are controlled either by an operator or remotely by an electronic warfare operations center. The operator can program the system to jam only certain signals, scan the environment, and/or become active only when those signals are present. Specific signals also can be "blanked out" or blocked from jamming.
- **Threat Unmanned Devices (TUD),** an intelligence, surveillance, and reconnaissance capability that portrays threat force sensor-to-shooter engagement timelines and linked unmanned ground sensor and aerial sensor capabilities. The TUD program encompasses the integration of aerial sensor packages (electro-optical/infrared sensor and laser designator) and a control signal transmitter onto a low-radar, cross-section aerial platform. Plans include procuring and integrating seismic and acoustic ground sensors over the course of this program.
- **Wideband Configurable Controlled Jammer,** which provides a dynamic, flexible, re-programmable open-air jamming asset designed to replicate threat jamming systems, with special consideration for video and microwave links. The system uses digital waveform generators to replicate waveforms that are threat-representative and controllable in power. More important, it can be tailored to notch out or inhibit

ANALYZING THE SPECTRUM

CPT Thomas Mesloh, Electronic Warfare Officer for 2nd Squadron, 108th Cavalry Regiment, 224th Sustainment Brigade, 103rd Sustainment Command (Expeditionary), discusses the measurements on a spectrum analyzer with a convoy escort team commander at Contingency Operating Base Adder, Iraq. During the NIE, PM ITTS tested electronic warfare systems against the possibility of new threats from adversaries with IO capabilities. (U.S. Army photo by SGT Alan Smithee.)

"OUR SUPPORT TO NIE REPRESENTS THE LARGEST DEPLOYMENT OF THREAT EQUIPMENT TO A SINGLE EVENT IN OVER A DECADE AND IS A DIRECT RESULT OF SEVERAL YEARS OF SUCCESSFUL ACQUISITIONS AND PLANNING TO STAY SYNCHRONIZED WITH ARMY NEEDS."

transmissions in certain protected radio frequencies, thereby minimizing any spurious or out-of-band emissions.

COLLABORATIVE EFFORTS

Other test support provided by PM ITTS during the NIE included augmentation of the 1st Battalion, 1st IOC "Red Team," as part of an ongoing cooperative relationship between the 1st IOC and the TSMO TCNOT. The 1st IOC Red Team emulates adversarial capabilities that target a unit's information system, mission control system, and decision-making process. Red Team missions have a dual purpose—to strengthen unit readiness and to verify the effectiveness of countermeasures.

To support future efforts such as the NIE and to find reuse for capabilities produced under the Operational Test-Tactical Engagement System Communications Upgrade (OT-TES CU) program, PM ITTS has been working with members of ATEC at Aberdeen Test Center, MD, and White Sands Missile Range to use the KOV-37s developed under the OT-TES CU program. The KOV-37 is a ruggedized, electromagnetic-compliant, Type I encryption-certified device. It is a highly efficient processing and memory system capable of storing and applying digital terrain databases. The KOV-37's possible uses include a variety of test and training applications for which an in-line encryptor is required to protect classified data transmissions or to meet network security requirements.

Along with the KOV-37s, the Hybrid Network (HyNet), another product developed under the OT-TES CU program, has reuse capability. HyNet is an Internet Protocol-based, spectrum-efficient network solution. HyNet is easily adapted to support a variety of test, training, and possibly tactical network communication requirements where network coverage and reliability are priorities.

Integration tests with the KOV-37s, HyNet, the Advanced Distributed Modular Acquisition System, and the Common Range Integrated Instrumentation System Rapid Prototype Initiative radios in May were successful. The certification event at Aberdeen is scheduled for October and involves additional assets from the OT-TES CU program.

COL Mike Zarbo, PM ITTS, said of the support his organization provided to the first NIE, "Not only do we provide the threat equipment to ensure our systems under test get put through their paces in a realistic, threat-representative operational environment, we also provide the right mix of instrumentation required to determine if these systems are performing up to expectations."

William H. Spinks Jr. is Chief of the Test Investment and Support Division for PM ITTS' Threat Systems Management Office (TSMO). Spinks holds a B.A. in theatrical design and technology and a B.S. in electrical engineering from Auburn University. He is Level III certified in program management, Level I certified in systems planning, research, development, and engineering – systems engineering, and Level I certified in systems planning, research, development, and engineering – program systems engineering. Spinks is a member of the U.S. Army Acquisition Corps.

Jim Wood, an Electronic Consulting Services Inc. employee, supports the TSMO as a Systems Engineer. Wood holds an A.A.S. in electronics from El Paso Community College.

Chip Brown is a Senior Advisor for PM ITTS supporting the OT-TES, Objective Helicopter Icing Spray System, and the Aviation System Test Integration Lab. Brown holds a B.S. in aeronautics from Embry-Riddle Aeronautical University and is pursuing an M.S. in aerospace engineering at Embry-Riddle.

MISSION COMMAND

Software adapts to evolving needs to ensure that Soldiers remain the decisive edge

by COL Jonas Vogelhut and Michael P. Anthony

The recent change in Army doctrine from "Battle Command" to "Mission Command" is more than just word play. As Field Manual 3-0, *Operations*, states, "Mission Command is the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of full-spectrum operations."

It is our warfighting function that enables troops at all echelons to understand what goals need to be accomplished and to find ways of achieving those goals even when they are separated from higher headquarters. It holds the commander and the Soldier accountable for creating a shared understanding of the operational environment from the bottom up, as well as the top down. To support this vision, the Army is refining the system-of-systems structure and design to empower our formations from "the edge" to the highest levels of mission command.

The individual empowered Soldier gives U.S. forces a decisive edge in combat. Many of the U.S. Soldier's decisive capabilities come from support systems. When confronted with an agile enemy, however, these tools must be able to change quickly in response to altered enemy tactics and capabilities. Historically, the time

INTEGRATING CAPABILITIES

A Soldier uses Command Post of the Future (CPOF), which, along with Command Web, is integral to the Project Manager Mission Command strategy that is "collapsing" separate capabilities, such as fires, maneuver, sustainment, airspace management, and air defense into a fully interoperable product line. (U.S. Army photo.)

COMBINE AND COMMAND

Soldiers collaborate inside the brigade-level Tactical Operations Center for the 2nd Brigade Combat Team, 1st Armored Division, a nerve center for the Army's Network Integration Evaluation conducted in June and July. In the foreground, a Soldier uses CPOF, which combines feeds from different mission command systems to provide a broad spectrum of information that commanders can use to collaborate. (Photo by Claire Schwerin, PEO C3T.)

required to change fielded software has been problematic, and the challenge is amplified when faced with a quickly evolving enemy that uses any technology at its disposal.

This article explores how systems can be designed and deployed so that they may adapt rapidly to changing situations in order to meet evolving Soldier needs. It discusses how software can be made to adapt to unanticipated uses through modifications by personnel in theater, as well as how current software development and distribution cycles are being improved to be more responsive to emergent needs. Finally, it shows how pioneering technology can make some warfighting functions automated and others more intuitive, allowing the commander to remain focused on fighting the enemy rather than fighting his or her own systems.

AGILE AND ADVANCED

These goals can be accomplished through a combination of agile processes and advanced technology. From a process perspective, Project Manager Mission Command (PM MC), which was rechartered from PM Battle Command in July, has led the Army with innovative methodologies. These include "scrum sessions" that bring together users from the field to work directly with software developers, eliminating several layers of middlemen to implement valuable feedback.

As these capabilities become mature, PM MC, part of Program Executive Office Command, Control and Communications-Tactical (PEO C3T), also ensures that they are fielded in a timely manner through a quarterly release process. This schedule, which took the place of less frequent software upgrades, provides a reliable framework for quickly deploying new capabilities and maintenance. More important, it ensures that MC software is constantly updated and is operationally relevant to the Soldier with every release.

Such agile techniques and rapid incorporation of Soldier feedback reflect the goals of the Army network strategy, as demonstrated in the Network Integration Evaluation events. They also support the Mission Command Collapse Strategy, which is "collapsing" separate capabilities such as fires, maneuver, sustainment, airspace management, and air defense into a fully interoperable product line.

In addition, the collapse strategy is creating two core software architecture frameworks from which future applications can be built. These frameworks are

MANY OF THE U.S. SOLDIER'S DECISIVE CAPABILITIES COME FROM SUPPORT SYSTEMS. WHEN CONFRONTED WITH AN AGILE ENEMY, HOWEVER, THESE TOOLS MUST BE ABLE TO CHANGE QUICKLY IN RESPONSE TO ALTERED ENEMY TACTICS AND CAPABILITIES.

Command Workstation, with Command Post of the Future (CPOF) as its foundation, and Command Web.

CPOF is the primary common operational picture viewer used by the Army in all theaters, combining feeds from different mission command systems to provide a broad spectrum of information that commanders and Soldiers can use to collaborate. Command Web allows users to access the capabilities of mission command systems through a Web-based interface, extending their collaborative reach. This application allows users to geospatially and temporally view, collaborate, analyze, and maintain situational awareness in an environment that is constantly changing.

Both CPOF and Command Web were designed to be responsive to emerging Soldier needs by enabling the rapid integration and deployment of new warfighting capabilities through third-party development. The CPOF 3rd Party Development Kit (3PDK) and Command Web Software Developers Kit (SDK) provide an interface through which government and industry can initiate new capabilities within a defined framework, which ensures innovation and that the resulting new applications are interoperable with what exists today.

This approach supports the Army's progression from stand-alone, proprietary software to products that integrate seamlessly and can scale to support much more of the force. The commander or Soldier in the field not only benefits as an end user of the enhanced capability, but is also empowered to make modifications that suit the mission. This is one of the major goals of mission command.

CRITICAL CAPABILITIES

One example of a game-changing capability brought into CPOF through the 3PDK is found in analytical terrain tools. When a company commander receives mission orders from higher headquarters, the first instinct is to get the lay of the land. That can mean a hunt on Google Earth, study of a printed terrain guide, or any number of other strategies in search of the best places to situate a landing zone, a point for casualty evacuations, and other essential elements of planning.

This information-gathering process often consumes hours. Worse, it can be rushed when the mission must begin right away. While analytical terrain tools exist to automate and streamline this process, they previously had been available only at the brigade, division, and/or corps levels.

RAPID RESPONSE

A Soldier uses CPOF, designed to be responsive to emerging Soldier needs by enabling the rapid integration and deployment of new warfighting capabilities through third-party development. (U.S. Army photo.)

Now, such tools are being pushed to the company level through a partnership of PM MC, the Army Geospatial Center at Fort Belvoir, VA, and the Research, Development, and Engineering Command (RDECOM) Communications-Electronics Research, Development, and Engineering Center (CERDEC) Command and Control Directorate (C2D). By providing this capability to the company commander through both CPOF and Command Web, the Soldier is equipped with crucial terrain information earlier in the decision process, which can provide a decisive edge.

Another powerful technology integrated into CPOF is the Personalized Assistant that Learns (PAL), a capability developed by the Defense Advanced Research Projects Agency. PAL truly works like an assistant inside the computer. It can be taught to perform routine information management tasks and then triggered to execute these functions based on data or events recorded within CPOF.

TO FULFILL THEIR POTENTIAL TO BE THE DECISIVE EDGE, COMMANDERS AND SOLDIERS NEED SYSTEMS THAT DO NOT RESTRICT THEIR OPTIONS OR MONOPOLIZE THEIR TIME, BUT INSTEAD EMPOWER THEM TO ADAPT TO CHANGING CIRCUMSTANCES WITHOUT MISSING A BEAT.

These "rules" can be customized by the individual user or scaled to the entire CPOF user community in the form of standard operating procedures, reports, and other digital tasks. The workflows and triggers can be created or changed in the field without changing CPOF system software. PAL is essentially a way in which in-theater Soldiers can modify the CPOF system to meet the unique and evolving needs of the current fight.

STREAMLINING PROCEDURES

SPC Chris Griffin (left) and SGT Jeff Bragg of Headquarters and Headquarters Company, 36th Combat Aviation Brigade, Texas Army National Guard review their CPOF screens during annual training at the Austin-Bergstrom Airport National Guard Armory. The CPOF has organizational applications for overseas deployments, stateside natural disaster relief, and day-to-day operations. (U.S. Army photo by SFC Daniel Griego.)

FUTURE SOLUTIONS

Looking ahead, the Army is pursuing several other ways to make CPOF and Command Web more flexible and intuitive in support of decisive mission command. Like the analytical terrain tools and Command Web, many of these next-generation technologies are being researched and developed by CERDEC C2D in partnership with PM MC.

One of the most promising capabilities is MilSpace, which recently transitioned from the Collaborative Battlespace Reasoning and Awareness (COBRA) Army Technology Objective (ATO) to a program of record under Product Manager Tactical Mission Command, part of PEO C3T. Integrated with Command Web by leveraging the SDK, MilSpace provides social networking functionality and enhanced personalization within the tactical environment. Users can share situational awareness and mission command information through familiar social

networking tools, speeding and simplifying communications as compared with email or other methods.

For further efficiencies, MilSpace allows users to customize their interface much like iGoogle does, so they can choose the most mission-essential data feeds and tools to display on one centralized portal. Again, this technology puts the Soldier in the driver's seat with adaptable tools that allow him or her to meet the commander's intent.

The CERDEC C2D Mission Command Division is also addressing the challenge of integrating CPOF with Microsoft Office, which has a vast user base in both the deployed and garrison environments. Better interoperability between the two would eliminate countless hours of wasted effort in transferring data back and forth.

A software plug-in developed by CERDEC C2D engineers has already allowed users to share information between CPOF and Microsoft Office, enabling real-time, bidirectional data exchanges. While further maturation and integration are still required to fully realize this capability, CERDEC C2D is positioned to do so using its Cooperative Research and Development Agreement (CRADA) with Microsoft Corp., only the second joint research project that Microsoft has within DOD. The initial agreement was signed in 2009 and focused on the applicability of multi-touch technologies to mission command systems. In 2010, the CRADA was extended for three years. It includes research in handheld devices, applications development, and cognitive-based software.

Cognitive research represents the next frontier in mission command. While pushing more information to lower echelons is a fantastic improvement for the Army, simply delivering a vast amount of data without prioritization or context threatens commanders with information overload. In cooperation with the RDECOM Army Research Laboratory at Aberdeen Proving Ground, MD, CERDEC C2D is now leveraging cognitive research to determine the best methods of presenting that data to enable decisive mission command. Eventually, it could make the CPOF user interface more intuitive for the Soldier, while highlighting the most critical information.

To fulfill their potential to be the decisive edge, commanders and Soldiers need systems that do not restrict their options or monopolize their time, but instead empower them to adapt to changing circumstances without missing a beat. Through the combination of agile process and advanced technology, and the partnership between PM MC and CERDEC C2D, the Army is taking mission command from words to reality.

ENHANCED FUNCTIONALITY

MilSpace is a flexible user tool for mission command, combining social networking functions and personalization to allow the sharing of situational awareness and mission information faster than email or other digital methods. (Image courtesy of PEO C3T.)

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RIGHT on TARGET

Accelerated Precision Mortar Initiative promises revolutionary munitions for maneuver commanders

by Pete Burke and Ted Hom

Infantry battalion commanders have long relied on their organic mortar systems to provide rapid and accurate fires. Up to now, incremental improvements in precision have come from changes to the weapon and fire control systems. With the introduction of the Accelerated Precision Mortar Initiative (APMI), a much greater improvement in precision has been realized. The APMI is now fielded by the Product Manager Guided Precision Munitions and Mortar Systems (PdM GPM2S), under the guidance of the Project Manager Combat Ammunition Systems in Program Executive Office Ammunition (PEO Ammo) at Picatinny Arsenal, NJ.

Developed in response to an Operational Needs Statement (ONS) from forces deployed to *Operation Enduring Freedom (OEF)*, the next advancement for the 120mm mortar is the XM395 cartridge, known as the APMI because of its unusually rapid development and fielding schedule. The Combined Joint Task Force 101 ONS called for a highly transportable, all-weather, rapidly responsive, and precise indirect-fire 120mm mortar capability to support widely dispersed combat outposts and operations at the lowest tactical echelons. The system requirement calls for a GPS-guided mortar solution capable of 10-meter accuracy, at least a 6,500-meter range, and compatibility with the currently fielded 120mm mortar system.

The XM395 is a GPS-guided 120mm mortar cartridge intended to maximize the infantry battalion's capability to defeat targets in situations where rules of engagement would otherwise not allow target engagement because of collateral damage concerns or the risk of exposing warfighters to enemy weapons. Studies show that it reduces the risk of collateral damage by

FIRING FIRST

SPC Nicholas Ketchen and SPC Colt Corbin, 1st Battalion, 506th Infantry Regiment, 4th Brigade Combat Team, 101st Airborne Division, fire the first XM395 cartridge in theater, which hit within four meters of its target. (U.S. Army photo by SPC Zachary Burke, 55th Combat Camera.)

XM395 CARTRIDGE

The XM395 is the world's first GPS guided mortar cartridge. (Photo courtesy of PEO Ammo.)

increasing accuracy over the conventional M934A1 High Explosive (HE) cartridge by approximately seven times at maximum range.

LTC David Womack, Commander of 1st Battalion, 506th Infantry Regiment, the first unit equipped, said, "The 120mm precision guided munitions will allow Task Force Red Currahee to provide even more effective fires with increased lethality. The accuracy of the [cartridge] also reduces the potential risk of any collateral damage. As a commander, I have another tool available to fight the enemy."

The XM395 APMI is the world's first GPS guided mortar cartridge. With the fielding of APMI, maneuver battalions within U.S. Forces-Afghanistan infantry brigade combat teams (IBCTs) have a precision organic indirect-fire capability providing lethal first-round effects on target to support combat operations in *OEF*. Unlike the conventional mortar round, which has no guidance after gun launch, the 120mm APMI uses the GPS to correct its flight and can hit a target location within 10 meters or less. This helps mitigate collateral damage and offers greater accuracy, and first round fire-for-effect helps reduce the number of rounds required to successfully defeat high-value targets.

XM395 DESIGN

The XM395 cartridge is composed of three subassemblies: nose, body, and tail (see Figure 1).

The nose subsystem contains a "smart" fuze that contains the GPS guidance system and a controllable canard system that uses small fins to steer the cartridge to its preprogrammed target location. A removable protective canard cover facilitates the loading of data to the fuze subsystem.

The body is the standard M934A1, modified to accept the smart fuze and containing the same Composition B HE fill.

The tail subsystem uses the standard 120mm ignition cartridge and four removable propellant charges. Modifications include four longer, deployable fins to increase stability.

XM395 APMI Cartridge Components

Figure 1

(SOURCE: PEO Ammo.)

In addition to the new munition, the APMI system required the development and urgent material release (UMR) of fire control software for both the M32 Lightweight Handheld Mortar Ballistic Computer and the M150/M151 Mortar Fire Control System. It also required the development and UMR of a new setter system to program fuze setting, target location, and guidance information into the cartridge before it is fired. The XM701 Precision Lightweight Universal Mortar Setter System (see Figure 2) includes the M1155A1 Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS), already developed and fielded for the Excalibur 155mm artillery projectile.

This work, to include follow-on production to support fielding, was all performed in-house by the Armament Research, Development, and Engineering Center at Picatinny Arsenal.

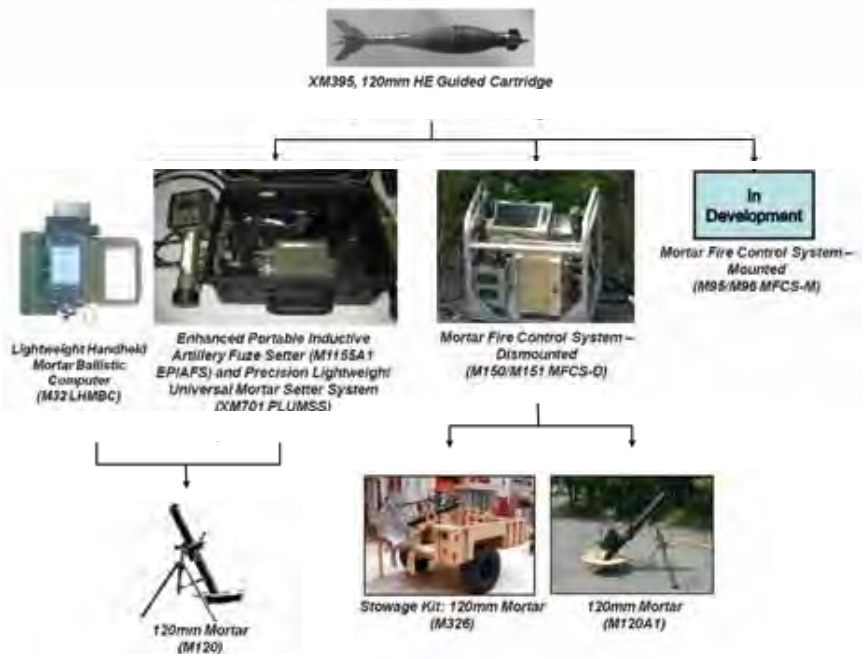
ACQUISITION OBJECTIVES

The three essential aspects of this acquisition were speed, precision, and safety. These three aspects shaped everything from Integrated Product Team makeup to the contract vehicle and acquisition strategy. Given the initial theater requirements and nonnegotiable safety requirements, the PM office immediately engaged the combat developer at the U.S. Army Maneuver Center of Excellence, Fort Benning, GA, and the U.S. Army Test and Evaluation Command, Aberdeen Proving Ground, MD, to scope the detailed performance, test, and evaluation requirements for the system.

Speed in delivery required a nontraditional approach to acquisition. The fastest path to fielding was to select a robust design that required little to no design effort and to award the production contract as early as possible. Using an existing DOD Ordnance Technology Consortium contract was key to expediting the contract award.

Supporting Systems for APMI

Figure 2



(SOURCE: PEO Ammo.)

The inherent risk in an early production award was that the Army might buy hardware that could not be used for fielding. To mitigate this risk, PEO Ammo made three key decisions:

- Conduct a full and open competition with the technical, schedule, and early production goals of the program fully described and assessed upfront.
- Conduct extreme environmental qualification testing on all proposed designs involved in the competitive shoot-off before selection of the design that would go forward. Thus, performance issues would be identified and assessed in advance using gun-fired test data.
- Limit the initial production award to approximately 25 percent of the total quantity, with the remainder to be awarded after successful completion of qualification.

COMPRESSED TIMEFRAME

In February 2010, extreme environmental conditioning and a competitive shoot-off were held at Yuma Proving Ground, AZ, to evaluate and compare cartridges developed by several companies. This led to an April 2010 selection of the design submitted by Alliant Techsystems Inc. (ATK) for qualification and fielding to *OEF*.

In June 2010, a contract was awarded to ATK for limited production to meet the urgent need in theater.

Qualification of the cartridge was completed in January, along with the First Article and Acceptance Test of the first production lot. UMR of the XM395 cartridge occurred on March 3, and the UMR of the setter and fire control software updates occurred the next day.

The first lot was shipped to theater and training was completed to the first mortar squad in March, only 11 months after the competitive selection. Fielding will continue to the IBCTs in theater this year. Work is underway to qualify the cartridge for use in Stryker BCTs as well.

A significant factor in the ability of the APMI team to develop, qualify, and field the XM395 cartridge so rapidly is the fact that the nose subsystem is based on ATK's XM1156 Precision Guidance Kit (PGK), employing GPS with fuzing functions designed for use with 155mm artillery high-explosive projectiles. The PGK will be adaptable to the existing stockpile of high-explosive artillery projectiles (M795 and M549/A1). Like the XM395 nose, the PGK enhances performance of conventional artillery munitions and significantly increases their effectiveness by using its onboard GPS receiver to correct the ballistic trajectory in order to improve projectile accuracy. As with the XM395 cartridge, mission-critical flight data and fuze setting information are inductively loaded into PGK using the same EPIAFS as Excalibur.

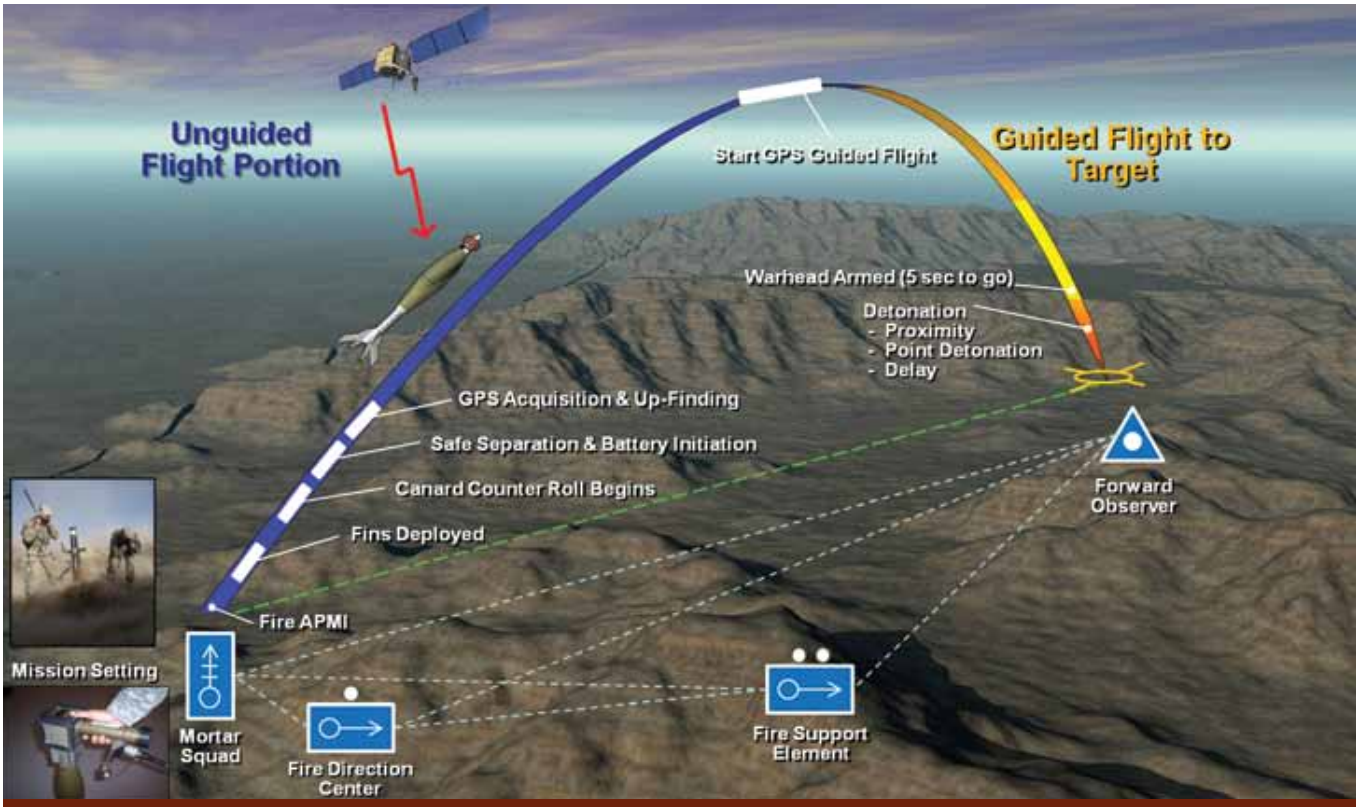
The APMI government-contractor team relied on already developed hardware and software, where possible, to save time and money. The team also made every effort to ensure that the system created the smallest possible logistical burden and is easy to use for the mortarmen who will be firing it.

The call-for-fire process is unchanged with the introduction of APMI. The traditional mortar firing sequence now includes one additional step—to load data into the XM395 cartridge with the XM701 setter before it is fired.

Nonetheless, the New Equipment Training Team is emphasizing to leaders and Soldiers that the successful employment of this new capability is different than for the unguided rounds it augments. Because the cartridge is designed to guide to a programmed point, an accurate and precise target location, including

PINPOINT ACCURACY

The 120mm APMI can provide commanders with precision indirect-fire capability. Since its introduction in theater, APMI has been used successfully in actual fire missions. (Illustration courtesy of PEO Ammo.)



Accelerated Precision Mortar Initiative (120mm APMI) Operational Concept

ON TARGET

This illustration depicts an XM395 APMI round closing in on a target. Studies show that the XM395 reduces the risk of collateral damage with its increased accuracy over the conventional HE cartridge by about seven times at maximum range. (U.S. Army illustration.)

target elevation, is more important than ever. Also, although the round has some maneuverability, it cannot overcome large errors if the tube is laid incorrectly.

After his unit had fired the first round in theater to within four meters of its intended target, Womack was well satisfied with the results. "Our Soldiers on the ground have capabilities that were unimaginable when the war on terror started," he said. "I am pleased how quickly our Soldiers and NCOs trained and employed the new system, which is a tribute to our incredible NCO Corps. It is not lost on our Soldiers that there is nothing our Army cannot accomplish."

Since its introduction into theater, APMI has been successfully employed in actual fire missions in support of troops in contact. It is proving to be a valuable tool in *OEF*. The Army plans to conduct an operational assessment of the new capability to gather lessons learned from units that are using it against our enemies. That assessment will inform future decisions regarding whether to initiate a program of record leading to a full materiel release and Armywide fielding. Meanwhile, the Soldiers of Task Force Currahee are rightly proud of their place in history.

"It is exciting to be chosen to field this round for the first time. This brigade has the history of being first in the fire support area," said SFC John Kohne, the 4th Brigade Fire Support Operations Noncommissioned Officer-in-Charge. "We were the first to fire the Excalibur (precision-guided howitzer round) with our last rendezvous with destiny in our last tour here in 2008. It is humbling that the Army would entrust us with this."

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TED HOM is the Branch Chief for APMI. He holds a B.S. in chemical engineering from the State University of Buffalo, an M.B.A. from Monmouth University, and an M.S. in National Resource Strategy from National Defense University. Hom is Level III certified in program management and in systems planning, research, development, and engineering. He is an AAC member.

THE STRYKER DIFFERENCE

Army marks 10-year anniversary of versatile armored vehicle, a model of responsive acquisition

by Kris Osborn and Lori A. Grein

GETTING READY TO ROLL

PFC Matthew Becerra of 21st Infantry Regiment, 2nd Stryker Brigade Combat Team, 25th Infantry Division inspects and prepares his Stryker to be fitted with Multiple Integrated Laser Engagement System gear to enhance training during a rotation through the National Training Center, Fort Irwin, CA. (U.S. Army photo by SFC Rafael Rodriguez.)

What began as an ambitious concept and vision in the minds of Army leaders in 1999—to build and deliver a medium-class armored vehicle able to deploy quickly, safely transport troops, and provide agility and lethality across multiple land-attack platforms—has evolved into the battle-tested Stryker Vehicle now celebrating 10 years of existence.

"Stryker really filled an interesting niche because the heavy forces were too hard to deploy in certain austere environments," said Scott Davis, Program Executive Officer Ground Combat Systems, who previously served as a deputy program manager with the Stryker program. "It wasn't just the vehicles—it was the concept of having all of these mission packages on a common platform."

The Stryker vehicle, now combat-proven in Iraq and Afghanistan, has logged 27 million combat miles with operational readiness rates greater than 98 percent, said COL Robert Schumitz, Stryker Program Manager.

"Now, seven combat-ready Stryker Brigades exist with all 10 platforms [variants] in their inventory, and the eighth brigade is forming," Schumitz said. "Those seven brigades have completed 14 rotations to Iraq and Afghanistan in support of *Operation Iraqi Freedom* and *Operation Enduring Freedom*."

