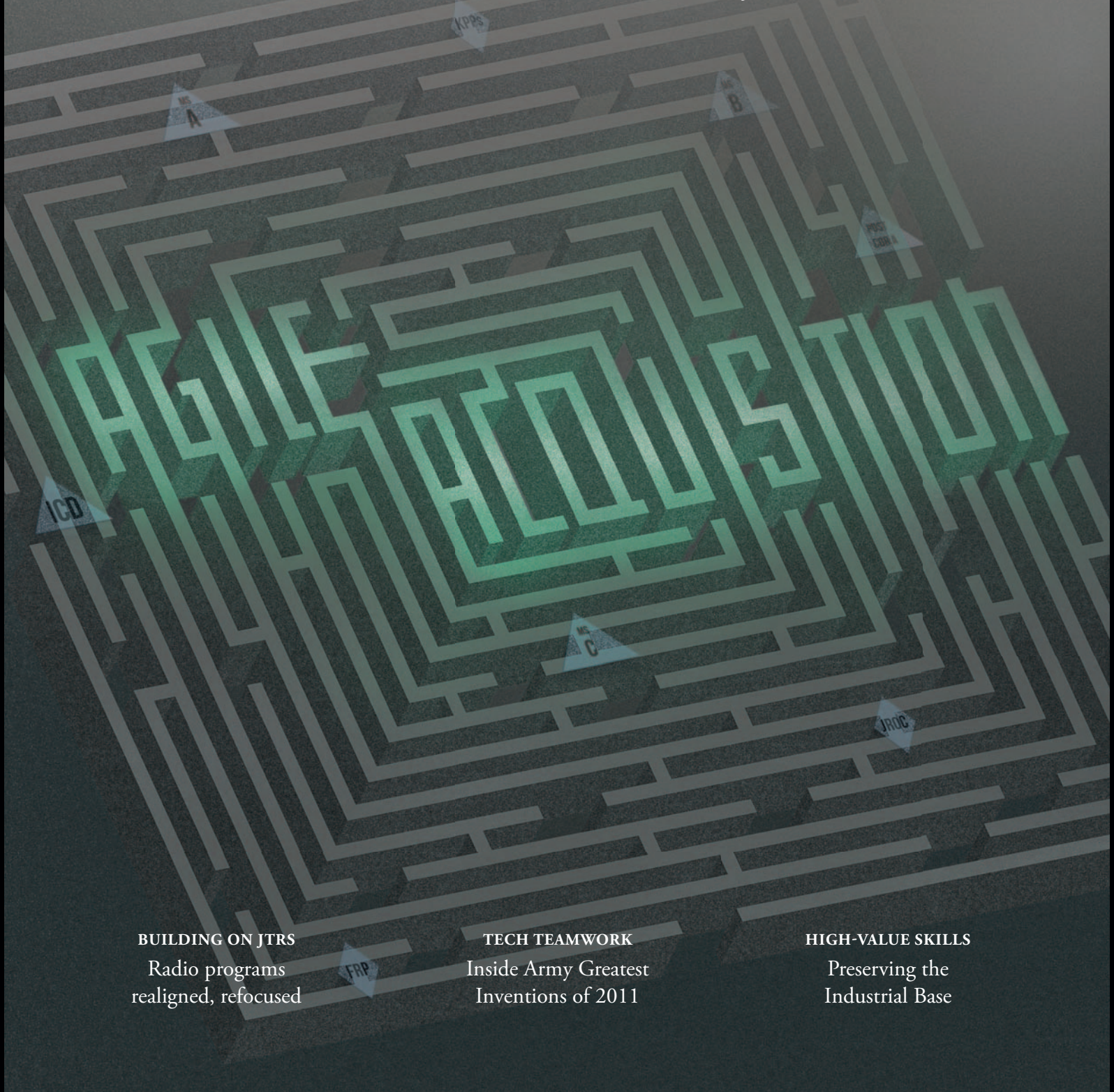


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ARMY AL&T

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JANUARY-MARCH 2013



BUILDING ON JTRS

Radio programs
realigned, refocused

TECH TEAMWORK

Inside Army Greatest
Inventions of 2011

HIGH-VALUE SKILLS

Preserving the
Industrial Base

From the Editor-in-Chief

TALK BACK

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CORRECTION

In the July-September 2012 issue of *Army AL&T* Magazine, the article "A Strong Lens" incorrectly described the makeup of the Army Configuration Steering Board (CSB). The CSB is chaired solely by the Army Acquisition Executive. The Vice Chief of Staff of the Army is a member of the CSB.

At the time this column is being penned, President Obama has signed a bill delaying sequestration until March 1. Whatever happens next, one thing is sure: Budgets are not getting any bigger. More than ever, the Army Acquisition community is challenged to get the absolute most out of our programs, both in meeting requirements and in finding cost efficiencies.

This issue of *Army AL&T* Magazine is dedicated to how our Acquisition Workforce is implementing the tenets of "Agile Acquisition," aka the Agile Process, which breaks development into a series of short test processes leading to a usable product at the end of each iteration that can be quickly evaluated and modified, if necessary, for operational use.

In the past, large projects were developed using a sequential design process, or Waterfall Model. This model sees progress as flowing steadily downward, like a waterfall through distinct phases: conception, initiation, analysis, design, construction, testing, production/implementation, and maintenance. At the conclusion of each phase comes a formal milestone review, conducted as a capstone event along with user validation.

In the Waterfall Model, integration and testing represent a phase separate from the others, which can lead to significant delays and cost overruns if problems are found. There is only one product release at the end of testing. In this highly structured, stovepipe environment, after-the-fact changes are prohibitively costly, if not impossible to implement.

Enter Agile Acquisition. One of the primary differences between the Waterfall Model and the Agile Process is the frequency of usable releases. Breaking down the development phase into short processes that quickly produce a functional product helps agile teams learn about

integration and testing issues very early in the project, instead of at the end.

These lessons learned can benefit future development. Thus, the scope of work can be added to, priorities can be revised, and deliverables can be modified and fielded much faster. With continual user participation and feedback, the customer ultimately receives an improved product much sooner at a better price.

Examples of the Army's use of Agile Acquisition methods abound. Consider, for example, how the Army is saving time and money while delivering vital computing capabilities as described, in the article "A Fast-Moving Cloud." See how continuous improvements are made to the tactical communications backbone in "Evolving the Network," and learn how multiple systems have been brought together and tested under real-world conditions at the most recent Network Integration Evaluation, NIE 13.1.

Also in this issue, the Honorable Heidi Shyu lays out a new 30-year strategic modernization planning process in "Planning Ahead." As the Cheshire cat said in Lewis Carroll's "Alice in Wonderland," "If you don't know where you're going, any road will get you there." Unguided agility will get you nowhere, which is why Shyu provides much-needed direction for the future of our Agile Acquisition efforts.

Finally, this issue presents the results of our biennial magazine survey. We had a significant response rate and, overall, the comments were favorable, affirming that *Army AL&T* Magazine is delivering the coverage and details you need to stay abreast of current issues in the acquisition world. But please don't wait for the next survey to tell us what you think. If, at any time, you have a suggestion about coverage or want to submit an article, contact me at armyalt@gmail.com.

Nelson McCouch III
Editor-in-Chief

ARMY AL&T

JANUARY–MARCH 2013



FEATURES



FROM THE AAE

4

MAINTAINING THE EDGE

Soldier safety, speed, and overmatch are among key priorities as Army plans science and technology investments



ACQUISITION

10

PLANNING AHEAD

New 30-year strategic modernization planning process integrates science and technology with acquisition priorities

16

TAKING 'AGILE' TO THE NEXT LEVEL

Army broadens scope of rapid, responsive acquisition to improve fielding, training, and sustainment

24

BEYOND JTRS

Pentagon, Army realign radio programs, stand up Joint Tactical Networking Center

28

EVOLVING THE NETWORK

Agile Process aids in continuous improvements to tactical communications backbone

34

AIMING FOR 'AGILE'

Fire support system acquisitions target efficiencies in software procurement and fielding

38

INTEL AT THE TACTICAL EDGE

'Agile' engineering process helps multifunctional teams collect and act on battlefield intelligence

44

ADAPTIVE ELECTRONIC WARFARE

Army harvests lessons learned from theater to develop a flexible suite of technologies in dynamic threat environment

50

QUICK-RESPONSE MISSION

Army National Guard addresses HMMWV ambulance shortage with accelerated acquisition program

56

A FAST-MOVING CLOUD

Army Private Cloud contract enables Agile Acquisition of computing capabilities

62

SAFETY IN THE SKIES

U.S. Army Ground Based Sense and Avoid leads unmanned aircraft system integration with National Airspace System



LOGISTICS

68

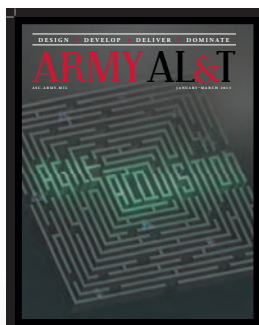
SETTING THE TABLE FOR 2013

Advice for the logisticians of tomorrow from the logisticians of today

78

BEYOND SUSTAINMENT

How the U.S. Army Logistics Modernization Program is taking materiel delivery and accountability to the next level



ON THE COVER

The Agile Process is at the center of Army efforts to deliver critical capabilities to the Soldier faster and more cost-effectively—simplifying the journey through the Acquisition Life Cycle Management Process, where appropriate, while ensuring technical maturity and integration.

FEATURES

THE HONORABLE HEIDI SHYU

Assistant Secretary of the Army
for Acquisition, Logistics, and Technology
(ASA(ALT))/Army Acquisition Executive

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SCIENCE & TECHNOLOGY

84 GLOBAL SOLUTIONS

DOD looks to foreign technologies for mature capabilities that can save money

92 GREATEST INVENTIONS OF 2011

Army's top 10 inventions emphasize Soldier protection and precision

100 BEATING BIOAEROSOLS

Basic research leads Army to develop means of protecting Soldiers from bioagent threats now and in the future

106 AGILE S&T

Using the Agile Process to address capability gaps in interceptors, launchers, and radars

112 MAKING NUMBERS COUNT

The role of the professional statistician in ethical decision-making for DOD



CONTRACTING

118 PATH TO SUCCESS

Lessons learned from leading a Source Selection Evaluation Board to award, ahead of schedule

124 'SMART' CLOSEOUT

How the JTRS GMR Program Office planned and executed the end of a \$2 billion contract with six months remaining

130 GETTING A GRIP

ACC strengthens controls on government furnished property

136 THINKING BIG ON SMALL BUSINESS

HR Solutions expands opportunities with IDIQ contract modifications



CRITICAL THINKING

142 LESSONS IN LEADERSHIP

Executive trainer offers perspectives on the roles of personality, agility, and diversity in running organizations

\$ EFFICIENCIES

- 148** BETTER BUYING POWER 2.0
New incentives aim to expand the impact of 2010 initiative
- 154** BRINGING AGILITY TO AMMO
Changes to acquisition strategy result in better buying power and greater efficiency
- 160** CONSERVING CAPABILITIES
AMC's Public-Private Partnership program aims to preserve the Organic Industrial Base as operations shift to sustainment and workload requirements decrease

COMMENTARY

- 166** THE SUM OF MANY SUCCESSES
Army Acquisition 'changes the paradigm' by harvesting lessons learned to improve the process
- 170** BACK TO THE BASICS IN LOGISTICS
As defense spending is reduced, the force must rebuild a technical knowledge base before skills are lost

Q FIELD EXPEDIENT

- 176** FROM CONCEPT TO REALITY
Army researchers create plastic and metal objects in short order with state-of-the-art 3-D printing technology

★ ARMY AL&T

- 182** READERSHIP SURVEY 2012
What *Army AL&T* readers had to say about the magazine
- 184** BEST OF ARMY AL&T
Magazine honors excellence with first annual ALTie Awards

DEPARTMENTS

 **186 CAREER CORNER**

 **200 SPOTLIGHT**

 **204 FOR THE RECORD**

 **206 OFF THE SHELF**

 **208 THEN & NOW**

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By order of the
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Official:


JOYCE E. MORROW
Administrative Assistant to
the Secretary of the Army
1234901



SITUATIONAL AWARENESS

In the area of mission command and tactical intelligence, Army science and technology (S&T) efforts are focused on providing Soldiers with timely situational awareness on the battlefield. Here, Soldiers from 1st Battalion, 35th Armored Regiment, 2nd Brigade Combat Team, 1st Armored Division test Nett Warrior, an integrated, dismounted Soldier situational awareness system designed to facilitate command, control, and sharing of battlefield information, at Dona Ana Range, NM, during Network Integration Evaluation (NIE) 13.1 in fall 2012. (U.S. Army photo)



FROM THE AAE

FROM THE ARMY ACQUISITION EXECUTIVE
THE HONORABLE HEIDI SHYU

MAINTAINING *the* **EDGE**



FROM THE AAE

Soldier safety, speed, and overmatch
are among key priorities as Army plans
science and technology investments

I often refer to science and technology (S&T) investment as the seed corn of our future. There is no doubt that an enduring pillar of our national security stems from the technological advantage that our world-class research institutions have engendered. Our Army remains the best-trained, best-equipped fighting force in the world—an accomplishment that is attributable, in part, to the cutting-edge technologies applied to Soldier weapons, equipment, infrastructure, and training.

As threats evolve and the pace of technological change accelerates, however, we must work to retain our leading advantage. The future suggests that disruptive technologies may proliferate, which could complicate our ability to conduct future operations against a variety of threats, to include asymmetric and non-state actors. Unconventional threats, to include cyber attacks and electronic warfare, present unique dangers. We must also prepare for a future in which our ability to conduct command and control of operations is challenged by hostile actors using technologies that may become more accessible and advanced over time.

We must make the right investments in S&T to maintain this technological advantage. The Army is working to assess its long-term investment priorities—across a 30-year timeframe—as part of this effort. This calls for a sanguine evaluation of threats and emerging future gaps in capability, followed by a carefully planned road map for translating scientific research into future fielded equipment.

CHALLENGE AREAS

Looking ahead, our S&T priorities are likely to relate to several key challenges the Army must address with future capabilities. These challenge areas span a wide range of missions, while focusing on protecting and empowering our Soldiers.

- The **Force Protection** challenge area relates to our overriding commitment to keep our Soldiers safe as they conduct a wide range of dangerous missions. This is reflected in our pursuit of the very best vehicle and Soldier equipment available in the world, to include ongoing upgrades to existing Soldier body armor and protective gear, blast-resistant armor in combat vehicles, and protection in forward operating bases.



LOGISTICS TAIL

The challenge of meeting refueling requirements underscores the need for technological and logistical innovations that support effective, affordable, and sustainable logistics operations. Here, vehicles of the 710th Brigade Support Battalion, 10th Mountain Division are lined up Nov. 13 in preparation to return home from Contingency Operating Location Victory at Fort Dix, NJ. The battalion provided fuel support to first responders and DOD employees while deployed in support of U.S. Army Northern Command's disaster relief mission. (Photo by SFC Vin Stevens, 82nd Sustainment Brigade)

- Early detection of **traumatic brain injury** (TBI) is another key area of focus. Program Executive Office Soldier is working with the National Football League and academic institutions on research regarding head injury prevention, mitigation, and protection associated with TBI. We are continuing to invest in key areas such as biomarker detection.
- **Mission command and tactical intelligence** remains a fixed priority for the Army, now and in the future. We continue to work across various equipment portfolios to provide Soldiers with timely situational awareness on the battlefield. This is reflected in our development of software-defined radios such as Rifleman and HMS Manpack, and command and control

systems like Joint Battle Command – Platform.

- **Easing the burden on Soldiers and small units** in combat operations will continue to guide Army S&T investment, following a decade of combat experience. Our Soldier-carried weapons, equipment, and ammunition must continue to get lighter, using advanced materials and engineering.

Also, we continue to explore ways to achieve advances in expeditionary power to reduce the weight Soldiers carry. These solutions include power generation systems, power scavenging, power distribution, power management, and power storage solutions that are lightweight





OUR ARMY REMAINS THE BEST-TRAINED, BEST-EQUIPPED FIGHTING FORCE IN THE WORLD—AN ACCOMPLISHMENT THAT IS ATTRIBUTABLE, IN PART, TO THE CUTTING-EDGE TECHNOLOGIES APPLIED TO SOLDIER WEAPONS, EQUIPMENT, INFRASTRUCTURE, AND TRAINING.

and Soldier-portable or wearable. We will also incorporate emerging technologies, such as harnessing renewable energy in austere environments, improved battery technology, and smart textiles.