COMBAT ADVANTAGES

In particular, Davis said the Stryker's mobility has proved very helpful to Soldiers in Iraq and Afghanistan.

"The wheeled system is cheaper to operate, and its sheer speed down the main supply routes allowed it to do an escort role and some patrolling roles that would have been very difficult to do with a tracked ground vehicle," Davis said.

IN LINE FOR UPGRADE

Soldiers from 1st Battalion, 23rd Infantry Regiment, 3rd Stryker Brigade Combat Team, 2nd Infantry Division line up their Stryker armored fighting vehicles for installation of the Multiple Integrated Laser Engagement System in August. (U.S. Army photo by SPC Ryan Hallock.)

Soldiers in Afghanistan are now riding in new Stryker armored combat vehicles that have an improved hull design to protect them from improvised explosive devices (IEDs) and roadside mines. The double-V hull (DVH) is designed to deflect blast debris away from the vehicle and the Soldiers inside. The Stryker DVH, with enhanced armor, wider tires, and blast-attenuating seats, went from conception to production in less than a year. The DVH design is based on proven technology similar to that found on Mine Resistant Ambush Protected vehicles used in Afghanistan.

A VISION FULFILLED

Formerly called the Interim Armor Vehicle, the Stryker is named after two Medal of Honor winners: PFC Stuart S. Stryker, who served in World War II, and SP4 Robert F. Stryker, who served in Vietnam.

"It is important to remember that the Stryker was designed for those who fight battles and win wars. It was to give them greater capabilities. People are the most important because they alone deliver on our Nation's nonnegotiable contract to fight our Nation's wars," said GEN Eric K. Shinseki (USA Ret.), Chief of Staff of the Army from 1999 to 2003 and now Secretary of Veterans Affairs.

Shinseki, who completed two combat tours in Vietnam during his 38-year Army career, oversaw the creation and delivery of the first Stryker vehicle, which rolled off the production line at Anniston Army Depot, AL, in April 2002.

"We wanted to make our formations more responsive, more deployable, more versatile, more agile, more lethal, more survivable, and more sustainable," he said. "We were merging the extraordinary capabilities of the best light infantry units in the world with the decisive qualities of the best heavy forces in the Army."

Shinseki is credited with successfully speeding up the timeframe for Stryker deliveries and shepherding the platform through to its combat debut in Iraq in 2003.

"Modularity was really the Army's vision that Secretary Shinseki championed. The Army needed a force that was versatile, flexible, digitally capable, and networked. The force needed to be packaged on a platform that increased mobility and could be rapidly deployed. The end result of this vision was the Army's Stryker Brigade Combat Team [SBCT]," said MG Robert B. Brown, Commanding General, U.S. Army Maneuver Center of Excellence at Fort Benning, GA. "This vision saved hundreds of my Soldiers' lives in combat," Brown added, referring to his years as an SBCT Commander.

Brown said that the Stryker vehicles under his command withstood a full range of enemy attacks to include rockets, small-arms fire, and IEDs.

THE STRYKER STRIKES

A Stryker equipped with a mobile gun system fires a round of high-explosive ammunition July 26 at Yakima Training Center, WA. Stryker crews with 1st Battalion, 17th Infantry Regiment conducted crew gunnery qualification as a semiannual requirement. (U.S. Army photo by SGT Mark Miranda.)

Schumitz said 10 years of continuous evolution and improvement within the Stryker program has resulted in the successful fulfillment of the original vision for the vehicle.

"In October 1999, a challenge was laid out to the Army which stated we must provide early-entry forces that can operate jointly without access to fixed forward bases, but we still need the power to slug it out and win decisively," Schumitz said. The Army's heavy forces were too heavy, and our light forces lacked staying power, he said. "The Stryker Brigade—a dynamic, agile, lethal force structure—proved to be the solution to those mismatches."

TOW ON TARGET

A Stryker vehicle crew from 4th Brigade, 2nd Infantry Division fires a Tube-launched, Optically tracked, Wire command-link guided (TOW) missile during the brigade's rotation through the Joint Readiness Training Center, Fort Polk, LA. (U.S. Army photo.)

CONTINUOUS UPGRADES

Throughout its years in service, the Stryker has undergone various survivability upgrades and "kit" applications designed to improve the vehicle's ability to withstand attacks.

"There has been a constant evolution of survivability kits applied to the platform, either in anticipation of a threat or in response to a threat," Schumitz said.

In total, 40,000 kits have been applied during the last eight years of combat operations, he said. The various survivability enhancement kits include blast-attenuated seats, additional underbelly armor, slat armor, and extra ballistic shields for gunner protection, among other things.

For example, Driver's Enhancement Kits were put on Stryker vehicles at a forward location in Afghanistan, said MAJ Michael Zaharanic, Assistant Program Manager Stryker Modernization.

"Right after we put those kits on, a Stryker was hit with an IED on the driver's side, and the driver walked away. It was a great day for that driver, for GD [General Dynamics], and the PM [program manager] who put that kit together," Zaharanic said.

RAPID RESPONSE

The Stryker DVH vehicles were also developed on a rapid-turnaround basis, said Schumitz.

"The rapid turnaround of the DVH is responsiveness at its best," he said. "Soldier survivability is the Army's number-one priority. Once we determined that the DVH effort was an achievable and acceptable risk, we swiftly engaged in executing the robust program," he said.

Engineers at General Dynamics Land Systems conceived the double-V-hull design and tested it at Yuma Proving Ground, AZ, Aberdeen Proving Ground, MD, and the U.S. Army National Training Center at Fort Irwin, CA.

Vehicles went through live-fire, developmental, and operational testing that concentrated on force protection, safety, performance, reliability, and durability.

There are 140 Stryker DVHs in the Army supply chain, with plans to field a total of 450 vehicles to *Operation Enduring Freedom*.

LTC Joseph Davidson, Deputy Commanding Officer for the 2nd Brigade, 2nd Infantry Division, has deployed three times with Stryker units. "The Stryker is unique," Davidson said. "It is a great vehicle that gives us the operational freedom to move time and time again. Certainly in Iraq and now in Afghanistan, a unit can be retasked virtually on the go and support a different mission.

"When you get down to it, it is about the Soldiers," Davidson said.

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LORI A. GREIN is the Public Affairs Officer for the Program Executive Office Ground Combat Systems. She holds a B.S. degree and is a graduate of the Defense Information School. Grein has seven years of government experience in leadership and public relations roles and is an experienced correspondent for Army publications.

TAKING FLIGHT

CPL Kennith Parish launches a Raven for a reconnaissance flight. (U.S. Army photo by Wesley P. Elliott, U.S. Army Training and Doctrine Command.)

ARMY UAS
What's new and what's next

by Michelle Vigo

How the Army thinks, fights, and engages with the enemy has evolved since the inception of unmanned aircraft systems (UAS), the growing demand for which is driving improvements in availability and capability.

The Army continues to lead the way in manned-unmanned teaming (MUM-T). It staged the largest-ever demonstration of its Manned Unmanned Systems Integration Capability (MUSIC) on Sept. 6 at Dugway Proving Ground, UT (see related article, Page 44).

"We're not buying anything new except for UAS," said MG Tim Crosby, Program Executive Officer (PEO) Aviation, speaking June 23 at the Unmanned Aircraft Systems Warfighter Forum in Tucson, AZ. The teaming of manned and unmanned aircraft is driving the way the Army fights, Crosby said, making it even more efficient and effective. The fact that UAS are now part of PEO Aviation allows synergy across all platforms, Crosby added.

UAS continue to fly at a very high operational tempo with more than 1.2 million flight hours, 90 percent of those in combat operations. Meanwhile, the demand for UAS continues to increase, whether for intelligence, surveillance, and reconnaissance roles or in attack missions.

"Across the spectrum, we're seeing increasing uses of systems," said Tim Owings, PEO Aviation's Deputy Project Manager UAS. "The technologies for the next generation of stuff are starting to come to fruition and allow us to advance ourselves into things like 4G networks, smartphones, and lower-cost ways of producing end product.

"The Army has come a long way for UAS, but it is still in its infancy in terms of what's going to be happening over the course of the next few years," Owings said.

IN-THEATER DEMAND

The Army has more than balanced the drawdown in Iraq with the deployment of UAS in Afghanistan, where UAS operators fly about 250,000 flight hours a year, Owings said.

The Small UAS Product Office, within PEO Aviation's Project Manager Unmanned Aircraft Systems (PM UAS), is conducting

UAS CONTINUE TO FLY AT A VERY HIGH OPERATIONAL TEMPO WITH MORE THAN 1.2 MILLION FLIGHT HOURS, 90 PERCENT OF THOSE IN COMBAT OPERATIONS. MEANWHILE, THE DEMAND FOR UAS CONTINUES TO INCREASE, WHETHER FOR INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE ROLES OR IN ATTACK MISSIONS.

a surge push of 180 additional Raven systems in Afghanistan, according to Product Manager Cliff Brandt, who leads the effort to increase the distribution from 15 systems per brigade combat team (BCT) to 35 systems.

Route clearance patrols have also begun for Brandt's other platform, the Puma, with 84 systems on the ground.

An additional surge is taking place at the direction of the Vice Chief of Staff of the Army, GEN Peter W. Chiarelli. Data collected from combat experiences in theater prompted the Army's decision for a surge push. "The Puma allowed the battalion commanders to operate with a generic asset they didn't otherwise have," said SPC Dean Dawes, a Raven and Puma operator with the 4th Infantry BCT who recently returned from deployment to northeast Afghanistan. "We were also able to accurately call for fire with one adjustment and accurately hit targets."

In all, "We are surging Puma systems in Afghanistan to the tune of 129 systems," Brandt said. The Pumas are being issued to the BCTs and from there to the company level, he said. "There is a lot of activity, a lot of systems in route … on top of continuing to do our fleet upgrades, moving from an analog to a digital system."

EXPANDING LINE OF SIGHT

The Army has outfitted Shadow UAS with the Joint Tactical Radio System's Rifleman Radio as part of an effort to expand ranges of a line-of-sight mobile, ad hoc network during this summer's Network Integration Evaluation at White Sands Missile Range, NM. (U.S. Army photo by Kris Osborn, ASAALT.)

MILESTONES

PM UAS has marked a number of milestones in the past year.

- Its Common Systems Integration Product Office, which is leading the MUSIC Exercise, successfully completed ROVER 6 design verification testing with National Safety Agency oversight. The ROVER 6 is the next generation of ROVER portable radios that transforms sensor-to-shooter networking and allows increased collaboration and interoperability. In addition, the office is supporting the Kiowa Warrior Product Office with its Level 2 Manned-Unmanned integration, whereby pilots in the cockpit can view feeds from nearby UAS in real time.
- In April, construction was completed for the new Hunter and Warrior hangars at the Rapid Integration and Acceptance Center (RIAC) at Dugway Proving Ground. The RIAC has supported numerous off-axis test events, including the Heterogeneous Airborne Reconnaissance Team system, which

FUTURE HUNTERS

UAS operators receive training on the MQ-5B Hunter system at the UAS Training Battalion Center, Fort Huachuca, AZ. The Hunter UAS is used in support of Army aerial exploitation battalions for reconnaissance, surveillance, target, and acquisition. It is the Army's longest-serving corps- and division-level UAS. The Hunter's imagery system allows data to be processed in a matter of seconds, providing virtual, real-time information on battlefield conditions and targets. (U.S. Army photo by Sofia Bledsoe.)

enables Soldiers to collect video from aircraft and display it on their mobile computing devices; a damage tolerance test of the Shadow, which proved the aircraft's capability in flight even after portions of the wing were blown off; and HELLFIRE tests using the Gray Eagle.

- In May, the Army became the first service authorized to fly a UAV with a sense-and-avoid system at night, with no chase plane or ground observers in the national airspace. The first such flight, at El Mirage, CA, employed the Gray Eagle with the Ground-Based Sense and Avoid System. Under a certificate of authorization from the Federal Aviation Administration (FAA), the project office, in coordination with the FAA, the Army Airworthiness Authority, and General Atomics, has collected significant data from the flights, marking another major step toward allowing Army UAS to fly in national airspace.
- The Vertical Take-Off and Lift program, a future system that the Army is pursuing through the UAS Modernization Product Office, has two ongoing efforts: the Army ARGUS A160, a quick reaction capability (QRC) that will integrate a payload and deploy it into theater in FY12, and the formal program of record.

"We're going through the preliminary stages of the acquisition strategy and vetting that through DOD," said Donna Hightower, Deputy Product Manager.

"We're looking at something that will fly 12-plus hours and carry around 1,000 pounds of sensor weight," Owings said. "The intent is to get near fixed-wing performance out of a vertical-lift platform."

The UAS Modernization Product Office completed the integration work and ground testing for the A160. Flight testing took place this summer, to be followed by an award for a logistics support contract

MISSILE INSPECTION

SGT Michael Arons (left) and SSG Eric Wheeler, Unmanned Aircraft Systems Training Battalion, inspect a HELLFIRE simulation training missile on a Gray Eagle. (U.S. Army photo by Amy Sunseri.)

before deploying the system in theater in FY12. A formal open competition is planned after the product office finalizes information received from industry.

SHADOW UPGRADES

The Shadow system, a primary reconnaissance, surveillance, targeting, and acquisition asset for the brigade commander and the workhorse of Army UAS, is "alive and well and kicking," said Product Manager LTC Andy Hamilton. "We've flown over 630,000 hours, 91 percent of that in combat. We just fielded the 9 h system to the Army and fielded 13 systems to the Marine Corps."

UAS operators can expect longer endurance with the Shadow system, thanks to a new wing design that the Army recently began fielding. Compared with the legacy Shadow system, which can fly for almost six hours, the Shadow re-wing will provide operators up to nine hours of endurance.

"We've also fielded a new payload that gives us a new mission capability, so we're getting away from that simple EO/IR [electro-optical infrared]," Hamilton said.

"We're also working to test and field a new common system data link," satisfying architectural mandates, adding encryption capabilities, and integrating the Joint Tactical Radio System, he said. Fielding of that capability, scheduled for later this year, will include the first Full Spectrum Combat Aviation Brigade.

GRAY EAGLE ADVANCES

The Army's largest UAS, the Gray Eagle, has successfully completed the first QRC of four aircraft to Iraq. The Army recently deployed the second QRC of another four aircraft that are operating in Afghanistan.

"We've had our first HELLFIRE engagement with direct fire on the enemy, as well as support to the Air Force," said Product Manager LTC Kevin Messer. "In addition, we recently got through a milestone decision to purchase our fifth unit equipped, and it's on contract." Messer said he expects another deployment early in FY12.

The Gray Eagle successfully demonstrated Level of Interoperability 4 (full control of the aircraft and payload) with the Apache Block III at Dugway on Aug. 4. This was a historic event demonstrating the coordination and technology between the Apache and Gray Eagle crews. This unprecedented capability gives the Apache crew a detached remote sensor, laser designator, and the ability to position the Gray Eagle UAS, thereby increasing mission success rates and helping to limit friendly casualties.

A formal initial operational test and evaluation of the Gray Eagle is planned for July 2012.

> "WE'RE LOOKING AT SOMETHING THAT WILL FLY 12-PLUS HOURS AND CARRY AROUND 1,000 POUNDS OF SENSOR WEIGHT. THE INTENT IS TO GET NEAR FIXED-WING PERFORMANCE OUT OF A VERTICAL-LIFT PLATFORM."

COMMON CAPABILITIES

"All these systems are tied together by a common architecture and tend to operate off of the UGCS [Universal Ground Control Station] or the mini UGCS and provide open protocols between the manned and unmanned fleet as well, so it's not just stand-alone systems," Owings said. "It's really a collection of capabilities."

Each system is set up for different echelons, from squad leader all the way up to division level, said CW3 Frank Volpe, an 8 -year UAS operator and combat veteran who is qualified on the Gray Eagle, Shadow, Raven, and Hunter platforms.

"They actually have different mission sets. However, the platforms themselves have the ability to go up a level or down, all the way to the ground Soldier," he said. "They each have their individual capabilities, some more capable than others with endurance and payloads onboard. It's basically mission-dependent, which one is really better."

MUM-T is not a new concept in the Army, but the capability was not readily embraced initially when testing began. Volpe recalled testing conducted in 1996, when his unit laser-designated for the Apaches and talked to the Apache pilots. At the time, he said, the Army was not yet receptive to UAS as a part of Army aviation. "We weren't ready," Volpe said.

Since then, "We've garnered a lot of efficiencies, with the radios onboard the aircraft talking to the pilots," Volpe said, adding that the ultimate test of UAS is in the hands of Soldiers. The radios are the link to the warfighter and are key to success in combat operations, he said.

LOADING A GRAY EAGLE

HELLFIRE missiles are loaded onto an MQ-1C Gray Eagle at Camp Taji, Iraq. The Gray Eagle successfully demonstrated Level of Interoperability 4 in August. (U.S. Army photo by 1LT Jason Sweeney.)

MUM-T has been tried and tested in theater with great success, beginning with the Apache's VUIT-2 system, which allows for UAS video to be displayed in the cockpit of the aircraft and for the Apache's sensor video to be transmitted to Soldiers on the ground.

The utility of UAS has expanded significantly, Volpe said. "It's not just the rotary-wing pilots anymore. It's about the fixed-wing Air Force folks that we talk with all the way down to the ground Soldier, the route clearance teams that are making supply routes safe."

CONCLUSION

As the Army continues to train Soldiers, they are learning a lot about UAS and are exchanging information on what can make the systems better.

Attendees at the Unmanned Aircraft Systems Warfighter Forum included UAS operators from 19 units, including Army National Guard and U.S. Marine Corps representatives, 20 Army and DOD organizations, four other government agencies, and five of the UAS Project Office original equipment manufacturers.

Crosby encouraged the audience to learn from one another. "Build on those synergies to make these systems better," he said.

Calling Army Aviation the ground Soldier's critical enabler, Crosby said, "What I care about is that everything we do is focused on getting that data to those guys down there."

MICHELLE VIGO is a Systems Engineer in the Common Systems Integration (CSI) Product Office, PM UAS. She also serves as the Pre-Planned Product Improvement and the 2011 MUSIC Exercise Lead for CSI. She holds a B.S. in engineering from the University of Alabama in Huntsville.

MANNED *meets* UNMANNED

Army Aviation's emerging capabilities displayed during MUSIC exercise

by Michelle Vigo

FLYING HIGH

SPC Raymond Poltera, a Tactical Unmanned Aerial Vehicle operator with 1st Brigade Combat Team, 4th Infantry Division, launches an RQ-7B Shadow 200 at Camp Taji, Iraq. MUSIC demonstrated how an RQ-7B Shadow is flown and operated using a Universal Ground Control Station (UGCS). (U.S. Army photo courtesy of SGT Jason Dangel.)

Increasing systems interoperability has long been a top objective of the Army. Interoperability translates into cost savings and increased efficiency, helping to mitigate the ever-increasing threat to the Soldier from advancements in enemy technology. Recognizing this, the Unmanned Aircraft Systems Project Office (UAS PO) of Program Executive Office (PEO) Aviation has been working diligently to shift the focus of its platforms from a system-level perspective to a capabilities perspective.

In September, the UAS PO, along with the Apache and Armed Scout Helicopters Project Offices, conducted a large-scale exercise of unmanned aviation assets to establish proof of the systems' interoperability. The Sept. 15-16 exercise, 2011 Manned/Unmanned System Integration Capability (MUSIC), took place at the UAS Rapid Integration Acceptance Center (RIAC) at Dugway Proving Ground, UT. MUSIC is the outgrowth of nearly five years of strategic planning by DOD and Army leaders, engineers, and Soldiers building the Manned Unmanned Teaming (MUM-T) interoperability systems. Project Managers (PMs) UAS, Apache, and Armed Scout Helicopters converged to conduct the first-of-its-kind hybrid aviation exercise. Manned aircraft that participated were the AH-64D Apache Longbow Block II and the OH-58D Kiowa Warrior helicopters, as well as the unmanned aircraft Raven, Puma, Shadow, Hunter, and Gray Eagle.

> "MUSIC IS REALLY INTENDED TO BE A SHOWCASE FOR INNOVATION, INTEGRATION, AND ULTIMATELY INTEROPERABILITY."

MUSIC is designed to allow aviation project managers to put their aircraft and equipment through scripted scenarios and situational rigors of combat to prove the systems.

The September exercise, expected to be the first in a series of demonstrations, focused primarily on new ways of moving intelligence, surveillance, reconnaissance, and targeting imagery among manned and unmanned aircraft and ground forces. MUSIC featured six types of manned and unmanned aircraft that exchanged imagery with one another and ground troops, using it to coordinate attacks on mock targets.

FEATURED CAPABILITIES

The major capabilities demonstrated at MUSIC include:

- A Universal Ground Control Station (UGCS), from which unmanned aircraft operators can fly and operate the sensors of any of the Army's three largest UAS: the MQ-1C Gray Eagle, MQ-5B Hunter, and RQ-7B Shadow. The UGCS supports interoperability by providing common hardware and software functionality across the UAS platforms. This exercise marked the first time a single ground control station demonstrated the controlled unmanned aviation platforms.

UNIVERSAL OPERATIONS

Justin Winks, left, and Matt Weber check out the controls of the UGCS that is designed for simultaneous operation of the Gray Eagle, Hunter, and Shadow UAS. (U.S. Army photo by Kari Hawkins, U.S. Army Garrison Redstone Arsenal.)

- Mini UGCS (M-UGCS), which allows UAS operators control of the Army's small UAS, including the RQ-11B Raven, Puma, and Wasp. The first iteration of the M-UGCS was showcased at the exercise, demonstrating a move toward a common controller for the UAS fleet of small aircraft. Plans called for demonstrating the M-UGCS control of the electro-optical/infrared sensors on the Gray Eagle through Digital Data Link. This capability, known as TRICLOPS, allows for three sensors in the air on a single air vehicle that can be controlled through separate data links, increasing range and situational awareness.
- One System Remote Video Terminal (OSRVT), which allows for bidirectional control with the larger platforms, such as the Gray Eagle, Shadow, and Hunter. This capability allows Soldiers using the OSRVT to slew a payload toward whatever they want to see, as opposed to communicating a request via radio to an operator. The OSRVT also demonstrated its ability to receive video from the small aircraft, Raven and Puma, along with the video from the manned platforms, Apache and Kiowa. These capabilities allow for improved battle management by increasing the operators' situational awareness.
- Manned-Unmanned Teaming (MUM-T), made possible by the introduction of a standardized interoperability protocol supporting video and data transmissions among ground, manned, and unmanned platforms. This manned-unmanned network allows for the handoff of payload control and receiving and transmitting of real-time streaming video, as well as manned pilots to control unmanned aircraft (see FAQ on Page 48).

"MUSIC is really intended to be a showcase for innovation, integration, and ultimately interoperability," said Tim Owings, Deputy Project Manager UAS.

(SOURCE: PEO Aviation.)

In the past, the Soldier, whether flying from the cockpit of an aircraft, operating a ground control station, or operating an OSRVT, was able to access the information from each platform individually but not collectively. One of the key takeaways from the MUSIC exercise is the demonstration of the interrelationship of all those platforms by moving data and imagery between them, as well as by sharing intelligence, surveillance, and reconnaissance more broadly.

BUILDING ON SUCCESSES

COL Shane Openshaw, Project Manager Apache, said that MUSIC enabled the project office to build on its successes and what it has learned, demonstrating the capabilities that will go into the Apache Block III, which will have up to Level 4 interoperability.

LTC Kirk McCauley, Product Director Armed Scout Fielded Systems, said that MUSIC demonstrated the current capability, Level 2 MUM-T, that is being fielded and will be in theater within the next year. The system adapts and modifies the system used on Apache. Thus, the Kiowa Warrior would be able to communicate not only with manned and unmanned assets but also with joint assets, such as F-15 aircraft using the Bright Star system.

"Not only do we know TTPs [tactics, techniques and procedures] that have been used in the past, but because the system is flexible and provides the ability to communicate between so many different platforms, we're going to see different and new TTPs emerge out of that," McCauley said.

MICHELLE VIGO is a Systems Engineer in the Common Systems Integration (CSI) Product Office, PM UAS. She also serves as the Pre-Planned Product Improvement and the 2011 MUSIC Exercise Lead for CSI. She holds a B.S. in engineering from the University of Alabama in Huntsville.

LARGER THAN LIFE

A Universal Ground Control Station operates the MQ-1C Gray Eagle, one of the Army's largest UAS. (U.S. Army photo by SGT Travis Zielinski.)

MANNED UNMANNED TEAMING OPERATIONS

Frequently Asked Questions

Army Aviation has flown nearly 5 million flight hours on its manned and unmanned aircraft systems (UAS), providing commanders with the information they want when they want it, in real or near-real time. Manned Unmanned Teaming (MUM-T) operations are made possible by the introduction of a standardized interoperability protocol supporting video and data transmissions among ground, manned, and unmanned platforms. This manned-unmanned network allows for the handoff of payload control, receiving and transmitting of real-time streaming video, and for manned pilots to control UAS. Following is an overview of MUM-T operations.

WHAT CAPABILITIES DOES MUM-T REPRESENT?

- Manned platforms, such as Apache and Kiowa, can receive full-motion video from UAS.
- Manned platforms can transmit video to the ground.
- Manned platforms can control UAS payload cameras.
- A ground station using the One System Remote Video Terminal (OSRVT) can receive Apache and Kiowa sensor video.
- OSRVT can receive relayed UAS video via Apache or Kiowa.
- Use of UAS assets is more flexible.

HOW DOES MUM-T ALLOW FOR INTEROPERABILITY?

MUM-T has the following levels of interoperability:

- Level 1—Indirect receipt, whereby information must be pulled.
- Level 2—Receipt of UAS video and other sensor information.
- Level 3—Control of the camera and sensors on the UAS.
- Level 4—Control of the flight path and weapon systems.
- Level 5—Full control of the UAS, including takeoff and landings.

HOW CAN THE ARMY TAKE ADVANTAGE OF MUM-T OPERATIONAL CAPABILITIES?

- Plan deliberately with the intent to employ manned and unmanned teams for reconnaissance, surveillance, and target acquisition (RSTA).
- Have task organizing units provide the tactical or operational commander access to both manned aircraft and UAS, such as in a full-spectrum combat aviation brigade.
- Know the MUM-T platform in your area, and select it in the Air Vehicle Preset List.
- Use the OSRVT scan feature to search for MUM-T feeds in your area of operation.

WHAT ARE THE BENEFITS OF MUM-T OPERATIONS?

- Improved air-ground integration.
- Increased operational tempos.
- Rapid development of the situation when in contact.
- Increased endurance, allowing manned platforms to act on real-time intelligence.
- Increased lethality.
- Increased survivability by reducing the unknowns about enemy force disposition.
- Persistent surveillance, allowing manned aircraft to focus on high-payoff targets.
- Reliable combat information in real time.

WHAT HAS THE ARMY LEARNED ABOUT MUM-T?

- With the layered application of reconnaissance in proven sensor-shooter MUM-T, RSTA assets resulted in constant surveillance of suspicious activity.
- VUIT-2 (Video from UAS for Interoperability Teaming Level II) capability has shown that air weapons teams can maintain tactical situational awareness through UAS and other aircraft and can share that battlefield intelligence in real time with troops in contact via ground video terminals. MUM-T will build on VUIT-2 capabilities by further enhancing our forces' ability to locate, identify, and prosecute targets with maximum standoff.
- L nking combat multiplier and manned and unmanned aircraft to achieve a common objective increases the effectiveness of each asset.
- Multiple sensor feeds, teamed with a lethal weapon platform, result in increased effectiveness, survivability, and discretion.

ON SCREEN

SSG Tony Sobiesczyk, 73rd Cavalry Regiment, 2nd Brigade Combat Team (BCT), 82nd Airborne Division, checks the OSRVT during a fire control exercise. The OSRVT receives Apache and Kiowa sensor video. (U.S. Army photo by PFC Kissta M. Feldner, 2nd BCT, 82nd Airborne Public Affairs.)

MUSIC
MANNED UNMANNED SYSTEMS INTEGRATION CAPABILITY EXERCISE

Interoperability. . .

Interoperability translates into cost savings and increased efficiency. Interoperability is helping to mitigate the ever-increasing threat to our Soldiers due to advancements in enemy technology.

PEO Aviation's offices PM UAS, PM Armed Scout Helicopter, and PM Apache have worked together with the goal to make the most capable, automated, lethal and interoperable systems available to our forward deployed soldiers and allies. Manned Unmanned Teaming (MUM-T) capabilities are a direct result of this hard work.

Some of the direct benefits of MUM-T are:

- Improved air-ground integration
- Increased operational tempos
- Rapidly develop the situation when in contact
- Increased endurance allowing manned platforms to action real-time intelligence
- Persistent surveillance allowing manned aircraft to focus on high payoff targets
- Increased lethality
- Reliable and relevant combat information in real time
- Increased survivability by reducing the unknown about enemy force disposition

PROGRAM EXECUTIVE OFFICE AVIATION

For more information contact:
UAS Project Office (SFAE-AV-UAS)
Redstone Arsenal, Alabama 35898
Visit us at our web site:
https://www.peoavn.army.mil/pm/uas.html

INTEGRATION IMPERATIVE

Transforming live training through common standards

by James Todd and Dr. Jeremy T. Lanman

FORCE-ON-FORCE

1st Cavalry Division Soldiers enter a Joint Readiness Training Center village at Fort Polk, LA, to conduct maneuvers during a force-on-force (FOF) exercise. The LT2 training systems, provided by PEO Simulation, Training, and Instrumentation, allow for feedback during FOF and force-on-target training. (U.S. Army photo by Linda Crippen, U.S. Army Training and Doctrine Command.)

The Army "Leader Development Strategy for a 21st Century Army," released in November 2009, puts forth an imperative to "replicate the complexity of the operational environment in the classroom and at home station." GEN Martin E. Dempsey, Chairman of the Joint Chiefs of Staff and former Army Chief of Staff, has stated that one of the important initiatives underway to ensure that we address this imperative is the Army Training Concept.

In his article "Driving Change Through a Campaign of Learning" in the October 2010 issue of *Army* Magazine, Dempsey, then Commanding General (CG) of U.S. Army Training and Doctrine Command (TRADOC), stated, "The concept of our concurrent integrated training environment is designed to make our training more rigorous and relevant in the schoolhouse, at home station and at the combat training centers." Dempsey went on to explain that the "Army Learning Concept addresses the learning environment we envision in 2015. Its objective is to improve our learning models by employing technology without sacrificing standards."

TRADOC expands on this objective in the *U.S. Army Training Concept 2012-2020*. LTG Michael A. Vane, now retired and then Deputy CG, Futures and Director of the Army Capabilities Integration Center, stated that the Army Training Concept identifies the training requirements and capabilities necessary to build and sustain an Army that is adaptable in full-spectrum operations.

The Program Executive Office Simulation, Training, and Instrumentation (PEO STRI), through its Project Manager Training Devices (PM TRADE), has the mission to transform live training to meet the objectives outlined by Dempsey. PEO STRI is in the business of training Soldiers and growing leaders by providing responsive, interoperable simulation, training and testing solutions, and acquisition services. Within these capabilities is a dynamic set of live, virtual and constructive, embedded and interoperable products that are used throughout the world, including the Live Training Transformation (LT2) product line (see Figure 1).