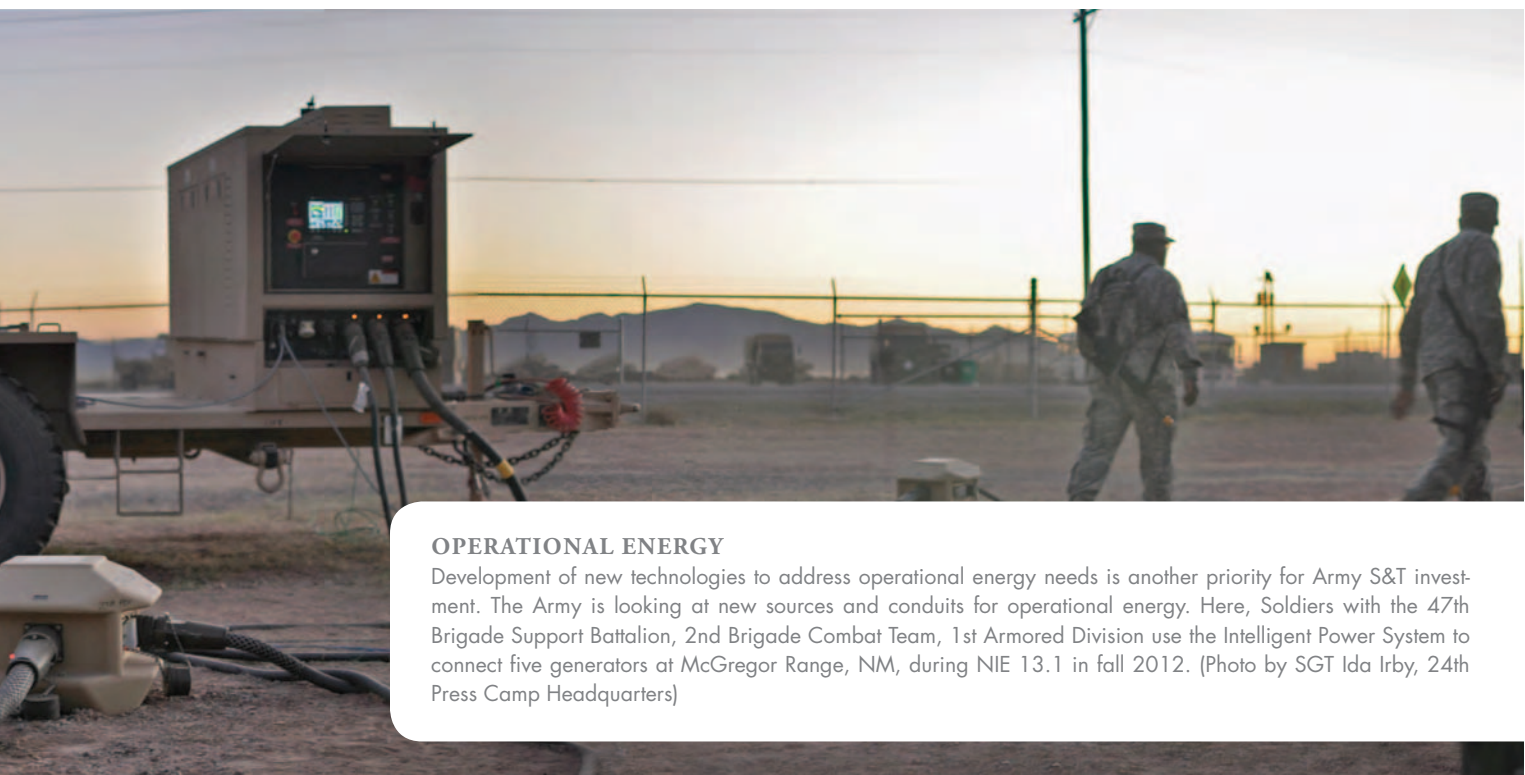
- Successful development of new technologies to address **operational energy** needs is another priority for our future. The Army's investment in an Improved Turbine Engine, with a goal of 25 percent less fuel consumption in our aviation platforms, attests

to this need. The Mobile Electric Power program, designed to achieve fuel efficiency and greater system reliability through next-generation power sources while addressing tactical needs, is another key example of the types of capabilities we need in order to address this challenge area.

- **Maneuverability** of our platforms in a full spectrum of operational environments, and at a high operational tempo, remains a priority.
- Reducing the logistical burden of

storing, transporting, distributing, and retrograde of materials is also a key challenge area. Over the past decade, the Army has learned that it must plan for logistical challenges in the conduct of future operations. Technologies are needed that support effective, affordable, and sustainable logistics operations.

- Efforts to establish and maintain **operational overmatch** for Soldiers must continue to drive our S&T investments into the future. In this



OPERATIONAL ENERGY

Development of new technologies to address operational energy needs is another priority for Army S&T investment. The Army is looking at new sources and conduits for operational energy. Here, Soldiers with the 47th Brigade Support Battalion, 2nd Brigade Combat Team, 1st Armored Division use the Intelligent Power System to connect five generators at McGregor Range, NM, during NIE 13.1 in fall 2012. (Photo by SGT Ida Irby, 24th Press Camp Headquarters)



OUR SOLDIER-CARRIED WEAPONS,
EQUIPMENT, AND AMMUNITION
MUST CONTINUE TO GET
LIGHTER, USING ADVANCED
MATERIALS AND ENGINEERING.

SOLDIER LOAD

Reducing the load that Soldiers carry is a high priority for the Army S&T community. This includes continued exploration of ways to advance expeditionary power to reduce the weight for Soldiers. Here, a Soldier participates in small arms training from Forward Operating Base Sharana, Paktika province, Afghanistan, Aug. 15 for Coalition and Afghan forces. (Photo by SPC Michael Mulderick, 55th Combat Camera)



OVER THE PAST DECADE, THE ARMY HAS LEARNED THAT IT MUST PLAN FOR LOGISTICAL CHALLENGES IN THE CONDUCT OF FUTURE OPERATIONS. TECHNOLOGIES ARE NEEDED THAT SUPPORT EFFECTIVE, AFFORDABLE, AND SUSTAINABLE LOGISTICS OPERATIONS.

area, we seek enabling technologies that provide our Soldiers with capabilities such as increased lethality and accuracy delivered by the best arms possible.

- **Reducing life-cycle costs** through innovative S&T is another goal as we pursue affordable and effective capabilities for Soldiers. We must plan for sustainment costs in the development of future weapon systems and equipment.
- The Army must be prepared to defend against **chemical, biological,**

radioactive, and nuclear threats in the future. S&T investment must continue to pursue innovation in protective equipment, detection, and containment of such threats.

- S&T must also continue to drive innovation in the Army's **training of Soldiers**. Technologies that facilitate individualized and team-based training have achieved significant success. We will need to continue to leverage developing technologies toward this end.

CONCLUSION

Our strategy will focus on identifying and linking critical enabling technologies to existing and future programs of record.

We will partner with academia, Army research institutions, and industry to leverage S&T research in determined support of future Army capabilities that maintain our critical advantage.



FORCE PROTECTION

One of the key areas of focus for Army S&T investment continues to be force protection, including body armor, armor for combat vehicles such as the Mine Resistant Ambush Protected (MRAP) vehicle, and protection in forward operating bases. Here, SSG Josh Steffen with 2nd Battalion, 377th Parachute Field Artillery Regiment, Task Force Spartan works on an MRAP aboard Forward Operating Base Salerno, Khost province, Afghanistan, Feb. 3, 2012. (Photo by SPC Ken ScarSmall, 7th Mobile Public Affairs Detachment, Combined Joint Task Force 1 – Afghanistan)



PLANNING AHEAD

New 30-year strategic modernization planning process integrates science and technology with acquisition priorities

by Ms. Margaret C. Roth

With the end of *Operation Enduring Freedom* approaching, the Army is focusing on a 30-year strategic modernization plan as it refines and realigns its priorities for the force.

This new process “combines a detailed analysis of our current and planned investments in S&T and materiel development, linked to our emerging threats and capability gaps across a long-term, 30-year planning period,” said Heidi Shyu, Assistant Secretary of the Army for Acquisition, Logistics, and Technology, at the Association of the United States Army (AUSA) Annual Meeting and Exposition, held Oct. 22-24 in Washington, DC.

Shyu led an Oct. 23 Institute of Land Warfare Contemporary Military Forum entitled “Thinking Past Tomorrow: Where Is Army Modernization Going?”

She described a process that looks at asymmetrical and adaptive threats, identifies current and anticipated capability gaps, and aligns near- and long-term acquisitions and S&T investments accordingly. The idea is to integrate emerging capabilities that have near-term benefits with basic and applied research that could yield cutting-edge technologies over the long run.

“The output of this process will be a detailed road map of our future capabilities across the acquisition life cycle, linking our S&T investments with our Programs of Record, which, in turn, are linked to our long-term sustainment strategy,” Shyu said.

This strategic modernization planning dovetails with DOD’s ongoing Better Buying Power initiatives, in which acquisition investments must systematically reflect the need for affordability, and





LOOKING TO THE FUTURE

Army leaders detailed a vision for the future, including a new strategic modernization process, at the Association of the United States Army (AUSA) Annual Meeting and Exposition, held Oct. 22-24 in Washington, DC. As part of the new strategic modernization process, program executive officers across the Army are working to identify current and planned capabilities over a 30-year timeframe. Here, Soldiers and civilians make their way around the AUSA Exhibit Hall in the Walter E. Washington Convention Center Oct. 24. (Photo by Robert Knudsen Photography Inc. for AUSA)

portfolio analysis is the framework for capital investments in families of products, such as ground combat vehicles or aircraft. (See related article, Page 148.)

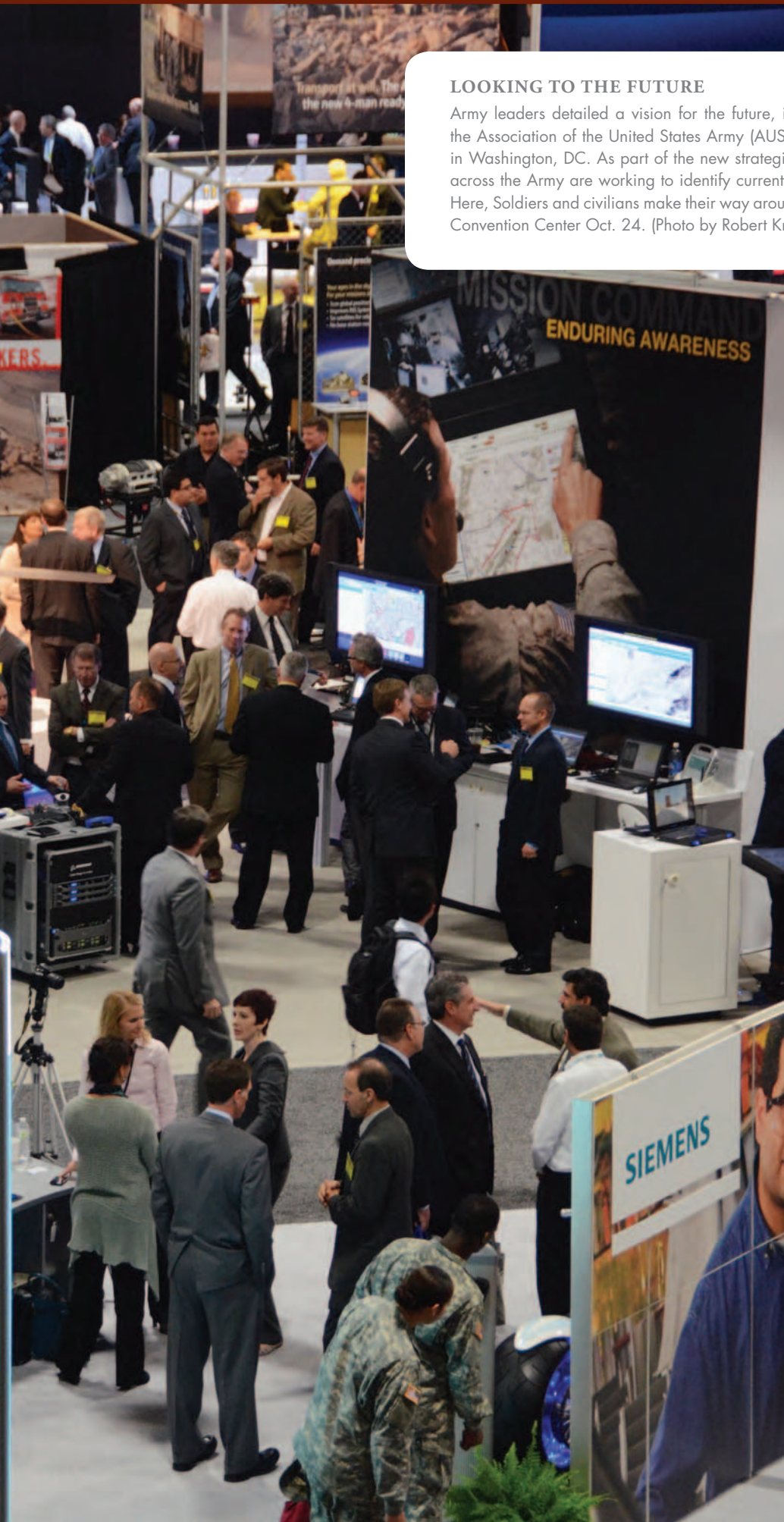
Shyu's remarks and the ensuing discussion came against a backdrop of senior Army leaders' expectations for the future of the force. That vision includes end-strength reductions, diminishing resources, and regionally responsive, mission-tailored strategic land power with a broad range of capabilities to respond to the combination of primitive tactics and advanced weapons that characterize modern warfare.

SYNCHRONIZING S&T

"Army Acquisition's 30-year modernization approach reflects a broader strategic goal of fostering and sustaining an agile, deployable, technologically superior force that can keep pace with rapid technological change," Shyu explained. By synchronizing S&T efforts with Programs of Record, the Army can identify "insertion" opportunities to integrate new capability with existing developmental efforts.

"Force protection will remain a paramount consideration, regardless of the region we're fighting in," Shyu said. "The Army will continue to develop systems to enhance and improve protection, whether Soldier protection, vehicle—ground vehicle or airborne platforms—or post [and] base protection."

Other key focus areas for Army S&T efforts are lightening the load that



Soldiers carry by providing smaller, lighter energy sources; tactical situational awareness systems; networked systems; and reducing the logistical burden of operating far from home bases. The Army is also looking at self-healing armor, non-electronic communications, and enhanced line-of-sight and non-line-of-sight capabilities to deliver versatile effects, both lethal and nonlethal.

As part of the new strategic modernization process, program executive officers across the Army are working to identify current and planned capabilities over the 30-year timeframe, “spanning from concept development to technology development to EMD [engineering and manufacturing development], production, and sustainment. Our strategic modernization plan will also integrate our long-term sustainment needs and priorities,” Shyu said.

“Army scientists and engineers are working with industry and academia to identify basic research themes geared toward new capability,” said Mary Miller, Acting Deputy Assistant Secretary of the Army for Research and Technology.

Miller also noted that the congressionally allocated Rapid Innovation Fund, designed to support small business S&T innovations aimed at solving challenges, is having an impact.

“Basic research takes a long time to develop. This isn’t a planned thing that we can say, ‘Well, in 10 years we’ll have success,’ ” Miller elaborated. “We don’t know what will be successful, so we need to start now, and we need to be consistent with where we’re going.”

The Army has dramatically changed its approach to S&T over the past two



SUPPORT FOR THE SOLDIER

Having an Army that can engage anywhere in the world on a “complex and uncertain battlefield” requires a modernization strategy centered on providing Soldiers and the squad “with unmatched lethality, protection, and situational awareness to achieve tactical dominance,” said Chief of Staff of the Army GEN Raymond T. Odierno. Above, SSG Robert Kelly, an infantryman assigned to 3rd Battalion, 187th Infantry Regiment, 3rd Brigade Combat Team “Rakkasans,” 101st Airborne Division (Air Assault), and his fellow Soldiers provide security and intelligence support Dec. 2 while the Afghan Uniformed Police search nearby buildings and question locals about suspected insurgent activity, near Combat Outpost Bowri Tana in Khost province, Afghanistan. (U.S. Army photo by SFC Abram Pinnington, Task Force 3/101 Public Affairs)



BETTER PROTECTION

Part of Army Acquisition’s 30-year modernization plan is to continue developing systems to enhance and improve protection, whether for Soldiers, ground and airborne vehicle platforms, or posts and bases. Here, 2LT Chelsea Adams (right) helps PFC Cheryl Rogers with the new Generation III Female Improved Outer Tactical Vest at Fort Stewart, GA, Nov. 28. The Soldiers, who are part of the 1st Armor Brigade Combat Team (ABCT) Female Engagement Team, 3rd Infantry Division (ID), were preparing to deploy to Afghanistan. They are only the second group in the Army to test this new body armor. (U.S. Army photo by SPC Emily Knitter, 1st ABCT, 3rd ID)



WIDENING THE NETWORK

Networked systems are a key area of focus for Army science and technology (S&T) efforts. Here, a Shadow 152A, an unmanned aerial vehicle (UAV) equipped with a Soldier Radio Waveform (SRW), awaits launch at McGregor Range Complex, NM, Oct. 30.