ADVANCED TRAINING

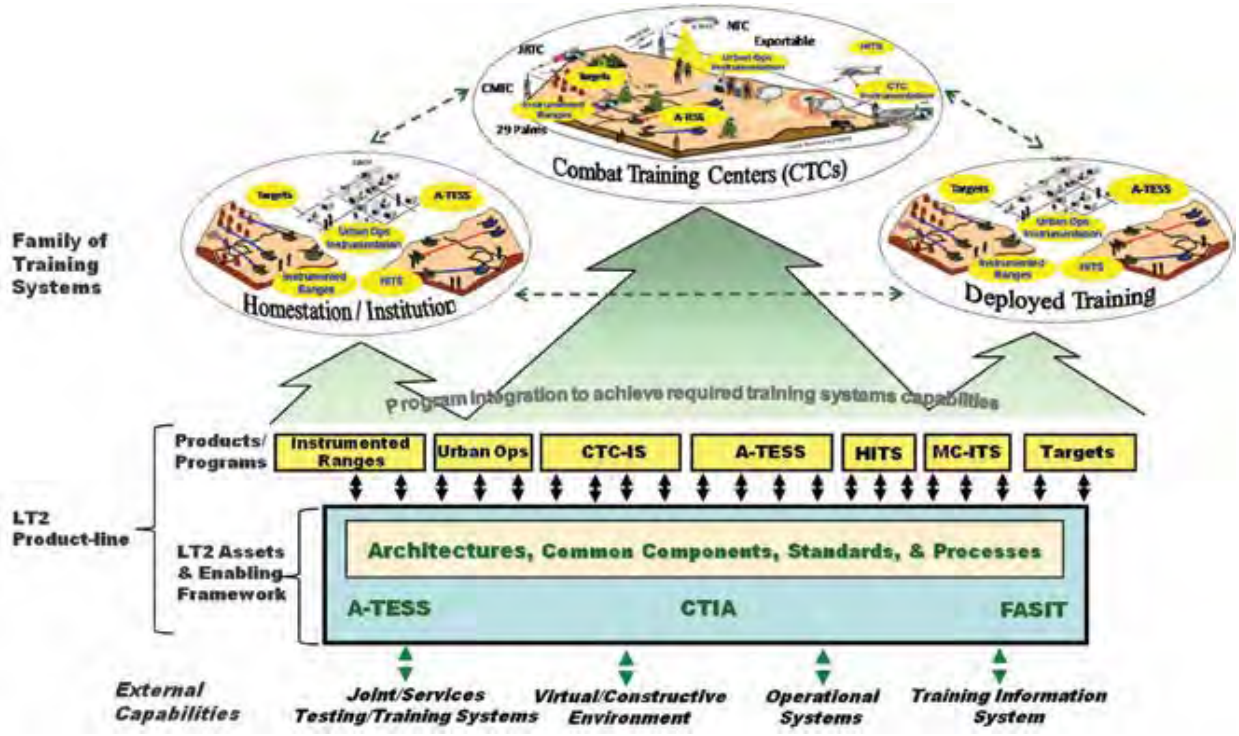
Fort Jackson, SC drill sergeants line up to fire from 300 meters during Asymmetric Warfare Group training. The course reinforces Basic Rifle Marksmanship skills and is intended to give drill sergeants tools they apply to training their Soldiers. The LT2 program reduces the burdens on live-fire ranges by eliminating the unique training and maintenance associated with having multiple control systems. (U.S. Army photo by Chris Rasmussen, *Fort Jackson Leader*.)

The LT2 product line consists of open architectures, common components, standards, processes, policies, governance, documentation, and other core assets reflecting common standards that promote industry innovation and competition and establish frameworks for developing live training systems in support of the Army's objectives.

The Common Training Instrumentation Architecture (CTIA), the foundation architecture of the LT2 product line, expands on current capabilities by eliminating gaps between current and future weapon systems and the live training systems available to support them. The LT2 product line strategy synergizes training instrumentation, targets, and tactical engagement simulation systems to ensure the efficiency and effectiveness of training during peacetime, mobilization, mission rehearsal, and in theater during deployed military operations.

System Capabilities

Figure 1



SYSTEM CAPABILITIES

The LT2 Family of Training Systems is designed to ensure the efficiency and effectiveness of training during peacetime, mobilization, mission rehearsal, and in theater during deployed military operations. (SOURCE: PEO STRI.)

STRATEGIC BENEFITS

The next generation of products is proceeding under the new Consolidated Product-Line Management (CPM) contract. The CPM is a development strategy to address future training system acquisitions by focusing on the shared requirements and automated configuration management of all live training systems. The strategic objectives are to maximize commonality, encourage systematic reuse of software components, and ensure interoperability within the Live, Virtual, and Constructive Integrated Training Environment.

LT2 products provide the means to plan, prepare, execute, and provide training feedback for force-on-force and force-on-target training. Further, LT2 products provide plug-ins to virtual and constructive training systems, the Army's mission command systems, and Joint National Training Capability systems. After initial annual investments, the LT2 product line has achieved approximately $160 million in total system life-cycle cost avoidance and is projected to achieve an additional $40 million in cost avoidance over the next five years (see Figure 2 on Page 54).

CUSTOMER VALUE

The Marine Corps Range Modernization/ Transformation (RM/T) program is a Live Training Family-of-Systems program that supports planning, situational awareness, exercise control, and after-action review capabilities. However, because of system complexity, various acquisition strategies led the Marine Corps to produce stovepipe systems resulting in duplicative capabilities. A requirements analysis determined that the Marine Corps should leverage the Army's LT2 product line. As a result, the Army's PM

"THE CONCEPT OF OUR CONCURRENT INTEGRATED TRAINING ENVIRONMENT IS DESIGNED TO MAKE OUR TRAINING MORE RIGOROUS AND RELEVANT IN THE SCHOOLHOUSE, AT HOME STATION AND AT THE COMBAT TRAINING CENTERS."

TRADE and the Marine Corps' Program Manager Training Systems (PM TRASYS) formally signed a memorandum of agreement (MOA) to establish a partnership. The two PMs expanded this relationship with an MOA signed in June.

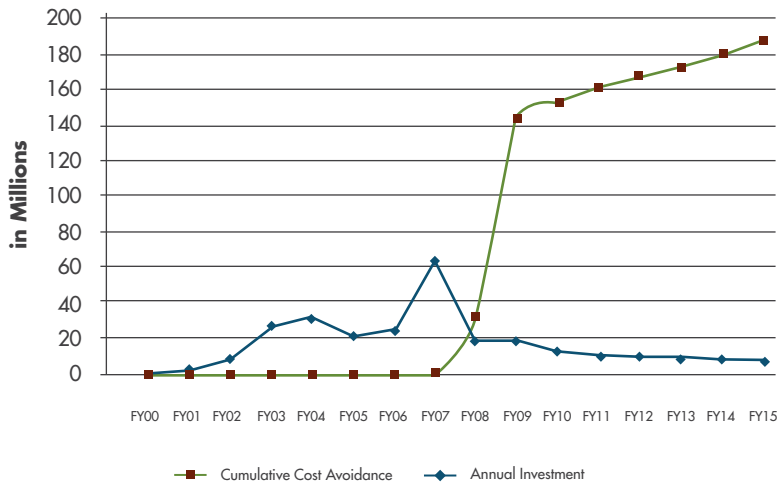
The primary goal is to achieve life-cycle cost savings across Marine Corps RM/T and Army LT2 programs by: promoting joint interoperability; implementing architectural standardization; and maximizing reusability and commonality of existing LT2 product-line assets.

The first Marine Corps product to be co-developed was the Marine Corps-Instrumented Training System (MC-ITS). The MC-ITS program was developed with 87 percent reuse of Army LT2 product-line software components and infrastructure. The remaining 13 percent were Marine Corps-specific capabilities that were developed and subsequently extended back into the LT2 product line.

The acquisition cost and schedule for building a new alternative system were quoted at $19 million and nine years. The actual cost and schedule were $8 million and two years, resulting in an immediate cost savings of $11 million and a seven-year schedule.

LT2 Product Line Return on Investment

Figure 2



COST AVOIDANCE
It is projected that the LT2 product line will achieve an additional $40 million in exponential cost avoidance over the next five years. (SOURCE: PEO STRI.)

TARGET MODERNIZATION

The Target Modernization program is a dynamic example of the strengths of the LT2 product line. The core of the program is the Future Army System of Integrated Targets (FASIT) standard. Leveraging common performance, communications, protocol standards, and specifications, FASIT defines an architecture and product line that aligns with the CTIA and LT2 constructs. FASIT helps the Army lower the total ownership and operating costs of its live-fire ranges.

Using the FASIT standard, the Target Modernization program provides a common solution set for range devices, including a single, government-owned, common controller for all Army targets; a standard performance specification; a

WORKING PARTNERSHIP

U.S. Marine Corps Col David Smith (left), Program Manager Training Systems (PM TRASYS), and COL Mike Flanagan, Project Manager TRADE, sign a memorandum of agreement establishing a partnership of technical support between PM TRADE's LT2 product line and PM TRASYS' common live training systems. (U.S. Army photo courtesy of PEO STRI.)

standard set of interfaces; and a methodology for target development and technology insertion.

The FASIT construct is built on the following principles:

- Solutions that allow interoperability of any vendors' devices on the same network at the same time, with no unique configuration settings.
- Requirements definition that includes only capabilities utilized by all use cases, with modular solutions for the remaining requirements.
- Strongly managed interface documents that define communications between the control system and range devices.
- LT2/CTIA-based components and framework allowing the components to be used in other parts of the product line and in products that extend training across the virtual and constructive domains.

The centerpiece of the Target Modernization program has been the successful development and deployment of the single common target control system, called Targetry Range Automated Control and Recording (TRACR). TRACR provides a single control system that is usable on all Army live-fire training ranges with implementation of the FASIT interface standards. It has the inherent capability to interface with or control the legacy Enhanced Remote Equipment Target Systems targets.

TRACR is the first PM TRADE product to be 100 percent composed of LT2 components, thus leveraging savings for small-arms ranges. The common use of TRACR also reduces the burden on ranges by eliminating the unique training and maintenance associated with having multiple control systems. To date, more than 110 ranges (80-plus small-arms ranges and 30-plus maneuver ranges) have been upgraded and use the TRACR control system.

The Target Modernization program includes plans to upgrade an additional 40 plus ranges over the next year. Furthermore, the Army has committed to deploying all future new ranges with TRACR and to using FASIT-based devices. The technical solutions identified through the Target Modernization program will allow the Army to revitalize existing ranges at a fraction of the cost associated with constructing new ranges.

The Target Modernization and FASIT architecture are predicated on lowering life-cycle costs through open standards, leveraging commercial communication frameworks, and a tight coupling of the interfaces to the control systems. The decoupling of the ranges from specific vendors and the ability to move targets between ranges create significant savings. The Target Modernization program has documented more than $15 million in value engineering cost avoidance through deployment of the TRACR program alone.

THE FUTURE

PM TRADE is now focusing on establishing interface standards for live, virtual, and constructive training that can be partially or fully embedded into weapon systems. While embedded training (ET) has been difficult to define, let alone achieve, TRADOC's vision, as outlined in the *U.S. Army Training Concept 2012-2020*, includes training while deployed.

Training in a deployed environment will necessitate maximum use of organic equipment and minimum use of appended training devices that require warehouses and maintainers. PM TRADE will leverage the experience of the LT2 product line, expanding it to include standards and architecture for ET. Over the next year, PM TRADE will be working with weapon system PMs and TRADOC to leverage the LT2 approach.

Based upon the benefits demonstrated by MC-ITS and Target Modernization, the future of live training devices will drive leader development, training, and education outcomes, and will continue to expand the LT2 product line and realize necessary savings during this era of better buying initiatives. PM TRADE will be the premier provider and integrator of all live training products that are made available through the integrated training environment and that evoke the behaviors necessary to achieve Army training standards today and beyond.

CONTROLLING FIRE

A Soldier uses the TRACR Control System at the Modified Record Fire Range at Fort Eustis, VA. TRACR uses the FASIT interface with a single control system that is compatible with all Army live-fire training ranges. (U.S. Army photo courtesy of PEO STRI.)

JAMES TODD is the Lead Systems Engineer and Architect for FASIT at PEO STRI, and a Senior Systems Engineer for the LT2 product line. Todd holds a B.S in mechanical engineering from the University of New Orleans and an M.S in industrial engineering from Texas A&M University.

DR. JEREMY T. LANMAN is the Lead Systems Architect for PEO STRI's CTIA and CPM construct, supporting the LT2 Family of Training Systems. Lanman holds a B.S. in computer science from Butler University, an M.S. in software engineering from Embry-Riddle Aeronautical University, and a Ph.D. in modeling and simulation from the University of Central Florida.

IMPROVED TRAINING

Four M1A2 SEP v2 tanks conduct a Table XII platoon-level exercise on the new Digital Multi-Purpose Range Complex (DMPRC). (U.S. Army photos by MAJ Pon Tran, PEO STRI.)

READY, AIM, UPGRADE

Rapid acquisition of digital technology brings high-performance training capabilities to Soldiers in Korea

by LTC Timothy M. Ward (USA Ret.) and LTC Bryce R. Christensen (USA Ret.)

On May 31, the Republic of Korea, Land of the Morning Calm, awoke to a new era in armor gunnery training. Korea's Rodriguez Live Fire Complex (RLFC) was transformed from a legacy gunnery range to a new, world-class facility with two digitally enhanced ranges.

This modern complex now touts a Digital Multi-Purpose Training Range (DMPTR) and a Digital Multi-Purpose Range Complex (DMPRC). These ranges provide technologically enhanced digital capabilities with distinct range modifications, which improve doctrinal training.

In the words of 2nd Infantry Division (2ID) Commander MG Michael S. Tucker, "This technology allows us to achieve high-performing 'killer crews' in half the time required when using non-digital ranges."

CONFIGURING THE RANGE

The Rodriguez Range Multi-Purpose Range Complex is shown in its original configuration before the installation of the Digital Range Training System and changes to the lanes and battle positions.

THE CHALLENGE

In early March 2010, Tucker challenged the Program Executive Office Simulation, Training, and Instrumentation (PEO STRI) to modernize his combat vehicle ranges. Real-world events accelerated the fielding to 2ID of the Army's newest Abrams tanks and Bradley Fighting Vehicles, the M1A2 System Enhancement Package (SEP) v2 and the M2A3 Bradley. The existing Eighth Army ranges, however, were inadequate to maximize the potential of the newest digital combat vehicles. PEO STRI assigned the urgent requirement to the Product Manager Digitized Training (PdM DT), the team responsible for developing and fielding the Army's Digital Range Training System (DRTS).

Meeting the urgent need was initially rated a high risk. The DRTS Program was faced with executing two unanticipated, major range upgrades under the constraints of an OCONUS location within eight months. Adding to the complexity of the project was the requirement to work jointly with the U.S. Army Corps of Engineers (USACE) Far East District and associated contractors in making extensive physical range changes at the same time that instrumentation and testing were set to occur.

The two legacy RLFC analog ranges were not capable of meeting the expanded requirements of the Army's newest tanks and Bradleys. The ranges also lacked the tools needed for quality after-action reviews (AARs). The smaller Multi-Purpose Training Range was equipped with Targetry Range Automated Control and Recording, but the system was not optimal because of information assurance constraints unique to Korea. The Multi-Purpose Range Complex was even further behind technologically, with rudimentary target controllers and outdated field cameras. Additionally, it lacked the capability to view and record Thru-Sight Video in real time.

INHERENT CAPABILITIES

The technical solution to the 2ID's urgent training need was logically found in the inherent capabilities of DRTS, which is a live-fire gunnery and tactical training support system. DRTS provides the capability to train, evaluate, and stress today's Soldiers and their modern equipment with a realistic, train-as-you-fight operational environment.

The instrumentation suite includes control consoles to digitally plan and control live-fire Abrams, Bradleys, aviation assets, and Strykers with dismounted infantry training. The integrated software executes the training scenarios through the Scenario Development Tool.

DRTS uses the onboard Integrated Player Unit (IPU) with third-generation Internet Protocol technology to wirelessly stream data including the vehicle's location, audio, Thru-Sight/crew video, and digital 1553 data buss information (for trigger pulls/ammo select/turret azimuth/elevation). The IPU is mounted on the vehicle's exterior and retransmits vehicle data using a wireless mesh infrastructure to the Range Operations Center. The latest IPU accomplishes this data transmission requirement at reduced cost and installation time compared with earlier versions.

After gunnery exercises, DRTS subsystems support training data analysis, preparation, presentation, and immediate feedback in the AAR theater on the range. Commanders and crews alike benefit from the real-time precise analysis of gunnery tables from individual through platoon levels.

MULTIPLE PRESSURES

The RLFC upgrade manifested all the challenges inherent to an acquisition program with regard to cost, schedule, and performance. The requirement to upgrade the RLFC ranges was identified in March 2010, with initial operational capability (IOC) set for no later than May 30, 2011—a small window of opportunity from contract execution to completion, and a radical departure from the three-year military construction and DRTS installation timeframe required for similar digital ranges.

The budgetary latitude to initiate the unprogrammed project was gained through a congressional funding addition and the skillful reprogramming of DRTS funds.

Trade-off analysis was also an integral part of maintaining functionality and reducing costs in key areas. A prime example was the busbar and rail system for Moving Armor Targets. The Training Support Activity Korea (TSAK) wanted to retain the existing busbar system on the DMPRC, but its unsafe condition and degradation warranted a complete replacement with an unexpected cost of roughly $650,000. The trade-off in this instance came from the installation of docking stations and use of the current rail system, which cost only $150,000. System functionality was maintained, and the solution was acceptable to TSAK and 2ID.

One of the important objectives of the range redesign was to make the range more tactically challenging to tank and Bradley crews with "rolling battle positions," crossing lanes, and low-water crossings. These additional construction activities, begun after initial DRTS installation, introduced performance and schedule challenges. In a traditional range project cycle, USACE completes all range design and construction before instrumentation occurs. Concurrent construction threatened to change the range architecture markedly, which in turn would alter the Radio Frequency analysis for network coverage and potentially create conflicts among competing contractors.

INTEGRATED UNITS

An M1A2 Sep v2 tank conducts live fire on the new DMPRC. The tank is instrumented with the Integrated Player Unit, which supports the training with wireless data streaming.

All of these conditions would extend the schedule under normal conditions. The logistical issues with a project of this scope were multiplied because the project was conducted in a remote OCONUS location. The time and distance factors imposed by shipping components to Korea from CONUS affected order and ship times for all components, International Traffic in Arms Regulations actions for sensitive items, and responsiveness to unanticipated component needs.

Fortunately, the challenges imposed by regulatory constraints, time, and distance were identified early in the acquisition process and were worked intensively by the DRTS Team, system integrators, and TSAK to resolve or mitigate logistical problems.

COORDINATING SUCCESS

The 2ID leadership, in concert with TSAK, supporting contractors, and the DRTS Team, worked from a Common Operating Picture (COP) to coordinate all construction, instrumentation, and tactical unit support requirements toward the desired end state. The COP, in conjunction with weekly in-progress reviews, became an invaluable tool to manage the expectations of all stakeholders, to identify and resolve problems immediately, and to adjust rapidly and efficiently to changing environmental conditions that ultimately would affect project completion. The reviews included all stakeholders and initially were conducted biweekly. As the testing phase neared, the frequency increased to weekly in light of the dynamic nature of concurrent efforts.

Achieving the RLFC objectives would not have been possible without a COP that was reviewed and endorsed by the Assistant Division Commander (Maneuver), BG Charles L. Taylor, and the command's willingness to dedicate Soldiers and equipment to support the incremental testing

ANALYZING DATA

2ID Soldiers conduct crew evaluations in the Exercise Control Center of the Warrior Valley DMPTR. The multiple displays on the screen depict the combat vehicle situational awareness, gunner's and commander's views, crew compartment video, and 1553 data.

phases. This close association between the user and materiel solution provider significantly contributed to the rapid fielding mandated in the project.

One initial objective was to provide an early range capability to support the ongoing Operator New Equipment Training (OPNET) gunnery requirements for the new M1A2 SEP tanks. In response to this need, the prime contractor implemented efficiencies and lessons learned into its processes, and the DMPTR was completed three weeks ahead of schedule to provide 2ID with a functioning range to facilitate its OPNET.

Having accepted the smaller DMPTR, the stakeholders were able to focus all resources and management processes in a time-phased approach to complete the construction, instrumentation, and testing of the DMPRC in time for the May 30 IOC. To underscore the urgency and importance of these ranges, units of the 2ID were conducting live-fire tank gunnery operations on the DMPRC the day after government acceptance.

The ultimate success of the RLFC DRTS project was the direct result of the remarkable collaborative efforts of all stakeholders involved. The key players maintained extraordinary continuity with a clearly defined end state to effectively overcome the challenges of meeting the user's needs in a compressed timeline. Tucker best qualified the successes of the RFLC from his user perspective: "This is the most modern, mission-focused precision gunnery complex in the world. The unique combination of range technology and terrain allows units to train 'as and where' they will fight if called upon to defend the Republic of Korea from aggression."

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LTC BRYCE R. CHRISTENSEN (USA Ret.) is the Senior Product Coordinator for DRTS, supporting PEO STRI for Electronic Consulting Services Inc. He holds a B.S. in biology from Creighton University and an M.S. in logistics management from the Florida Institute of Technology.

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A HALF-CENTURY OF SUPPORT

VADM Alan S. Thompson, Defense Logistics Agency Director, reflects back and looks forward as the agency marks its 50th anniversary

by Margaret C. Roth and Brittany Ashcroft

Established Oct. 1, 1961 as the Defense Supply Agency, the Defense Logistics Agency (DLA) provides worldwide logistics support to the military services, as well as civilian agencies and foreign countries. It is DOD's largest logistics combat support agency. From consumable items and uniforms to medical supplies, equipment, and spare parts, the DLA is involved in every aspect of the military's logistics, acquisition, and technical services.

Headquartered at Fort Belvoir, VA, DLA operates in 48 states and 28 countries, supporting more than 1,900 weapon systems and managing eight supply chains and 5 million items. All of this work is performed by nearly 26,000 military and civilian personnel.

Leading this massive effort to support DOD and the warfighter is VADM Alan S. Thompson, who has served as DLA's Director since November 2008. Before Thompson steps down from his position in November and as DLA reaches its 50th anniversary with a formal recognition scheduled for Oct. 26, Army AL&T *Magazine sat down with him to discuss the agency's major milestones in its three key areas of focus: warfighter support enhancements, stewardship excellence, and workforce development.*

Following are his thoughts as he looks back on his tenure at DLA, the agency's past achievements, and its upcoming challenges.

Q. How has DLA changed over the past 50 years?

A. We were created in 1961 as a logistics consolidator and efficiency creator. At that point in time, there was pressure on the defense budget, much like there is now, and a recognition that there were a number of logistics functions that actually were identical, or very, very similar, across the four services. By having a joint defense organization that could support all four, you could do it at lower cost. That's really been the story of DLA from 1961 to the present day.

Through a number of different efforts, we've continued to move logistics functions from the four services to DLA. We've essentially changed the business processes. We'd insert more modern information technology systems, put a little money into facilities, work on the workforce piece, and take the cost down, and repeat the process. And that has largely built DLA today. I would expect that in our next decade, when the defense budget is going to be under enormous pressure, that DLA will be asked to do even more, and I think that we're ideally suited to do that.

Q. With numerous requirements across the military, how does DLA stay on target and achieve its goals? How did DLA's three areas of focus come into development?

A. One of the techniques we've used over the past three years to try to make sure that the leadership of the agency, at the headquarters and in the field, is aligned in effort is the Annual Director's Guidance. We go through a structured process with a small group of senior leaders to look at the current and future environment, where the services need DLA to contribute to their support and success, and we identify a relatively small number of initiatives that we'll pursue, in addition to the work of today, to prepare the agency for that future.

ON THE GROUND IN IRAQ

VADM Alan S. Thompson, Director of the Defense Logistics Agency (DLA), speaks to Soldiers from the 2025th Transportation Company of the Alabama National Guard at Contingency Operating Location Speicher dining facility. (U.S. Army photo by SFC Thomas Benoit, 1083rd Transportation Company.)

DLA operates under a multiyear strategic plan, but it's a way of operationalizing that and making sure that instead of chasing a million points of light, you have a much smaller list that you really focus on, you put a lot of effort and resources into, and you move forward on. And it's been very successful.

Q. In your view, what have been DLA's big achievements and challenges in those three areas of focus?

A. In warfighter support, first of all, DLA's global organization [is] supporting all four of the Armed Forces. We also have a significant role in Foreign Military Sales, so we do have a global support responsibility with respect to warfighter support. If you look at the Army, it's not only the deployed Army that is operating in contingency operations in Southwest Asia, but it's also Army forces deployed in the Pacific, as well as in Europe, Africa, around the world, and the non-deployed forces training here in the United States that are a very important area of support.

Certainly for the last decade, the support for the Iraq, Afghanistan, Southwest Asia contingency has been an effort that has been very large and very demanding from many different dimensions, and one that was somewhat unprecedented in the way that we've done it. If you look a little closer to today's time in the CENTCOM [U.S. Central Command] area of responsibility at support for Army forces there, the last couple of years in Iraq has been a story of supporting continued operations at a somewhat diminished level, but a huge growth in the support requirement for downsizing the force, reducing the operating bases.

Q. It's a complicated equation.

A. It is, and it has a lot of interest on the part of various oversight bodies. It is important to get it right because it's billions and billions of dollars of property that the American taxpayer has paid for, and we want to make sure it's disposed of appropriately, and that we get the greatest potential benefit within the Department of Defense that we can possibly get. The Department of the Army, of course, is the predominant beneficiary there. There's also an environmental issue to some of the mercury—so you've got to make sure you're doing right by the environment.

This has been done through a number of different disposal sites that we have operated in Iraq, as well as a large number of smaller teams that have essentially traveled around the battlespace in Iraq, working with the commanders of each of the forward operating bases and combat outposts, trying to do, to the greatest extent, the planning and even disposal in place for the unneeded supplies and materials.

The entire story of dealing with the disposal of unneeded supplies and equipment has been a huge achievement, and it's one that certainly DLA has had a great deal of participation in, but it's really been a team effort with the Army. It's a four-step process, and we're only Step 4, so a great deal of it is dealt with through a structured process of looking for opportunities to either redistribute

I WOULD EXPECT THAT IN OUR NEXT DECADE, WHEN THE DEFENSE BUDGET IS GOING TO BE UNDER ENORMOUS PRESSURE, THAT DLA WILL BE ASKED TO DO EVEN MORE, AND I THINK THAT WE'RE IDEALLY SUITED TO DO THAT.

materiel to Army units, consume it, potentially transfer it to the Iraqi security forces, and then ultimately, if it's not needed in any of those areas, it comes to DLA for disposal.

Q. Is this a process that did not exist until the drawing out from Iraq?

A. Well, no, we had this capability around the globe, but certainly the volumes have been much bigger than anything we've ever dealt with. At the same time in Iraq, as the forces reduced and repositioned, we had to make sure that the full range of DLA support was continuing. That was anything from restructuring the system support to all the facilities, and the operational rations, whether it's MREs or unit-type rations. We had to basically restructure the fuel stocks to make sure that the support was always there, and maintain the spare parts support and the distribution support, leveraging a large distribution center that we operate in Kuwait for support up into Iraq. Certainly I think the full spectrum of support in Iraq has been a big achievement.

Moving to Afghanistan, [it's a] slightly different story, because, of course, instead of a drawdown, it's been predominantly a buildup over the last couple of years and supporting a force that's at a much greater operating tempo than what we experienced more than three or four years ago. The initial push two-plus years ago was in shipping a massive amount of construction materials into country to build out this expanded operating base network to essentially support the surge force. Then, once that had occurred, at the same time we had to build up

ACCOUNTABILITY IN ACTION

SPC Matthew Joy and PFC Justin Long, Order Specialists with the 620th Combat Sustainment Support Battalion, 96th Sustainment Brigade, work on organizing and accounting for Meals, Ready-to-Eat (MREs) to get them ready for pickup by another unit. Ensuring that operational rations, including MREs, are handled and delivered appropriately is an ongoing effort of DLA. (Photo by 1LT Erik Oberg.)

inventories for systems, medical supplies, equipment, as well as fuel, then insert some kind of targeted support for maintenance of the equipment.

Now, in execution things are always a little harder and, as it turns out, with some of the challenges shipping by surface through Pakistan, we haven't quite achieved what we want just yet with the distribution center because our shipping times are still fairly long—longer than expected. We're doing surface shipments, but we're also having to supplement with some air shipments; it's still a work in progress. And frankly, even moving materiel around in Afghanistan is proving more challenging than we anticipated, so we're heavily leveraging something called Theater Express, which is a contracted airlift inside the country to ship needed supplies from the distribution center in Kandahar to places like Leatherneck, Bagram, up to Mazar-e-Sharif, then out to the units that are consuming them. Again, a very intense effort to provide the full range of DLA support, and a lot of our challenges have been driven based on transportation, both into the country and inside the country.

A GLOBAL PRESENCE

U.S. Army LTC John Bautch, Commander, DLA Support Team Kandahar Airfield (KAF), Afghanistan, acts as master of ceremonies for the ribbon-cutting of the first DLA Disposition Services Kandahar facility last December. The facility is a key staging area for the disposal or reutilization of unserviceable DOD equipment. (Photo by Daryl Knee.)

I think that has all been very successful in the warfighter support area.

Q. What about some of the challenges DLA is facing or may face in the coming months?

A. A lot of it is related to uncertainty. We've had a situation in Iraq where, even to this day, it's very unclear what the future support requirement is going to be. It's still unclear, beyond the end of this year, what's going to be the U.S. Army/U.S. military presence; the State Department presence is beginning to look a little bit more certain, but we have to stay flexible. Clearly, if you add many thousands of additional Soldiers who need food and medical supplies and fuel for their vehicles and the spare parts for the vehicles, and they need the disposal support, it's a much different challenge than if it's a fraction of that number. Then in Afghanistan, the challenge there is the uncertainty of today, very intense contingency combat operations, that drives requirements that maybe you don't fully anticipate. We're just now beginning to get clarity on what might be the force that stays behind for a year and two years, so we've got to posture for that as well.

Q. It can't be easy for an organization this large to adapt on a dime. How does DLA handle that?

A. I think that that has been something that DLA has gotten a lot better at in the last decade. Clearly we haven't really rehearsed that kind of thing extensively, but it does connect well into a designation that DLA has as a combat support agency, which is a statutory designation that gives us a special relationship with the geographic combatant commanders; in effect, we're directly supporting their operations. It gives us the authority to position DLA personnel, military, and civilians on the ground.

BUILDING LEADERS

Betty Hoapili, a DLA civilian, crawls through the mud at the Army Rangers' Malvesti Obstacle Course at Fort Benning, GA, during part of DOD's Executive Leadership Development Program. (Photo courtesy of Office of the Secretary of Defense Public Affairs.)

Then, beneath our DLA central organization, we have DLA support teams in Afghanistan, Iraq, and Kuwait, and they're there to make sure the full range of DLA support is always provided. I think one of the huge lessons learned in warfighter support is the value of this very close relationship with the combatant commander and the subordinate commands, like U.S. Forces-Iraq and U.S. Forces-Afghanistan, and being totally integrated with their command and control structures. Therefore, we're able to anticipate what will be needed before it's requested and make sure it's there.