The SRW will allow multiple echelons to view the images from the UAV and increase the communication range. (U.S. Army photo by SGT Mark Kauffman, 24th Press Camp Headquarters)

years, identifying and aligning focus areas of scientific exploration, investment, and research through “portfolios,” which address broad S&T problems and specific challenges prioritized by Army leaders according to operationally relevant objectives. (See “Delivering Technology,” *Army AL&T Magazine*, October-December 2012.)

“This is the first time since the war started that we have the Army leadership taking a serious look at what we

in S&T can and should be doing in the future,” Miller said.

FROM ADAPTING TO INNOVATING

Speaking at the modernization forum, LTG Keith C. Walker, Deputy Commanding General, Futures and Director, Army Capabilities Integration Center at the U.S. Army Training and Doctrine Command, drew a distinction between innovation and adaptation.

“While the needs of war forced the Army to adapt quickly to develop ‘good enough’ solutions for changing circumstances, the new environment will demand more focused research and investments,” Walker said.

“What we’ve been doing over the last decade is adaptation, and some very successful adaptation. Innovation, on the other hand, comes from a much more methodical development of possibilities to [solve] longer-term problems,” he

added. “Our challenge is how to balance this adaptive/innovative aspect of our Army’s organization.”

Shyu cited several acquisition successes of the past 10 years, including Blue Force Tracking, Enhanced Night Vision Goggles, and the Pelvic Protection System, as key examples of harvesting lessons learned.

“Our command posts and systems transitioned from analog to a digital backbone. Our tactical mission-command capabilities have been revolutionized to include enhanced situational awareness through Force Battle Command – Brigade and Below, or FBCB2, and Blue Force Tracking as well as improved satellite communications,” she said.

She also cited the protective capabilities of Mine Resistant Ambush Protected vehicles, the Stryker Double-V Hull, and the Enhanced Performance Round.

CHANGING MISSIONS

“The Army continues to represent one of America’s most credible deterrents against future hostility,” said Chief of Staff of the

Army GEN Raymond T. Odierno Oct. 23 at the AUSA Eisenhower Luncheon.

The successful end of operations in Iraq and the ongoing transition of U.S. troops in Afghanistan, coupled with the Nation’s significant fiscal challenges, “make it essential that our Army reorients itself toward a broader array of missions and regions across the globe,” Odierno said.

He explained that as the Army aligns unit headquarters and rotational units with combatant commands, it will be better prepared to meet the regional requirements more rapidly and effectively than ever before. Efforts are already underway with U.S. Pacific Command, Africa Command, and European Command to designate forces, align headquarters, and increase integration with allies and multinational forces.

Odierno emphasized that supporting a force that can engage anywhere in the world on a “complex and uncertain battlefield” requires a modernization strategy centered on Soldiers and the squad. “We must empower them with unmatched lethality, protection, and situational

awareness to achieve tactical dominance,” he stated. “It entails an overarching network architecture that connects all echelons—from squad to Joint task force—to ensure leaders have the right information at the right time to make the best possible decisions, therefore enabling Mission Command. It includes network-ready combat and tactical wheeled vehicles designed to maneuver our formations with increased lethality and mobility, while optimizing survivability.”

According to Odierno, the past 11 years of war have changed the force. “The Army has become a world leader in basic scientific research and applied technology in areas such as armaments, life-saving medical advances, nanotechnology, robotics, fuel-efficient initiatives, and simulation,” Odierno said. “Our efforts to develop the force must keep pace with this technology ... so that we do not cede the advantage to future enemies.”

CONCLUSION

Shyu set a similar tone. “As we look ahead, many potential adversaries will have greater access to sophisticated and disruptive technologies that could greatly

THE ARMY HAS DRAMATICALLY CHANGED ITS APPROACH TO S&T OVER THE PAST TWO YEARS, IDENTIFYING AND ALIGNING FOCUS AREAS OF SCIENTIFIC EXPLORATION, INVESTMENT, AND RESEARCH BY “PORTFOLIOS,” WHICH ADDRESS BROAD S&T PROBLEMS AND SPECIFIC CHALLENGES PRIORITIZED BY ARMY LEADERS.



KEEPING UP WITH TECHNOLOGY

Army Acquisition's successes over the past 10 years include tactical mission-command capabilities that employ a host of new technologies to enhance situational awareness. Here, Soldiers from 1st Battalion, 35th Armored Regiment, 2nd Brigade Combat Team, 1st Armored Division drive through a mock village at Dona Ana Range, NM, in their Mine Resistant Ambush

Protected minesweeper Oct. 26 during Network Integration Evaluation 13.1. The Soldiers were evaluating new technologies in an operational context. (U.S. Army photo by LTC Deanna Bague, Brigade Modernization Command))

complicate our operations. We cannot afford to let technological change level our advantage in any potential conflict," she said.

"The drawdown of U.S. troops from Afghanistan, coupled with renewed attention to the Asia-Pacific Theater, represents an important transition for Army modernization," she noted. "It is the right time to entertain a comprehensive and strategic approach to Army equipment

modernization in which we adapt a systemic approach to setting and determining long-term equipping priorities."

Video of the Army modernization forum is available through the Defense Video and Imagery Distribution System at <http://www.dvidshub.net/search?q=modernization+ausa#.UMaE7LbIVmB>.



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TAKING ‘AGILE’ *to the* NEXT LEVEL

Army broadens the scope of rapid, responsive acquisition
to improve fielding, training, and sustainment

by Mr. Terry Edwards and COL Rob Carpenter





INTRODUCING CAPABILITY SET 13

A Soldier from the 3rd Brigade Combat Team (BCT), 10th Mountain Division uses Capability Set (CS) 13 equipment at Fort Drum, NY, during the fielding of CS 13 in October. CS 13 marks the first time the Army delivered network systems as an integrated communications package that spans the entire BCT formation, connecting the static tactical operations center to the commander on-the-move to the dismounted Soldier. (U.S. Army photos by Claire Heininger)

During the past decade of war, the Army acquisition community rose to the challenge to rapidly equip our Soldiers with the tools they needed. When commanders asked for new capabilities, we mustered all possible resources to quickly identify technologies, procure them, and send solutions to theater.

But with that rapid response came some challenges. Systems sometimes arrived without the infrastructure and processes in place to support them, leaving Soldiers to figure out how the systems worked and how they integrated with the rest of the equipment. While the Army has done an excellent job of providing capabilities in response to urgent needs, recent experience has taught us that we can and must do better at providing training, integration, and sustainment of capabilities for our deployed forces.

Our next challenge, therefore, is to expand the definition and goal of “agile” acquisition to encompass not only how we can rapidly procure capability, but also the ways in which we field, train, sustain, and continuously improve it. We have already begun to implement these changes with the tactical communications network, the Army’s top modernization priority.

INTEGRATED CAPABILITY SETS

Our new way of fielding the tactical network addresses many of the lessons learned from the past 10 years. This process, Capability Set Management (CSM), is a significant departure from the previous practice of fielding systems individually and often to only one element of the operational force at a time.

Today, as part of CSM, the Army is fielding integrated packages of network equipment distributed throughout a



FROM NIE, NETT WARRIOR

The handheld Nett Warrior system, which leverages commercial smartphone technology to provide integrated situational awareness for the dismounted leader in combat operations, is among those that the Army is procuring as a result of the Network Integration Evaluations (NIEs), along with Soldier Radio Waveform Appliqué radios, AN/PRC-117G radios, routers, and antenna and power generation kits. Here, a Soldier from the 2nd Brigade Combat Team, 1st Armored Division uses Nett Warrior during NIE 13.1, which concluded Nov. 16 at Fort Bliss, TX, and White Sands Missile Range, NM.

combat formation and its supporting elements, from the brigade command post to the commander on-the-move to the dismounted Soldier. CSM synchronizes

these systems’ technical maturity with the Army Force Generation process and units’ deployment cycles for a disciplined, integrated approach to fielding.

ANOTHER WAY WE WILL CONTINUOUSLY IMPROVE OUR NETWORK CAPABILITIES—AND MAKE THEM MORE SUSTAINABLE AND USER-FRIENDLY FOR THE SOLDIER—IS THROUGH THE ARMY’S COMMON OPERATING ENVIRONMENT.

Before they are selected to be part of a Capability Set (CS), network systems are developmentally tested and technically integrated using robust Army laboratories, and undergo operational evaluations with a full brigade combat team (BCT) at the Network Integration Evaluations (NIEs). Held twice a year to keep pace with technological change, the NIEs bring Soldiers, materiel developers, and engineers together in a realistic operational environment. (See related article, Page 28.)

We are using these NIEs to gain Soldier feedback that can inform the Army on what systems should be procured, as well as to ensure that the systems work together as an integrated communications package for the BCT. Just as important, NIEs have helped the Army develop Tactics, Techniques, and Procedures (TTPs) for how Soldiers and acquisition managers should field, train, sustain, and maintain network capabilities. NIEs study everything from how network systems are installed onto a vehicle, to what training approach is most effective, to the role and management of field service representatives who support the systems.

Lessons learned from the NIEs have been applied to the process of producing, fielding, and training CS 13, the first integrated package to emerge from the NIE process, and to the alignment of several key Army network Programs of Record. The same engineers and technicians who were on the ground at the NIEs are now

applying their knowledge to the production of CS 13 as they work to integrate complex communication systems onto the Mine Resistant Ambush Protected (MRAP) vehicles that will go to theater.

Engineering and production teams from various program offices have partnered with engineers from the Space and Naval Warfare Systems Center Atlantic who worked on NIE vehicle integration, in order to directly apply NIE lessons learned to integration and design for the MRAP All-Terrain Vehicles and MRAPs that are being integrated to support CS fielding. Additionally, lessons learned while integrating network systems onto 2nd Brigade Combat Team, 1st Armored Division (2/1 AD) vehicles in the NIE integration motor pool will be applied as the Army integrates CS 13 systems into theater-provided platforms in Afghanistan, starting in 2013.

The two brigades of the 10th Mountain Division that have received CS 13 are also tapping into the expertise of the 2/1 AD, the unit that conducts the NIEs, to gain insights on how to operate the network and how it will benefit their specific missions.

For example, the NIEs have demonstrated the network’s ability to support operations in austere environments such as Afghanistan. As U.S. forces continue to draw down, they will turn over many of their forward operating bases and other infrastructure to the local forces,

thus gradually losing fixed network infrastructure locations. CS 13 systems provide mobile satellite and robust radio capability, allowing commanders and Soldiers to take the network with them in vehicles and while dismounted, as they conduct combat and security assistance missions.

The mission scenarios developed for the NIEs have required 2/1 AD to perform these tasks with the support of the network. As the exercises unfold, the unit develops and documents the TTPs for each system and for the CS as a whole. Soldiers recognize that their input is directly influencing how their counterparts will use the network while deployed.

The integration, training, TTPs, and sustainment practices vetted through realistic missions at the NIEs give 10th Mountain Division Soldiers a head start on how best to leverage the new technologies they are taking to the battlefield. Furthermore, the Army will continuously incorporate lessons learned from the experience of the 10th Mountain’s BCTs and other CS 13 receiving units into its network doctrine and future capability sets.

WORKING WITH INDUSTRY

Even as this capability set goes to the field, the Army is continuing to enhance the network through a continuous cycle of test and evaluation. The NIE itself is one phase of this process, which also includes laboratory assessments and risk



LESSONS LEARNED ON TRAINING

The NIEs have provided lessons learned for how Soldiers and acquisition managers should field, train, sustain, and maintain network capabilities, as well as what the Army should procure. To support the first fielding of Capability Set (CS) 13 to the 3rd and 4th Brigades of the 10th Mountain Division, the Army's System of Systems Integration Directorate and the 10th Mountain conducted a CS 13 equipment "handoff" and viewing at Fort Drum, NY, on Oct. 11. After several months of training on the new systems, the units are slated to deploy with CS 13 assets in 2013.

reduction for both government and industry systems.

The Army will also incorporate lessons learned once the CS arrives in theater, using continuous evaluation to incrementally improve network capabilities. This model, which marks a departure from the test/fail mentality often applied to acquisition programs, allows the Army to continuously perform assessments and collect data to refine capabilities and seek better industry solutions.

We are now leveraging industry innovation by bringing in mature commercial technologies for evaluation earlier in the development cycle. When these systems show promise, we also integrate them with the larger Army network, ensuring

that off-the-shelf products work within the network baseline.

To enter into the process, companies respond to a "sources sought" notification detailing the Army's defined capability gaps, and then are selected to enter laboratories at Aberdeen Proving Ground, MD, for technology evaluation, assessment, and integration. This lab-based risk reduction gives the Army a venue to measure technical maturity in a system-of-systems context.

It also benefits industry by allowing companies to plug their systems into the Army network baseline and discover any interoperability challenges before Soldiers encounter them during the NIE. The lab assessments inform the Army's choices

on what systems will participate in the NIEs and provide detailed "scorecards" to industry on how the technologies performed and what could be improved in the future.

To date, the Army has evaluated more than 115 industry solutions using the NIE construct to potentially fill capability gaps, from cross-domain solutions to operational energy systems. We have seen tremendous innovation from businesses both large and as small as 12 people. As a result of the NIEs, the Army has entered into procurement of handheld Nett Warrior systems, Soldier Radio Waveform Appliqué radios, AN/PRC-117G radios, routers, and antenna and power generation kits.

To date, the Army has spent approximately \$300 million to facilitate industry participation in the NIE, and to procure systems out of the NIE to support CS fielding. The Army now maintains a dedicated pool of funding for NIE support; to support future procurements, the Army has requested funding to procure promising capabilities emerging from the NIE.

Going forward to support future NIEs, the Army will continue to send out sources sought notices for broader capability gaps, while also sending out formal Requests for Proposals (RFPs) for targeted capability gaps. The RFP process will help ensure that we have competition on delivery orders for targeted capabilities. While the supporting processes are still evolving, there is no doubt that the NIE construct has dramatically improved coordination and partnership between the Army and industry. Industry partners are receiving information on specific network needs and technical standards to better focus their efforts, and we look forward to seeing their continued innovation.

ALIGNING CAPABILITIES

As the tactical network baseline is solidified, the Army is also seeking to better align its science and technology (S&T) priorities with emerging capability gaps. We are actively working with the U.S. Army Research, Development, and Engineering Command to ensure synchronization of S&T priorities with operational needs and capability gaps that are emerging from the U.S. Army Training and Doctrine Command. Efforts have linked integration teams, program managers, and the research and development centers to help identify emerging technologies that may fill a capability gap.

As these systems mature through their developmental and operational testing, they can be pulled forward into the NIE process for field evaluations and integration with the network baseline. Although still a work in progress, this synchronization has already identified many promising capabilities that have entered or are about to enter the NIE process.

Another way we will continuously improve our network capabilities—and make them more sustainable and user-friendly for the Soldier—is through the Army's Common Operating Environment (COE). The COE is a set of commonly applied technical standards designed to facilitate maximum interoperability between systems, and to ensure that emerging capabilities work well with one another and with existing systems. It also focuses on attaining open architecture to leverage industry innovation, on cyber-hardened foundations for security, and on reducing systems' life-cycle cost.

Within the COE is a computing environment (CE) structure geared toward organizing the Army network from the



DELIVERING NETWORKED VEHICLES

The Army's NIEs study how network systems are installed onto a vehicle, among many other aspects of network modernization. Vehicles equipped with components of CS 13, shown here at Fort Drum, NY, during fielding to the 10th Mountain Division in October, include Mine Resistant Ambush Protected vehicles configured with new tactical radios plus the Warfighter Information Network – Tactical Increment 2, and other CS 13 components. They will accompany the 3rd and 4th Brigades of the 10th Mountain when they deploy in 2013.

sustaining base to the tactical edge, including sensors, command posts, mounted vehicles, handheld devices, and other component areas. Each CE will have stringent technical standards for software infrastructure, which will guide materiel development and ensure built-in interoperability and consistency for the user.

The COE will enable the Army to integrate “plug-and-play” commercial technologies into its network architecture more quickly and at a lower cost.

CONCLUSION

This new approach to testing, procuring, fielding, and upgrading the tactical network illustrates how the Army is broadening the scope of agile acquisition to include the processes that support our delivery of enhanced capabilities as a holistic set.