Q. Could you outline some of DLA's stewardship efforts and the importance of those efforts?

A. If you were to ask me, "Why does DLA exist?," it's to support the warfighter and be good stewards to the taxpayers' money. Stewardship is very, very important to DLA for a number of reasons. The main reason is, it's the right thing to do. Number two, we're all taxpayers, so we ought to be concerned about trying to support the Armed Forces at the appropriate level at the absolute lowest cost. It goes back to why DLA was formed—to provide the required level of support at the lowest cost. I think if you look at the culture, the "DNA" of DLA, cost reduction is something we deal with a great deal of the time.

If I were to look at what have been our greatest achievements there, there's really two elements to DLA costs. If you look in the aggregate, a dollar of sales to an Army customer today, about 14 cents of the dollar is the overhead to run DLA—to pay the salaries, operate the buildings, pay for our information technology. Eighty-six cents on the dollar is what we pay to industry, what we contract for in the way of goods and services. If you're going to try and be the absolute best steward and drive the lowest cost to the Army customer, you've got to focus on trying to reduce both all the time.

The good news is on our overhead costs, 14 cents on the dollar today. In 2001, that was almost 26 cents on the dollar. So, we have achieved pretty substantial reductions. Now in fairness, some of that has been because of the sales growth. But we

really do stress reducing our operating costs and trying to make that as low as we possibly can. One of the things that we put much more emphasis on in the last couple of years is the price we pay to industry and trying to get the absolute best price. We saw an opportunity because for the last decade, most of the emphasis was on the effectiveness of DLA support and maybe not quite as focused on the efficiency. Part of it was also Dr. Ashton [B.] Carter, Under Secretary of Defense for Acquisition, Technology, and Logistics, who introduced his Better Buying Power Initiative, and so we looked and asked, "How can we do our part?"

PROBABLY ONE OF THE GREATEST LESSONS LEARNED IS THAT WE REALLY HAVE TO HAVE A MUCH MORE CAPABLE PROFESSIONAL CONTINGENCY CONTRACTING CAPABILITY TO SUPPORT ANY FUTURE CONTINGENCY.

We've really ramped up our efforts in trying to get a better deal from industry, and we have a number of different techniques, from greater use of long-term contracts, a lot of efforts in price negotiation for our acquisition personnel, and a number of different tools. A year ago, we essentially went public with our supplier base—and DLA buys from thousands of organizations—and told them, here's the new deal: When we buy something from you the next time, we want to pay 10 percent less than we paid the last time.

Q. Can you be specific about areas in which competition is easier to find than others?

A. It really depends on the commodity. Clearly, in subsistence it's very easy. There's typically a large industry group in the food service distribution business, so typically it's very competitive with respect to pricing. In the hardware area, it depends. If it is an item that, due to say, engineering drawings, is really a sole-source [contract] for life, then obviously you're kind of stuck there. But in many cases we find that we've been able to successfully break those out from the OEMs [original equipment manufacturers]. And where you have the technical data, it's really a wide-open field. Medical supplies [are] very competitive; I think we get very good prices. The fuel product is kind of a global market, and that's very competitive, where you're paying for associated services to operate facilities or do delivery and so forth. There are typically a number of companies that can provide that, and regardless of where we are in the world, we almost never have a sole-source contract in that area.

For the most part, the nature of DLA business is very competitive, and therefore a high percentage of our total contracts are competitively awarded. That's very, very helpful.

Q. What are some of the challenges related to stewardship efforts?

A. The next decade is going to be very different from the last decade. The last decade was all about, "Support the warfighter, support the warfighter, support the warfighter," with a great deal of rapid change in the support requirement; it was largely about effectiveness of support. But now, with the federal budget and the defense budget under enormous pressure, DLA is going to be looked to to try and really squeeze cost out of the logistics support.

I think the big challenge for us in stewardship is really taking all of our efforts to the next level. Nothing's easy, and in almost everything we've tried, you run into friction points for many different reasons. Either you're asking people to do things differently, or you're asking something from industry that maybe they don't perceive as being in their own best interests financially, or you just go about something in a different way. I think that what we've done in the last one to two years has really been breakthrough learning that we can apply with greater energy over the next several years. There's no question that we're going to have to squeeze out more costs.

It also means that I think we're going to have to get tighter [in] each of the services, Army in particular, looking at what logistics functions are done in the service versus DLA, and could DLA add value and reduce logistics support costs for the service if we did more for them. There's already a pretty active dialogue on the part of the Secretary of Defense's staff with each of the services. We have a very close

relationship in particular with [the U.S.] Army Materiel Command, and I think there will be some opportunities where DLA can provide perhaps more support to the service than we have in the past.

Q. Could you address the workforce development aspect of DLA?

A. DLA puts a great deal of effort and emphasis on workforce development. I would put our workforce—military and civilian~~u~~– p against any in the federal government. Part of that is because we do pay attention to it and put a lot of emphasis on things like selecting the right individuals, providing the right training, [and] providing the needed tools to do their job. It is a career-long effort; it isn't just at the front end.

We are also working very hard on the initial accession into that [intern] program from a number of dimensions. One reason is to make sure we are broadening the diversity inside DLA, because we think that it is important, consistent with other DOD organizations, that we make every effort to reflect American society. We have a particular emphasis on hiring wounded warriors and have made some great progress in that particular area; in fact, we could say that we are a leader in DOD. We also have functional training throughout a DLA team member's career.

Q. What are some of the lessons DLA has learned from *Operation New Dawn* and *Operation Enduring Freedom*?

A. Probably one of the greatest lessons learned is that we really have to have a much more capable professional contingency contracting capability to support any future contingency.

As a result of the Gansler Commission and some follow-on congressional action, DLA was assigned a mission of standing up a Joint Contingency Acquisition Office. It was really to assist the combatant commanders with acquisition logistics planning for contingencies. We stood that up, and they are doing some great work. We're looking at potentially having an additional capability for contingency contracting in support of kind of the low end of the spectrum, maybe humanitarian assistance, disaster relief. But as you get into major contingencies, that's where the service acquisition agencies need to come online.

Now, the downside is that as the budget comes under pressure, these are the kind of things that might be quick to be eliminated. I think that would be shortsighted. If we do that, I think we will repeat the experience that we had in the early years of *Operation Iraqi Freedom*. I would hope that we at least sustain kind of the minimum essential capabilities and contingency contracting so that we can go in quickly, do it correctly, make sure that we're exercising our stewardship responsibilities, and essentially get our money's worth when we're buying things. As we know, hundreds of billions of dollars was expended over the last decades in contingency contracting. So, it is definitely big business. We've got to make sure we do it right.

CUSTOMER SATISFACTION

VADM Thompson presents a plaque recognizing the 401st Army Field Support Brigade (AFSB) as the DLA Customer of the Year to Mark W. Akin, 401st AFSB Deputy to the Commanding Officer, during the DLA Industry Conference and Exhibition held in June in Columbus, OH. (Photo by Charles Morris, DLA.)

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MILLS

IMAGE CONSCIOUS

USAMMA biomedical maintenance technicians' attention to detail minimizes downtime of essential medical imaging systems

Thanks to advances in medical imaging, military hospitals can diagnose injuries and render treatment faster than at any time in history. Those doctors and clinicians rely on skilled biomedical maintenance technicians to tend and repair the complex and fragile imaging systems. In an environment where seconds count, there can be no downtime for lengthy repairs.

That's why the U.S. Army Medical Material Agency (USAMMA) Forward Repair Activity-Medical (FRA-M) teams are in high demand.

FRA-M teams serve four-month rotations, deploying to theater in support of medical units. From 2007 to 2010, the teams increased uptime for computed tomography (CT) scanners from less than 55 percent to greater than 90 percent. FRA-M has the expertise required to support all imaging equipment in theater, including CT, computed radiography, and digital teleradiology.

Mark Mills, Imaging Systems Maintenance Manager for Tracy Army Depot, CA, oversees X-ray and radiology maintenance training requirements for the FRA-M team. He provided a close-up of the team's mission, training, and challenges.

WHAT ARE THE PRIMARY CHALLENGES FACING FRA-M MEMBERS?

This is a war zone, so you have that 24 hours a day, from rocket to mortar attacks. Travel in theater is difficult, to say the least. Also, getting replacement parts sometimes will take six to eight weeks. "Overnight" shipments take anywhere from five to 14 days.

TECHNICIANS AT WORK

(Clockwise from top) Mark Mills works on a CT scanner at the clinic at Camp Arifjan, Kuwait; SPC Timothy Wonky (right) checks on a CT scanner with Mills in Baghdad, Iraq; Mills trains SGT Tiffany Riggs on a computed radiography system in Al Asad, Iraq; and Mills uninstalls an X-ray unit in Baghdad, to reinstall it in a shelter. (Photos courtesy of Mark Mills.)

"ANYBODY CAN FIX A CT. IT TAKES A REAL TECH TO FIX IT IN A WAR ZONE."

To mitigate the impact of extended shipping times, we looked at all the problems we've had with the CTs and assembled a parts kit to satisfy all those problems. We're now looking at the probability of placing parts kits at the actual location.

TRAINING POSES ITS OWN CHALLENGES, YES?

Most units are on the ground for 10 to 12 months. We'll go in and work with the 68 Alphas [Military Occupational Specialty 68A, Biomedical Equipment Specialist], providing hands-on training, showing them things that we have learned over the years and techniques that aren't covered in their training courses. Before long, that unit is gone, and we're back to a new unit—new people with the same problems. So we go back in and begin the training process all over again.

The theater has ample basic, apprentice-level, school-trained biomedical maintenance technicians. What they lack is experience. That's what the FRA-M brings to them—both the experience and the knowledge.

ISN'T TRAINING ALONE SUFFICIENT?

Before deploying, the unit often sends select biomedical equipment repairers to additional training on specialized systems, such as the CT scanner. However, they usually just attend the specialized training and go straight into theater. Some unit members have told me they spent almost two years before deployment going to school—one school after the other after the other. They go to some of the same training our FRA-M does, but they don't have time to work with the equipment or with other people.

Sometimes, they've had so much training within such a short period of time that they have trouble separating one system from another; they get too much training without experience. Working with experienced techs gives them critical on-the-job training with real-life scenarios. The instructors can't teach how something will break down. When I'm in theater, I hear a lot of, "They never taught me that at school!"

WHY DON'T MORE IN THE FIELD HAVE EXPERIENCE?

As with most technical fields, medical maintenance skills are perishable when not routinely sustained. One would think that with a protracted war, eventually the experience level of our biomeds would increase; however, the on-again, off-again approach of TOE [Table of Organization and Equipment] Soldiers providing maintenance during deployments and being restricted while in garrison inhibits the continuous sustainment of their skills. This is also compounded by the grade structure associated with TOE- and TDA- [Table of Distribution and Allowances] type organizations. More often than not, the grade structure calls for junior technicians, and the experience level of medical maintainers in deployable units is lacking. What we have are 68As just out of school, but anybody with experience is not there anymore.

The Medical Command recently included the 68As in its Training with Industry Program. The program leverages training opportunities available from major vendors. The primary example is Philips, which provides a lot of radiological and imaging systems, such as CTs and X-rays, that our deployable hospitals use in theater. The Soldiers in the program attend Philips Training Center, going to classes as well as actually participating in the training of official students there in the labs. It drills the information into them.

Although several of the big-ticket items may be manufactured by Philips, there are numerous items and various makes and models of imaging systems and equipment deployed in the theater today—for example, Ziehm C-arms, VERTX CR systems, MinXray portable X-ray systems, Fuji CR Systems, Hologic C-arms, Siemens portable X-ray systems, Chloride CT UPS systems, and GE portable X-ray systems. Our goal is to have these Training with Industry technicians assigned to USAMMA's Center of Excellence for imaging systems at Tracy, where they receive additional training and experience on the many types of equipment they can expect to come across in theater.

This program is new to the biomedical equipment maintenance field. The first 68A Soldier to complete it just left for Qatar in June. It's exciting. If it continues to work, we can get a stream of Soldiers in these positions.

HOW MODERN ARE THE FACILITIES IN THEATER?

The Armed Forces constantly update hospitals. Things change, especially for pulmonary and laboratory systems, whereas our CTs have a longer lifespan; they're in theater for six to eight years. Equipment doesn't get stagnant or old and decrepit. The doctors want the best equipment available out there. Saving Soldiers' lives is the number one priority. It is their only priority.

WHO FUNDS REPAIRS? HOW ARE BUDGETS TRACKED?

Each medical treatment facility maintains its own records. Most locations have a co-op parts contract funded by the theater to support the CT scanners. It prepays for parts. So when the medical treatment facility at Kandahar needs an X-ray tube, the facility can call Philips for the part. Philips charges that contract, which the theater prepaid, and ships the part right out. Units without a contract in place are required to order parts through the standard medical supply chain.

If a site doesn't have a contract, that part might be $20,000. But when I order that same part for a site with a contract, the cost might be $2,000. It's a substantial difference. The benefits of having a co-op parts contract are immeasurable when it comes to ensuring that the systems are available for patient care. We're also looking at potential parts kits for non-Philips vendors to push out there, so we can get discounts and save money.

DO YOU DISCUSS WITH MANUFACTURERS WAYS THEY MIGHT IMPROVE?

Manufacturers want to know how equipment is holding up and how they can improve support. There is concern there, especially for companies that want to continue to do business with DOD. And I do see some changes actually being implemented. One example is tailoring their training and support programs: The advice they give techs in theater is now different than in fixed hospitals.

For many companies, selling their product to an Army at war is an eye-opener on reliability, especially for equipment that may not have been designed to endure the harsh desert environment. Soldiers put equipment through rigorous treatment in places that most noncombatants can only try to imagine. It is also difficult for the manufacturers to create an environment for testing that mirrors the conditions in Southwest Asia. So it's a learning process for all the vendors. Fortunately, they've been listening to us.

TRAINING THE TEAM

Mills joins the Medical Logistics Warehouse and Command and Control Team in Bagram, Afghanistan. (Front row, from left) SGT Anna Salas, SPC Kelly Griffith, SGT Mandy Mendelkow, SGT Neil Davidson, and SPC Jennifer Laboe; (back row, from left) Mills, SGT Gregory Nieuwenhuis, SPC Jamaal Abdulhamid, SSG Omar Verdi, SGT Alven Haulmark, and SPC Zachariah Serna.

HANDS-ON TRAINING
Mills trains SGT Tiffany Riggs and SPC Joshua Whitehead on a CT scanner in Al Asad, Iraq.

WHAT ARE THE BIGGEST THREATS TO EQUIPMENT UPTIME?

Sandstorms are so bad in theater. The air conditioners and the CTs' cooling fans suck the sand in. Inside the CT, the sand blasts the fiber optics that data is sent through. It's a mess. Technicians take tarps and cover up systems when they're not in use. We encourage preventive maintenance and regular cleaning. We do everything possible to keep the sand and dust out. It's a constant battle because it's so fine.

Intense heat is also a problem. It can reach [redacted] degrees in Iraq. We have to keep the systems at or below 74 degrees. The temperature can't fluctuate more than 10 degrees. Reliable, stable power is a challenge, too. The power is run by commercial generators, and there's a lot of fluctuation in voltage, which contributes to failures.

And when you're working on a CT and all of a sudden you hear an incoming alarm that a rocket attack is happening. … Well, I've always said, "Anybody can fix a CT. It takes a real tech to fix it in a war zone."

DO YOU FIND YOUR WORK REWARDING?

Yes. Everyone makes you feel welcome. I get the same question, "Can you be based out of our site?" I was in Tallil, Iraq, working on a CT, and the unit asked me, "If we build you a house, would you stay?" When I was in Al Asad, Iraq, every time I would submit a travel request, they'd have their command disregard them, so I wouldn't leave. In Tikrit, they named a hall after me. It's all their way of showing us how glad they are we're there.

At USAMMA, we support the organization and don't always see the end user. But on the FRA-M, we work with those who actually use the equipment. You see them, you talk to them—it's amazing. There's so much appreciation you're there. And they're so happy you came, and it's nice to feel welcome. It reconnects us to why we do what we do.

—USAMMA staff


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PROBLEM SET

Army takes new approach to identify and prioritize S&T 'challenges' that it will tackle in coming years

by Margaret C. Roth

As the Army moves ahead with plans to reinvent its science and technology (S&T) effort, key priorities are emerging for S&T investment, along with a fundamentally new approach to defining and executing them.

In an interview Aug. 10 with *Army AL&T* Magazine, Dr. Marilyn Miller Freeman, Deputy Assistant Secretary of the Army for Research and Technology, laid out an investment strategy to address seven pervasive problems for which S&T solutions are appropriate and worthwhile, and how the Army will address these problems against a set of specific prioritized "challenges."

The seven "Big Army" problems, along with many of the specific challenges they pose, were defined from the perspective of providing Soldiers with a decisive edge, "what is it that we need to be able to put our technologies toward in order to make a difference to the Soldiers who are in small units, operating in whatever conditions they have to, and wherever they have to operate around the world," Freeman said.

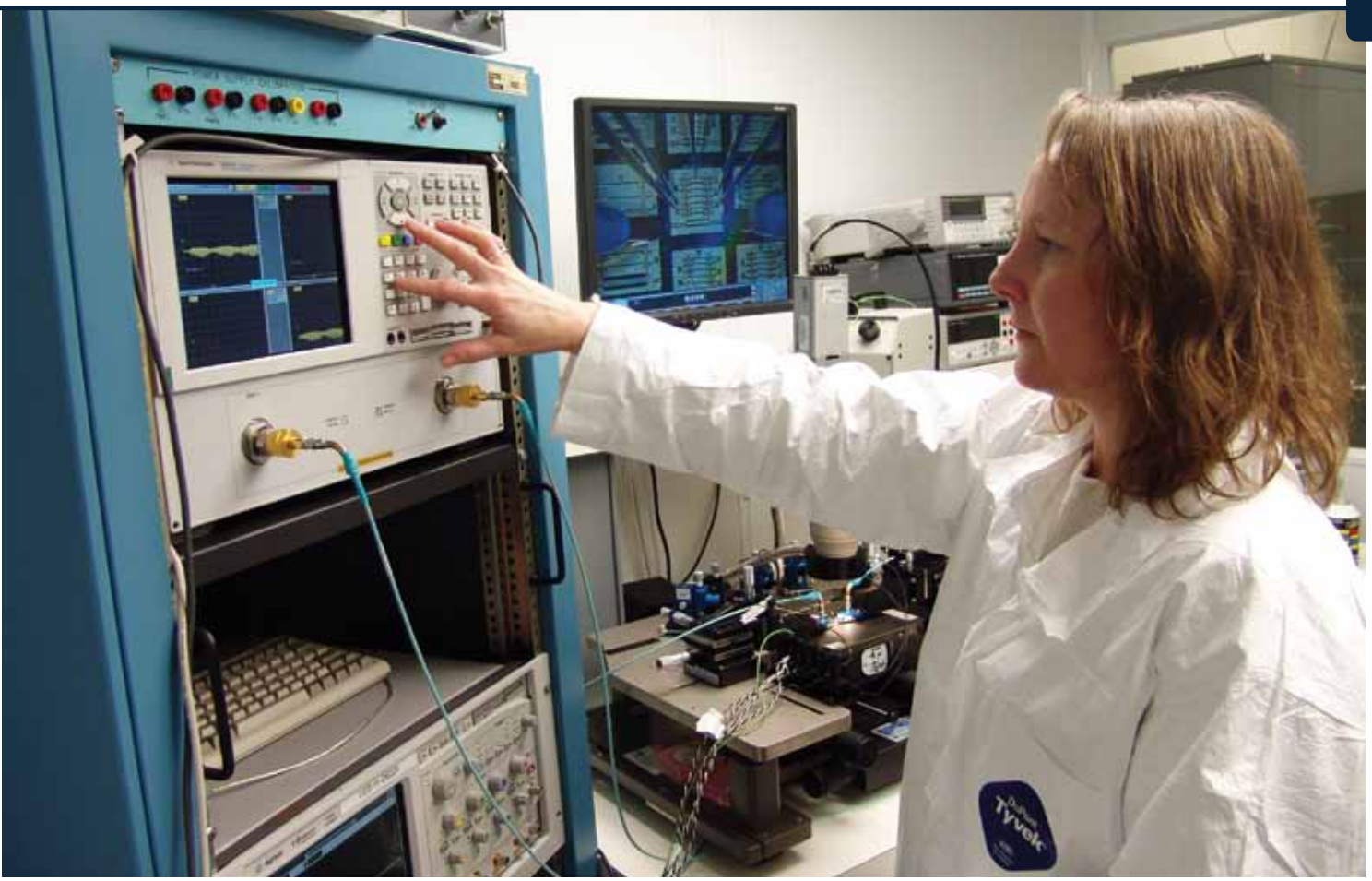
The goal is to develop specific programs by FY14 to address the challenges and to deliver specific solutions by FY17 or sooner. The Army plans to engage industry early in this process, sharing the problems and S&T challenges at the annual meeting of the Association of the United States Army (AUSA) Oct. 10-12 in Washington, DC.

To make this new process viable, Army S&T has had to align its processes with the bigger Army and its fiscal processes to ensure that S&T priorities will be properly synchronized with and influenced by Army leadership.

REALIGNMENT

Army S&T has achieved this fundamental realignment in part by organizing its efforts into five portfolios, Freeman said. "We now have a very well defined Soldier S&T portfolio, a Ground Systems portfolio, an Air portfolio, a Command, Control, and Communications portfolio, and a Basic Research portfolio."

As a result, Army S&T can clearly articulate ongoing efforts in those portfolios and desired results for the next couple of years through a restructured approval process at the three- and four-star levels.



ENGINEERING SOLUTIONS

Janice Rock, an Electronics Engineer in the Applied Sensors, Guidance and Electronics Directorate, U.S. Army Aviation and Missile Research, Development, and Engineering Center, Redstone Arsenal, AL, observes and makes adjustments on millimeter wave testing and evaluation equipment. Laboratories are directly involved in generating and realizing S&T initiatives. (U.S. Army photo.)

"We cut out about four meetings a year, which saved about $150,000, to get a better process for approval of programs and prioritizing. We basically used Lean Six Sigma processes to say what were the non-value-added steps, what were the steps that we really needed to keep, and what were the things we had to revise."

TOP-DOWN APPROACH

In addition, Army S&T's 6.3 program, advanced technology development with a three- to five-year delivery target, has been refocused from the top down, involving the U.S. Army Training and Doctrine Command, Army G-8, G-4, G-3, G-2, G-1, and the laboratory directors. Previously, 6.3 initiatives were generated largely from the bottom up, that is, from individual S&T activities.

This refocusing brought about 100 stakeholders together at a workshop in early June that identified 24 specific Army challenges, within the seven broader problem areas, that S&T can address in the near term with lower-risk, mature technology sets, to be evaluated as Technology Enabled Capability Demonstrations (TECDs), a concept that is replacing the Army Technology Objective (ATO).

TECDs are an integrated, technology-based solution that either measurably enhances the performance and effectiveness of an existing capability or enables a new and necessary capability for the Soldier. TECDs are focused on solving near-term challenges that are priorities for the Army and are centered around near-term technologies that are brought together in a new, unique way to demonstrate an operationally meaningful improvement. TECDs will be targeted for completion in two to three years. When completed, they will provide a limited fielded capability, transition out of S&T, or be terminated.

"We said, 'Let's see if we can identify a series of problems—real "Big Army" problems—that we could get our arms around and have the community address and build programs against,'" Freeman said.

SOLDIERS AT THE CENTER

SSG Bert Finland, 56th Stryker Brigade Combat Team, checks his headset radio in a Stryker vehicle before patrolling in Taji, north of Baghdad, Iraq. The Army's focus in new vehicle designs is increasingly the Soldier, to ensure optimum operability. (U.S. Army photo by SGT Doug Roles.)

The TECD process is essentially the spearhead activity to validate and/or identify issues with the new S&T business model. The TECD focus is on providing a near-term, integrated, advanced-development capability intended for transition, but this top-down business model remains valid for mid-term and far-term efforts as well. The problem set is enduring, and advanced solutions enabled by less mature technologies and new technology applications will evolve from the seeds of Applied and Basic Research activities—the 6.2 and 6.1 programs, respectively. The TECD approach provides capability, whereas the ATO's focus is on individual technical objectives that have to be integrated later to provide an operational capability.

Defining the most pressing problems for Army S&T to address set the stage for Army leadership in early July to approve top S&T priorities for the FY14 Program Objective Memorandum (POM), Freeman said. In prior years, S&T decision-making tended to trail the POM process.

In the coming year, Freeman plans to focus the Basic Research program better on what Army problems need to be addressed for longer-term investment. The program tends to look either for breakthroughs that can be exploited rapidly or for technologies that could solve problems in 10 to 20 years.

SEEKING RESULTS

The June workshop was not just about problems, Freeman said; it was also about delivering specific solutions within two to three years.

The seven problem areas (see sidebar on Page 81) are generic, she noted. "The question is, what's the S&T community going to do about them?

"Now, that's what the challenges are about … capabilities that you get by taking a technology, and another technology, and maybe another technology, and combining them and demonstrating them together so that you've got a solution rather than a 'widget' or a partial solution."

For instance, the problem of force protection poses at least three specific challenges:

- It takes too long and too much manpower to deploy, set up, protect, sustain, and relocate combat outposts and patrol bases.
- Current gear, clothing, and other protective measures do not provide adequate protection against the varied and complex spectrum of threats encountered by Soldiers in small units without adding significant mobility challenges.
- Vehicles are designed to put Soldiers in rather than designing vehicles around Soldiers. Increasing the platforms' protection levels makes them heavier and affects the interior spaces, reducing mobility, maneuverability, and freedom of movement.

"Why do we think S&T can help solve these problems? The answer is, there are a number of enablers that have been worked on for quite a while," Freeman said. "In this case, there are deployable force protection technologies, there's robotics to do labor-intensive tasks, there's rapid insertion and pre-fab shelters we could use, there's sensor-to-shooter combinations… things that we could bring together that typically are developed separately."

Ultimately, those technologies must be integrated to produce concrete, measurable results, she said. In the case of force protection and basing, an S&T program is called for that will reduce the number of Soldiers needed to set up a combat outpost or a patrol base and will protect against

> "I'M VERY PLEASED AND VERY PROUD OF THE COMMUNITY AND OF ALL THE PEOPLE WHO REALLY WORKED THEIR TAILS OFF TO MAKE THIS CHANGE HAPPEN. IT'S A BIG CULTURE CHANGE. I'M VERY, VERY PLEASED WITH LEADERSHIP SUPPORT. THE LEADERSHIP SAID, 'WE'RE WITH YOU … AND WE THINK THAT S&T IS IMPORTANT.'"

threats, including small arms, indirect fires, air-delivered weapons, and chem-bio effects in austere and restricted terrains.

"We know that it takes 60 to 90 days to set up a combat post or patrol base for a small unit or a company. And for that amount of time, 70 percent of the Soldiers in the unit or squad or company are involved in that process, which means only 30 percent are doing the mission," Freeman noted.

"By FY17, the objective is to increase Soldier availability for the mission tasks, versus setup and security tasks to 50 percent. … I want a program that does that." The program's metrics will be how much time setup and security take, how much manpower they require, and the protection capability, Freeman said.

AFFORDABILITY

Every one of the challenges identified for Army S&T is achievable, Freeman said. Whether they are all affordable will depend on the programs developed to achieve them.

In the case of force protection, "the technical people who put the program together … may come back and say, 'You know, as hard as we try, we can't get [the setup time] down to 30 days; we can get it to 45. We can't get [the percentage of Soldiers involved] down to 50 percent; we can get it down to 60.'

"From a leadership perspective, is that enough of an improvement to spend money on? My guess is, the answer to a lot of these questions would be yes. But our question back to the people proposing the programs is, 'Why can't you get it to 30 days? What's keeping you, what's the technical barrier?' That will help focus our 6.2 resources as we work through this process."

Or the barrier could be a lack of resources—people and time.

Freeman said that she has committed to the four-star Army S&T Advisory Group that the Army S&T budget will fund at least the top five challenges, more if possible. The two-star Army S&T Working Group will play a key role in making decisions about possible trade-offs, she said.

It is also possible, for the first time, that Army S&T can propose unfunded but validated priorities in the POM process, she said.

Manpower cuts, however, could jeopardize action on the high-priority S&T challenges, Freeman said. "In order to bring these things to fruition, you have to have the scientists and engineers with the experience across the disciplines, and working with Soldiers and in the laboratories."

S&T programs and organizations tend to be an easy target for budget-cutters, Freeman noted, "because they are considered farther-term things," not for their impact in solving near-term problems.

Freeman is determined to change that way of thinking. "Somebody said, 'You know, what you're really proposing is to go back to where we were before and around World War II, when the science and technology community was highly respected as being the problem solvers for the country.'

"That's what I want to do. That's what our value is, not just in doing activity and spending money, but solving problems—solving them in the near term, then solving them in the mid-term, and then setting the conditions in the far term for the capabilities we as a Nation want to have. That's the excitement of doing S&T. That's what makes it fun; that's what makes it matter."

PARTNERSHIPS

In addition to technology and resources, an essential precursor to achieving the challenges will be collaboration, Freeman said. "And it may or may not be traditional linkages."

At the AUSA Annual Meeting, Freeman wants to focus industry's attention on the top 10 challenges. "I've got people building one program for each one of these 10 challenges," she said. "I'm really interested in the top 10. I want industry to come back and talk to me about what they're doing in their IRAD [independent research and development] that can answer these kinds of challenges.

"We can either marry up [the technologies] with the program that has been proposed, or we can use them as a risk mitigation for a technology that we may be pursuing—it may be cheaper or faster—or somebody may come up in the industry and say, 'I've got the IRAD, and I can do the whole challenge.' In which case, I'm probably not going to invest in it."

Freeman said that in addition to the Army S&T community and industry, she wants to enlist the potential of small businesses specifically, using the Small Business Innovation Research (SBIR) program and the Rapid Innovation Program that Congress established in the *National Defense Authorization Act for Fiscal Year 2011*.

The first S&T programs will be validated at the four-star level in December or January and will then be launched by the laboratories, Freeman said. Collaboration with industry will continue at the project and product manager level. Industry will have an opportunity to stay abreast of program technology needs through Broad Agency Announcements and such forums as AUSA's Institute of Land Warfare Winter Symposium and Exposition, Feb. 22-24 in Fort Lauderdale, FL.

FUTURE CHALLENGES

Freeman emphasized that "this is not a static set of challenges, and this is not a static set of problems."

Every year, Army S&T will reevaluate its priorities with guidance from Army leadership, she said. "We are going to be assessing and bringing to leadership the progress against the top 10 of these efforts and each one of those programs. And we're going to be bringing in the 6.2 things that we found are things we need to work on to do the next round."

New challenges may arise in the process, Freeman said. "My guess is that the set of seven problems won't change much over the years, but the challenges might."

The ultimate test of reinventing Army S&T, Freeman said, "is going to be … actually carrying through, planning the programs, and executing the programs, monitoring the execution and reporting back, and then transitioning them. And I think that there's a better chance than we've ever had before in doing that.

"I'm very pleased and very proud of the community and of all the people who really worked hard to make this change happen. It's a big culture change. I'm very, very pleased with leadership support. The leadership said, 'We're with you … and we think that S&T is important.'

"To me, what is more important than anything else is the impact of what we do. Not the activity, but the result, and getting those results in the hands of Soldiers. I'm very, very happy with this first year. It was not easy, but everyone rose to the challenge."

THE POTENTIAL OF ROBOTICS

CPT Joe Sahl, Special Troops Battalion, 1st Heavy Brigade Combat Team, 1st Armored Division, shakes hands with a robot at the National Training Center, Fort Irwin, CA. (U.S. Army photo by LTC Deanna Bague.)