It's not good enough just to send technology to the battlefield fast. We are now making sure that technology is accompanied by the proper training, doctrine, integration, and sustainability, so that our Soldiers can have even better opportunities for success.

For more information on Army network modernization, go to www.bctmod.army.mil and <http://www.army.mil/asaalt/>.

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NIE: Enabling Integrated Capability Fielding

A key component of the Army's new Agile Process, the Network Integration Evaluation (NIE) is proving to be an enduring process. The twice-yearly, Soldier-driven events leverage a full brigade combat team to evaluate and assess the latest networked and non-networked

technologies from both government and industry sources, with the goal of further integrating and rapidly advancing the Army's tactical network—the service's No. 1 modernization priority.

Each iteration of the NIE builds upon the last, which allows the Army to

continuously refine the process and apply lessons learned to align Programs of Record, inform requirements, allow for integration of capability before deployment, provide an avenue for industry to bring mature capability for evaluation, and quickly get the best technologies available to our Soldiers.

EVALUATING FOR ACCURACY

During the first three Network Integration Evaluations (NIEs), the Army evaluated more than 115 systems from government and industry. Here, SFC William Lawrence, a system manager for the Brigade Modernization Command, and SGT Justin L. Farmer, a training NCO with 4th

Battalion, 27th Field Artillery Regiment, 2nd Brigade Combat Team, 1st Armored Division, monitor the GenSet Eliminator system Oct. 30 during Test Week of NIE 13.1 at McGregor Range, NM. (U.S. Army photo by SGT Ida Irby, 24th Press Camp Headquarters)



After launching the NIE in June 2011, the Army has successfully completed four cycles. The fourth iteration in the series, NIE 13.1, took place in October and November 2012 at Fort Bliss, TX, and White Sands Missile Range, NM.

NIE 13.1 ACCOMPLISHMENTS

As with the first three NIEs, 13.1 was managed by the NIE TRIAD—comprising the U.S. Army Test and Evaluation Command (ATEC), the Brigade Modernization Command, and the System of Systems Integration Directorate—and executed by more than 3,200 Soldiers of the 2nd Brigade Combat Team, 1st Armored Division (2/1 AD). The 2/1 AD conducted combined arms maneuver, counterinsurgency, and stability operations in a hybrid threat environment that was more complex than in previous events, to include peer and non-state forces, criminal gangs, and unpredictable host nation forces.

As part of NIE 13.1, the Nett Warrior system underwent a Limited User Test. In addition, several program tests for record were conducted on site, and more than 20 industry and government capabilities known as Systems Under Evaluation (SUE) were assessed. More than a dozen vendors with networked and non-networked SUEs participated in NIE 13.1, reflecting the Army's aggressive effort to seek mature technologies from both large and small industry partners to fill hardware and software needs.

In addition, ATEC conducted a distributed test for the Paladin Integrated Management program at Yuma Proving Ground, AZ, and another for the Joint Battle Command – Platform with U.S. Marines from Marine Corps Base Camp Pendleton, CA. NIE 13.1 helped

lay the foundation for future distributed tests of even greater technical and Joint complexity.

Distributed tests allow data generated away from the NIEs through modeling and simulation, laboratories, and testing and training at other sites to be efficiently and quickly shared with distant locations. The end result enables both the distributed location and the Army to better use resources, focus on maximum efficiency, and better replicate environments for the Army's future requirements

Incorporation of the SUEs resulted from pairing down more than 140 capability submissions, using formal white paper evaluations and assessing potential candidates in government laboratories at Aberdeen Proving Ground (APG), MD, before integration at the NIE.

Every SUE was required to enter the APG laboratories for assessment and integration. This robust, lab-based risk reduction allowed the Army to better integrate and assess the systems and helped in building and vetting the Capability Set (CS) 14 network architecture.

CAPABILITY SETS

CS 14 is the follow-on to CS 13, the Army's first fully integrated package of network communications technology that connects all echelons of a brigade combat team down to the dismounted Soldier. CS 13, which was fielded to the 3rd and 4th Brigade Combat Teams of the 10th Mountain Division in October, will reduce units' reliance on fixed infrastructure, extend the range of communications, and improve battlefield awareness at the lowest levels.

NIE 13.1 helped solidify the CS 14 network architecture and established an

early look at the CS 14 network baseline, building upon the CS 13 network architecture that was validated and finalized at NIE 12.2, the third iteration in the series, which was conducted in May-June 2012.

INTEGRATED NETWORK BASELINE

During the first three NIEs, the Army evaluated more than 115 systems from government and industry. Test data and Soldier feedback enabled the Army to establish an integrated network baseline based on a hybrid integration of satellite-based communications and terrestrial networking radios. Using the NIEs to establish that baseline and to inform training and leader development in terms of Tactics, Techniques, and Procedures, the Army is able to rapidly incorporate new technology and adapt it based on different mission requirements.

After the NIEs, capability evaluations provide Doctrine, Organization, Training, Materiel, Personnel, Leadership and Facilities (DOTMPLF) assessments and recommendations to support fielding decisions and validate baseline architectures.

The NIEs are critical to help the Army understand how to fight with these new technologies and how to train Soldiers to work with some of the latest experimental technologies in an operational environment. Soldier feedback and lessons learned from the NIEs have helped the Army develop TTPs for CS 13 capability and have been applied to CS 13 fielding, training, logistics, and sustainment.

—*System of Systems Integration Staff*

BEYOND JTRS

Pentagon, Army realign radio programs,
stand up Joint Tactical Networking Center

by Mr. Kris Osborn and Ms. Claire Heining



To provide needed communication capabilities to Soldiers, the Army has placed significant emphasis on advances in tactical radio technology aimed at driving industry innovation in hardware while leveraging years of government investment in software.

In recent months, DOD transitioned the Joint Program Executive Office Joint Tactical Radio System (JPEO JTRS), reassigning its key hardware programs to the Army and Navy. Additionally, the Joint Tactical Networking Center (JTNC) was established to provide secure joint tactical networking applications that can operate in a variety of hardware transport solutions through an affordable, government-controlled open architecture.

This effort will leverage the considerable technological progress achieved over the past decade of JTRS development while harnessing industry's ability to develop, build, and deliver cost-effective hardware solutions. Hardware will be engineered to use low- and high-capacity waveforms that facilitate efficient and secure sharing of voice, video, data, and imagery across the force in real time, to provide warfighters on the battlefield with the right information at the right place, on time for mission success.

Interoperability is at the heart of the JTNC effort to support secure networks. These networks are, by design, capable of providing forward-positioned forces with



BUILDING MOBILE NETWORKS

The Handheld, Manpack, and Small Form Fit (HMS) radio program is a key element of the Army's effort to network small units with Soldiers by providing critical information at the lowest echelons. Here, a Soldier from 1st Battalion, 35th Armor Regiment, 2nd Brigade, 1st Armored Division monitors communications during Network Integration Evaluation (NIE) 13.1, held at Fort Bliss, TX, and White Sands Missile Range, NM, in fall 2012 to assess the maturity of emerging industry capabilities that can meet HMS requirements. (U.S. Army photo by Claire Heininger)

terrestrial and aerial tier communication networks that can function without satellite networks or a fixed infrastructure.

The radios are engineered to function as routers as well as radios. This allows the radios to serve also as nodes in an extended mobile ad hoc network, connecting dispersed units on the battlefield that otherwise would be disconnected by line-of-sight challenges such as mountainous terrain.

TRANSITION TAKES SHAPE

To implement DOD's recommendations, the Army assigned management of JTNC and several radio programs to the Program Executive Office Command, Control, and Communications – Tactical (PEO C3T).

PEO C3T has assigned a Project Manager (PM) Tactical Radios, whose office oversees a Product Manager Handheld, Manpack, and Small Form Fit (HMS) radio and a Product Manager Network Systems, managing current force and commercial-off-the-shelf (COTS) radios.

The Airborne Maritime/Fixed Station (AMF) and Mid-Tier Networking Vehicular Radio (MNVR) programs will continue to be led by their respective project managers until their next

CONNECTING AIR, GROUND

The Small Airborne Networking Radio program, designed to enhance communication capabilities for the Kiowa, Apache, Chinook, and Black Hawk helicopters as well as the Gray Eagle Unmanned Aircraft System, is slated to enter low-rate initial production by the fourth quarter of FY14. Here, SPC Devin Hobson, a radio team operator attached to 3rd Battalion, 187th Infantry Regiment, 3rd Brigade Combat Team, 101st Airborne Division (Air Assault), observes a pair of Kiowa helicopters near Big Gherghara mountain Nov. 8 in Afghanistan's Khost province as they provide overwatch. (U.S. Army photo by SGT Christopher Bonebrake, 115th Mobile Public Affairs Detachment)

TESTING MID-TIER RADIO

The NIEs are key to evaluating the requirements for a mid-tier radio within the network architecture. Here, a Mine Resistant Ambush Protected All-Terrain Vehicle is equipped with components of Warfighter Information Network – Tactical Increment 2, the Army’s mobile network backbone, during NIE 13.1 in fall 2012. (U.S. Army photo by Claire Heininger)



assignment, at which time they will become the responsibility of the PM Tactical Radios team.

With the technological advances in the commercial radio market and the maturation of nonproprietary waveforms, such as Soldier Radio Waveform (SRW) and Wideband Networking Waveform (WNW), the AMF and MNVR programs have been restructured as Non-Developmental Item (NDI) programs. The NDI designation means that the programs will seek to meet requirements by identifying and integrating technically mature COTS hardware solutions—consisting of various platform, weight, battery power, and size configurations—that can port waveforms housed in JTNC’s Information Repository.

The AMF NDI effort consists of two separate developmental radio programs: the Small Airborne Link 16 Terminal for Apache aircraft and the Small Airborne

Networking Radio, which is designed for the Gray Eagle Unmanned Aircraft System and the Apache, Chinook, Black Hawk, and Kiowa helicopters, according to Navy CAPT Nigel Nurse, AMF Program Manager.

“We can tap into the hardware that has been developed over the last 10 years within industry and develop a new, improved radio,” Nurse explained.

Both AMF radio programs are slated to enter low-rate initial production (LRIP) by the fourth quarter of FY14.

The MNVR, a vehicle-based radio that will include a minimum of two channels and will use SRW and WNW, emerged from the former JTRS Ground Mobile Radio effort. The Army released a Request for Proposal in August 2012, and subsequently conducted laboratory and field evaluations of the radios submitted by

several industry candidates. Network Integration Evaluation (NIE) 13.1, which took place in October and November, was also used to evaluate the requirements for a mid-tier radio within the network architecture.

The Army is also moving forward with the HMS program, a key element of its effort to network small units with Soldiers by providing critical information at the lowest echelons. The service is fielding the HMS Rifleman Radio as part of Capability Set (CS) 13, the first integrated package of communications technology to emerge from the NIE process. (See related article, Page 28.)

Carried by platoon, squad, and team-level Soldiers, the Rifleman Radio provides a self-forming, self-healing wireless voice and data network for tactical echelons on-the-move. Rifleman is a single-channel radio configured for use

with mobile computing devices like Nett Warrior, a handheld situational awareness tool with software and digital map displays showing key information, such as nearby terrain and force positions.

“This system provides critical situational awareness for dismounted leaders, enhancing both effectiveness and survivability of the force,” said LTC Mark Stiner, Product Manager HMS.

The Army has procured 3,726 HMS Manpack radios for mounted and dismounted operations under a second LRIP order. The Army accepted delivery of 100 of these two-channel, software-defined radios, which are designed as gateways allowing lower-echelon Soldiers carrying Rifleman Radios to connect to the network at platoon level and above. “The Manpack has the capability to bridge legacy networks to SRW networks, allowing dismounted leaders with the Rifleman Radio to communicate with legacy-equipped units and to access beyond line-of-sight satellite networks,” said COL Russ Wygal, PM Tactical Radios.

“The Manpack will enhance current communication capabilities by allowing small units in austere environments to exchange voice and data information with their higher headquarters, without having to rely on a fixed infrastructure.”

For the full-rate production (FRP) phases of the Rifleman and Manpack programs, the Army is planning for a full and open competition. Through the NIEs, the Army evaluated the maturity of emerging industry capabilities with the potential to meet HMS requirements and has taken steps to include these capabilities in its FRP. Such steps are in keeping with the strategy to leverage industry advances and competitive



EMERGING CAPABILITIES

Providing warfighters on the battlefield with the right information at the right place, on time for mission success is at the heart of the Army’s efforts to bring together industry innovations in hardware and years of Army investment in software, and thus advance tactical radio technology. Here, a Soldier from 2nd Brigade, 1st Armored Division uses a touchscreen-based tool designed for mission command planning at various echelons across the brigade combat team, during NIE 13.1 in fall 2012. (U.S. Army photo by Claire Heiningner)

pricing to evaluate and purchase radio hardware at a quicker pace and lower cost than in the past.

CONCLUSION

Technical advances in the commercial software-programmable radio market have placed low-cost, effective communication hardware solutions within reach.

The restructuring of the JTRS program and the creation of the JTNC are intended to increase competition, decrease costs, and provide secure, interoperable communication solutions to Soldiers and deployed forces across a wide range of platforms.

For more information, go to <http://jtnc.mil/>.

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EVOLVING THE NETWORK

Agile Process aids in continuous improvements
to tactical communications backbone

by LTC(P) Robert Collins

Network Integration Evaluations (NIEs) and the Agile Process have played an important role in preparing the Army's new mobile tactical communications network backbone, Warfighter Information Network – Tactical (WIN-T) Increment 2, for fielding as part of the Army's integrated network capability sets.

Just as it has over the past year, the Army will continue to take advantage of the Agile Process to further the development of WIN-T Increment 2, increase its capability, and equip our forces with the most advanced technology possible.

WIN-T Increment 1, formerly known as the Joint Network Node (JNN) – Network, began fielding in 2004. It provides Soldiers with high-speed, high-capacity voice, data, and video communications down to battalion-level units at-the-quick-halt. The unprecedented changes represented by WIN-T Increment 2 support operations down to the company level while on-the-move. Increment 2 also introduces networking radios and enhances Network Operations (NetOps) for network planning and monitoring.

The Defense Acquisition Board (DAB) conducted a review of WIN-T Increment 2 in late September. As a result, the Army

received authorization to continue with its production and fielding to support capability set (CS) fielding and network modernization. The DAB decision enabled the Army to remain on schedule and field CS 13; fielding began in October with two brigade combat teams of the 10th Mountain Division (10th MTN). The decision also enables the Army to continue with the production of CS 14, which further enhances the network's capability and modernization efforts.

As part of its new Agile Acquisition Process, the Army is delivering network systems through capability sets, connecting the fixed command post to the commander on-the-move to the dismounted Soldier. WIN-T Increment 2, a backbone component of the Army's CS fielding, will be fielded to divisions and brigade combat teams where the on-the-move capability is critical. Ten weeks of WIN-T Increment 2 New Equipment Training were conducted for the 10th MTN's 4th Brigade Combat Team (BCT) at Fort Polk, LA, and 3rd BCT at Fort Drum, NY, as part of the CS 13 fielding in fall 2012.

THE IMPORTANCE OF NIE

Following comprehensive preliminary tests and preparations, WIN-T Increment 2 completed a rigorous Initial Operational Test and Evaluation (IOT&E) in May. It was the largest tactical



THE VALUE OF TRAINING

Both Network Integration Evaluation (NIE) 12.1 and NIE 12.2 emphasized the need for leader training beyond that given to the Soldiers who operate and maintain the equipment and network operations tools. Here, a Soldier from the 10th Mountain Division uses the on-the-move situational awareness capabilities provided by Warfighter Information Network – Tactical (WIN-T) Increment 2 Oct. 10, during the 10-week WIN-T Increment 2 New Equipment Training at Fort Drum, NY. (U.S. Army photos by Claire Heiningner)

network test of its kind, involving 6,200 Soldiers, DA civilians, and DOD contractors geographically dispersed over 2,000 miles. Most of the test took place at White Sands Missile Range, NM. The three-week WIN-T Increment 2 IOT&E provided critical data to inform the DAB decision.

The WIN-T Increment 2 IOT&E was one of the first operational test events

held in conjunction with the NIE in an integrated operational environment, underscoring the Army's new paradigm of testing as it fights. Many Systems Under Evaluation and Systems Under Test were connected to WIN-T Increment 2 as part of NIE 12.2 in spring 2012. The NIE did not stop for the IOT&E, and the IOT&E did not pause for the NIE; instead they worked in unison. This unique testing opportunity stressed the network better

than any other operational environment could have, to gather the maximum amount of data and feedback to improve the network.

The WIN-T Increment 2 product office took advantage of the distinct opportunity provided by NIE 12.1 in fall 2011, installing WIN-T Increment 2 equipment early on more than a dozen vehicles of the 2nd Brigade

Combat Team, 1st Armored Division (2/1 AD), the NIE test unit, to informally evaluate the equipment before the IOT&E. This participation allowed early hands-on experience and feedback

from Soldiers, as well as the opportunity to integrate WIN-T Increment 2 with other platforms and systems in the network baseline, reducing risk for the formal test.

Thus, NIE 12.1 provided a good foundation for the Army to assess how the various configuration settings, applications, and other entities would behave within the construct of the





network. Soldiers evaluated system performance and provided valuable feedback before the formal test cycle. The Army took advantage of the lessons learned from this input to make adjustments

to the systems before the actual operational test. NIE 12.1 highlighted the importance of completing network planning, integration, and engineering before the IOT&E to reduce risk and

provide the framework for a successful operational test.

Training also proved critical. Unlike WIN-T Increment 1, Increment 2 equipment is operated and maintained by both Signal Corps and combat arms Soldiers.

The increase in proficiency as Soldiers became more comfortable with the equipment during the NIE and IOT&E underscored the value of training. The Project Manager (PM) WIN-T, within Program Executive Office Command, Control, and Communications – Tactical (PEO C3T), recognized that new equipment training needs to be user-friendly and easy to understand. The NIE highlighted that as the network continues to grow more complex, NetOps for the Soldiers managing that network need to be simplified.

Both NIE 12.1 and 12.2 emphasized the need for “leader” training beyond that given to the Soldiers who operate and maintain the equipment and network operations tools. Training must also be provided to the staff and commanders to familiarize them with the use and employment of Increment 2. The mobility and increased capabilities of WIN-T Increment 2 provide an unprecedented way of fighting on the battlefield. The PM has worked closely with U.S. Army Training and Doctrine Command representatives to develop an overview of planning considerations and familiarize operational leadership with these new capabilities, which will continue to improve over time.

NIE 12.1 also was the first occasion in which WIN-T Increment 2 was installed and operated on Mine Resistant Ambush Protected All-Terrain Vehicles instead of High Mobility Multipurpose Wheeled

ON-THE-MOVE CAPABILITY

WIN-T Increment 2 is to be fielded to divisions and brigade combat teams where the on-the-move capability is critical. Here, Soldiers from the 10th Mountain Division train on a WIN-T Increment 2 Soldier Network Extension Oct. 10, during the 10-week WIN-T Increment 2 New Equipment Training at Fort Drum, NY.





THE TACTICAL BACKBONE

WIN-T Increment 2 is a major upgrade to the Army's tactical network backbone that enables mission command on-the-move and extends satellite communications to the company level. Here, WIN-T Increment

2 vehicle platforms are ready for use by Soldiers from the 2nd Brigade Combat Team, 1st Armored Division Oct. 31, during the Army's NIE 13.1, conducted at Fort Bliss, TX, and White Sands Missile Range, NM.

Vehicles. WIN-T Increment 2 will also be installed on Stryker vehicles for Stryker BCTs as part of CS 14.

Heavy platforms pose unique challenges, including size, weight, and power constraints, as well as considerations for other command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) equipment. The Agile Process will be leveraged as much as possible to help address these challenges. Part of the focus of NIE 13.1 in fall 2012 was to integrate and evaluate potential industry solutions to help bring the network to armored BCTs.

WIN-T INCREMENT 3: A LOOK AHEAD

WIN-T Increment 3, currently in development and testing, will provide the "full" on-the-move networking capability by improving line-of-sight capability, adding an air tier to the existing WIN-T architecture, and refining the network architecture. These improvements will provide an evolutionary leap forward in network capacity, and improve the overall reliability and robustness of the network.

WIN-T Increment 2 continues to lay the foundation for the onset of WIN-T Increment 3. Instead of waiting to field

the complete WIN-T Increment 3 package, elements of WIN-T Increment 3 will be inserted early into WIN-T Increment 2 as they mature and complete testing.

To pull these technologies forward, the Army plans to take full advantage of the NIEs to evaluate technologies such as WIN-T Increment 3's improved NetOps and its Joint C4ISR radio. It will then use 2/1 AD Soldier feedback to improve the system during development, potentially saving both money and development time.

Product Manager WIN-T Increment 3 conducted a demonstration of Increment



3 NetOps software with 2/1 AD Soldiers in July to highlight new functionality and gain invaluable user feedback to incorporate into development. The full WIN-T Increment 3 program is on schedule for fielding in FY18.

CONCLUSION

As the Army continues to field WIN-T Increment 2, PM WIN-T will keep working with the Office of the Secretary

of Defense and the test community to address concerns regarding the WIN-T Increment 2 IOT&E.

Through focused follow-on tests and by leveraging the NIE environment, the Army and PM WIN-T will make continuous improvements to the tactical network. Increment 2 is the foundation for the Army's tactical wide area network of the future. PM WIN-T will continue to take advantage of the semiannual NIEs and the Agile Process to provide improvements and enhancements to an Army top modernization priority—the tactical network.

The NIEs and Agile Process allow the Army to leverage industry expertise, eliminate integration burdens on deployed forces, and reduce costs, while providing more capability to formations sooner. As new technologies continue to mature, the Agile Process will enable the Army to assess them earlier. Testing and evaluation are always part of the learning and developmental processes, and a way to assess technological advancements. Conducting tests in a relevant operational environment enables the Army to deliver the best communication capabilities possible.

For more information, contact the PEO C3T Public Affairs Office at 443-395-6489 or usarmy.APG.peo-c3t.mbx.pao-peoc3t@mail.mil.

or go to <http://peoc3t.army.mil/c3t/> or <http://peoc3t.army.mil/wint/>.

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EXTENDING COMMUNICATIONS

The WIN-T Increment 2 Tactical Communications Node played a key role during NIE13.1 in October and November 2012 at Fort Bliss, TX, and White Sands Missile Range, NM. WIN-T Increment 2 represents unprecedented changes that support operations down to the company level while on-the-move. Increment 2 also introduces networking radios and enhances Network Operations for network planning and monitoring.



AIMING FOR 'AGILE'

Fire support system acquisitions
target efficiencies in software
procurement and fielding

by COL Jonas Vogelhut and LTC Larry Glidewell



PRECISION TARGETING

A forward-observer Soldier inputs a fire support message into the Pocket-Sized Forward Entry Device (PFED), the first-line digital entry device in the fire support chain. PFED transmits and receives fire support messages over standard military line-of-sight, high-frequency, and SATCOM radios. Combined with the integrated Precision Fire Imagery application, it can generate a coordinate sufficient to target precision munitions. (Photos by Jeffrey Weiss, Deputy Product Director Fire Support Command and Control)

SOLDIERS OPERATING A COMMON INTERFACE REQUIRE SHORTER TRAINING CYCLES, AND THE COMMON VIEWER AND COMMON MAP REQUIRES JUST ONE LICENSE, INSTEAD OF MANY, FOR APPLICATIONS THAT PREVIOUSLY WERE SEPARATELY HOSTED.

Cold steel on target is the only important metric of success for a field artillery Soldier in the heat of combat. Following the mandatory safety protocols to avoid friendly fire, software programs like the Advanced Field Artillery Tactical Data System (AFATDS) play a crucial role in enabling the guns to accurately select and fire the right ammunition.

As the world of technology changes every 18 months, how does the Army keep up? How do we provide the best product for our Soldiers and the best value for the taxpayers? Historic acquisition processes have been optimized for hardware development and procurement, but not scaled to coincide with the military's increased demand for software and Web-based capabilities. To incorporate more agility into the acquisition process, the Army's acquisition community is planning to pilot the 2009 Defense Science Board-recommended acquisition process for software in the AFATDS Increment II development process.

The AFATDS program is managed by Product Director Fire Support Command and Control (PD FSC2), under Project Manager (PM) Mission Command

within the Program Executive Office Command, Control and Communications – Tactical (PEO C3T). PD FSC2 develops and manages a suite of systems that plan and execute the delivery of both lethal and nonlethal effects and fires; the systems include the Joint Automated Deep Operations Coordination System, Centaur, the Gun Display Unit – Replacement, the Lightweight Forward Entry Device, and the Pocket-Sized Forward Entry Device (PFED), which is likely to follow AFATDS as a pilot participant to coincide with its transition to software-based capabilities.

A NONTRADITIONAL APPROACH

With the Army Acquisition Executive's authorization anticipated for spring 2013, the AFATDS pilot will come at a critical time to satisfy DOD's push for more efficient business practices and better buying power across the Armed Forces. It also correlates to the Army's creation of a Common Operating Environment, an approved set of computing technologies and standards that enable the rapid development of secure and interoperable applications across several defined computing environments.

PM Mission Command is charged with weaving together all the warfighting capabilities across several computing environments including the Command Post Computing Environment (CP CE). In addition to fires planning, the CP CE includes maneuver, sustainment, protection and intelligence capabilities.

As a launching point, the AFATDS pilot will incorporate the existing acquisition process, beginning with the Materiel Development Decision, the formal entry point into all acquisition submissions that assigns a program to a specific PEO. From there, the new Information Technology (IT) acquisition approach will follow the capabilities development process described in the *Joint Capabilities Integration and Development System Manual* (online at <https://acc.dau.mil/CommunityBrowser.aspx?id=530432>), and will meet the requirements of "IT Box" capabilities as determined by the combat IT development community.

Unlike a traditional acquisition program, the pilot IT acquisition approach eliminates the formal production and fielding milestone decision reviews at Milestone C. It incorporates multiple Full Deployment Decisions to field incremental

software versions every 12-24 months. It also incorporates the best of the DOD 5000 series guidance, allowing the PM to develop a tailored set of program documentation, with appropriate Army-level oversight. The result is greater military utility in a shorter timeline, which provides improved warfighter capabilities at a significantly reduced cost.

SELECTED CAPABILITIES

The two AFATDS software capabilities identified for upgrade within this pilot process are the role-based functionality

applications and a common viewer and common map engine, each devised to produce a common user experience for the Soldier.

Role-based functionality applications will allow Soldiers to view similar screen displays when switching between fire support, fire control, and fire direction capabilities. The common viewer and common map engine will provide a collaborative view of the battlefield by displaying information alongside data displayed by other common applications.

These enhanced fire support capabilities will yield added cost efficiencies for the Army. Soldiers operating a common interface require shorter training cycles, and the common viewer and common map requires just one license, instead of many, for applications that previously were separately hosted.

CONCLUSION

The emerging guidance outlining the new IT acquisition process will be reflected in an updated DOD 5000 developed by the Office of the Secretary of Defense.

SHARING INFORMATION

Two Soldiers review firing commands on the Gun Display Unit – Replacement (GDU-R), one of the systems developed and managed by Product Director Fire Support Command and Control. At each gun, the GDU-R displays firing data and fire commands from the Advanced Field Artillery Tactical Data System (AFATDS) and transmits the status of the gun to AFATDS throughout the fire mission.





EYES ON ARTILLERY

A Soldier monitors the AFATDS, which provides fully automated support for planning, coordinating, controlling, and executing fires and effects, and supports weapon systems such as mortars, field artillery cannons, rockets and missiles, close air support, attack aviation, and naval surface fire support systems.

By aligning the Army's acquisition rule book with the rapid pace of technology, PD FSC2 will field enhanced fire support products to the Soldier and provide better value to the Army.

With additional PM Mission Command products transitioning to software and Web-based capabilities, an IT acquisition process aligned to put mission command capabilities into the field more quickly promises to enhance the commander's ability to collaborate, decide, and lead.

For more information on the March 2009 Report of the Defense Science Board, Department of Defense Policies

and Procedures for the Acquisition of Information Technology, go to <http://www.acq.osd.mil/dsb/reports/ADA498375.pdf>.

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LTC LARRY GLIDEWELL is the Product Director Fire Support Command and Control, assigned to PM Mission Command. He holds a B.S. in marketing from Ohio University, Athens, and an M.S. in quality systems management from the National Graduate School. Glidewell is Level III certified in program management and is an AAC member. In addition, he holds a Lean Six Sigma Green Belt and Black Belt and has mentored others in seeking and obtaining efficiencies.

GATHERING HUMINT

The Army is working to rapidly develop solutions that will better enable Soldiers to disseminate and collate the plethora of human intelligence (HUMINT) and signals intelligence collected in overseas contingency operations. Here, CPT Gary Klein of 1st Squadron, 33rd Cavalry Regiment, 3rd Brigade Combat Team, 101st Airborne Division (Air Assault) talks with a local Afghan farmer Oct. 28 near the village of Kote Khel in Khost province. Troop B, which Klein commands, had the mission to build rapport with the local populace and gather HUMINT on insurgent activity. (Photo by SGT Christopher Bonebrake, 115th Mobile Public Affairs Detachment)





INTEL *at the* TACTICAL EDGE

'Agile' engineering process helps
multifunctional teams collect and
act on battlefield intelligence

by Mr. Bharat C. Patel and Mr. Brandon Pollachek

Facilitating actionable intelligence at the lowest echelons has been a challenge that the Army has been working its way through since the earliest days of *Operations Enduring Freedom* and *Iraqi Freedom* when it was determined that there was a dire need to disseminate and collate the plethora of human intelligence (HUMINT) and signals intelligence (SIGINT) that was being collected.

In response to this intelligence gap, the Army created Multi-Functional Teams (MfTs), introduced into the Battlefield Surveillance Brigade (BfsB) force structure in 2006. The MfT construct provides multidisciplinary intelligence collection, exploitation, and limited analysis to generate actionable intelligence and time-sensitive detection, tracking, and location of key targets while operating at the tactical edge.

However, the MfTs encountered challenges in operating at the BfsB level. They could not reach out to the lowest echelons where much of the available intelligence is gathered. In addition, the availability of intelligence support systems was limited, which often required them to rely on upper echelons for intelligence. Although the MfTs have been in use for six years, a determination was made that in order to successfully support mission sets within the maneuver-enhanced brigade combat team (BCT), BfsB, and the proposed Expeditionary Military Intelligence Brigade, MfT Soldiers would require a responsive, operationally adaptive, multidisciplinary, close-access intelligence collection and rapid, tactical site exploitation capability.

To support that effort, the U.S. Army Intelligence Center of Excellence (USAICoE) of U.S. Army Training and Doctrine Command (TRADOC)



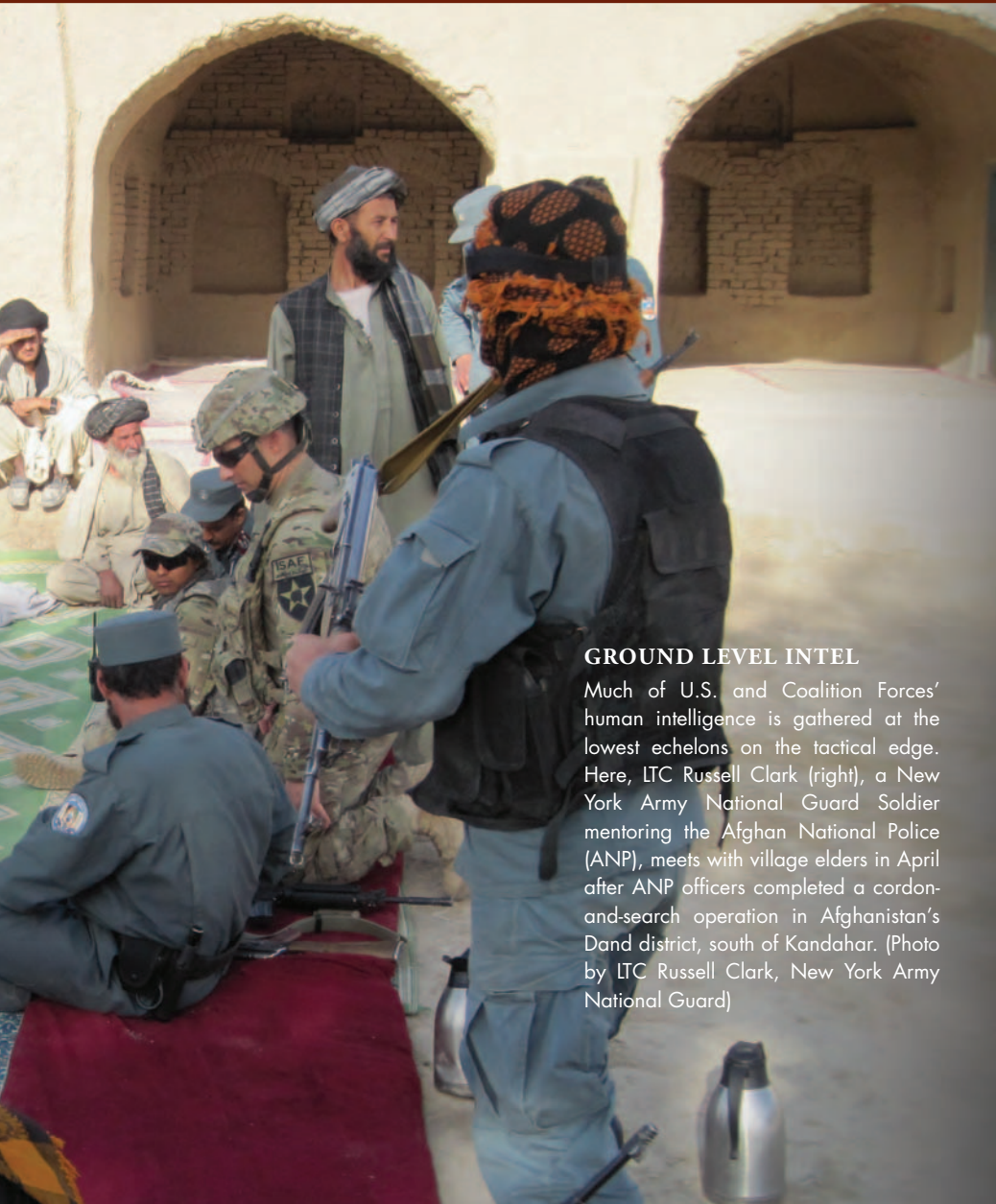
conducted an extensive review and analysis of intelligence operations as well as current and future force structure, and gathered significant lessons learned from deployed commanders and Soldiers. The totality of the data suggested the need for an MfT construct of four HUMINT and three SIGINT Soldiers, fielded with an architecture-based, integrated, multi-intelligence (Multi-INT) capability.