MARGARET C. ROTH is the Senior Editor of Army AL&T *Magazine. She holds a B.A. in Russian language and linguistics from the University of Virginia. Roth has more than a decade of experience in writing about the Army and more than two decades' experience in journalism and public relations.*

THE SEVEN PROBLEMS

Following are the seven "Big Army" problems identified for Army S&T to tackle, to ensure that Soldiers are the decisive edge.

1. There is insufficient **force protection** to ensure the highest degree of survivability across the spectrum of operations.

2. Soldiers in small units (squads, fire teams, and crews) are **overburdened** (physically and cognitively); this degrades performance and may result in immediate as well as long-term consequences.

3. U.S. Army squads are too often **surprised** in tactical situations. Soldiers in small units lack sufficient timely **mission command and tactical intelligence** to understand where their assets are, who and where the enemy is, and who and where noncombatants are, and to document and communicate this information to each other and higher echelons.

4. We spend too much time and money on **storing, transporting, distributing, and waste handling** of consumables (water, fuel, power, ammunition, and food) to field elements, creating exposure risks and opportunities for operational disruption.

5. Soldiers in small units have limited capability to integrate maneuver and fires in all environments to create the **tactical overmatch** necessary to achieve mission objectives.

6. Operational **maneuverability** (dismounted and mounted) is difficult to achieve in complex, austere, and harsh terrains, and at high operations tempo (OPTEMPO).

7. We do not understand **what makes the human tick** in a way that can lead to assured ability to perform operational, high OPTEMPO missions effectively and without secondary negative effects.

SOURCE: Deputy Assistant Secretary of the Army for Research and Technology.


D&G

THE FUTURE *of* S&T

AL&T professionals reach out to elementary and secondary schools to show students the rewards of science, technology, and engineering careers

by Brittany Ashcroft

Science and technology (S&T) are a part of our everyday lives. Yet educators across the country are battling to inspire and maintain students' interest in science, technology, engineering, and mathematics (STEM) from an early age.

The Acquisition, Logistics, and Technology Workforce is directly involved in promoting STEM programs and education in a number of ways.

As part of a larger DOD Education Activity Educational Partnership Program, which promotes "quality education, seamless transitions, and deployment support for military students through outreach and partnership development," DOD STEM grants provide opportunities and resources for students to participate in STEM curriculum during school hours and in other learning opportunities before and after school.

The immediate payoff is sparking the students' interest. Over the longer term, some of those students may go way beyond learning the basics to become the next generation of scientists, engineers, and mathematicians committed to serving the warfighter.

INVESTING IN OUR YOUTH

Based on this idea, Program Executive Office (PEO) Soldier and its Project Manager Soldier Sensors and Lasers (PM SSL) created "Investing in Our Youth." The goal of the program, launched in 2010 by PM SSL COL Stephanie L. Foster, is to "encourage students to make the powerful choice of studying science, math, and technology throughout their school years."

PM SSL GOES TO SCHOOL

The PM SSL team works with elementary students from Fort Belvoir Elementary School to give them hands-on experience with science and technology used by the Army. The team presents STEM-related programming to students to increase their interest in science and technology as a future career field. (Photos by Michael Clayton, PM SSL.)

Through the use of night vision devices and other PM SSL technology, students get a firsthand look at how STEM fields are interesting and relevant to the world outside the classroom.

The decision to create and implement Investing in Our Youth had its roots in several different arenas, including "cognizance of vibrant STEM education as a national strategic aim; underrepresentation of Americans and select American minorities in STEM-related careers and courses; economic indicators that STEM-related jobs are becoming increasingly promising sources of new job growth; and the realization that too many Americans cannot compete for the STEM-related jobs due to insufficient academic credentials in math and science coursework," Foster explained.

Using its varied resources and technologies, including a highly educated and diverse workforce and high-tech equipment, PM SSL undertook to "join the battle to propel STEM education," Foster said. "Specifically, PM SSL team members would invest meaningful amounts of time, expertise, and energy in using its products to motivate students."

Schools and students chosen to participate in the program are selected based on location, military affiliation, and grade level. Investing in Our Youth originally targeted only schools enrolling the children of military members assigned to Fort Belvoir, VA, where PEO Soldier is based. The students' ages ranged from elementary to high school, but that range has since been narrowed to grades kindergarten through 6. "Students often make important decisions about math and science early in their school years, and we chose to influence these early decisions," Foster said.

While the "wow" factor of using technology such as night vision goggles and thermal sensors appeals to students and teachers alike, the STEM experiences are not all fun and games. PM SSL team members work with faculty members to

SEEING EYE-TO-EYE

COL Stephanie L. Foster, PM SSL, engages students in science and technology on their own level.

SOLDIER SCIENCE
PM SSL staffers present STEM-related programming to elementary school students.

plan and discuss course material and learning strategies appropriate for the students.

First-graders might receive a "mission" to "rescue" toys using night vision goggles in a dark room, prefaced by a grade-appropriate overview of what night vision goggles are and what they do. To answer the "so what?" question typically posed by older students, eighth-graders dig deeper into the technologies, scientific principles, and impact of night vision capabilities, while also engaging in team and individual challenges.

CONTINUING INTEREST

STEM-related opportunities do not stop there. The National Junior Science and Humanities Symposia (JSHS) Program, co-sponsored by the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, the Office of Naval Research, and the U.S. Air Force Office of Scientific Research, aims to challenge and engage students in grades 9-12 through its prestigious scholarship program. Individual students present their original research efforts before a panel of judges and their peers, in addition to taking advantage of hands-on workshops, panel discussions, career exploration, research lab visits, and networking events.

This year's event, held April 27-May 1, boasted more than 360 participants, including 240 high school students who advanced to the national competition after presenting their independent STEM projects at 48 university-held regional symposia. Students competed for various levels of scholarships. First-place winners also were named as representatives to the London International Youth Science Forum, held in July and August.

Winning presentations in the 2011 JSHS included research on "The Use of Sodium Polyacrylate to Increase Crop Production in Dry-Land Farming," "Construction of a Feasible Einstein-Szilard Absorption Refrigeration System," and "Synthesis of Complex Nanostructures for Solar Cells: Analysis using Novel D-SCOPEn."

MEASURING SUCCESS

In JSHS, the "whiz kids" who participate represent some of the best of the Nation's youth, with inquiring minds and a motivation to excel. The program and its sponsors work to encourage these students to become our Nation's future scientific leaders and innovators.

While success in establishing a lifelong interest in STEM-related fields cannot be measured precisely, Foster and the PM SSL team members are seeing more immediate results. For Investing in Our Youth, success is measured both qualitatively—by the atmosphere established in the engagements with students and the attitudes expressed by PM SSL team members, students, and faculty—and quantitatively, through written student and faculty feedback.

For PM SSL, the most meaningful and tangible measure of success was demonstrated in a recent response from a fourth-grade student. During Invention Day at Fort Belvoir Elementary School, the fourth-grader brought in her own invention, a device that would light up when students selected correct responses to math equations. "Invention Day provided her the opportunity to demonstrate innovation and critical thinking," Foster said. "To us, that is a compelling demonstration of success."

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LOGISTICS GIANT

FedEx Founder and CEO offers lessons learned in tough times

Critical Thinking offers perspectives from those outside DOD and the defense industry on issues faced by the Army AL&T community. Our intent is to provide fresh opinion and expertise on difficult challenges.

Our second Critical Thinking Q&A is with Frederick W. Smith, Founder, Chairman, President, and Chief Executive Officer (CEO) of FedEx Corp. Smith is responsible for providing the strategic direction for all FedEx operating companies, which span more than 220 countries with 688 aircraft, more than 90,000 vehicles, and more than 290,000 team members. His guidance affects more than 8.5 million shipments every business day.

In addition to running the $39 billion global transportation, business services, and logistics company, Smith is a member of the Business Roundtable, a Trustee for the United States Council for International Business, a board member for the Council on Foreign Relations and the Startup America Partnership, and Co-chairman of the Energy Security Leadership Council.

Smith has received numerous awards and accolades, including the Circle of Honor Award from the Congressional Medal of Honor Foundation; the 2010 President's Award from the Transportation Research Forum; and the Lone Sailor Award from the U.S. Navy Memorial, among other honors.

A member of the Aviation Hall of Fame, named among the world's best CEOs by Barron's *Magazine, and* Chief Executive *Magazine's 2004 CEO of the Year, Smith has a B.A. from Yale University and served as a officer in the U.S. Marine Corps from 1966 to 1970.*

Following are his thoughts on how the Army can take FedEx's lessons learned and apply them to acquisition, logistics, and technology.

GLOBAL REACH

FedEx has grown exponentionally since its launch in 1973 with 14 aircraft and 186 packages. (Photos courtesy of FedEx.)

Q. The Army is looking for efficiencies in every aspect of its operations. In short, the Army needs to "do more without more." How does the Army's current environment compare to the challenges you have faced at FedEx?

A. I think that what the Army faces today is similar to what FedEx and all organizations are facing—the need to excel with fewer resources. The recession knocked us off the seat of our comfortable assumptions. When that happens, strong organizations look ahead and decide what they will need to do, not just to meet challenges but to come out ahead on the other side. How do you do that? Through stringent examination of products, services, and processes. Through streamlining and eliminating redundancies. Through listening to your stakeholders and concentrating only on those things that add value to their world.

Q. FedEx has been recognized as both innovative and a great place to work; the two must be related. What is the single most powerful driver toward a culture of innovation in an organization of the Army's size and scope?

A. Innovation and being a great place to work are related. If you give your people the training and encouragement to do their jobs well and come up with new ideas, they will enjoy coming to work. Being valued for hard work and good ideas does create a stimulating work environment for most people. As far as what drives a culture of innovation at FedEx and most organizations, it's a combination of dedication to the customer (or to a particular goal); a strong leadership team that shows people how they fit into the big picture; and encouragement/reward for working toward the next great idea.

Q. What can the Army learn from FedEx hiring, assignment, and promotion practices, so that the Army AL&T Workforce can truly provide "the decisive edge" to Soldiers?

A. Hire the best people; give them the tools and training to do their jobs well; then stand back and let them perform. If they deliver excellent results, recognize and reward them and give them bigger challenges. When people feel they are recognized for excelling, they gain the confidence and momentum to do even greater things. And that results in the decisive edge we all need to succeed in the global arena.

Q. Army AL&T strives to provide Soldiers with the latest technology and processes when and where they are needed. How does FedEx meet customer needs and keep the lines of communications open to ensure that customers get the service they need?

A. We talk to our customers constantly. Not only do we keep tabs on how they rate us in terms of quality, service, and performance, but we also talk to them in focus groups to give "texture" to their comments from various surveys and transaction follow-ups. We don't just check in once or twice a year, but on an ongoing basis. Through customers' constant feedback, we can modify our offerings, be they online tools, new shipping services, or better processes. Likewise, the Army can engage in regular conversation with its Soldiers to understand what works, what doesn't, and what else they need.

Q. The Army encourages the application of Lean Six Sigma principles to identify opportunities for greater efficiency and

VOLUME MANAGEMENT

FedEx CEO Fred Smith's guidance affects more than 8.5 million shipments every business day.

effectiveness. How does FedEx approach quality, and how important has it been to the company's success?

A. From the beginning, FedEx has made quality a core value and in the '90s was the first service company to win the Malcolm Baldrige [National Quality] Award. Today we use Quality-Driven Management (QDM) to keep a sharp eye out for gaps, overlaps, and wasted effort. QDM is also essential to design systems of greater flexibility in the event of disasters, political unrest, or work disruptions.

The six QDM principles help us focus on the right things and eliminate nonessential activities.

- Customers Define Quality: Strive to understand customer requirements and expectations.
- Be Scientific: Base decisions on facts and data, not guesses or opinions.
- Measure, Measure, Measure: Measure failures, measure variation.
- Optimize Business Performance: Minimize unnecessary effort, time, and cost.
- Quality Involves Teamwork: See work as a collaborative process.
- View Failures as Opportunities: Seek the truth, and end the blame game.

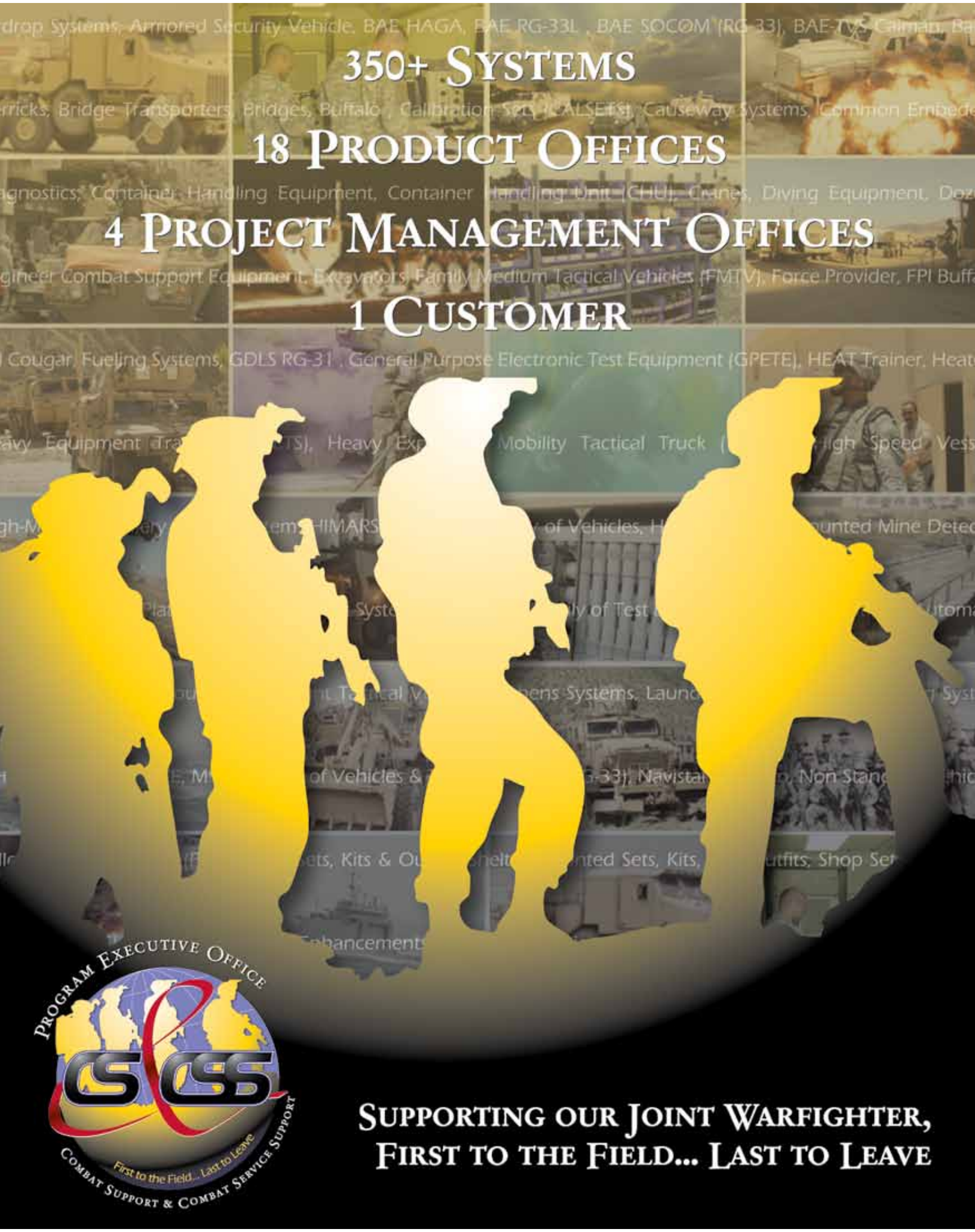
The quality process, no matter which one you use, is a never-ending cycle that enables excellent organizations to keep meeting the challenges of a more demanding global marketplace.

Q. Do you have advice for organizational leaders on how best to prepare for cutbacks in their operations?

A. The most important principle is communication. If circumstances change for the worse and an organization must make hard decisions, the rationale for those decisions must be communicated honestly to all involved.

During the recession, we found it necessary to stop our 401(k) match, suspend bonuses, and reduce salaries for all management and professional staff (but not front-line workers). We explained that volumes were down (any front-line team member already knew that) and that we needed to take difficult measures to save as many jobs as possible. We also said that when our volumes improved, we would restore some of the original benefits. Since the economy has begun a slow but steady growth, we are reinstating some of the pay benefits.

Such communication doesn't make tough decisions pleasant, but at least it helps people understand the business "whys" and possibly the ways in which they can contribute to a solution. ?


350+ Systems
18 Product Offices
4 Project Management Offices
1 Customer
Program Executive Office
Combat Support & Combat Service Support
First to the Field... Last to Leave
Supporting our Joint Warfighter,
First to the Field... Last to Leave

VETTING CONTRACTORS

U.S. Central Command Joint Theater Support Contracting Command is working to vet contractors and subcontracters in Afghanistan prior to award. Here, 1LT Joel Silver discusses a contract with a local leader. The contract allowed the 1st Brigade Combat Team, 10th Mountain Division to hire local contractors and men from the village to build eight buildings for a high school, a well, and a water tower. (Photo by A1C Robert Hicks.)

PROCUREMENT PATH *FORWARD*

New DASA(P) Kim D. Denver outlines Army's strategy for contracting in Afghanistan

Kim D. Denver was appointed in June as the Deputy Assistant Secretary of the Army for Procurement (DASA(P)). In that capacity, Denver manages the Army's procurement mission, including the development and dissemination of policies, processes, and contracting business systems. He directs evaluation measurement and continues improvement actions for more than 270 Army contracting offices worldwide. As the functional career representative for contracting, Denver oversees the recruitment, training, certification, and professional development of the Army's contracting workforce. Denver was previously the Director of Contracting for the U.S. Army Corps of Engineers national contracting organization.

On Sept. 15, Denver testified before the U.S. House of Representatives Oversight and Government Reform Subcommittee on National Security, Homeland Defense, and Foreign Operations. The subject of that testimony was "Defense Department Contracting in Afghanistan: Are We Doing Enough to Combat Corruption?" Army AL&T *Magazine is sharing Denver's opening remarks at the hearing to introduce our readers to the new DASA(P).*

Chairman [Jason] Chaffetz [R-UT], Ranking Member [John] Tierney [D-MA], and

distinguished members of the Subcommittee on National Security, Homeland Defense, and Foreign Operations: Thank you for the invitation to appear today to discuss Army efforts to reduce contracting corruption in Afghanistan. I am pleased to represent Army leadership, members of the Army acquisition and contracting workforce, and our Soldiers who rely on us for timely and efficient materiel, supplies, and services in support of expeditionary operations. In all of our Army contracting operations worldwide, we strive to be responsive to our warfighters, while ensuring proper fiscal stewardship of taxpayer dollars.

MONITORING AFGHAN CONTRACTORS

Vetting host nation contractors is a vital aspect of avoiding corruption. Here, employees at an Afghan First business sew Afghan National Army uniforms at a factory in Kabul. Afghan First is a contracting initiative used by Coalition Forces to help jump-start the Afghan economy; it relies on locally procured products to outfit the Afghan National Army and Afghan National Police. (Photo by LT Russell Wolfkiel, U.S. Navy.)

Contractors have been on the battlefield in every U.S. conflict since the Revolutionary War. When our Army deploys, it depends on civilian support from contractors. As required by Congress, the contractor census is due quarterly, with the next figures available the first week of October.

In the past decade, the challenges for contingency contracting have been unprecedented. We've deployed contractors to theaters where there are questionable established business and ethical standards. Decades of such practices and wartime uncertainty have unfortunately ingrained corruption into the business culture of Afghanistan. In spite of the challenges of this environment, the Army's contracting forces supporting the CENTCOM [U.S. Central Command] strive to uphold the integrity of the procurement process and our fiduciary responsibility to the American public.

We appreciate Congressional interest in contingency contracting represented by several amendments in the current version of the FY12 *National Defense Authorization Act*, as well as the investigative reports last year on host nation trucking and private security contractors.

In light of those investigative reports, CENTCOM established several task forces, including Task Force 2010, to review the circumstances, make recommendations, and provide lessons learned. Army contracting supports CENTCOM by awarding and managing much of the in-theater contract support. Based in part on the findings and recommendations of Task Force 2010 and [now-retired] GEN [David H.] Petraeus' counterinsurgency strategy, the CENTCOM Joint Theater Support Contracting Command [C3] has implemented several improvements and taken action to reduce the flow of U.S. government funds to what we refer to as "bad actors."

IMPROVED OVERSIGHT

Oversight of subcontractors has been a significant concern of the contracting community, the audit agencies, and the Congress. In response to reports, audits, and reviews, C3 has implemented 11 clauses dealing with subcontractors to capture information that will aid in the vetting of contractors and subcontractors prior to award.

It is the responsibility of the contracting officer to choose the best firms during source selections. An important element is the use of past performance information on the contractors being considered. Although we give preference to Afghan firms under the Afghan First program, it has been especially problematic to obtain and maintain past performance data for host nation companies because this is a relatively underdeveloped industry for Afghan vendors. In addition, due to lack of Internet accessibility and bandwidth limitations as well as language barriers, the standard system for collecting this data—the Contractor Performance Assessment Reporting System, which requires vendor input as part of the system—has not been very effective in Afghanistan.

In response, the Joint Contingency Contracting System (JCCS) was developed to capture host nation vendor past performance. JCCS alleviates a number of problems encountered in contracting in Iraq and Afghanistan, from translation and posting of solicitations to currency conversions, tracking past performance, and vetting results. It has proven to be an invaluable tool for contracting in theater.

After contract award, the key to our contract oversight resides with the Contracting Officer Representatives (CORs), who are

VENDOR PERFORMANCE

The Joint Contingency Contracting System was formed to evaluate host nation vendor past performance. Here, an employee at an Afghan First business installs lace eyelets into boots destined for the Afghan National Army, at a factory in Kabul. (Photo by LT Russell Wolfkiel, U.S. Navy.)

on the front lines as responsible stewards of American taxpayer dollars. The Army began a rejuvenation of our COR management and training in December 2009, with the issuance of the Army Execution Order 48-10: *Pre-deployment Training for Contracting Officer Representative Candidates and Commander's Emergency Response Program Personnel*. This order mandated that deploying brigades have as many as 80 Soldiers designated and trained as CORs. As a result, in calendar years 2010 and 2011, the Army Logistics University trained 8,568 CORs. Additionally, the Expeditionary Contracting Command provided augmentation training to 2,317 Soldiers as CORs since October 2010. More than 5,500 CORs, 5,500 Field Ordering Officers, and 2,700 Project Purchasing Officers received theater-specific supplemental training from C3 prior to beginning their assignment.

In addition to training, C3 contracting officers provide CORs with Army-developed tools, such as the COR SmartCard and COR handbooks. Further, the C3 training website contains a number of resources CORs can access. C3 also trains CORs on recognizing and reporting fraud and human trafficking. As a result of these efforts, C3 assigns well-trained CORs to every contract requiring one.

Another measure of effective contract management in a contingency environment is the identification and resolution of performance problems. From October 2010 to April 2011, the C3 Senior Contracting Official in Afghanistan issued 74 terminations for default after identifying performance problems.

VETTING OF CONTRACTORS

The vetting of host nation contractors is a key element in fighting corruption and ensuring security for U.S. warfighters, civilians, and contractors, as well as the security of the reconstruction in Afghanistan. It is critical that we ensure the contractors are competent and they have no ties to bad actors. It is equally important to vet the local national individuals seeking access to our bases and construction sites as contractor employees.

It has been a struggle to create a vetting process for a country that lacks universal identification criteria. To address this issue, the collection and use of biometric information provide the most reliable means to ensure security. While this data collection is time-consuming and the project is still relatively new, within the first months of use, several positive matches on individuals requesting base access proved the project's value. The continued use of contractor vetting and biometric identification will enhance security for our personnel and sites.

Vetting contractors and individuals reduces the risk to contracting with bad actors, creates a more secure environment, and therefore helps reduce overall contract performance risk. In August 2010, a vetting cell was established at CENTCOM Headquarters in Tampa, FL, to evaluate prospective non-U.S. contractor firms in Afghanistan. Non-U.S. vendor information on all contract awards and options above $100,000 is tracked in the JCCS system, along with past performance information to prevent future awards to nefarious contractors. We continue to improve and refine our systems and processes.

NEW TRUCKING CONTRACT

An important tenet of the counterinsurgency strategy is to increase awards to Afghan companies. Our intent is to create an environment for Afghan companies to compete. The National Afghan Trucking (NAT) contract responds to this requirement. Let me take a moment to provide an update on our actions in addition

to the aforementioned oversight and vetting improvements.

NAT keeps Soldiers and Army trucks off the roads and frees Coalition Forces to combat the Taliban directly, reducing overall troop requirements.

This new transportation contract was awarded by C3 last month and includes stricter oversight and performance controls than the previous Host Nation Trucking (HNT) contract. Chairman Chaffetz, Congressman Tierney, we paid serious attention to Congressional recommendations made last year, including the findings and recommendations from this Committee in your *Warlord, Inc*. report [*Warlord, Inc.; Extortion and Corruption Along the U.S. Supply Chain in Afghanistan*]. NAT ensures greater transparency into subcontractors and includes a code of ethics, significantly expands the number of prime contractors, ensures prior vetting, and establishes a tiered rate structure based on security requirements and separates contracts into suites to encourage smaller and local companies to participate.

The HNT contract ends today [Sept. 15]. Execution of the NAT contract begins tomorrow, Sept. 16. The increase in the number of available contractors from 8 to Ø enables greater competition, leading to more work for companies that perform responsibly and the flexibility to suspend problem contractors while meeting total mission needs. The additional prime contracts also facilitate the development of the trucking industry in Afghanistan. The new NAT contract also provides separate pricing for transport services based on whether private security contractors [Þ C] or Afghan Public Protection Forces are required, or if no security is required.

NAT addresses Congressional recommendations on the role of Afghan National Security Forces in highway security, inventories actual trucking assets available to DOD by creating "suites" of contract requirements, ensures transparency and vetting of all contractors and subcontractors, provides oversight of all contracts to ensure transparency and performance, and addresses PSC past performance. As a result, NAT reduces costs, pays only for services performed, incentivizes early completion, improves oversight and performance, and further supports our warfighters in the field.

IMPROVING CONTRACTOR PERFORMANCE

The new DASA(P), Kim D. Denver, outlined what his office is doing to combat contracting corruption in Afghanistan during recent testimony before a U.S. House of Representatives subcommittee. (Photo courtesy of DASA(P).)

CONCLUSION

The endemic corruption in Afghanistan remains a challenge to our contracting personnel. The anti-corruption task forces now operating in Afghanistan have had a positive impact on the ability of contracting offices to operate effectively. The Army appreciates the impact that these task forces have had in improving the contracting environment. Task Force 2010, the FBI's International Contract Corruption Task Force, the Army Criminal Investigation Division's Afghanistan Fraud Detachment Major Procurement Fraud Unit, the Department of Justice's Major Crimes Task Force, the Afghan Threat Finance Cell, and Task Force Spotlight have all played a role in helping to reduce corruption of government contracting in Afghanistan. However, combating contracting corruption is a continual process. It will take time to change the environment, while simultaneously providing pre-deployment training of Army personnel to ensure that they understand how to deal with the cultural differences in Afghanistan to improve or correct questionable practices.

Army contracting continues to identify more effective ways to ensure that we get the most value for our contracting dollars and the most effective support for our warfighters. I cannot stress enough the complexity of managing countless requirements, overseeing tens of thousands of contractors, and awarding billions of dollars in procurements in an environment that is hostile and corrupt on many levels. Not only is physical security still tenuous, but the business and financial environment, educational level, technology, and infrastructure—though improving—form a gauntlet of obstacles making contract oversight more difficult.

Our dedicated contracting workforce, both military and civilian, will continue to carefully assess lessons learned in these challenging missions while we make improvements, adjustments, and seek innovative solutions to enhance mission success. The U.S. Army remains committed to the protection of the interests of the United States, our warfighters, and our taxpayers through excellence in all contracting activities.

SERVING THE ACC
Kathy Valentine, Contracting Officer, deployed to Afghanistan with the ACC Deployable Cadre. (U.S. Army photo.)

A RISK WORTH TAKING

Deployable Cadre Program provides U.S. Army Contracting Command employees on short notice for missions in theater

by COL Jack Cunnane (USA Ret.)

"THE PROGRAM OFFERED ME AN OPPORTUNITY TO TAKE RISK."

Within six months, the U.S. Army Contracting Command's (ACC) Deployable Cadre Program has built a standing roster of ACC-qualified employees ready to deploy at a moment's notice.

Civilian and military contracting specialists are increasingly in demand to support critical contracting requirements around the world. Whether for military operations, counterinsurgency, life support systems, or emergency disaster relief, contracting specialists are always needed.

The ACC Contingency Support Center serves as the command's resourcing focal point for all contingency operations overseas and natural disaster relief in the United States. The mission of the Deployable Cadre Program is to have the immediate capacity to deploy contract management support when needed. The command is prepared to respond quickly and effectively with highly qualified personnel.

Because of the overwhelming response to its request for employees, ACC could support more than just the initial requirements. ACC reached out to the Defense Contract Management Agency (DCMA) to provide deployment opportunities for ACC acquisition personnel and to support DCMA's burgeoning operational contracting mission.

ACC and DCMA signed a memorandum of agreement in April specifying that ACC will support seven DCMA Afghanistan positions on an ongoing basis as volunteer pools and Army contingency tasking allow. The seven positions consist of three contract specialists, two property specialists, and two quality assurance specialists to perform duties in DCMA Afghanistan. Typically they deploy for 179 days, but specific assignment and mission requirements may require a longer deployment. As of September, ACC had provided DCMA with 11 employees to perform contingency contracting duties for DCMA, as well as to support ACC contingency requirements.

To establish a standing personnel roster, the center actively promoted the benefits of serving in the Deployable Cadre Program through command information channels and social media outlets. The financial benefits offered vary considerably, based on the deployed location. Generally speaking, volunteers are eligible for Foreign Post (Hardship) Differential; Danger Pay (except in Kuwait); and Overtime/Premium Pay, based on the mission (not guaranteed) for current OCONUS deployment locations. In addition, a Relocation Incentive may be offered for specific, hard-to-fill positions.

The workdays can be long, and the absence of one's favorite coffee may be felt keenly. The noise of a Counter Rocket, Artillery, and Mortar system can certainly be jarring. But Cadre volunteers say that the rewards of volunteering for the program are numerous, both tangible and intangible, and that the work is so absorbing that time flies.

"The ACC Deployable Cadre Program offered me an opportunity to take risk and develop my skill set in a contingency environment. I was ready to explore another facet of the 1102 career field, and the Cadre program helped me take that first step," said Kathy Valentine, a Contracting Officer assigned to ACC in Afghanistan. "While the money is great being deployed, the knowledge you gain is priceless," she added.

"To work alongside the warfighter is to see American's finest who leave their families, go into the field at great personal risk, and still maintain a sense of humor. I have the deepest respect and admiration for what I've seen them accomplish," said Lynn Roberts, a Contract Specialist assigned to ACC in Afghanistan.

The ACC Contingency Support Center continues to recruit for the Deployable Cadre Program. The program is currently open to ACC employees serving in the 1102, 1103, and 1910 job series. The basic eligibility criterion is *Defense Acquisition Workforce Improvement Act* Level II certification, although occasionally opportunities are available for individuals with Level I certification. Volunteers are selected for deployment based on any unique skills or qualifications required for the specific position and the length of time they have been in the program, on the principle of first-in, first-out, subject to mission requirements.