“MfTs can apply data collected on-site to theater- or national-level databases and receive an almost immediate or

near-real-time response,” said CW2 Todd White, SIGINT/EW Team Lead in USAICoE’s Requirements Determination Directorate.

AGILE APPROACH

MfTs in the maneuver element are slated to be stood up in 2014, which means that the Army needs to find a way to deliver capabilities that can be used within that timeframe. However, developing a new system traditionally takes five to 10 years from concept to full-rate production.



GROUND LEVEL INTEL

Much of U.S. and Coalition Forces' human intelligence is gathered at the lowest echelons on the tactical edge. Here, LTC Russell Clark (right), a New York Army National Guard Soldier mentoring the Afghan National Police (ANP), meets with village elders in April after ANP officers completed a cordon-and-search operation in Afghanistan's Dand district, south of Kandahar. (Photo by LTC Russell Clark, New York Army National Guard)

In an effort to curtail the time it would take to get these critical capabilities into the hands of the MfTs and allow them to be more effective, the Program Executive Office Intelligence, Electronic Warfare, and Sensors (PEO IEW&S), in conjunction with its partners in the requirements community, embarked on an agile engineering process that could save valuable time and best identify materiel solutions.

"The process is leveraging existing program requirements and limited integration to develop an equipping strategy

that provides collaborative multi-intelligence capabilities to the MfTs," said LTC Jonathan Slater, Product Manager Prophet within PEO IEW&S. "We are looking to share processing and communications capabilities, enabling the unique Intelligence Soldier to cross-cue and rapidly share critical information."

To ensure that the MfT is properly equipped, existing intelligence and communication capabilities need to be incrementally modernized and integrated into mission-capable packages.

USAICoE and PEO IEW&S conducted a detailed requirements crosswalk based on current programs and quick-reaction capabilities. It was determined that Multi-INT requirements to support MfT operations were already embedded in intelligence system Capability Development Documents and Capability Production Documents, as well as requirements for sensor data ingestion and mission command.

The HUMINT and SIGINT collection, Processing Exploitation Dissemination, and other sensor capabilities are contained in the current Counterintelligence and Human Intelligence Automated Reporting and Collection System (CHARCS), Biometrics/Forensics, and Prophet Electronic Support and Control program requirements.

REHEARSAL OF CONCEPT

To support the increasing numbers of MfTs, it was determined that a rapid equipping strategy was needed, referred to as Pursuit and Exploitation (P&E). The USAICoE, headed by TRADOC Capability Manager Intelligence Sensor, in conjunction with PEO IEW&S supported by PEO Command, Control, and Communications – Tactical and PEO Enterprise Information Systems, led a Rehearsal of Concept (ROC) Drill to initiate the rapid acquisition process. The drill adhered to system-of-systems engineering (SoSE) principles.

The ROC Drill was very similar to a Customer Interview in the system engineering process, in which requirements are gathered and functionally decomposed. It led to the creation of a Capability Needs (CNs) list. More than 200 CNs were collected, highlighting capabilities required to support MfTs through all phases of operations including humanitarian missions. Those



SECURING THE BORDER

To ensure that the Army's Multi-Functional Teams are properly equipped to provide multidisciplinary intelligence collection, exploitation, and limited analysis, existing intelligence and communication capabilities need to be integrated into mission-capable packages. Here, the 6th and 7th Afghan Border Police Kandak advisory team, commanded by CPT Trae Morgan,

meets Aug. 25 with the 7th Kandak leadership and village elders from eastern Nuristan province in Bari Kwot, Kunar province. The 7th Kandak is responsible for securing the border with Pakistan in northern Kunar and neighboring Nuristan. (Photo by MAJ Christopher Thomas, 4th Brigade Combat Team, 4th Infantry Division)

CNs were then refined down to 73 core capabilities through two nontraditional System Requirements Reviews (SRRs).

Traditionally a SRR is a multidisciplinary technical review to ensure that the system under review can proceed to initial system development, and that all system requirements and performance requirements derived from the Initial Capabilities Document or draft Capability Development Document (CDD) are defined and testable, and

are consistent with cost, schedule, risk, technology readiness, and other system constraints. For P&E, the SRRs were conducted to ensure that all CNs were understood, achievable, and executable to support the equipping strategy—including near-term, time-synchronized modifications to existing Programs of Record (PORs), in accordance with Army Regulation 750-10, *Army Modification Program*—and to meet long-term end-state objectives.

Additionally, through the SRR process, each CN was traced to existing Joint Capabilities Integration and Development System (JCIDS)-approved CDD and Capability Production Documents, to ensure that the capability was fielded or being developed and therefore did not initially require a new validated requirement.

In parallel, “To Be” and incremental architectures were developed to define the functional architectures, including system



configuration, internal and external interfaces, and system elements to support design decisions. The architectures also supported the identification of high-risk items and what trade analyses had to be conducted immediately.

For example, on-the-move communications were identified as a high-risk item. Consequently, a quick-turn trade analysis was conducted, comparing alternative variants of the Warfighter Information Network – Tactical (WIN-T) architecture, to identify which variant would support the P&E Communication CNs collected through the ROC drill and refined during the SRRs.

Using the ROC Drill, two SRRs, and the architecture development process

helped the team identify potential low-risk, affordable materiel changes to PORs in support of an FY14 target date for the BCT MfT First Unit Equipped. In addition, this new rapid acquisition process informed by SoSE identified a time-synchronized incremental modernization strategy that provides prioritized capabilities affordably over time. In applying such a process, leadership was able to rapidly understand the technical boundaries and potential cost over time to support critical acquisition decisions.

The next step is to present all the results developed through the process to DA to determine whether the equipping strategy, which includes early materiel modifications to PORs followed by incremental modernization, is a viable option to equip MfTs by the end of FY14.

The P&E capability that results from this rapid engineering process may satisfy the existing Multi-INT collection gaps identified in the Intelligence Warfighting Function Initial Capabilities Document at the BCT and BfSB levels, where risk to the force is greatest.

CONCLUSION

P&E is projected to provide a network- and enterprise-enabled collection asset that can generate actionable intelligence while on-the-move, at-the-halt, at-the-quick-halt, and on the objective, using common-core, modular plug-and-play, rapidly reconfigurable, software-definable hardware solutions within a Processing Exploitation Dissemination architecture with connectivity to the tactical edge.

This will enable MfTs to optimize and synchronize intelligence operations; rapidly detect, track, and report high-value targets in a timely manner; and access time-sensitive data in support of precision

targeting and follow-on operations. The P&E capability will also enable MfTs to communicate with and cross-cue aerial assets as part of an Integrated Sensor Coverage Area, thus generating precise and timely actionable intelligence in response to the commander's critical information requirements.

Systems currently in the inventory that the emerging MfTs could use with some modifications or limited additions include: Prophet Enhanced CHARCS, WIN-T, Nett Warrior, Biometrics, and the Distributed Common Ground System – Army.

“The architecture and integrated systems provided under the P&E concept will greatly reduce the latency between the point of capture, follow-on exploitation, and analysis,” said SIGINT/EW Team Lead White. “Additionally, P&E will close the gap between the collector or operator on the ground and high-level analysts in CONUS or sanctuary locations.”

For more information, contact Bharat C. Patel at 443-861-7830 or bharat.c.patel.ctr@mail.mil.

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ADAPTIVE ELECTRONIC WARFARE

Army harvests lessons learned from theater to develop a flexible suite of technologies in dynamic threat environment

by Mr. Kris Osborn

The Army's acquisition community is modernizing its suite of electronic warfare (EW) technologies to keep pace with rapidly emerging battlefield threats, develop an organic EW capability within brigade combat teams (BCTs), and deploy new systems with improved offensive and defensive capability.

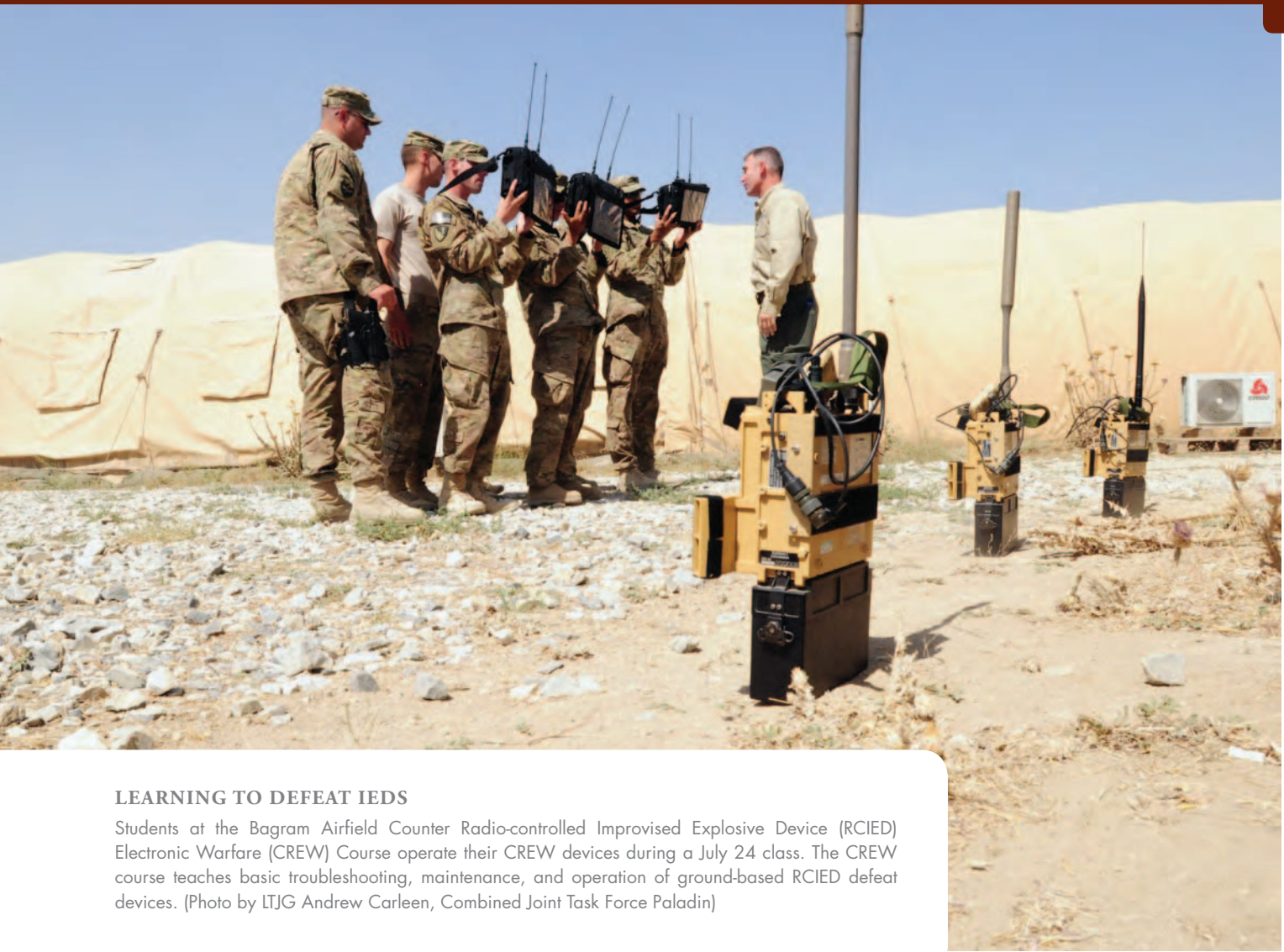
This multifaceted effort spans a wide range of activities, including ongoing upgrades to existing fixed-site, vehicle-mounted, and Soldier-worn EW technologies for dismounted units; rapid development and fielding of next-generation systems designed to address near-term battlefield threats; and a longer-term, broader strategic effort

to engineer an agile, modular suite or family of EW capabilities that can effectively counter a host of current and anticipated future threats, said Michael Ryan, Deputy Project Manager Electronic Warfare in Program Executive Office Intelligence, Electronic Warfare, and Sensors (PEO IEW&S).

Since the beginning of the wars in Iraq and Afghanistan and the emergence of the improvised explosive device (IED) as a major threat, the Army has succeeded in fielding a host of technologies able to thwart or "jam" the incoming signal from a radio-controlled IED (RCIED), thus delaying or preventing detonation and potential injury to Soldiers. Some of the jammers fielded during

the initial years of the war, such as the vehicle-mounted Duke V2 and Warlock, informed subsequent upgrades designed to defeat a greater range of threat signals. For instance, the Duke V3 vehicle-mounted jammer, now fielded on thousands of vehicles in theater, represents a technological improvement in capability compared with prior systems, Ryan said.

"At the beginning, the threat was largely low-power with adversaries using things like radio-controlled toy car controllers and garage door openers. Then they started to get more sophisticated. It was like a chess game. As we fielded new systems to counter the threat, the threat would move," Ryan said. "We quickly



LEARNING TO DEFEAT IEDS

Students at the Bagram Airfield Counter Radio-controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) Course operate their CREW devices during a July 24 class. The CREW course teaches basic troubleshooting, maintenance, and operation of ground-based RCIED defeat devices. (Photo by LTJG Andrew Carleen, Combined Joint Task Force Paladin)

realized that trying to just go after RF [radio frequency] triggers was not a very good business model, because the electronic warfare threat is much bigger than that.”

EMERGING TECHNOLOGIES

Along these lines, PEO IEW&S is preparing to further upgrade the Duke V3 system through what is called a Duke Technical Insertion program; requirements and resourcing for this effort are in progress. The plan is to design a system that can support a Global Response Force able to deploy rapidly anywhere within 96 hours with effective RCIED jamming capability, Ryan said.

“Overall, the Army’s approach to EW expanded beyond RCIED efforts to include offensive and defensive measures aimed at expanding the protective envelope for vehicles and dismounted units, as well as countering a wider set of threats such as enemy command and control, data links, radio communication, and proximity fuses for artillery and mortar shells,” Ryan added.

As part of its ongoing EW modernization, the Army has developed and fielded a series of emerging technologies, called Quick Reaction Capabilities (QRC), designed to deliver cutting-edge EW solutions and simultaneously harness Soldier

feedback to inform requirements for future acquisitions. These QRCs include:

- **Thor III**, a Soldier-portable counter-RCIED jamming device designed to provide a protective envelope for dismounted units on patrol. The device is configured with transceivers mounted on a backpack-like structure engineered with hardware and software that can identify and jam RF signals operating in a range of frequencies. Thousands of Thor III systems, which in effect create an electromagnetic protective “bubble” for small units on-the-move, continue to protect Soldiers in theater.



CLEARING THE WAY

Vehicles from Route Clearance Patrol (RCP) – 29, Alpha Company, 4th Brigade Special Troops Battalion, 4th Infantry Brigade Combat Team, 1st Infantry Division travel through the mountains of Paktika province, Afghanistan,

Oct. 9. RCP-29 spent three days and three nights working nonstop to clear the route of improvised explosive devices for a U.S. Army convoy. (Photo by SSG Zachary Holden, 115th Mobile Public Affairs Detachment)

Building upon this success, PM EW is acquiring smaller, Individual Counter RCIED Electronic Warfare (ICREW) jammers for the dismounted Soldier, to further extend the EW protective range and to identify and potentially jam signals of nearby IEDs.

- The **Ground Auto-Targeting Observation/Reactive Jammer (GATOR) V2**, a 107-foot retrofitted surveillance tower equipped with transmit and receive antennas designed to identify, detect, and disrupt electronic signals. The GATOR V2 is engineered to establish a direction or “line of bearing” on an electronic signal; it is also configured to use software, digital mapping technology, and computer algorithms to

“geo-locate” the origin or location of electronic signals within the battlespace.

“GATOR V2 can help identify targets and tell a commander where there are opportunities for him to influence his electronic battlespace,” said LTC Douglas Burbey, Product Director Raven Fire within PEO IEW&S.

The GATOR QRCs, being fielded incrementally over several months, will not only help bring improved technology and EW capability to Soldiers in theater, but will also inform an ongoing Analysis of Alternatives (AoA) designed to help refine requirements for future EW Programs of Record, Burbey added.

The GATOR QRC organizes and integrates technologies from a few similar systems such as the Duke V2 Electronic Attack fixed-site tower, designed to transmit electronic signals, and the RoadMaster 3.75, a vehicle-mounted QRC with a direction-finding antenna engineered to detect electronic signals.

The Army has achieved cost savings and efficiencies by leveraging and integrating several existing systems, Burbey explained. “The GATOR represents a successful merger of Army efforts to leverage progress from laboratories and other similar technologies,” said Sagor Hoque, a System Engineer for GATOR V2 in the Intelligence and Information Warfare Directorate

THIS MULTIFACETED EFFORT SPANS A WIDE RANGE OF ACTIVITIES ... AND A LONGER-TERM, BROADER STRATEGIC EFFORT TO ENGINEER AN AGILE, MODULAR SUITE OR FAMILY OF EW CAPABILITIES THAT CAN EFFECTIVELY COUNTER A HOST OF CURRENT AND ANTICIPATED FUTURE THREATS.

of the U.S. Army Communications – Electronics Research, Development, and Engineering Center.

- The **Wolfhound Handheld Threat Warning System**, an RF direction finder engineered to locate enemy command and control nodes. The system, fielded as a QRC in 2009, can geolocate RF transmitters operating in certain frequency bands, thus providing Soldiers with key battle-relevant threat information. Wolfhound can be Soldier-worn or vehicle-mounted.

A HEIGHTENED FOCUS

Over the next several years, PEO IEW&S plans to stand up two new program offices to further advance EW modernization and prepare a suite of systems for the future: Product Manager Multi-Functional EW (MFEW) and Product Manager EW Integration. Engineering software and hardware solutions designed to be agile and responsive to a fast-changing EW threat environment are critical to the Army's modernization strategy, Ryan said. In concept, the EW modernization strategy centers on developing and refining an ability to seize, retain, and exploit a battlefield advantage within the electromagnetic spectrum, he added.

"The EW target set is much greater than just counter-RCIED. We can't only continue to develop single-shot systems that just address the RF trigger. We need to address the whole threat scenario. The concept of integrated EW involves a system-of-systems approach that looks at offensive and defensive EW attack requirements and the planning and management tools that EWOs [Electronic Warfare Officers] need to conduct the EW mission," Ryan explained. "We want to do the architecture and engineering upfront to have a suite of systems that are modular, have common components, and can be tailored to conditions as needed."

These program management efforts are now being informed by existing QRCs and several AoAs designed to harvest lessons learned from theater and determine the best mix of needed capabilities. They will result in development of a new suite of ground-based, airborne, and fixed-site EW technologies engineered to adapt quickly to a dynamic threat environment. The AoA for MFEW was completed last fall.

The idea is to develop systems with a common set of technical standards, described

as open architecture, to maximize agility and be able to program the systems with software improvements tailored to address specific threats as they emerge.

"The key is to have hardware that is adaptable so you can make software-controlled changes as needed. More modern hardware technology allows us to operate over a wider spectrum range," said Dr. Scott Fish, former Army Chief Scientist. "We are integrating the EW concept in order to make it simpler and easier to migrate and grow as the threat adapts. We want to have this open architecture that allows you to extract, insert, and update modules and capability in a plug-and-play paradigm. Open architecture is the piece that is needed to enable that plug-and-play."

This EW modernization plan, slated to unfold over the next several years, will include an EW Planning and Management Tool (EWPMT) program designed to engineer a suite of software tools and applications that enhance and synchronize EW efforts across a family of systems, Ryan said. An AoA for EWPMT is complete, and the program is scheduled to enter Milestone B this spring. A formal Request for Proposals for the program is slated for release in the first quarter of 2013, he added.



THOR III JAMMER

Marines with Personal Security Detail, Regimental Combat Team – 7 (RCT-7) practice using the Thor III, a remote-controlled improvised explosive device (IED) jammer, during counter-IED training at Camp Wilson, CA, July 18. The Soldier-portable jammer device weighs about 25 pounds and is designed to protect troops from remote-controlled IEDs during dismounted patrols. (Photo by Cpl Ned Johnson, RCT-7, 1st Marine Division Public Affairs)

Plans for future EW technologies will emphasize the importance of de-conflicting signals and systems to ensure that communications gear, sensors, and jamming devices can all interoperate successfully.

“De-confliction is important if you are going to do an integrated electronic warfare approach. You need to have tools that will allow you to detect and de-conflict interference, thus enabling active use of the spectrum for your own needs,” Fish said.

A LOOK BACK, AND AHEAD

Before the wars in Iraq and Afghanistan, the Army relied on EWOs from other services. The Army’s EW modernization strategy aims to establish and incorporate an organic EW capability at the BCT level, Ryan explained.

“In 2004, the Army had no EW operational expertise, so we had to stand up an operational EWO capability again. Now, we have EWOs coming out of the Fires Center of Excellence at Fort Sill, OK. These officers have expertise with EW,” Ryan said.

Also, EWO instructors and field service representatives now go through additional training at an Army-run facility near Aberdeen Proving Ground, MD, called CREW University. Trainees from the Army, as well as other services and government agencies, receive instruction on use, maintenance, and technical support for a variety of EW technologies. Installing, operating, and sustaining EW systems on vehicle platforms such as Mine Resistant Ambush Protected Vehicles,

High-Mobility Multipurpose Wheeled Vehicles, and heavy tactical trucks constitute a large part of the training.

“We walk them through a series of technical reviews where they learn to upload software tailored to address threat information, [and to] maintain and install the systems,” said Willie Jackson, PM EW Training Manager at CREW University. “We talk to theater once a week so that we know what we need to work on. We try to be proactive and stay current. Also, the technology has gotten better. The EW systems are synchronized so that when they react and act, they do not jam one another.”

CONCLUSION

The Army’s near- and longer-term strategies for EW are centered squarely on the clear priority to build on successes and continue to improve Soldier protection for current and potential future challenges, Ryan emphasized.

“Soldiers tell us every day that these systems are working and saving lives. We’ve had a lot of anecdotal stories where convoys equipped with Dukes have gone into routes known to have heavy IED activity. When they pass certain points, there are explosions outside of their envelope because the Duke protected them,” he said.

For more information, go to <http://peoiews.apg.army.mil>.

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QUICK- RESPONSE MISSION

Army National Guard addresses HMMWV ambulance shortage with accelerated acquisition program

by MAJ Timothy Menzel, CPT Kevin Schierholz, and Mr. Rick Yates

In a milestone achievement and a triumph of agile acquisition, the Army National Guard (ARNG) will begin fielding new M997A3 High Mobility Multipurpose Wheeled Vehicles (HMMWVs) in April to units throughout the 54 states and territories.

The vehicle, the most modern HMMWV ambulance fleet in the Army inventory, is the culmination of more than three years' combined effort involving HQDA, Product Manager Light Tactical Vehicles (PM LTV), Rock Island Arsenal (RIA), IL, and the ARNG. The M997A3 combines a modified M1152A1 HMMWV chassis with an upgraded M997A2 Ambulance box to create a modern, integrated HMMWV ambulance.

In 2009, there was an overall shortage within the Army ground ambulance fleet. The shortage amounted to 1,462 ground ambulances Armywide, 602 of which should have been in the ARNG. Leaders also knew that time was running out on the vehicle, which had an average age of over 20 years. The Army considered several approaches to resolve the shortage, including developing

a Joint Light Tactical Vehicle ambulance variant. However, none of the alternatives provided the ARNG with the immediate solution required to execute critical Defense Support of Civil Authorities responsibilities if disaster struck in the United States.

Two former ARNG Directors, LTG (Ret.) Clyde A. Vaughn and MG (Ret.) Raymond W. Carpenter, asked the Army leadership for a faster solution. In April 2010, the Army Acquisition Executive granted approval to PM LTV, assigned to Joint Program Office Joint Tactical Vehicles within Program Executive Office Combat Support and Combat Service Support, to proceed with the procurement of the remaining 500 Army-contracted M1152A1 HMMWV chassis from AM General LLC, using the National Guard and Reserve Equipment Appropriations to build HMMWV ambulances exclusively for the ARNG.

SPEEDING ACQUISITION

Major system acquisitions normally take five to seven years from concept to production. The M997A3 Ambulance, an Acquisition Category IC program, is an exception; in the end, the program



A NEW AMBULANCE ON THE WAY

The new M997A3 High Mobility Multipurpose Wheeled Vehicle (HMMWV) is being fielded this spring to Army National Guard (ARNG) units throughout the 54 states and territories. (Photo by Billie Bryant, ARNG)

will take three years from concept to final production. This reduced timeframe is possible because the Army is employing an integrated developmental and user test approach to save resources, and is using the RIA depot manufacturing capability to reduce schedule risk as opposed to a competitive procurement, which would have taken several years to execute.

By building on existing approved components, the M1152A1 HMMWV chassis received Army type classification and Full Materiel Release approval in October 2007. The vehicle met all of the Key Performance Parameters, such as weight, maintenance ratio, and transportability. These factors allowed the program to enter the Integrated

Defense Acquisition, Technology, and Logistics Life Cycle Management System at Milestone C, bypassing the normally time-consuming and critical phases of Milestone A (Material Solution Analysis Phase) and Milestone B (Engineering and Manufacturing Development Phase).

User testing was conducted in December 2011 at Aberdeen Proving Ground, MD. A series of user and performance tests resulted in recommendations to improve the vehicle's usability and Soldier access.

IMPROVED CAPABILITIES

A major accomplishment was integrating the original M997A2 HMMWV Ambulance Shelter with the Army's most modern M1152A1 HMMWV chassis.

Several additional system improvements were integrated along the way.

The design of the new M997A3 HMMWV Ambulance includes a 6.5-liter, turbocharged diesel engine for increased horsepower, as well as an improved suspension system providing a payload of 3,010 pounds. Three additional DC power outlets were added to enable medics working in the field to establish static aid stations, and a 400-ampere alternator was installed to accommodate the resulting power need. To keep drivers, crew members, and passengers comfortable, the M997A3 is equipped with an updated air-conditioning compressor and longer vents to improve airflow throughout the vehicle.



INTERIOR UPGRADES

The M997A3 HMMWV to be fielded to the ARNG features a number of system improvements, including an updated air-conditioning compressor and longer vents to improve airflow throughout the vehicle; LED dome

lights and task lights for medics working on patients; and additional rear door handles to assist in closing the doors. (Photo by Billie Bryant, ARNG)

Lighting within the ambulance box has been improved by installing LED dome lights and task lights for medics working on patients. This lighting replaces incandescent bulbs.

Additional rear door handles were installed to assist in closing the doors, and access plates have been included to aid in servicing air-conditioning condensers, rear brakes, and the fuel-fired heater. A new litter rack design and improved storage options with cargo netting have been incorporated for more

space and maneuverability for the medics inside the ambulance.

The M997A3 is a noncombat system, so it is not designed to accept B-kit armor. It can transport up to four litter patients, eight ambulatory patients, or various combinations of the two. Additionally, the vehicle can accommodate one medic, equipment, and two crew members in the operator and commander seats. Fully loaded, M997A3 ambulances can climb road grades as steep as 60 percent and traverse side slopes of up to 40 percent.

The vehicle can ford hard-bottom water crossings as deep as 30 inches without a deepwater fording kit.

Finally, most of the new HMMWV ambulances will be outfitted with the newest Medical Equipment Set (MES), the 256C model. This model benefits from lessons learned with the earlier 256B MES and the Mine Resistant Ambush Protected (MRAP) vehicle MES during *Operations Iraqi Freedom* and *Enduring Freedom*. For example, the 256B model included two footlockers and other

equipment that proved less than ideal on the battlefield.

When the MRAP was deployed to Iraq, an MRAP-unique MES was developed to conform to the vehicle's limited operating space. In 2010, the U.S. Army Medical Command (AMEDD) and Office of the Surgeon General developed a new MES incorporating the functionalities of the legacy MES and the MRAP MES. Other advances with the 256C model include jump bags, designed to give tactical trauma care under fire, such as controlling hemorrhage, airways, and breathing; en route care bags with removable pockets, enabling medics to bring required medical aid directly to the patient; a trauma panel to supplement the en route care bag; reduced-size oxygen concentrators; and container transports for cold storage items such as blood and vaccines.

The ARNG G-8 Materiel Programs Division has been actively involved throughout the process. Division representatives participate in monthly program management review meetings hosted by PM LTV that include representatives from RIA, U.S. Army Training and Doctrine Command, AMEDD, and the U.S. Army Combined Arms Support Command.

PRODUCTION SCHEDULE

Currently the M1152A1 HMMWV chassis are being stored at the RIA facilities while preparations are made to begin production of the M997A3 ambulance box in the second quarter of FY13.

A pilot production run is scheduled for January to identify potential deficiencies with the materiel flow through the production line. Low-rate initial production is tentatively planned for the second quarter of FY13, with full-rate

production slated to begin in the fourth quarter. RIA expects to produce 60 ambulances per month on average. A roll-off ceremony is anticipated in early 2013 at RIA.

One of the ambulances developed and used for user-level testing received positive remarks from ARNG senior leaders, as well as leaders and representatives from the 54 states and territories, in October while it was on display at ARNG Headquarters in Arlington, VA.

The M997A3 HMMWV Ambulance program has been an exceptional opportunity for the ARNG to participate in the acquisition and management of a major vehicle system. Upon final fielding in FY13, the ARNG will have successfully



DOMESTIC RESPONSE MISSION

The new M997A3 HMMWV provides the Army National Guard with the immediate capability it needs to execute critical Defense Support of Civil Authorities responsibilities if disaster strikes in the United States. Here, A1C Matthew Limina, 107th Airlift Wing C-130 Loadmaster, explains how to secure equipment to ARNG CPT Christopher W. Gagliardo (left) and SSG Adam J. Scanlon of the 42nd Infantry Division, during homeland response training Oct. 10 at Niagara Falls, NY. (Photo by SMSgt Raymond Lloyd, New York National Guard)



FOLLOW-ON TO THE M997A2

The M997A3 HMMWV integrates the original M997A2 HMMWV Ambulance Shelter with the Army's M1152A1 HMMWV chassis, to provide increased medical support in both peacetime and wartime situations. Here, CPT Kevin Schierholz, Light Tactical Vehicle System Integrator with the National Guard Bureau, explains features of the M997A3 during a ceremony and presentation Oct. 17 at the ARNG Readiness Center in Arlington, VA. (Photo by SFC Jon Soucy, ARNG)



DUE FOR AN UPGRADE

The new M997A3 HMMWV ambulance helps to address an overall shortage of 1,462 ground ambulances in the Army fleet, 602 of which should have been in the Army National Guard. Here, Alabama National Guard Soldiers from the 161st Medical Battalion, 167th Theater

Sustainment Command conduct training Aug. 9 at Camp Atterbury, IN, using current HMMWV ambulances during *Vibrant Response 13*, a major field training exercise in responding to a domestic natural or man-made disaster. (Photo by SGT Candice Harrison, 24th Press Camp Headquarters)

addressed the critical ground ambulance shortage while assembling the most modern ambulance fleet in the U.S. Army.

For more information, contact CPT Kevin Schierholz at kevin.d.schierholz.mil@mail.mil.

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INTELLIGENT CLOUD


The Intelligence and Information Warfare Directorate of the U.S. Army Communications – Electronics Research, Development, and Engineering Center at Aberdeen Proving Ground (APG), MD, hosts the Tactical Cloud Integration Lab in an effort to expedite cloud computing technologies for the Soldier. Here, Soldiers use the lab's Distributed Common Ground System – Army operations center. (U.S. Army photo)



A FAST-MOVING **CLOUD**

Army Private Cloud contract enables Agile
Acquisition of computing capabilities

by Mr. James Novack and Ms. Karen Quinker



In January 2010, representatives from Program Executive Office Enterprise Information Systems (PEO EIS) were tasked with assessing government and DOD initiatives in order to “read the tea leaves” on how the Army could acquire evolving cloud computing technologies. Selective use of cloud computing had enabled outside organizations to gain improvements in application deployment time, computing platform scalability, and information technology cost management.