For more information, visit **http://www.armyhire.com/volunteer**.

COL JACK CUNNANE (USA Ret.) is Director of ACC's Contingency Support Center. He holds a B.S. in business management from Plymouth State University, an M.S. in computer systems management from George Washington University, and an M.S. in national resource strategy from the Industrial College of the Armed Forces. Cunnane is Level III certified in contracting and program management and is a member of the U.S. Army Acquisition Corps.

IMPROVING ACQUISITION

Army to implement 63 recommendations of Decker-Wagner review

by C. Todd Lopez

INFORMATION GATHERING

Former Army Acquisition Executive Gilbert F. Decker (center left) takes members of his Army Acquisition Review panel on a visit to Aberdeen Proving Ground, MD. Decker co-chaired the panel tasked with offering suggestions for improving the acquisition process. (U.S. Army photo by David McNally, U.S. Army Research, Development, and Engineering Command Public Affairs.)

The Army will implement 63 of the recommendations put forth in the final report of an Army acquisition review that was chartered by Secretary of the Army John McHugh.

Since 1996, the Army has spent more than $1 billion a year on programs that ultimately were canceled. Since 2004, that number has been between $3.3 and $8 billion a year—anywhere from 35 to 42 percent of the Army's development, testing, and evaluation budget.

Those details and proposed solutions to improve the Army's acquisition community are outlined in a report released July 12 by the Army.

The report, *Army Strong: Equipped, Trained and Ready*, is the result of the Army acquisition review McHugh chartered to look into the Army's acquisition processes.

The panel that produced the report was co-chaired by Gilbert F. Decker, a former Army Acquisition Executive, and GEN (R) Louis C. Wagner Jr., the now-retired former Commanding General of the U.S. Army Materiel Command.

FOUR CHALLENGES

In the report, Decker and Wagner say that the Army needs to continue to field the best equipment to Soldiers, but that there are four challenges to meeting that requirement. Chief among those challenges is that core competencies of the requirements and acquisition community have eroded over the past 20 years and are "in urgent need of repair."

The report says the number of personnel overseeing the acquisition process is rising, while the number of "qualified, accountable professionals charged to develop and produce the product" is going down.

Also a challenge, the report says, is the non-collaborative nature of the acquisition process; it cites "multiple opportunities for oversight staffs to question and challenge requirements." Approval time for major acquisition programs can run anywhere from 15 to 18 months, the report says, and the challenges of synchronizing the acquisition cycle with the budget cycle can mean that "program starts can occur two to three years after the operational need was identified."

The Army acquisition process "has proved ineffective and inefficient," the report concludes, and well-intentioned steps to improve it have been "counterproductive." It goes on to say that "even with this laborious process, new weapon systems continue to enter engineering and manufacturing development prematurely with technological risk, leaving a legacy of program cost overruns, reduced quantities fielded, and terminations."

RECOMMENDATIONS

More than 70 recommendations were put forth in the Decker-Wagner report to improve the Army's acquisition process.

The Secretary of the Army wrote in a July 15 memo that the Army would implement the 57 recommendations that it could carry out on its own and would address six additional recommendations that required input from outside the Army.

McHugh appointed Thomas E. Hawley, Deputy Under Secretary of the Army, to lead implementation of the recommendations.

"After 10 years at war, it's time to retrench and look at how and what we are doing" in acquisition, Hawley said, adding that the acquisition of weapon systems is "extraordinarily complex" and that procurement of any system requires "constant scrutiny and adjustment."

"WHAT WE ARE DOING NOW THAT'S DIFFERENT IS LOOKING AT THE TRADE SPACE BEFORE WE SAY WE WANT THIS CAPABILITY.

THE ARMY IS ABSOLUTELY DEDICATED AND COMMITTED TO AN AFFORDABLE, ACHIEVABLE, AND REALISTIC APPROACH TO ACQUISITION."

The Army Acquisition Review is a start to fixing acquisition, he said. "We see this study as a useful framework for our internal reform efforts, and we will address each issue in some way."

LIMITING PARAMETERS

Among the recommendations the Army will implement is to limit the number of key performance parameters and key system attributes (KSAs) in acquisition programs.

In its report spelling out which of the Decker-Wagner recommendations it will implement, the Army acknowledges that "the number of key performance parameters and key system attributes in requirements documents has a significant impact on cost and schedule."

The Decker-Wagner report recommends giving industry the flexibility to provide the government cost-effective and timely designs by making KSAs "tradable." Industry might be able to say, for instance, that if the Army were willing to accept a design that didn't meet all of its requirements, a design could be produced at less cost or in a more timely manner than if all KSAs had to be met.

"Industry must have flexibility in trading KSAs in order to drive designs to cost-effective proposals that can be achieved on realistic timetables," the Army wrote in its report. "In developing requests for proposals for future systems, the Army must carefully tailor KSAs that support the acquisition strategy by establishing threshold and objective values for each."

REALISTIC REQUIREMENTS

Heidi Shyu, Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology, spoke specifically about the requirements for developing Army systems. She said it is important for the Army to keep in mind what is possible when developing requirements documents.

"What we are doing now that's different is looking at the trade space before we say we want this capability," Shyu said. "The Army is absolutely dedicated and committed to an affordable, achievable, and realistic approach to acquisition."

Shyu said that when asking for capabilities in a new system, the technology might not be mature enough to support them.

"[When] you are pushing the envelope to achieve the capability you'd like to have with immature technologies, that takes time to develop," she said. "The schedule stretches, and you have an optimistic schedule you can't achieve."

Schedule slips cost money, she said. "What are the knobs we can turn to dial down our appetite? Understanding that is absolutely tantamount to designing and developing a program that is achievable and affordable and realizable."

EFFORTS UNDERWAY

The Army is already engaged in practices to overhaul its acquisition programs, Shyu said, adding that the Army welcomes the Decker-Wagner report's findings.

Among efforts already underway is an increase in competitive prototyping before acquisition Milestone B decisions. This means that competing vendors on a project might provide prototype vehicles for extensive evaluation before the Army downselects to fewer vendors on a contract. Thus, any bugs can be worked out before a program moves into production.

Also underway is an increase in the purchase of technical data packages (TDPs) from defense contractors. The TDP is the body of technical, scientific, research, and engineering data and schematics that industry has produced in developing a product. The Army can purchase the TDP and, with full ownership, can recompete for production at lower costs.

Shyu also cited the Army's Capability Portfolio Reviews (CPRs) as a cost-cutting measure. CPRs look at the entire range of what the Army already has in a given capability area to find redundancies.

Another Army effort is looking to industry for capabilities that are already developed, such as commercial-off-the-shelf technologies.

"There are things we can leverage from the commercial industry," said Shyu. Computer processors would fall into that category. But munitions, for instance, are something that she said only the Army has a real interest in developing.

C. Todd Lopez is a DOD civilian who writes about Soldiers, Army programs, and Army policy inside the National Capitol Region for the Defense Media Activity-Army.

MULTIYEAR PROGRAMS

The Paladin Integrated Management program is expected to implement multiyear contracts in FY12. The Decker-Wagner report recommends using multiyear contracts for stable programs. (U.S. Army photo by Office of the ASAALT.)

IMPROVING ACQUISITION TRAINING

A Decker-Wagner review recommendation suggested providing U.S. Army Acquisition Corps members the opportunity for "re-greening" through participation in courses at the U.S. Army War College and Command and General Staff College. Here, GEN Peter W. Chiarelli, Vice Chief of Staff of the Army, talks about the effects of war as part of the Army War College's Anton Myrer Army Leadership Day last October, the capstone event for its Strategic Leadership course. (U.S. Army photo by Tom Zimmerman, U.S. Army Training and Doctrine Command.)

From Recommendations to Action

The Army has committed to implementing 63 of the 76 recommendations from the Army Acquisition Review panel as set forth in the Decker-Wagner report. The final report is available at **http://usarmy.vo.llnwd.net/e2/c/downloads/213465.pdf**. Detailed information on the implementation process and the 13 recommendations the Army is not implementing are at **http://usarmy.vo.llnwd.net/e2/c/downloads/213466.pdf**.

The 63 accepted recommendations are as follows:

1. 0: Charter a task force co-chaired by the Under Secretary of the Army and Vice Chief of Staff of the Army (VCSA) to ensure the implementation of these recommendations.

2. 1.1: A U.S. Army Training and Doctrine Command (TRADOC)-led Integrated Capabilities Development Team with personnel from the Army Staff and Secretariat, U.S. Army Materiel Command (AMC), U.S. Army Test and Evaluation Command, and other Army commands should collaboratively develop requirements documents for Army Requirements Oversight Council approval.

3. 1.3: Reduce the current practice of serial (sawtooth) TRADOC-Army-Joint staffing and approval of requirements, acquisition, and testing documents.

4. 1.4: The CSA should recommend that

the Joint Chiefs of Staff (JCS) terminate the current Joint Capabilities Integration and Development System process or require collaboration by J8 and appropriate Joint Staff with the Army during the requirements development process.

5. 1.5: Institutionalize rapid acquisition in policy guidelines and amend Army Regulation 71-9 to support rapid acquisition in response to operational needs statements from combatant commanders during quiescent periods.
6. 1.7: Synchronize TRADOC and Army requirements approval, Material Development Decision (MDD), Milestone (MS) A, and MS B decisions to align with the DA Program Objective Memorandum (POM) and budget development schedules.
7. 2.1: Limit the number of key performance parameters and key system attributes (KSAs).
8. 2.2: Establish threshold and objective values for KSAs to enable tradeoffs.
9. 2.3: Obtain initial system cost parameters from G-8 and the Deputy Assistant Secretary of the Army for Cost and Economics prior to MDD.
10. 2.4: Include MANPRINT metrics and considerations in the Systems Engineering Plan and Analysis of Alternatives (AoA).
11. 2.5: Involve the test community in developing and costing the test strategy before MS A.
12. 2.8: Encourage and fund competitive pre-MS B prototyping of systems, subsystems, and components.
13. 2.9: Expand use of fixed-price and incentive-fee contracts consistent with risk type.
14. 2.10: Expand the acquisition of the technical data package (TDP) during the development stage, when the government has the most leverage, and compete using the TDP during system acquisition and sustainment phases consistent with the estimated risk-reward.
15. 2.11: Limit documents to those shown in the risk management matrix for a given acquisition type.
16. 2.14: Request that the Office of the Secretary of Defense (OSD) and Congress revise the Nunn-McCurdy Act so that a system block improvement or increased procurement quantity will not cause a breach of the Nunn-McCurdy threshold.
17. 2.15: Adhere to Technology Readiness Level definitions to assess technological risk.
18. 2.17: Give priority to vertical technology insertion and horizontal technology integration of proven advanced technologies via evolutionary acquisitions with growth capacity.
19. 2.18: Reestablish the difference between independent research and development (IRAD), and bid and proposal.
20. 2.19: Increase Army visibility into contractor's IRAD programs, but site reviews should be to exchange information, not be just a grading exercise.
21. 2.20: Build high walls around small, critical areas, rather than subjecting commercial products to International Traffic in Arms Regulations restrictions.
22. 2.21: Continue strong participation in the export control process.
23. 3.2: Codify the conduct of Capability Portfolio Reviews (CPRs) in an Army Regulation, with VCSA and the Army Acquisition Executive co-chairing Session 1.

COMMUNICATING WITH INDUSTRY

The Decker-Wagner review suggested an improvement in communication between Army leadership and industry. Here, MG Nickolas G. Justice, Commanding General, U.S. Army Research, Development, and Engineering Command, exchanges information with an industry member at an Armed Forces Communications and Electronics Association luncheon last September in Washington, DC. (U.S. Army photo by Deborah Elliott.)

24. 3.4: Seek OSD and congressional approval of Program Executive Office (PEO) Soldier and Small Unit recommended consolidation and alignment of funding lines for PEO Soldier programs.

25. 3.5: Synchronize the Army Science and Technology Advisory Group and Army Science and Technology Working Group cycle with the POM submission cycle.

26. 3.6: Improve the alignment among the PEO structure, Equipping Program Evaluation Group, battlefield operating systems, CR s, and TRADOC Centers of Excellence (CoEs).

27. 3.7: Rebuild the highly efficient and effective triad of the military Department of the Army Systems Coordinator (DASC), System Synchronization Officers, and Program Analysis and Evaluation.

28. 3.8: Set time limits for document review and decision. Hold staff accountable.

29. 3.9: The life-cycle management commands' commanding generals should retain their Head of Contracting Activity role, depots, Integrated Materiel Management Center, and item manager functions.

30. 3.12: The Contract Management Office should promulgate policy and develop metrics for line and staff accountability in the "Big A."

31. 3.13: The Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) should request that the Assistant Secretary of Defense for Acquisition direct the Defense Acquisition University (DAU) to establish an accountability course for PEOs, program managers (PM s), TRADOC capability managers, and other personnel involved in the "Big A."

32. 3.14: Stress the importance of having value-added reviews, and hold integrated product teams and their individual members accountable for their actions.

33. 3.15: Clarify "inherently governmental position" criteria and reduce "gray area" acquisition positions.

34. 3.16: Army leadership should improve communication with industry.

35. 3.17: Consider a partnering relationship with industry to solve issues short of formal protests.

36. 4.1: Reestablish the position of the Deputy Under Secretary of the Army for Operations Research and staff the office with nine people, including three military analysts.

37. 4.2: Increase the authorizations and fill of Functional Area 49 [Operations Research/Systems Analysis (ORSA)] military analysts needed to support Army acquisition.

38. 4.3: Combine analytical capability within AMC (Army Materiel Systems Analysis Activity (AMSAA), Survivability and Lethality Analysis Directorate, and Logistics Support Activity) into a single organization.

39. 4.4: Direct TRADOC to conduct an in-depth review of the required and authorized capability development personnel, including scientists and ORSAs and cost analysts at the U.S. Army Capabilities Integration Center, (ARCIC), TRADOC Analysis Center (TRAC), and CoEs with a recommended minimum team of seven ORSA analysts available at each CoE's Capabilities Development Integration Directorate, and a minimum of five cost analysts at the ARCIC.

40. 4.5: Establish a Center for Army Acquisition Lessons Learned within the Center of Military History.

41. 4.6: Require an after-action review after every milestone decision and program-critical event, and a lessons-learned report after program MS C or cancellation.

42. 4.7: Establish and resource a Directorate for Advanced Systems at the U.S. Army Aviation and Missile; Communications-Electronics; Tank Automotive; and Natick Soldier Research, Development, and Engineering Centers.

43. 4.8: Assign a concept manager from the PEO or DASC prior to MS A for Acquisition Category (ACAT) I programs.

44. 4.9: Establish a data-informed process for balancing acquisition workforce requests, supply, and quality.

45. 4.10: Increase the number of qualified systems engineering, cost estimating, quality assurance, and ORSA personnel in the "Big A."

46. 4.11: Leverage Federally Funded Research and Development Centers and University Affiliated Research Centers to make up for the shortfalls in the Army's system engineering and analytic capabilities until the bench is replenished.

47. 4.13: Establish an ASAALT Deputy Assistant Secretary for Services with a small staff for services acquisition, with similar responsibilities, authorities, and accountability to those of the ASAALT deputy for weapon systems.

48. 4.14: Complete implementation of Gansler recommendations [from the *Report of the Gansler Commission on Army Acquisition and Program Management in Expeditionary Operations*], to include recommended improvements in services contracting.

49. 4.15: Fully support the ASAALT initiative to add "Contracting for the Non-contracts Professional" course recently added to the HQDA "How the Army Runs" course.

50. 4.16: Improve the quality of program, project, and product management.

51. 4.17: Improve qualifications of TCMs.

52. 4.18: Provide U.S. Army Acquisition Corps (AAC) members an

opportunity for re-greening through full resident participation at the U.S. Army War College and Command and General Staff College, and short assignment of potential PMs to staff positions in operational units.

53. 4.19: Increase AAC members' experience and understanding of high technology.

54. 4.20: Request a DAU course for PEOs, PMs, and contracting officers on how industry is run, including familiarity with the financial "top" and "bottom" lines.

55. 14.21: Actively solicit assignment of highly qualified Army officers to key OSD and JCS positions.

56. 4.22: Increase AMSAA and U.S. Army TRADOC Analysis Center (TRAC) base funding to reduce reliance on reimbursable funding from the current 40 to 20 percent.

57. 4.23: Increase both AMSAA and TRAC funding by $10 million per year to conduct AoAs.

58. 4.24: Continue to resource the DA program for data collection and development of scenarios, models, and simulations to support systems analysis in stability and irregular warfare operations.

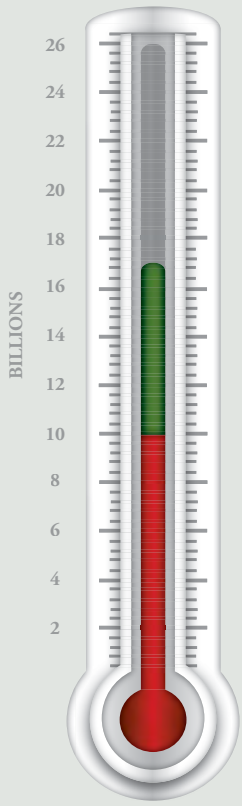
59. 4.25: Fully support the DOD Human Social, Culture, Behavior Modeling Program to integrate human behavior into Army models.

60. 4.26: Develop needed analytic portfolio management tools for the G-8 and CPRs.

61. 4.27: Fence the funds, or fund with a "capital account," six or fewer key ACAT I programs.

62. 4.28: Invest upfront for Integrated Process and Product Development and Operations and Support cost reduction to generate future production and sustainment cost savings.

63. 4.29: Increase the use of multiyear contracts on stable contracts.



CURRENT TOTAL
$17 BILLION

COST SAVINGS
$7 BILLION

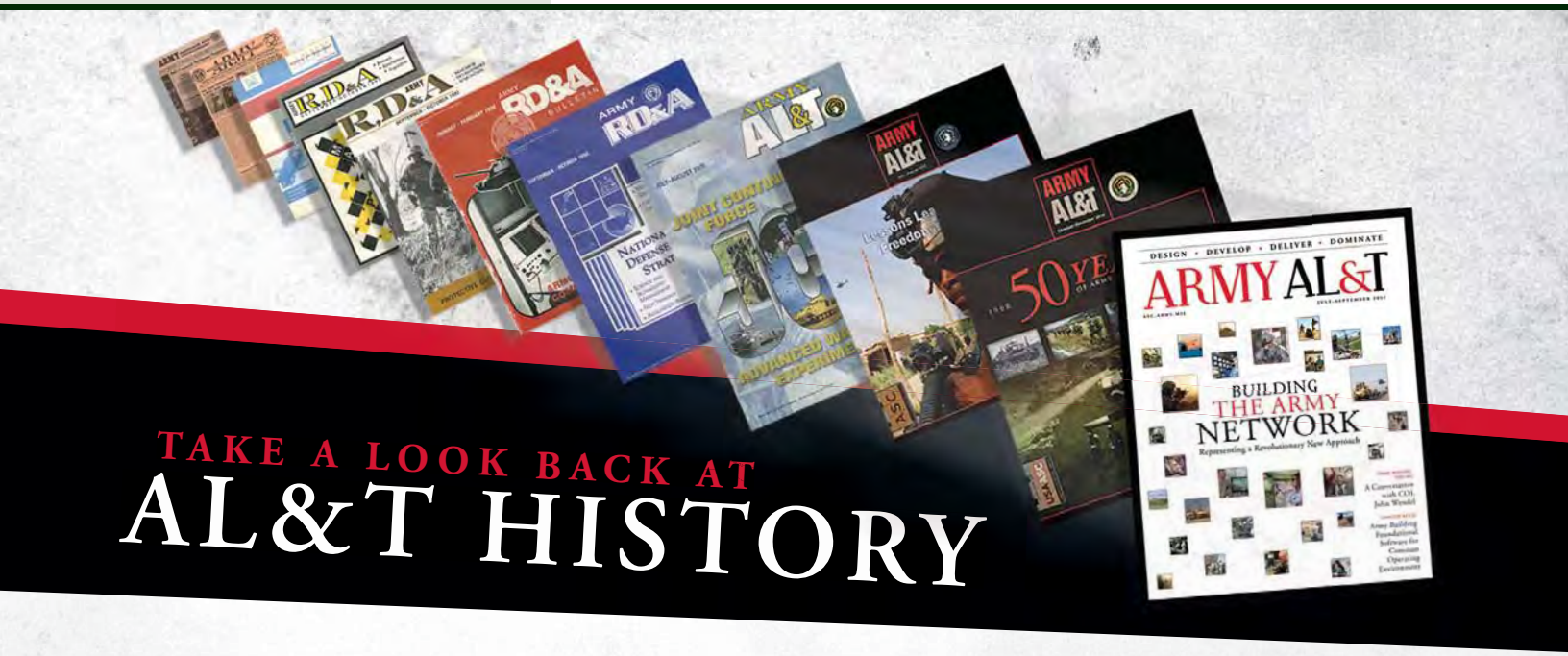
COST AVOIDANCE
$10 BILLION

DOLLARS & SENSE

The Army is facing very challenging times, with tremendous pressure to meet warfighter needs with reduced manpower, funding, and contractor support. To meet this challenge, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) is committed to identifying cost savings and/or avoidance in all areas of Army Acquisition. ASAALT's Business Transformation Directorate aims to do so by systematically increasing quality, productivity, reliability, and safety, while reducing costs and cycle time across the total life-cycle value chain. Starting with this issue, Army AL&T *Magazine is tracking this effort by indicating the current cost savings and avoidance totals on a thermometer.*

The ASAALT would like to congratulate the executives, leaders, supervisors, and teams for exceeding the goal of saving an amount equal to 3 percent of the FY10 base budget, a total of $771 million. As of July 31, ASAALT organizations had completed 217 Continuous Performance Improvement projects and identified more than $7 billion in cost savings and $10 billion in cost avoidance in FY11.

For more information, contact Dr. Nancy Moulton, Director for Business Transformation, at **nancy.a.moulton@us.army.mil**.



TAKE A LOOK BACK AT AL&T HISTORY

Looking for a particular story from *Army AL&T* Magazine? Doing research on an AL&T-related topic? Check out the new, digital *Army AL&T* Magazine archives!

Army AL&T Magazine's full archives are now available online. From the first issue of Army RD&A in December 1960 to the present, readers can search by year, specific issue, or topic. Go to:

http://live.usaasc.info/magazine/alt-magazine-archive/

TOY TRUCKS ON PATROL

Remote-controlled truck saves Soldiers' lives in search for IEDs

by Brittany Ashcroft

READY FOR PATROL

SSG Chris Fessenden has found great value in remote-controlled (RC) trucks, such as this one outfitted with a wireless camera. The trucks check for improvised explosive devices and other suspicious items. (Photos courtesy of Ernie Fessenden.)

A group of Soldiers in Afghanistan has a remote-controlled (RC) truck to thank for saving their lives.

Outfitted with a wireless camera to allow Soldiers to inspect suspicious objects while remaining a safe distance away, the sand-colored RC truck—16 inches long, a foot wide, and 9.5 inches high—fulfilled its mission during a patrol in Afghanistan in August. Soldiers on patrol, who had borrowed the truck from SSG Chris Fessenden of the 58th Military Police (MP) Company, 728th Battalion, 8th MP Brigade saw a suspicious area and were looking for an alternate route. The patrol was navigating the truck around the area when it hit a tripwire rigged to nearly 500 pounds of explosives and saved the lives of the six Soldiers on patrol.

SMALL AND ACCURATE
SSG Chris Fessenden navigates the customized RC truck.

"I immediately was just shocked," said Ernie Fessenden of Rochester, MN, Chris' brother, of his reaction to hearing the truck had exploded. "Chris sent me a message that the truck had found its last IED. It was very much, 'Is Chris okay?' 'Are the people he loaned the truck to okay?' and then, 'If I sent another truck, would you use it?'"

After the original truck met its demise, Ernie worked quickly with local hobby shop owner Kevin Guy of Everything Hobby in Rochester, and the nonprofit organization Trucks to Troops, which collects donations to create and ship the trucks and works on customizing them for Soldiers, to get two more trucks to Chris and the other Soldiers.

MOVING IN ON IEDS

While this was the first time it had tripped explosives, the four-year-old customized truck had spent just over a year on "active duty," helping Chris and other Soldiers check for IEDs and other suspicious items in Iraq and Afghanistan.

THE PATROL WAS NAVIGATING THE TRUCK AROUND THE AREA WHEN IT HIT A TRIPWIRE RIGGED TO NEARLY 500 POUNDS OF EXPLOSIVES AND SAVED THE LIVES OF THE SIX SOLDIERS ON PATROL.

The RC toy truck's story began in 2007 when Ernie and Chris were talking about Chris' daily duties. At that point, when Chris was stationed in Iraq near Baghdad, his responsibilities included inspecting vehicles for explosives.

"We were shooting ideas back and forth, and back then, it became widely known that insurgents were using IEDs, whether they were hiding them on the side of the road or putting them in vehicles," Ernie said. "We wanted to know how we can help make it so Chris gets home."

While the brothers ran through a gamut of ideas, from the realistic to the far-fetched, they centered on one of Chris' pressing problems—getting up close to examine a suspicious item or area, particularly underneath a vehicle, while remaining safe. The two asked, "How can we look closer without actually being closer?"

Having an interest in RC vehicles, Ernie knew that people had been placing cameras on RC cars for various purposes. After deciding that mounting a camera on an RC car would be the most worthwhile

> "WE'RE NOT TRYING TO REPLACE ANYTHING; WE ARE JUST GIVING THEM ANOTHER TOOL TO DO THEIR JOB, AND MAYBE WE CAN GET A FEW MORE SOLDIERS HOME."

and cost-effective solution, Ernie talked to Guy, of Everything Hobby, who helped him bring the idea to fruition.

Now, advances in technology—for both the cameras and trucks—have allowed Guy, Ernie, and Trucks to Troops to create trucks better suited to specific situational needs.

New, watertight trucks have made maintenance much easier. Since the original truck model's electronic components were not sealed very well, the Soldiers would have to take the truck apart and clean it every couple of days, Ernie explained. "Traxxas [the truck manufacturer] made the [newer] trucks so they could run through mud puddles, but it has helped with how we are using them as well." In addition, cameras, which are a separate component of the customized truck, have better range and more features for the same price as earlier models.

TRUCKS TO TROOPS

The creation of Trucks to Troops has also helped the effort to get these RC trucks to Soldiers overseas, lowering costs and allowing people to donate funds to help. "If I do it myself, it costs $200 for the truck, about $200 for the camera, and $50 for shipping," Ernie said. "Trucks to Troops as an organization can get things directly from the manufacturer, so parts are cheaper but shipping is the same. With that, we almost doubled the amount of trucks we can send for the same amount of money."

All of that combined has allowed Trucks to Troops to fulfill Chris' request for six more trucks in response to demand, with even more going to other Soldiers and locations. "We are sending out 20 to 30 trucks pretty soon," Ernie said. "Some Soldiers don't even want the camera. They want the truck because they have a different use for it, so we sent some that way as well."

While the truck has proved effective, it was not designed to replace current or future military technology. "We get some feedback that this will never replace good military training or optics," Ernie added. "And they are right. We're not trying to replace anything; we are just giving them another tool to do their job, and maybe we can get a few more Soldiers home."

For more information on Trucks to Troops, visit **http://truckstotroops.com**.

NOT JUST ANY TRUCK
An RC truck is outfitted with a wireless camera.

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has a B.A. in English from Elmhurst College.


III
APACHE
BLOCK III
APACHE
AH-64D
APACHE LONGBOW
PROJECT MANAGER
PRODUCTION ROLL OUT
COMING NOVEMBER 2011
Performance Enhancements
- Improved Drive System
- 701D Engine
- Composite Main Rotor Blade
- Improved Open System Architecture
Situational Awareness
- Level IV UAS Control
- Link 16 / Joint Interoperability
- Improved Targeting / Range
- IMC / IFR
Survivability / Sustainability
- New Fuselage
- Crew Workload Reduction
- Embedded Diagnostics/Prognostics

COMMENTARY

FROM THE DIRECTOR,
ACQUISITION CAREER MANAGEMENT
LTG WILLIAM N. PHILLIPS

Leader Development: SUCCESS IS A JOURNEY

The U.S. Army is the Nation's preeminent leadership experience. This is true not only because of the responsibilities and authorities we invest in our leaders while they are deployed, but also because of the investment we make in their development throughout their careers. Within the Army acquisition community, there are numerous opportunities to grow and take on positions of greater responsibility. It is important to be ready, to prepare for leadership by staying current with your studies and completing additional training opportunities to add to your portfolio of accomplishments. In addition, through the years, I have compiled a list of leadership qualities that I would like to share with you.

The first and perhaps most obvious quality of leadership is the need to have a vision. You must be able to see beyond daily tasks and problems and discern a world of possibilities and potential to take your organization to the next level of excellence. You must see what others do not or cannot, and you must be prepared to act on your vision to bring about change.

Next, you must have strength of purpose and belief in a cause that reaches out to others and makes them eager to follow. If change is to take place, leadership must empower a broad base of people to take action. Never underestimate the power of a trained and ready workforce.

In any leadership position, it is important to learn to work within the bureaucracy and to realize and effect change where necessary. The Army acquisition community is immersed in a series of improvements to procurement practices such as streamlining requirements, better managing cost and schedule issues, integrating new technologies before they are sent to theater, and working more closely with industry.

The Army's series of Network Integration Evaluations, for example, is helping to shape not only critical capabilities but also Army acquisition leaders by providing fertile ground for sound leadership experiences in the new Agile Process. In addition, we are a full partner in the DOD's Better Buying Power initiatives to become more efficient and effective. Our customers—Soldiers, Sailors, Airmen, Marines, and civilians, especially those on the frontlines of freedom—need your very best when it comes to realizing efficiencies.

As a leader, you will be pulled in many directions, so it is important to balance your time. Focus downward and help the team you are building succeed. At the same time, focus upward to ensure that your senior leaders understand what your organization is doing and the way you are heading. The support you garner both inside and outside your organization will prove to be invaluable.

This brings me to another important point: Always remember to use your authority over others for constructive purposes. Treat your subordinates with respect—mentor them, help them improve their skills and advance, ease their hardships whenever possible. As a leader, you set the example for others.

Another essential quality of leadership is integrity. I cannot overemphasize this quality because without it, real leadership is never possible. It is essential to uphold the highest levels of integrity, honor, and character. We depend upon you to do exactly that in all situations.

Additionally, true leadership is the ability to seek out and recognize the heroes of the day. These are people who make a difference in your organization. Let them know how much you appreciate their new idea, their dedication, their hard work, their team-building efforts, and so on.

Reach out and recognize them. I make it a habit to recognize excellence both within and outside the ASAALT organization. There have been times when I needed to convince people on the other end of the telephone line that it really was me calling to congratulate them or thank them, but it is worth it! The enthusiasm generated is a real combat multiplier and builds cohesiveness as a team.

It takes years to develop senior leaders, and your qualities of leadership may emerge slowly, through education and experience. Still, it is important to prepare for the responsibilities of leadership at any level and be ready when the opportunity arrives. At some point, you may encounter failure or disappointment of one kind or another. Do not be deterred; stay true to your values. Success is a journey.

The bottom line is that the Army acquisition community has an important role in giving our warfighters a decisive advantage. Our men and women in uniform depend upon you to provide them with the world's best, most technologically advanced weaponry and equipment so they can complete the mission and come home safely to their families and their friends. It does not get any more important than that. Hooah!

LEADERSHIP EXPERIENCES

(Top) In addition to testing the network, the Army's series of Network Integration Evaluations (NIEs) is providing opportunities for new leadership experiences. Here, 2nd Brigade, 1st Armored Division (2/1 AD) Soldiers participate in the NIE held this summer. (U.S. Army photo.) (Center) Mentoring future leaders is an important aspect of developing a strong workforce. Here, 2/1 AD, Special Troops Battalion Soldiers brief future Soldiers from the Delayed Entry Program on the XM-7 Spider Networked Munition System during a visit to Condron Airfield at White Sands Missile Range, NM, as part of the NIE. (U.S. Army photo by SGT Sinthia Rosario.) (Bottom) Interaction between Army leaders and future Soldiers helps encourage those entering the workforce to take on leadership roles. Here, ROTC Cadet Frank Loxsom (center left) from California State University at Fullerton receives a coin from GEN Robert W. Cone, Commanding General, U.S. Army Training and Doctrine Command (TRADOC). Cadets spend a month experiencing and developing leadership during Cadet Troop Leader Training. (U.S. Army photo by Annie Gammell, TRADOC.)

ARMY RESERVE SOLDIERS

The Decisive Edge

by LTG Jack C. Stultz, Chief, Army Reserve

When CPL Eric DeHart, a combat engineer assigned to the Army Reserve's 428th Engineer Company, hit the ground in southern Afghanistan last fall, nearly 3,000 troops in Iraq and Afghanistan had been killed by improvised explosive devices (IEDs), and an estimated 10 times that number had been wounded. By the time he left, DeHart, an engineering technician, had cobbled together a prototype that, once implemented, would thwart the enemy's efforts and reduce future risk to life and limb for both troops and allies.

A native of Birnamwood, WI, DeHart embodies the decisive edge of today's Army Reserve, no longer a supplemental reinforcement to the Army's deployable strength but a crucial component of the warfighting team.

A decade of war and the resulting strain on the active component have shaped the Army Reserve into an inextricably integrated force, offering strategic agility and an enhanced depth not achievable in its former strategic reserve structure. As an enduring part of the operational force, the Army Reserve provides responsive capabilities in a complex security environment as the military continues to respond to the nation's global operational requirements.

The Army Reserve provides integral support units and specific functions with a specialized range of capabilities. Engaging Reserve Soldiers and leveraging their civilian skills brings a depth and breadth of experience across the spectrum of operations.

DeHart's platoon leader was able to leverage the senior designer's civilian-acquired skills as an engineer when he questioned whether the corporal could devise a new way to prevent enemy forces from hiding IEDs along roadside culverts. Although culverts in America are uniformly sized, gutters in Afghanistan are each built differently. In order to make culverts safe from roadside bombs, the design had to obstruct access to hiding places, yet permit water and debris to pass through. Though culvert denial systems had been devised in the past, DeHart's idea, which created a screen across the opening, was simple, cost-effective, efficient to install, and difficult to tamper with.

Around the world, Army Reserve Soldiers are making a difference. They are conducting intelligence, security, medical, logistical, civil affairs, and engineering missions, as well as disaster relief and humanitarian assistance. The indelible

SYSTEMS SAVING SOLDIERS

CPL Eric DeHart stands by one of the installed culvert denial systems he created in Afghanistan to stop the enemy from emplacing IEDs and thereby to save Soldiers' lives. The broken heart symbol was placed on one system, the first, "because of my nickname 'Heartbreaker,'" DeHart said. (Photo courtesy of U.S. Army Reserve.)

footprint made by the service and sacrifices of our warrior-citizens in distant places like Colombia, Cambodia, El Salvador, Kenya, and Uganda cultivate hope and compassion and provide a sense of stability to distressed or displaced victims of natural or man-made mishaps. In the process of doing so, Reserve Soldiers are touching lives, bridging distances, healing rifts, and building bonds as thoughtful ambassadors for our country. They continuously demonstrate our decisive edge in the full spectrum of military undertakings.

In a single month, DeHart had built his prototype from scratch, borrowing grinding wheels and welding rods and repurposing 1/2-inch and 5/8-inch rebar. He spent his free time cutting and welding the initial device and creating a field installation guide. His invention, the DeHart Culvert Denial System, is now being installed by military units throughout southern Afghanistan.

The last 10 years of warfighting have honed the skills of a ready and proven component of the total force. The enabling capability provided by Army Reserve Soldiers and assets must be sustained because the Army Reserve is a force provider of vital enabler capabilities required for planned and emerging missions at home and abroad.

Today's Soldiers join with an expectation of operational employment. They not only benefit from the challenges and training opportunities, but also seek a level of "predictability" for absences from their civilian jobs. As such, it is imperative to retain these experienced Soldiers by providing them with meaningful operational missions and opportunities to develop as warriors and as leaders. Enhanced by civilian skills that serve as a force multiplier, we deliver vital military capabilities essential to the Total Force.

No IEDs have been found in those culverts since they were installed last winter. DeHart's ingenuity and initiative personify the meaning of selfless service and underscore the value of civilian skill sets and expertise brought to the force by Army Reserve Soldiers like him.

Over the next decade, we will face adversaries who are also informed by the lessons of today's conflicts, and our Nation is likely to confront additional challenges brought about by failed economies, toppled governments, or devastating natural disasters. As a positive, cost-effective investment for the nation, Army Reserve Soldiers stand ready to provide necessary combat support and combat service support to combatant commanders where and when needed, saving limited resources while accomplishing daunting tasks and providing critical support on the battlefield. To return to a strategic reserve would deprive our country of an important battle-tested and cost-effective resource.

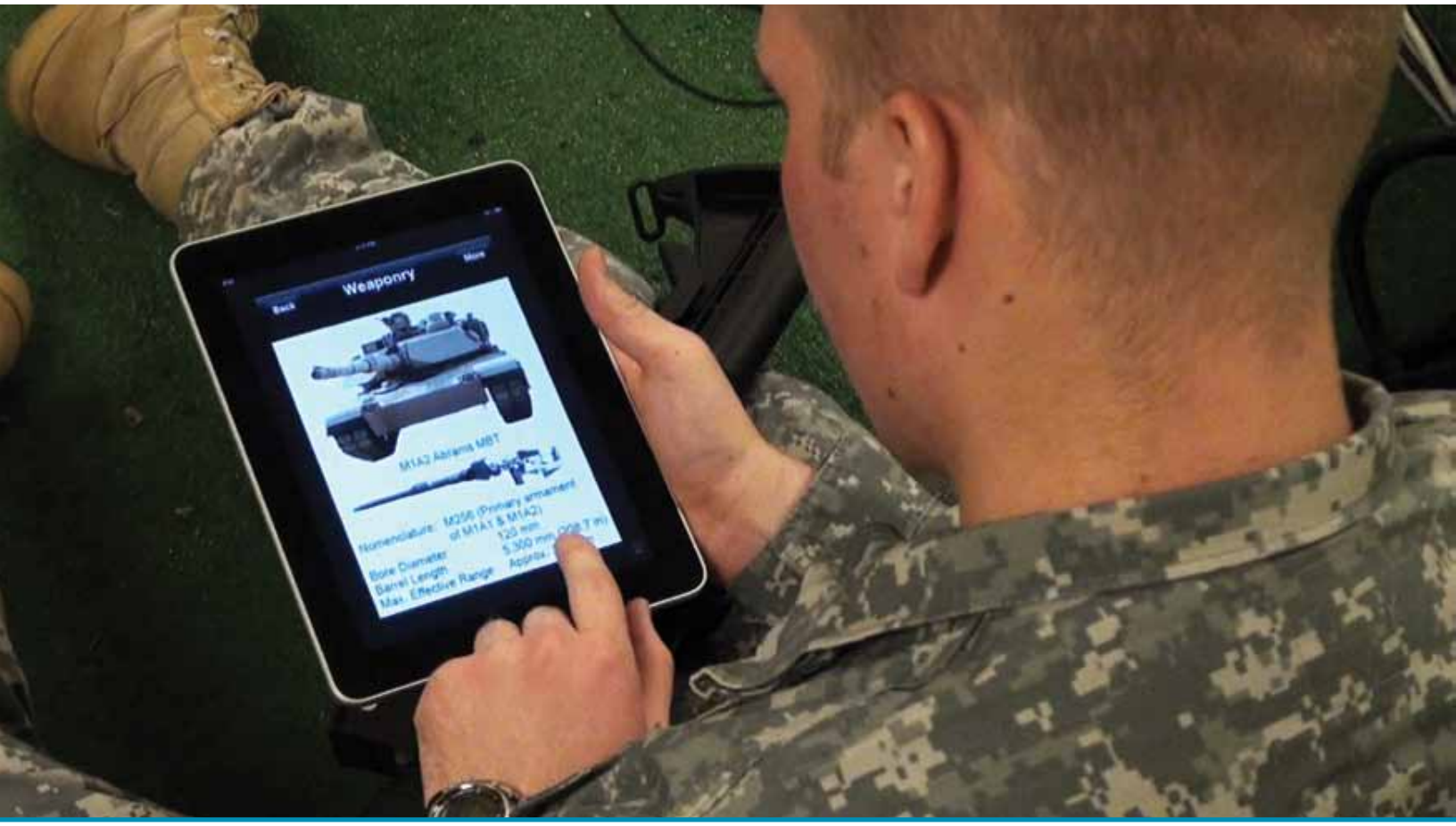
We must build upon lessons learned and evolve to account for a world that continues to change. As part of the Total Force, the Army Reserve must be funded to continue its support to our national security strategy. Today's Army Reserve Soldier is trained to a high degree of readiness, equipped to defeat any potential adversary, and manned with experienced, high-quality professionals. Serving our Nation with distinction and making a difference in the world, they provide civilian employers with the kind of talent needed to contribute to the economy and greater community.

Indeed, they are the decisive edge!

APPS FOR AL&T

Smartphone and mobile applications help provide information and training to the AL&T Workforce

by Brittany Ashcroft



DAU ON ITUNES U

(Left) The Defense Acquisition University's iTunes U page. (Right) PFC Stephanie Robinson, Unit Supply Specialist course student, explores the apps loaded to an iPhone issued to her at the start of her schooling. The students were part of a pilot program using mobile devices with tailored applications to give them a platform to continue learning after leaving the classroom. (U.S. Army photo by Keith Desbois, Combined Arms Support Command and Sustainment Center of Excellence Public Affairs.)

As the Army works on "Connecting Soldiers to Digital Applications" and providing Soldiers with smartphones to increase communications and capability, the Acquisition, Logistics, and Technology (AL&T) Workforce has a growing number of smartphone resources and apps at its disposal to share career knowledge and information across numerous platforms.

A recent addition to the resources available to the AL&T Workforce is the Defense Acquisition University's (DAU) relaunch on iTunes U. iTunes U provides more than 350,000 free lectures, lessons, audiobooks, tours, and more—all related to educational content—from colleges, universities, and other educational institutions.

Originally launched in 2008, DAU's iTunes U site now boasts a new look and more content. Designed to provide "practitioner training, career management, and services to enable the Acquisition Workforce Community to make smart business decisions and deliver timely and affordable capabilities to the warfighter," DAU's presence on iTunes U allows users to download and view a variety of presentations, lectures, training courses, and other material on any device that can access iTunes.

New content on DAU's iTunes U site includes audio and video presentations on Leadership, Faculty Development, and Systems Engineering. Additional selections range from a "Welcome to DAU" overview video and "2011 Innovations in eLearning" audio downloads to specific class-related content such as "IRM202, Intermediate Information Systems Acquisition" and "LOG340, Performance-Based Life Cycle Sustainment."

In addition to DAU's presence on iTunes U, there are a growing number of smartphone apps designed for the Army, some of which were the result of the 2010 Apps for the Army competition, which resulted in the creation of 53 apps in 75 days.

Apps for various platforms, including the iPhone, Android, and mobile services, span a broad spectrum of categories, including health and fitness, training and education, mission planning, logistics, and navigation.

Officially launched earlier this year after three years in the pilot and test phases, the Ammunition Multimedia Encyclopedia (AME) is a virtual resource available on devices including the iPhone and desktop computers. The AME provides military and civilian personnel with access to information on 280 different munitions systems, even in remote locations.

Other Army-related apps include SIGACTS, or Significant Activities, which allows an iPhone to connect to Command Post of the Future and obtain SIGACTS information; PRT, or physical readiness training, which shows workout recommendations with exercises and accompanying videos; *The Army Soldier's Blue Book*, which provides access to information on Army culture, history, training, and regulations; and Army Creeds, designed for Soldiers, noncommissioned officers, warrant officers, civilians, cadets, and Rangers who want to learn or memorize the creed of their respective ranks.

To browse and download smartphone apps, visit **https://storefront.mil/army** (CAC-enabled) or **http://www.army.mil/mobile**.

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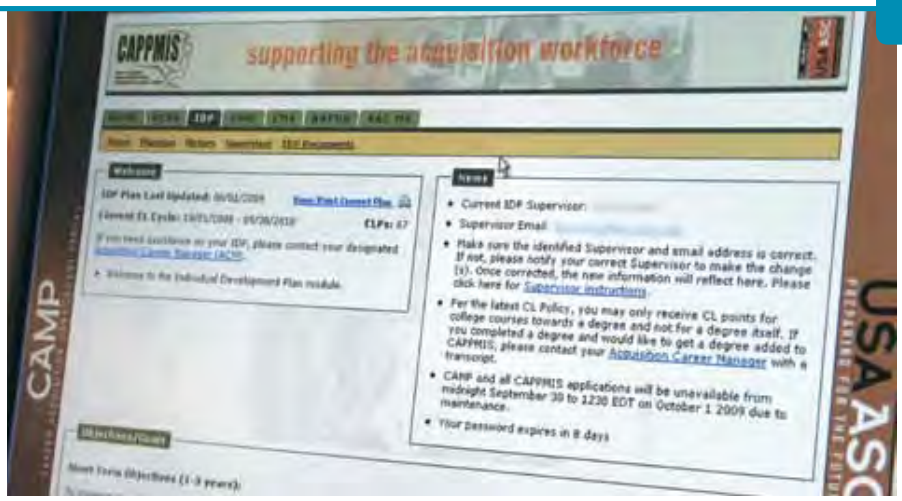
FUNCTIONAL SKILLS

CPT Ning Agbay (center), Intelligence Officer and Battle Captain for the 373rd Combat Sustainment Support Battalion, 3rd Sustainment Brigade, 103rd Support Command (Expeditionary), helps two students with a math problem during a Functional Academic Skills Training class. (U.S. Army photo by PFC Ashley Jenkins, 3rd Sustainment Brigade, 3rd Infantry Division.)

THE SIX MOST IMPORTANT STEPS TO MANAGING YOUR AL&T CAREER

by Robert E. Coultas

Whether you are a new or seasoned member of the Acquisition, Logistics, and Technology (AL&T) Workforce, knowing how to meet your certification requirements is essential to a successful acquisition career. Verify with your supervisor that your job is a designated AL&T Workforce position and, if so, find its Acquisition Position Category and Acquisition Position Level. Once you know the answers to these questions, you can follow these six career planning steps to manage your acquisition career.



INDIVIDUAL DEVELOPMENT PLAN

Preparing and updating your IDP is an important part of managing your acquisition career.

STEP 1: PREPARE AN ACQUISITION CAREER BRIEF

The Acquisition Career Record Brief (ACRB), accessible through the Career Acquisition Personnel and Position Management Information Service (CAPPMIS) website at **https://rda.altess.army.mil/camp**, is an automated, authenticated record of your education, training, and acquisition assignment history. CAPPMIS provides access not only to the ACRB, but also to your Individual Development Plan (IDP) and the Army Training Requirements and Resources System Internet Training Application System (AITAS). The ACRB is your official acquisition record. It is your responsibility to initiate changes and keep it updated.

STEP 2: REVIEW CERTIFICATION REQUIREMENTS

The *Defense Acquisition Workforce Improvement Act* requires that employees meet the certification requirements (education, training, and experience) for their position within 24 months of assignment. Your first priority is to become certified in the acquisition career field (category) and level required by your current position. The career field category and level are shown on your ACRB. Certification requirements can be found in the Defense Acquisition University (DAU) Interactive Catalog at **http://icatalog.dau.mil**.

STEP 3: PREPARE AN INDIVIDUAL DEVELOPMENT PLAN

AL&T Workforce members are required to complete and maintain a five-year IDP. You can find the IDP in CAPPMIS at **https://rda.altess.army.mil/camp**. Preparing the IDP is a joint venture between you and your supervisor. The IDP permits you and your supervisor to identify and track career objectives in the areas of education, training, and experiential opportunities. Objectives should reflect broad, overall career goals and specific developmental activities intended to accomplish them. The developmental objectives should be attainable in a reasonable time frame. They do not have to relate strictly to acquisition; they can include items such as functional training, leadership, education, professional activities, and assignment experience that support the achievement of your broad career goals. The IDP should be reviewed in conjunction with the normal appraisal cycles.

STEP 4: SUBMIT IDP FOR APPROVAL

Once you have annotated all of your career goals and have entered any education, training, or experience required to achieve the certification, submit your IDP to your supervisor for approval. This process is done electronically; therefore, you must ensure that your current supervisor's name and email address are correct in your IDP. Your supervisor receives a system-generated email notification when you submit your IDP for review and approval.

STEP 5: APPLY FOR DAU TRAINING

After your supervisor approves your IDP, you may apply for DAU courses at **https://www.atrrs.army.mil/channels/aitas/main.asp**. AITAS is the Web-based application system that provides dates, locations, and availability for all DAU training. AITAS works in conjunction with the IDP and allows AL&T Workforce members to submit training applications electronically for both distance learning and resident courses. Remember, the IDP is for planning purposes only and is not the vehicle to register for DAU training. However, you cannot register for any DAU training unless the course is identified on your IDP and your supervisor has approved it.

STEP 6: APPLY FOR POSITION CERTIFICATION

Certification is not automatic. After you have completed the appropriate training, education, and experience required

INQUIRING MINDS

(Top) Students attend a breakout session at a Defense Acquisition University (DAU) Insight Day. The event was a joint effort between DAU and Rock Island Arsenal, IL. (U.S. Army photo by Bernadette Crumb.)

(Center) A Functional Academic Skills Training student asks a question. (U.S. Army photo by SGT Matthew C. Cooley, 15th Sustainment Brigade Public Affairs.)

(Bottom) Graydon Field (left), Army Sustainment Command Logistics Management Specialist, and Shawn Newton, TACOM Life Cycle Management Command Automotive Logistics Assistance Representative, deliver a briefing on "New Equipment Challenges (from the Field)" to a DAU Logistics 350 class. (U.S. Army photo by Hal Ernst, DAU.)

by your position, you must apply for certification through the automated Certification Management System accessible through CAPPMIS.

These six career planning steps, along with other information for planning a successful acquisition career including Continuous Learning Points requirements, the Core Plus development guide, U.S. Army Acquisition Corps membership eligibility, the Acquisition Tuition Assistance Program, and the Acquisition Education, Training, and Experience catalog, are located on the U.S. Army Acquisition Support Center's website at **http://live.usaasc.info/career-development/civilian/career-planning-steps**.

ROBERT E. COULTAS is the Army AL&T *Magazine Departments Editor and an Access AL&T Online News Service Editor. He is a retired Army broadcaster with nearly 40 years of combined experience in public affairs, journalism, broadcasting, and advertising. Coultas has won numerous Army Keith L. Ware Public Affairs Awards and is a DOD Thomas Jefferson Award recipient.*

CENTRALIZING SUCCESS

Acquisition Center of Excellence finds multiple benefits at Huntsville location

by Marques Chavez

DEVELOPING SENIOR LEADERS

Students in a Senior Leader Course for noncommissioned officers participate in Drill and Ceremony in Huntsville, AL as SFC Blake Grier (far left) inspects the Soldiers. At far right is Instructor MSG Dennis Parmer. (Photos courtesy of U.S. Army Acquisition Center of Excellence (AACoE).)

Since the ribbon-cutting ceremony on Jan. 25 to open its new facilities, the U.S. Army Acquisition Center of Excellence (AACoE) has established a program that has seen increased enrollment, improved classroom performance, and new networking opportunities for students preparing to move into the next phase of their acquisition careers.

AACoE is the training, education, and career development school for Army acquisition officers, noncommissioned officers, and Army civilians. It centralizes institutional education and career development courses for the acquisition, logistics, and technology workforce.

IN THE CLASSROOM

Instructor Jeff Hardin (standing) works with AACoE students at the new facility on the campus of the University of Alabama in Huntsville.

"The primary mission, of course, is to provide *Defense Acquisition Workforce Improvement Act* certification education, and we're doing that. But more importantly, we have built the continuity necessary to be an establishment that people can come to rely on, not just a place to get their initial training," said AACoE Deputy Director Kevin Zurmuehlen.

"This is now a place that people call and ask questions. They call here for information," said Shirley Hornaday, AACoE Director.

CLOSE PARTNERSHIP

The center's new facilities are at Madison Hall at the University of Alabama in Huntsville (UAH), where it has forged a mutually beneficial partnership that has led to cost savings, improved education, and stronger community ties. UAH also has identified additional classroom space to prepare for growth in the contracting career field starting in FY13.

"UAH has contributed a major share of the costs of equipping the classrooms and maintaining them for us, which is a major bonus. If our lights go out or we are having sound problems, they come over and fix it. When there are issues, they respond immediately. It's been a really good partnership," Hornaday said.

As part of its lease with AACoE, UAH provides a variety of support, such as renovation, equipping classrooms, and maintenance of infrastructure, such as phone lines and computer systems. AACoE's relatively low-cost lease with UAH has led AACoE to save on average about $20 per student per day. As a result, AACoE is well on the way to reaching its goal of saving $1 million annually. Beyond the savings, however, a positive ripple effect for students is starting to take shape.

"Since the move to the new facilities, we have noticed a trend of increased academic class averages. We attribute this increase in demonstrated student performance to the improved classroom environment the facilities provide. We now have staff and student spaces that we do not have to share with other activities, which has also allowed an increased camaraderie among the students," Zurmuehlen said.

ACCESS TO LEADERSHIP

The strong support in running the classrooms is not the only benefit of the facilities' location. AACoE has been able to leverage senior-level expertise as several local general officers, Senior Executive Service officials, and industry executives strongly support the program. Students have been able to meet with these executives and learn about business development. AACoE has also incorporated a small business program to help students prepare for the major decisions that have to be made regarding contracting and incorporating small businesses.

"I think what was missing prior to the establishment of the Center of Excellence was a process-based, permanent

establishment," Zurmuehlen explained. "It is an organization that people can rely upon for coaching, mentoring, and training throughout their acquisition careers. By establishing a process-based facility and organization, we have continuity that we did not have previously. We are having a much better impact on the students' future as they progress in their careers."

This sentiment is echoed by those currently enrolled at AACoE.

"The Army is a people business, and we're reaching forward to our future commands," said MAJ Justin Shell. "For instance, some of the instructors here know people in the organization in which I'm going to be a part, and they've already linked me up with some of the program managers and product managers there. It's not just teaching students. There's a networking piece as well."

"We're actually able to get a feel for what we're going to be jumping into when we get to our next assignments because of the foundation that's been laid," said CPT Laura Freeland, another student enrolled at AACoE. "We understand those basic concepts that make the Army Acquisition Corps so successful."

Despite the numerous successes AACoE has seen since its official establishment earlier this year, Zurmuehlen offers a caveat that the center is not resting on its laurels.

"Our approach to excellence includes the understanding that we can always improve the curriculum and experiences we provide our students, by striving to ensure that our interaction with the Army acquisition community is relevant, professional, and timely," he said.

MARQUES CHAVEZ provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. He has a B.S. in journalism and communication from Utah State University.

KNOWLEDGE BASE

The Student Loan Repayment Program is a retention incentive for individuals highly qualified in their current position. In FY11, 539 individuals received a total of $4.68 million in funding. (U.S. Army photo.)

FUNDING EDUCATION

FY11 Std ent Loan Repayment Program receives positive response with a record nm ber of applicants

by Stephanie L. Watson

The U.S. Army Acquisition Support Center (USAASC) offered its Student Loan Repayment Program (SLRP) for the third consecutive year, funding 539 Acquisition, Logistics, and Technology (AL&T) Workforce members. The SLRP is a feature of the Army's Section 852 program. All AL&T Workforce members with a college degree and outstanding federally insured student loans are eligible to apply for the SLRP. This program is used as a retention incentive for those who are considered highly qualified in their current position. Recipients also agree to remain within DOD for three years. Upon subsequent successful applications, an additional one-year commitment applies.

The application is available online through the Army Acquisition Professional Development System within the Career Acquisition Personnel and Position Management Information System

(CAPPMIS). CAPPMIS is the Army's central repository for acquisition workforce data. This easily accessible application process, with the ability to view the dates applications are being accepted, resulted in an overwhelmingly positive response to SRLP in 2011. The 2011 announcement was open from May 2 through June 10.

In 2010, 2,751 applications were reviewed, and 1,327 of those were selected for funding, for a total of $11.9 million. The 2010 SLRP budget was significantly less because of other recruitment and retention incentive funding. In the 2011 offering, 2,797 applications were submitted, and 539 were selected for funding, for a total of $4.68 million spent to retain those qualified individuals.

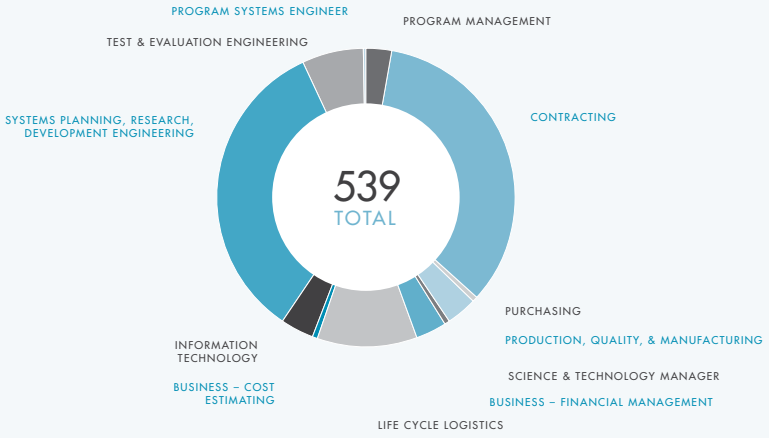
The areas of consideration reviewed during the evaluation process included, without priority: education level, applicability of degree to the 14 acquisition position categories, *Defense Acquisition Workforce Improvement Act* position requirement achievements (certification, career-broadening experiences, etc.), annual performance appraisal, and endorsement from the supervisory chain of command. The breakdown of the 539 selected applicants in 2011 is illustrated in Figures 1 through 4.

For additional information on the Army's Section 852 efforts, including the SRLP, visit **http://asc.army.mil/career/programs/slrp/default.cfm**. The 2012 SRLP announcement is expected to be released by June 1, 2012.

STEPHANIE L. WATSON is the Program Manager for the USAASC Student Loan Repayment Program and the Retention and Recruitment Program. She holds a B.S. in business management from George Mason University. Watson is Level II certified in program management.

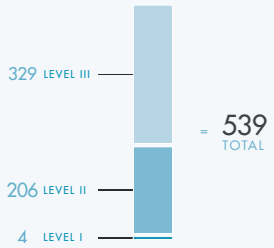
Acquisition Position Category

Figure 1



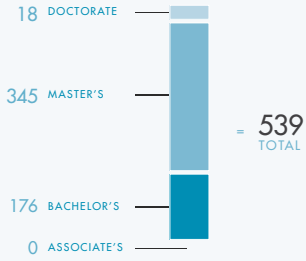
Acquisition Position Level

Figure 2



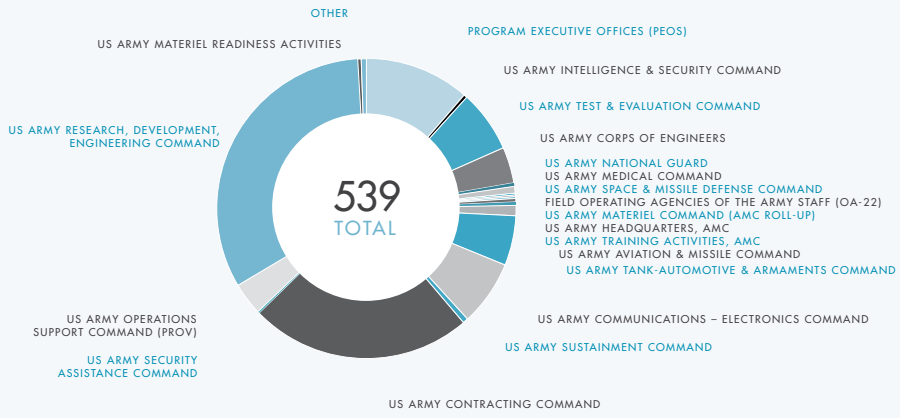
Level of Degree Obtained

Figure 3



Count by Command

Figure 4



USAASC PERSPECTIVE

FROM THE DIRECTOR,
U.S. ARMY ACQUISITION SUPPORT CENTER

CERTIFICATION—THE PROFESSIONAL EDGE

Craig A. Spisak
Director, U.S. Army Acquisition Support Center

Our relevance to the men and women in uniform remains our ability, as acquisition professionals, to provide the weapons, information systems, services, and processes that are the most technologically advanced and most capable in the world, as quickly as possible. The key to doing this well is having the best-prepared professionals working in the acquisition system.

That is why certification in your Acquisition Career Field (ACF), certification in other ACFs, and preparing for and becoming a member of the U.S. Army Acquisition Corps (AAC) are so important. These are the foundational aspects of becoming an acquisition professional—not where your career development goals should end, but rather a good place to start building a successful acquisition career.

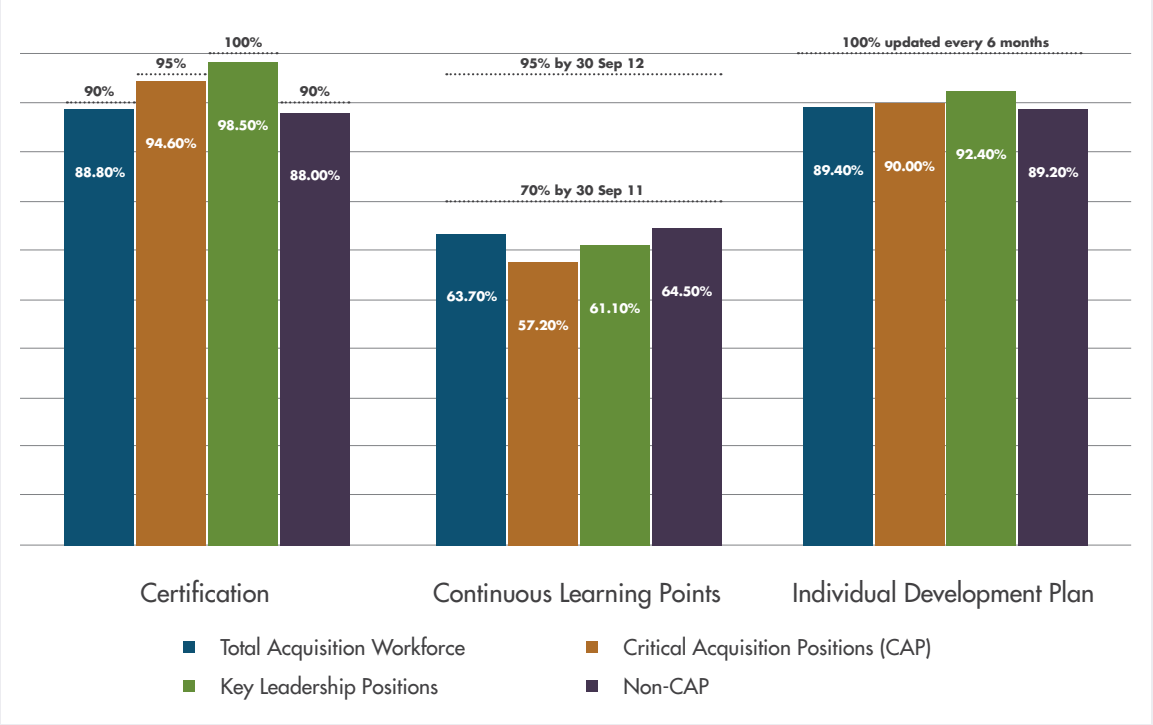
Being a true professional starts with having a current Individual Development Plan (IDP), which is your guide to obtaining the training and education necessary to become certified. If you are not using the IDP, you are probably not staying current and cannot get training. A current IDP, combined with work experience, education, and continuous learning, leads to certification. All of these factors determine whether you are certified and are selected for promotion, competitive opportunities, and, eventually, AAC membership.

Getting certified is just the beginning. It is equally important that you maintain your relevance and currency throughout your career. Similar to a Certified Public Accountant, who has to continually accumulate education credits to maintain certification, acquisition professionals must maintain their proficiency in the acquisition community and stay up to date in order to be relevant.

One avenue to use in retaining skills is competing for opportunities under Section 852 of the *Defense Acquisition Workforce Improvement Act*, including leadership training, functional skill development, rotational assignments, Congressional Operations Seminar, and more. All of the opportunities are listed at **http://live.usaasc.info/career-development/852-program/initiatives**. Obviously, basic certification requirements in your ACF are mandatory, but understanding the broader acquisition mission through the training mentioned above may help you better prepare for positions of greater responsibility.

Obtaining a basic understanding of other ACFs is also important to career development. When you are certifying in a particular ACF, you probably will participate in training taught by other functional areas. Going beyond your basic certification requirements expands your knowledge and increases your breadth of understanding while helping you avoid stagnating in the status quo.

Acquisition Standards Versus 100% Goals



SOURCE: Career Acquisition Personnel and Position Management Information System as of July 25.

Leadership engagement is a critical enabler for acquisition workforce requirements.

As your career progresses and you advance into positions of more influence, complexity, and greater responsibility, you will discover that having a thorough understanding of other ACFs will help you succeed. It is difficult to lead a team of diverse individuals if you do not understand the work they are performing.

For example, if you are in a program management office leading a complex program and you do not understand what your Lifecycle Logistician, Engineer, or Business Professional is telling you because all you understand is program management, then you are not going to lead them effectively and do the best job the Army is asking you to do.

One of the pitfalls some encounter is remaining inside their "comfort zone." They have achieved the basic level of competence, which is what we are asking for and what we report based on certification, training, education, continuous learning, and using the IDP, but they don't grow beyond that point. However, when you're applying for the next job opportunity or promotion, supervisors are looking for those extra things, outside of your comfort zone, that make you more qualified than the next person.

Achieving the basic qualification level often gives people a sense of security, which is good because it is a significant accomplishment. However, if your aspirations are to continue being promoted to different positions, you must consider that your competition is trying to achieve the same qualifications. Simply completing the minimum requirements may not always be enough. It is not easy by any means; however, there are numerous tools to help you achieve your career goals, including AAC membership.

When making selections for AAC membership, we use a multiple-criteria matrix whereby we look at the individual's skill sets and levels of accomplishment. That is what qualifies a candidate to be considered. Those elements, plus additional factors, place them on an order-of-merit list to determine who gets picked and who does not.

Frankly, when you are looking for people who have the right skill sets and qualifications to be promoted or selected for competitive opportunities, the decision goes beyond that. It incorporates the types of skill sets and competencies you have achieved over time in various ACFs, aspects of an acquisition program life cycle, and fields of endeavor. All of those things are critical in becoming a proficient, well-rounded acquisition professional.

I am sometimes astounded to hear that someone does not know where opportunities exist for their career. I often think that maybe this is not the right person to receive the next promotion.

There are a multitude of ways to keep up and to stand out as an acquisition professional. We have a robust virtual environment via the U.S. Army Acquisition Support Center's website (**http://asc.army.mil/new/default.html**), which features a tremendous amount of career development information and functionality for the AL&T Workforce member. You can go online through the Career Acquisition Management Portal CAMP/CAPPMIS (**https://rda.altess.army.mil/camp**) and update your IDP, with links to database systems, Defense Acquisition University training applications, and quota managers that provide confirmation. It is also where you may apply for certification, AAC membership, and competitive programs, as well as ask your career manager questions.

The person who is "hungry," who seeks information and the tools needed to have a successful acquisition career and then takes advantage of them, is the one who is always a step ahead of the competition and well on the way to becoming a true acquisition professional. More important, that person is the best suited to fulfill our promise to the warfighter—to deliver the best weapons and information systems into their hands as quickly as possible.

LEARNING TO LEAD

Continuous training and education is a key element of furthering a career in acquisition. Here, LTC Allan Lanceta, 601st Aviation Support Battalion Commander, facilitates a course on trust and empowerment during a leader professional development class at Kansas State University in August. (Photo by SFC Jeff Troth.)

EDUCATION and TRAINING UPDATE

FY12 CONTRACTING CERTIFICATION CHANGES

The Army Deputy Director of Acquisition Career Management is seeking a reprieve from the Defense Acquisition University contracting curriculum changes scheduled to take effect Oct. 1.

Alternatives are being considered—extensions that would allow workforce members to complete their certification training under the FY11 contracting certification requirements; an extended grace period to meet experience requirements; and permission to complete training already in progress.

Up-to-date information will be posted on the U.S. Army Acquisition Support Center (USAASC) website, **http://asc.army.mil/new/default.html**, once decisions have been made.

DEFENSE ACQUISITION UNIVERSITY HIGHLIGHTS

Registration is open for FY12 Defense Acquisition University (DAU) courses. Students may continue to apply through the Army Training Requirements and Resources Internet Training Application System (AITAS) at **https://www.atrrs.army.mil/channels/aitas**.

To address the shortfall in Level II contracting classes, six commercial vendors and four universities offer CON 215, 217, and 218 equivalent classes. The vendors will continue to teach the FY11 courses in FY12. The courses are valid predecessors to the new FY12 courses until Sept. 30, 2013. For more information on equivalencies, visit the DAU website **http://icatalog.dau.mil/appg.aspx**. If you are unable to obtain space in CON 215, 217, and/or 218 and would like to use Section 852 funds to pay for an equivalent provider, USAASC now offers these courses. If a course is approved for training by the command, the Section 852/Defense Acquisition Workforce Development Fund program manager for that command will request funding from the USAASC Section 852 manager by submitting a Program Request Form for FY12, found at **https://www.usaasc.info/section852_cms**. The point of contact is Chandra Evans Mitchell at **chandra.l.evansmitchell.civ@mail.mil**.

To address the shortfall in Level II business, cost, and financial management (BCFM) courses, the Army is placing only first-priority students into available BCFM classes. Level II courses are available on the FY12 schedule. DAU has expanded class size from 24 to 28-30 for FY12 course offerings, specifically in the following courses: BCF 203, BCF 205, BCF 206, BCF 211, and BCF 215. An additional 680 seats were added to the FY12 schedule with additional offerings and increased class size. The demand stems from a temporary surge of BCFM certification requirements, along with an increase in BCFM workforce members who need certification. For experienced BCFM personnel, fulfillment of the course is recommended.

ON THE MOVE

CARTER TAKES ON NEW RESPONSIBILITIES

Dr. Ashton B. Carter, Under Secretary of Defense for Acquisition, Technology, and Logistics, received Senate confirmation to become the next Deputy Secretary of Defense.

Carter, who has been Under Secretary since April 2009, is a DOD leader in efforts to find cost savings, particularly in acquisition.

Secretary of Defense Leon E. Panetta said of Carter, "His rapid and responsive support to the warfighter, and technical and program expertise are transforming the way this department does business and acquires weapons systems. I look forward to having Ash as my partner as we drive solutions to the strategic management challenges facing the Department of Defense."

In addition, President Obama appointed Carter to an 11-member White House board tasked with cutting waste in federal spending. The new Government Accountability and Transparency Board, presided over by Vice President Joe Biden, is working to "eliminate misspent tax dollars in every agency and department across the federal government."

SES REASSIGNMENTS

The Office of the Secretary of the Army Civilian Senior Leader Management Office announced two Senior Executive Service reassignments, both effective Sept. 11.

Stephen Kreider, who served as Director, Combined Test Organization, Program Manager Future Combat Systems (Brigade Combat Team), has been reassigned as Deputy Program Executive Officer Intelligence, Electronic Warfare, and Sensors (DPEO IEW&S).

Douglas Wiltsie, previously DPEO IEW&S, has been reassigned as Program Executive Officer Enterprise Information Systems.

GENERAL OFFICER NOMINATIONS

Secretary of Defense Leon E. Panetta announced July 27 that President Barack Obama nominated **BG Camille M. Nichols** and **BG N. Lee S. Price** for appointment to the rank of major general.

Nichols is the PEO Soldier. Price is the PEO Command, Control, and Communications-Tactical.

LTG VANE RETIRES

After more than 36 years of active duty, **LTG Michael A. Vane** retired as the U.S. Army Training and Doctrine Command (TRADOC) Deputy Commanding General (CG), Futures, and Director of the Army Capabilities Integration Center (ARCIC). Vane was recognized during a formal ceremony July 11 at the Pentagon.

Before his four years as TRADOC's Deputy CG, Vane served on the Joint Staff as Vice Director, Force Structure, Resources, and Assessment. He also held the post of Deputy Chief of Staff for Doctrine, Concepts, and Strategy at TRADOC.

Vane was awarded the Distinguished Service Medal at the retirement ceremony. He also has received the Defense Superior Service Medal, the Legion of Merit with three Oak Leaf Clusters, and the Defense Meritorious Service Medal, among several other awards and honors.

He is succeeded by **LTG Keith C. Walker**, who most recently served as CG, Brigade Modernization Command, ARCIC.

RETIREMENT HONORS

LTG Michael A. Vane, U.S. Army Training and Doctrine Command Deputy Commanding General, Futures, and Director of the Army Capabilities Integration Center, was honored for more than 36 years of service with the Distinguished Service Medal. (U.S. Army photo.)

FINAL ENLISTED DRAFTEE RETIRES

CSM Jeffrey J, Mellinger (right) retired after nearly 40 years of active duty. Here, he sings the Army Song with GEN Ann E. Dunwoody, Commanding General, U.S. Army Materiel Command, and incoming CSM Ronald T. Riling. (U.S. Army photo by Ellen Hudson.)

CSM MELLINGER RETIRES

CSM Jeffrey J. Mellinger, Command Sergeant Major of U.S. Army Material Command (AMC) and the final remaining enlisted draftee on active duty, retired after nearly 40 years of continuous active service and was recognized during a formal ceremony Aug. 26 at Redstone Arsenal, AL.

Mellinger began his Army service on April 18, 1972. He served as the AMC Command Sergeant Major since Nov. 2, 2007.

He is succeeded by **CSM Ronald T. Riling**, who most recently served as Command Sergeant Major of U.S. Army Forces Command.

CMA CHANGE OF CHARTER

COL John J. Lemondes Jr. assumed the role of Project Manager Chemical Stockpile Elimination (PM CSE), part of the U.S. Army Chemical Materials Agency (CMA), July 26 during a ceremony at Aberdeen Proving Ground, MD.

He previously served as Director of the Soldier and Maneuver Systems Directorate for the Assistant Secretary of the Army for Acquisition, Logistics, and Technology.

Lemondes' awards include the Legion of Merit, the Bronze Star Medal, the Defense Meritorious Service Medal, and the Meritorious Service Medal with four Oak Leaf Clusters.

SPOTLIGHT

MAJ MARK P. HENDERSON

by Brittany Ashcroft

"BEING IN THE ACQUISITION CORPS IS TRULY WHAT I LOVE TO DO, AND THERE IS NEVER A DAY I GO TO WORK AND WISH I WAS SOMEWHERE ELSE. I AM IN THE RIGHT PLACE."

MAJ Mark P. Henderson, who recently redeployed after a year in Afghanistan, ended his most recent tour of duty on a career high note.

Henderson, who served as Deputy Director, Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) Operations, *Operation Enduring Freedom*; U.S. Forces-Afghanistan (USFOR-A) Acquisition Advisor Regional Command (Capital); and Acquisition Advisor Regional Command (East), Afghanistan, received a coin from GEN David H. Petraeus, now retired. Henderson is one of 30 personnel whom USFOR-A selected to receive the recognition.

"It means a lot to me personally," Henderson told *Army AL&T* Magazine. "When I arrived in Afghanistan, I wanted to work hard and do my best to represent ASAALT and help as many people as possible. I wanted to make a positive difference. I never had any idea a year ago that all of it would come together in this kind of recognition, and it is a bit overwhelming, but very much welcome and appreciated."

For Henderson, the coin represents many different aspects of his service in Afghanistan.

"I wanted to serve combatant leadership and Soldiers, while helping improve the materiel enterprise and formalizing the role of the ASAALT forward team," he explained.

Henderson's efforts centered on that goal. He identified early in his deployment the need to develop and implement a common operating picture for the entire theater to ensure the "ongoing fielding of the most important materiel requirements in Afghanistan." From that, he created a weekly, standardized materiel common operating picture, which is currently a 150-slide briefing presented to more than a dozen agencies and commands.

But Henderson did not stop there. In the last few months before redeploying, he expanded the briefing to include information on cost, schedule, and the performance of more than 10,000 individual pieces of equipment together valued at more than $5 billion.

While Henderson took the lead on the project, he is quick to praise others for the effort they contributed. "I give great credit to the many product managers in theater for their support on this massive undertaking," he said. "There are more than 40 separate PMs in theater doing an exceptional job of delivering a wide array of products and services to the warfighter."

The recognition for his work was only part of the honor, in Henderson's eyes.

"I remember how it felt to serve in Iraq under the leadership of GEN Petraeus while fielding commercial information technology infrastructure from 2007 to 2009" as the Assistant Project Manager (APM) Defense-Wide Transmission Systems-Forward and APM Vehicular Intercom Systems, Henderson said. "I was always impressed with his leadership and considered him a role model. I thought to myself back then how much of an honor it would be to meet him someday, so it was truly a shock to have the opportunity to meet him and CSM [Marvin L.] Hill, [Senior Enlisted Leader, International Security Assistance Force and USFOR-A], in person, especially under the very positive circumstances which led to the meeting."

The coin from Petraeus is not Henderson's first recognition. He has also received the Bronze Star Medal with Oak Leaf Cluster, the Meritorious Service Medal with two Oak Leaf Clusters, and the Army

Commendation Medal, among numerous other awards and recognitions.

The next step for Henderson, after returning to CONUS, is to continue preparing to serve as a Department of the Army Systems Coordinator.

"My goal is to do my best and hopefully be selected early for a demanding board-select product management position in information technology," he said.

No matter where Henderson goes next, acquisition is an important field to him. His motivation to excel comes from a combination of lessons his parents instilled about a good work ethic, a commitment to do "what is right, no matter what," and the Army values, which Henderson said "serve to complement and reinforce values already inherent."

He is keenly aware that his actions have a direct impact on Army acquisition as a whole. "I always keep in mind that everything I do will serve as a reflection on the community … Serving with the warfighters in the forward battlespace in Iraq, Afghanistan, and Kuwait and being a uniformed member of our community, I understand the urgency of their requirements and always want to ensure the Solders get what they need, preferably ahead of schedule, within budget, and beyond expectations so they can do their jobs and keep us all safe.

"Being in the Acquisition Corps is truly what I love to do, and there is never a day I go to work and wish I was somewhere else," Henderson said. "I am in the right place."

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has a B.A. in English from Elmhurst College.

Spotlight is a new feature in Army AL&T *Magazine and will appear in each quarterly issue. It is a professional profile of an AL&T Workforce member who has done outstanding work in support of the warfighter. If you know of someone who should be recognized in Spotlight, please contact the editors of* Army AL&T *at* ***usarmy.belvoir.usaasc.list.usaascweb-army-alt-magazine@mail.mil*** *for details on selection criteria.*

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CONGRESSIONAL UPDATE

MILITARY READINESS AND FINANCIAL MANAGEMENT IN FOCUS

The House and Senate Armed Services Committees (HASC and SASC) held more than 25 hearings in June and July, many of them focusing on DOD financial management and the impact of budget cuts on military readiness.

On July 27, the SASC readiness subcommittee, led by Sen. Claire McCaskill (D-MO), heard testimony from Under Secretary of Defense (Comptroller) Robert F. Hale on financial management and business transformation efforts in the Pentagon. McCaskill said that DOD "financial management systems are riddled with decade-old problems that are difficult to reverse" and questioned the effectiveness of the Enterprise Resource Program that is being deployed to military offices. Hale acknowledged that DOD has "a long way to go" before reaching auditability. The *National Defense Authorization Act* (*NDAA*) *for Fiscal Year 2010* mandates that DOD reach full auditability status by 2017. The hearing also included testimony from the service comptrollers, including Assistant Secretary of the Army (Financial Management and Comptroller) Mary Sally Matiella.

(Hearing transcript, webcast, and written testimony available at **http://armed-services.senate.gov/e_witnesslist.cfm?id=5241**)

The HASC, meanwhile, created a new Fiscal Management and Auditability Reform Panel to investigate DOD business practices. The new panel is led by Chairman Michael Conaway (R-TX) and Ranking Member Robert Andrews (D-NJ). Andrews previously chaired the HASC's Defense Acquisition Reform Panel, which authored the *IMPROVE Acquisition Act*, incorporated into the FY11 *NDAA*.

The new HASC panel held its first hearing July 28 with testimony from Hale, DOD Deputy Chief Management Officer Elizabeth A. McGrath, and General Accountability Office expert Asif A. Khan. Khan testified that DOD's auditability problems are directly attributable to the acquisition process and praised the new Financial Improvement and Audit Readiness Plan released by Hale earlier this year.

FUTURE ACTION

The SASC version of the *NDAA* for FY12, which the committee approved June 17, is pending consideration by the full Senate. Once the bill passes the Senate, a conference committee will reconcile the differences between the House and Senate versions of the *NDAA*. The House passed its version May 26.

(Hearing webcast and written testimony available at **http://armedservices.house.gov/index.cfm/2011/7/dod-s-plans-for-financial-management-improvement-and-achieving-audit-readiness**)

FY12 LEGISLATIVE UPDATE

On July 8, the House of Representatives approved the *Defense Appropriations Act* for FY12, which was reported by the House Appropriations Committee on June 16. The House bill appropriates more than $649 billion for DOD activities in FY12, roughly $8 billion less than President Obama requested.

The Senate Appropriations Committee (SAC) approved its version of the FY12 *Defense Appropriations Act* on Sept. 15. The SAC bill cuts the base FY12 DOD budget by $26 billion while fully funding the President's budget request for Overseas Contingency Operations.

Appropriators planned to approve a continuing resolution to fund the federal government through the first weeks or months of the new fiscal year that began Oct. 1, with an omnibus appropriations package to follow sometime in late October. SAC Chairman Daniel Inouye (D-HI) said that he and HAC Chairman Hal Rogers (R-KY) were committed to completing action on the FY12 appropriations cycle before the end of October.

Thus far, the Senate has voted on only one FY12 appropriations bill, the *Military Construction and Veterans Affairs, and Related Agencies* [MILCON-VA] *Appropriations Bill,* which probably will serve as the legislative vehicle for the FY12 omnibus package.

All of this activity on FY12 appropriations is being conducted in the shadow of the *Budget Control Act of 2011*. This bill was the result of weeks of tense negotiations between the White House and Congress to raise the Nation's debt ceiling and avoid a default on the Nation's loans. Republicans insisted on large spending

cuts to reduce the deficit as part of the deal, while Democrats pushed for changes to the tax code for high-income Americans and oil companies.

As part of the compromise, a 12-member bipartisan and bicameral Joint Select Committee on Deficit Reduction was formed to find an additional $1.2 trillion in savings over the FY13-FY23 time period. The "super committee" must report a bill to Congress by Nov. 23, and Congress must approve that bill by Dec. 23. If these deadlines are not met, $1.2 trillion in cuts will automatically be applied to all government agencies, with $600 billion in cuts coming from security (DOD, MILCON-VA, the Department of Homeland Security, and National Nuclear Security Administration).

The "super committee" has held two hearings, as well as a closed-door dinner meeting. Panel members reportedly are focusing on ways to reform mandatory spending programs like Social Security and Medicare while finding further efficiencies in discretionary spending programs. While some committee members, most notably House Assistant Minority Leader James Clyburn (D-SC), have publicly called for DOD budget cuts as part of any deficit reduction package, the panel is not expected to focus on cuts to military spending as a major means of deficit reduction.

HEARING SCHEDULES

House Appropriations Committee:
http://appropriations.house.gov/Calendar/?EventTypeID=316

House Armed Services Committee:
http://armedservices.house.gov/index.cfm/hearings

House Oversight and Government Reform Committee:
http://oversight.house.gov

Senate Appropriations Committee:
http://appropriations.senate.gov

Senate Armed Services Committee:
http://armed-services.senate.gov/hearings.cfm

Senate Homeland Security and Government Affairs Committee:
http://hsgac.senate.gov/public/index.cfm?FuseAction=Hearings.ListAll

FY12 LEGISLATIVE TEXT

House-approved FY12 *Defense Appropriations Act:*
http://www.gpo.gov/fdsys/pkg/BILLS-112hr2219eh/pdf/BILLS-112hr2219eh.pdf

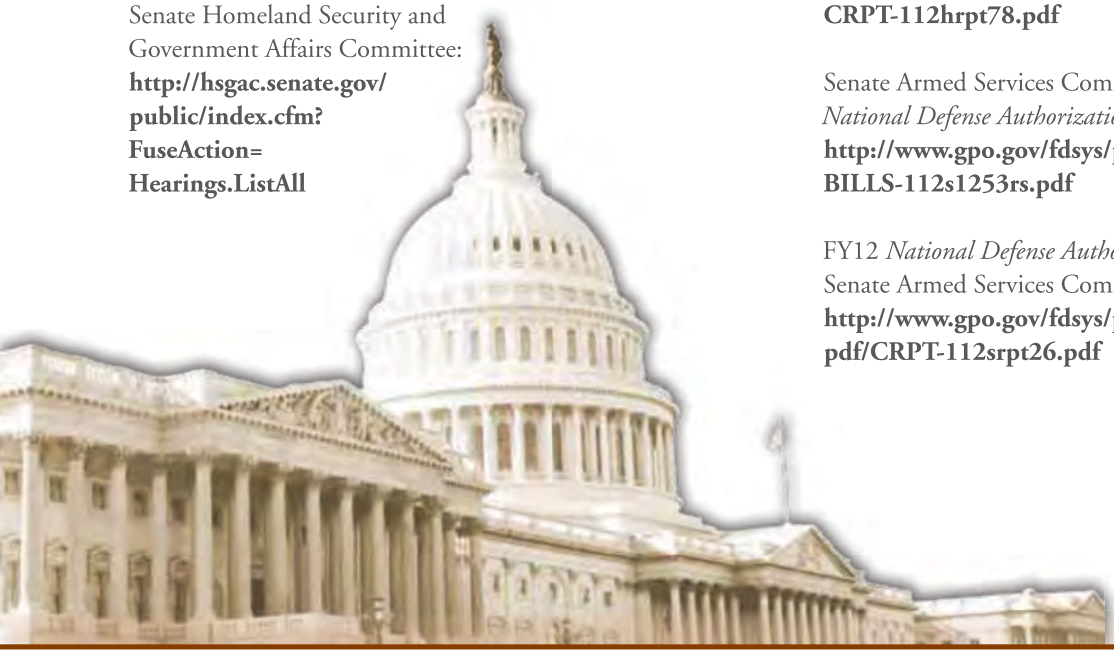
FY12 *Defense Appropriations Act* –
House Appropriations Committee Report:
http://www.gpo.gov/fdsys/pkg/CRPT-112hrpt110/pdf/CRPT-112hrpt110.pdf

House-approved FY12 *National Defense Authorization Act:*
http://www.gpo.gov/fdsys/pkg/BILLS-112hr1540eh/pdf/BILLS-112hr1540eh.pdf

FY12 *National Defense Authorization Act* –
House Armed Services Committee Report:
http://www.gpo.gov/fdsys/pkg/CRPT-112hrpt78/pdf/CRPT-112hrpt78.pdf

Senate Armed Services Committee-approved FY12 *National Defense Authorization Act:*
http://www.gpo.gov/fdsys/pkg/BILLS-112s1253rs/pdf/BILLS-112s1253rs.pdf

FY12 *National Defense Authorization Act* –
Senate Armed Services Committee Report:
http://www.gpo.gov/fdsys/pkg/CRPT-112srpt26/pdf/CRPT-112srpt26.pdf



RECOMMENDED READING LIST

Numerous Army leaders over the years, officers and enlisted alike, have commended the practice of reading to their Soldiers. Even—especially—in this age of information overload, the pursuit of knowledge through books is essential to gain a fuller understanding of acquisition, logistics, and technology. In the words of GEN Gordon R. Sullivan (USA Ret.), 32nd Chief of Staff of the Army, "At no time in history has the volume of information available to the human race been as accessible as it is today, nor as essential. ... Reading teaches conceptual analysis, offers insights to ponder, and expands both the imagination and the potential of the mind." On that note, *Army AL&T* Magazine publishes Off the Shelf as a regular feature to bring you recommendations for reading from Army AL&T professionals.

Is there a book you'd like to recommend for this column? Send us an email at **usarmy.belvoir.usaasc.list.usaascweb-army-alt-magazine@mail.mil**. Please include your name and daytime contact information.

THE STARFISH AND THE SPIDER: THE UNSTOPPABLE POWER OF LEADERLESS ORGANIZATIONS

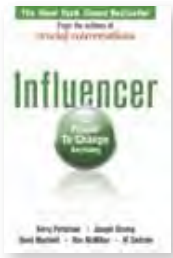
by Ori Brafman and Rod A. Beckstrom
(New York, NY: Portfolio, 2006, 240 pages)

Authors Brafman and Beckstrom take a biology lesson and apply it to business in *The Starfish and the Spider*. The premise of the book rests on these basic biological facts: If a spider is decapitated, it dies; if the leg is cut off of a starfish, the starfish grows a new leg, and the amputated leg regenerates into a new starfish. In business, the authors suggest, traditional top-down organizations take on the characteristics of spiders, while businesses centered on peer leadership are similar to starfish. The book, a favorite of GEN Martin E. Dempsey, Chairman of the Joint Chiefs of Staff, examines how and why "starfish," or decentralized, adaptable businesses, thrive, while "spiders" are easily lost in the top-heaviness of their organization. The authors draw on real-world examples, including Wikipedia, Skype, IBM, Intuit, and the U.S. government, to make their point.

WHERE GOOD IDEAS COME FROM: THE NATURAL HISTORY OF INNOVATION

by Steven Johnson
(New York, NY: Riverhead, 2010, 336 pages)

National best-selling author Johnson's latest work seeks to answer two questions: What sparks the flash of brilliance? and How does groundbreaking innovation happen? *Where Good Ideas Come From* reaches broadly, from pop culture to neurobiology, in examining how people generate the ideas that advance their careers, lives, society, and the greater culture. The author connects Charles Darwin's encounter with a coral reef to the hyper-productivity of modern megacities and the overnight success of YouTube to draw conclusions on the type of environment that cultivates innovation and good ideas. From this information, Johnson identifies seven key principles and follows them across generations to showcase the formation of innovative ideas.



INFLUENCER: THE POWER TO CHANGE ANYTHING

by Kerry Patterson, Joseph Grenny, David Maxfield, Ron McMillan, and Al Switzler
(New York, NY: McGraw-Hill, 2007, 288 pages)

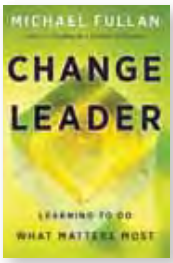
One of the most important capacities we possess is the ability to influence behavior. From the authors of the best-selling *Crucial Conversations: Tools for Talking When Stakes Are High*, this *New York Times* bestseller is based on the award-winning training program of the same title. The book teaches a proven strategy to drive rapid and sustainable behavior change for teams and organizations, using insights from behavioral scientists and business leaders combined with stories of high-powered influencers across all areas of life and business. By learning how to discover and counteract the complex web of forces underlying resistant organizational problems, the authors affirm that you can make change inevitable.

RECOMMENDED READING LIST

THE LONGEST WAR: THE ENDURING CONFLICT BETWEEN AMERICA AND AL-QAEDA

by Peter L. Bergen
(New York, NY: Free Press, 2011, 496 pages)

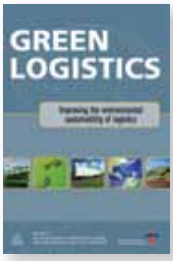
Bergen, a print and television journalist and author of *Holy War, Inc: Inside the Secret World of Osama bin Laden* and *The Osama bin Laden I Know: An Oral History of Al Qaeda's Leader*, looks into the history of the conflicts in Iraq and Afghanistan in his latest release. Bergen draws from internal documents from al-Qaeda and the U.S. offices of counterterrorism, first-person interviews with top-level jihadists and senior Washington officials, and his own experiences in the Middle East, which include a face-to-face interview with bin Laden in 1997 as part of a CNN team. He examines the conflict's successes and failures on both sides, how al-Qaeda has evolved since 9/11, and how the U.S. government has responded. Bergen goes a step further, looking beyond the evolution of the conflict to project the future.



CHANGE LEADER: LEARNING TO DO WHAT MATTERS MOST

by Michael Fullan
(San Francisco, CA: Jossey-Bass, 2011, 192 pages)

Fullan, an internationally acclaimed authority on organizational change and a best-selling author, focuses this book on the core practices of leadership that are vital to leading in the complexity of today's world. *Change Leader* explores seven core practices that are essential for current leaders. From motivation and collaboration to confidence and simplexity (Fullan's concept of complexity and simplicity combined), the seven core practices make the difference between a powerful leader and a competent one. The key to becoming a powerful leader, as Fullan explains, lies in the ability to identify a few things that matter most and in leveraging personal skills that benefit the entire organization, which leads to long-term success.



GREEN LOGISTICS: THE ENVIRONMENTAL SUSTAINABILITY OF LOGISTICS

by Alan McKinnon, Sharon Cullinane, Michael Browne, and Anthony Whiteing
(Philadelphia, PA: Kogan Page, 2010, 384 pages)

With growing concerns about the environment, companies and logisticians must not only move products through the supply chain in a way that meets customer requirements at minimum cost, but they must also take environmental concerns into account. From climate change and air pollution to noise, vibration, and accidents, the authors—a team of leading logistics academicians—consider the environmental repercussions of logistics and analyze ways to reduce these impacts to achieve a more sustainable balance among economic, environmental, and social goals. *Green Logistics*' key areas of focus include the role of the U.S. government in promoting sustainable logistics, developing greener transport options, and improving fuel efficiency.

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