The Service Support Manager for the Army Private Cloud Contract (APC2) and his team delved into factors such as emerging National Institute of Standards and Technology (NIST) definitions for cloud computing, typical enterprise application hosting support requirements, network operations, and deployment scenarios worldwide. The goal was to create a flexible contractual vehicle for the government that would be used to leverage cloud computing technologies in support of challenges that the Army and the government had to overcome.

Underlying this analysis was the recognition by the service support team that cloud computing technology and business processes would continue to evolve. The team also understood that an “agile” acquisition approach would be preferable to

traditional acquisition, as it would enable iterative, incremental uses of new technology while the technology’s stability and reliability improved.

From the analysis of these factors and with support from Army leadership, the APC2 contract was created as an agile acquisition vehicle—an indefinite delivery, indefinite quantity (IDIQ) contract structure with a limited set of awardees, all with proven cloud computing technologies and leadership. The IDIQ structure supports development of task orders tailored to specific Army or other government agency needs, and allows incremental delivery of cloud computing technologies to support those needs.

FLEXIBLE OFFERINGS

The APC2 contract, awarded in January 2012, is managed by Product Manager Power Projection Enablers (PM P2E), part of the Project Manager Installation Information Infrastructure Communications and Capabilities (PM I3C2) organization. The contract provides various cloud service offerings for government-wide use from fixed and mobile facilities.

These services comply with NIST definitions and may be customized to meet unique requirements for security, portability,

THE GOAL WAS TO CREATE A FLEXIBLE CONTRACTUAL VEHICLE FOR THE GOVERNMENT THAT WOULD BE USED TO LEVERAGE CLOUD COMPUTING TECHNOLOGIES IN SUPPORT OF CHALLENGES THAT THE ARMY AND THE GOVERNMENT HAD TO OVERCOME.

and interoperability. According to Dennis Kelly, Assistant Product Manager APC2, “the contract is a unique offering” for customers interested in:

- Mobile and/or fixed operating environments.
- Security up to Top Secret/Sensitive Compartmented Information.
- CONUS and OCONUS availability.
- Use in austere working conditions.
- Support for .com and .mil environments.
- Pricing developed at the task order level.

- Alignment with federal government and Army approaches to security, interoperability, and portability.

The APC2 contract offers a model for convenient, on-demand network access to a shared pool of configurable computing resources, such as networks, servers, storage, applications, and services, that can be provisioned rapidly and released with minimal management effort or service provider interaction. The APC2 Cloud Services Providers (CSPs) use leading-edge, proven technology to support requirements in various deployment

arrangements: application hosting services in contractor-owned facilities, in government-owned facilities, and/or using container-based platforms.

For example, application testing is usually executed in one or more separate environments with different use and storage requirements. Using the cloud computing model, an organization obtains computing resources from a resource pool, uses them for testing, and releases them. The organization typically orders these resources through a Web-based, self-service process over a private

FIGURE 1

INSIDE THE PRIVATE CLOUD

CLOUD MODEL CHARACTERISTICS	SERVICE MODELS	DEPLOYMENT MODELS
<ul style="list-style-type: none">• On-demand self-service.• Broad network access.• Resource pooling.• Rapid elasticity.• Measured service.	<ul style="list-style-type: none">• Cloud Software as a Service.• Cloud Platform as a Service.• Cloud Infrastructure as a Service.	<ul style="list-style-type: none">• Private Cloud.• Community Cloud.• Public Cloud.• Hybrid Cloud.

(SOURCE: Product Manager Power Projection Enablers (PM P2E))

FIGURE 2

FIXED AND MOBILE CAPABILITIES

FIXED SUITE CAPABILITIES	MOBILE SUITE CAPABILITIES
<p>Five Awardees: Lockheed Martin Corp.; International Business Machines (IBM) Corp.; HP Enterprise Services LLC; General Dynamics One Source LLC; Northrop Grumman Systems</p> <ul style="list-style-type: none">• The Cloud Services Provider (CSP) will perform fixed data center management tasks that may include data center maintenance, power, heating, ventilation, and air conditioning (HVAC), and/or any physical plant aspects necessary for operation of a fixed data center.• The CSP will perform appropriate physical and environmental security measures to ensure compliance with federal, DOD, Army regulations, and task order requirements.• The CSP will provide floor space and necessary data center power, connectivity, HVAC, and other services that will support a co-location of government-owned equipment in the contractor’s data center.• Operating environments provisioned in the vendors’ Tier 1, 2, 3, and/or 4 data centers shall be capable of meeting DOD Information Assurance (IA) requirements for Mission Assurance Category 1, 2, or 3 including classified, sensitive, and public.	<p>Four Awardees: General Dynamics One Source LLC; HP Enterprise Services LLC; MicroTech LLC; Criterion Systems Inc.</p> <ul style="list-style-type: none">• The CSP will deploy container-based cloud computing capabilities subject to the bundled environmentals, security, IA, and other computing platform requirements, similar to those applied to the fixed suite.• The CSP will provide a solution capable of handling challenges such as shock and vibration with rail transport, non-operating temperatures during transport, extreme temperatures, and unpressurized aircraft cargo hold.

(SOURCE: PM P2E)

THE IDIQ STRUCTURE SUPPORTS DEVELOPMENT OF TASK ORDERS TAILORED TO SPECIFIC ARMY OR OTHER GOVERNMENT AGENCY NEEDS, AND ALLOWS INCREMENTAL DELIVERY OF CLOUD COMPUTING TECHNOLOGIES TO SUPPORT THOSE NEEDS.

or public network. The provisioning process is usually highly automated, with specific service levels for rapid response.

By contrast, the non-cloud alternative places the burden on the organization to acquire, deploy, and dispose of one or more computing platforms.

In the same way, an application may begin production operations with a small number of users that grows incrementally over time, adding computing and storage requirements. Using the cloud computing model allows the requisite computing resources to be obtained from the pool as needed rather than procuring the maximum computing requirement upfront, only to sit idle, or preplanning for multiple procurements. The combination of the cloud computing model and the task order-driven APC2 contract structure provides this increased agility in acquisition.

CLOUD MODELS DEFINED

APC2 provides five essential cloud model characteristics, three service models, and four deployment models. (See Figure 1 on Page 59.) It is divided into two suites: fixed and mobile. (See Figure 2.)

APC2 can also be used to provide additional support to Army customers and other federal and DOD agencies:

- Application modernization, virtualization, and/or migration.
- Cloud computing consulting services.
- Information assurance support.
- Certification and accreditation support.
- Other professional services supporting private cloud operations and maintenance.

These additional services are provided within the scope of APC2 in order to help organizations move to cloud computing.

For example, organizations can obtain application assessments and follow-on technical services under APC2 in order to prepare applications for hosting in a cloud computing environment, as separate from cloud computing hosting services. Overall agility is improved; in the APC2 task order-driven contract structure, organizations have the flexibility to support phased implementation of applications.

CONCLUSION

Since the award of APC2, the Army has established a Standard Operating Procedure (SOP) to describe common management activities, processes, and interfaces across APC2 task orders that will promote further interoperability and portability between APC2 CSPs through the life of the APC2 contract.

The flexibility built into the APC2 contract structure and the guidance provided by the SOP provide a foundation for the government to make additional agile acquisitions of cloud computing technologies that can grow in overall capability over time. This environment promotes collaboration, communication, and responsiveness to meeting emerging needs.

For more information on the APC2 contract, contact Dennis P. Kelly, Assistant Product Manager APC2, at dennis.p.kelly2.civ@mail.mil or 703-704-9421.

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SAFETY *in the* SKIES

U.S. Army Ground Based Sense and Avoid leads unmanned
aircraft system integration with National Airspace System

by Ms. Mary Ottman

The fielding of the U.S. Army Ground Based Sense and Avoid (GBSAA) system is both a technological frontier for unmanned aircraft systems (UAS) and a first in aviation applications.

GBSAA is a groundbreaking solution that uses ground-based sensors and processing to meet the Federal Aviation Administration (FAA) mandate for all aircraft that operate in the National Airspace to “see and avoid” other aircraft. (See Figure 1 on Page 64.) Because unmanned aircraft do not have an onboard pilot to perform this function, alternate means of compliance are necessary. GBSAA provides this compliance.

All services have a vested interest in establishing a means to comply with the FAA’s “see and avoid” requirements. GBSAA is a near-term solution being pursued by the Army, the U.S. Air Force, and the U.S. Marine Corps. The Army is the designated lead on the Office of the Secretary of Defense UAS Task Force for GBSAA.

A longer-term solution for meeting the FAA’s requirement is to develop an Airborne Sense and Avoid (ABSAA) System, which the Air Force is pursuing as the DOD lead for ABSAA. The final solution, defined as integration of GBSAA and ABSAA systems, will play a role in the longer-term solution for UAS integration into the National Airspace System (NAS).

In the meantime, fielding preparations for the Army’s GBSAA system are well underway, led by the Unmanned Systems Airspace Integration Concepts (USAIC) Product Office within the UAS Project Management Office of Program Executive Office (PEO) Aviation. The Army is



SEE AND AVOID

Close coordination with the Federal Aviation Administration is critical to implementation of the Ground Based Sense and Avoid (GBSAA) system. The GBSAA was introduced as an alternate means for unmanned aircraft systems (UAS) to “see and avoid” in the National Airspace System; previously, the FAA required either a ground observer or chase plane. Here, an aircraft operator (left) and GBSAA operator conduct a synthetic/virtual mission at a GBSAA testbed laboratory using Shadow unmanned aircraft and Marine Corps Air Station Cherry Point, NC, airspace. (U.S. Army photo by John Innes, Unmanned Aircraft Systems Project Management Office, Program Executive Office (PEO) Aviation)

currently funded to field GBSAA to five Gray Eagle sites.

FIELDING PREPARATIONS

As with any system, extensive advance planning and coordination with the fielding locations are required to ensure a smooth fielding process. Site surveys have been conducted at three GBSAA sites thus far, with plans to place two radar at each of the three sites. Two additional site surveys will be conducted with plans to place up to three radar per site, depending on site-specific parameters such as local terrain and access to power and access communication lines.

Along with radar site selection, other required coordination includes identifying acceptable climate-controlled storage, coordinating with the base for network access, and related activities.

It would be easy to consider GBSAA as “just a radar” and assume that radar

emplacement is the only coordination that would occur. However, the type of detailed coordination being conducted at each site serves as a model for any fielded system.

INCREMENTAL APPROACH

How do you take a first-of-its-kind technology like GBSAA from development to the field and concurrently receive FAA approval for such a system when the FAA is still establishing policies for UAS integration into the NAS? The simple answer is to take small, incremental steps and coordinate closely with certification authorities.

The Army’s prototype GBSAA system received an FAA Certificate of Authorization to operate at night with the Army’s Gray Eagle UAS at El Mirage, CA, in August 2010. This was, and still is, the first time the FAA has granted a Certificate of Authorization to a UAS using GBSAA as an alternate means to “see

and avoid” in the NAS; previous certificates required either a ground observer or chase plane.

The prototype system employed a “safe state” concept. In essence, the GBSAA system monitored a volume of airspace in which the UAS would be operating. If other aircraft entered that airspace, the UAS was required to land or remain in restricted airspace until that airspace was clear. The prototype “safe state” GBSAA system enabled—for the first time—an unmanned aircraft to fly at night in the NAS without a visual observer or chase plane. This system provided an invaluable and unprecedented opportunity to vet both sense and avoid technology and the processes for FAA and Army approval of a sense and avoid system.

After prototype testing concluded, the Army stood up a GBSAA testbed at Dugway Proving Ground, UT, to perform system development of more advanced GBSAA systems in restricted airspace.

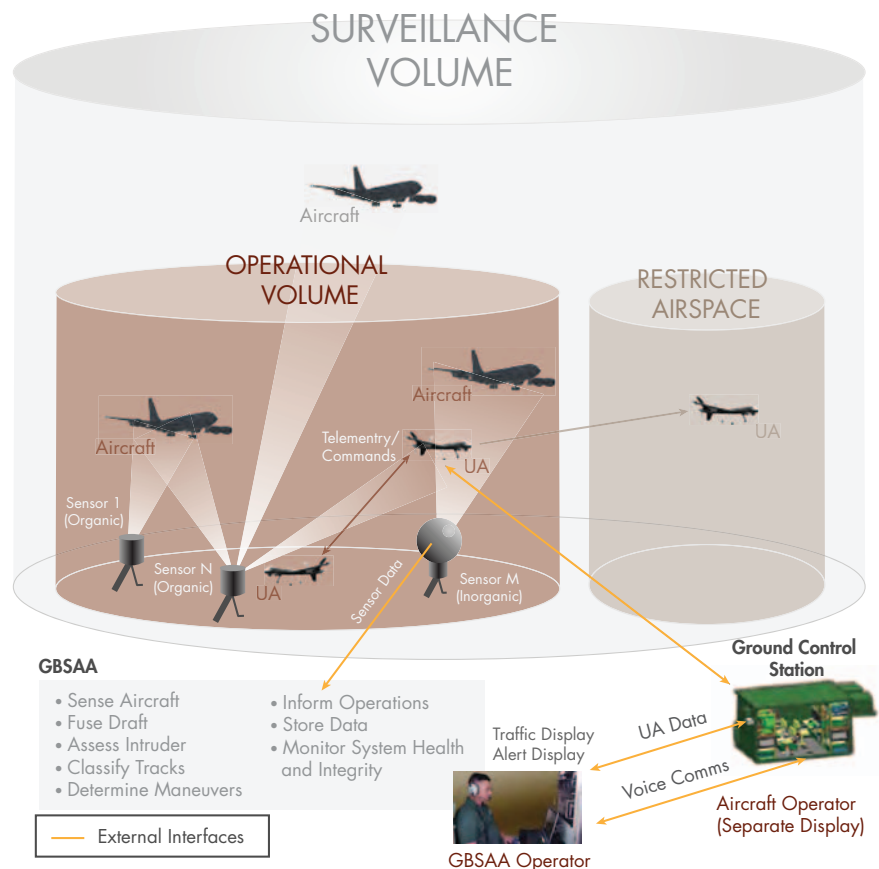
The current system under development, referred to as Phase 2 Block 0, allows the UAS to maneuver with other aircraft in the NAS, versus requiring UAS to retreat to a safe state. This increases operational time and works in conjunction with existing air traffic control procedures.

ENSURING AIRWORTHINESS

As GBSAA is a new technology, there are challenges in establishing how to certify such a system. These challenges are exacerbated because the system’s airworthiness is evaluated by the Army, but the system will operate in the NAS, which is the FAA’s jurisdiction. Coordination is critical to the successful implementation of GBSAA.

The Army’s airworthiness authority, the Aviation Engineering Directorate

FIGURE 1



GBSAA ARCHITECTURE

The GBSAA system uses ground-based sensors and processing to meet the Federal Aviation Administration mandate for all aircraft that operate in the National Airspace System to “see and avoid” other aircraft. (SOURCE: Unmanned Systems Airspace Integration Concepts Product Office, PEO Aviation)

BECAUSE UNMANNED AIRCRAFT DO NOT HAVE AN ONBOARD PILOT TO PERFORM THIS FUNCTION, ALTERNATE MEANS OF COMPLIANCE ARE NECESSARY. GBSAA PROVIDES THIS COMPLIANCE.

(AED) of the U. S. Army Aviation and Missile Research, Development, and Engineering Center, is responsible for providing airworthiness releases for Army aviation systems, to include an aviation system composed of a UAS that employs GBSAA as a means to “see and avoid” other aircraft.

After the AED issues an airworthiness release, the FAA provides a Certificate of Authorization, based on the Army’s submitted release and an accompanying safety case, to allow the UAS using the GBSAA system to operate in the NAS.

Because the GBSAA system cannot interfere with the safety of the NAS, AED levies certain software development requirements on the development team. Along with other standards, the Army uses the guidance published by the private, not-for-profit RTCA Inc., in DO-178C, *Software Considerations in Airborne Systems and*

Equipment Certification, to establish software development requirements.

USAIC is using an independent designated engineering representative (DER) to navigate the implications of DO-178C for the GBSAA system’s design. The DO-178C guidance influences many aspects of the design process: the structure of the system-level, subsystem-level, and software-level requirements; the overall architecture of the system; the processes employed during design, code writing, and testing; and the artifacts generated as a result of the design and test processes.

The DER is a valuable resource who, while certified by the FAA, is not employed by the FAA. Rather, the DER serves as an independent reviewer and sounding board during system design, development, and test, ensuring that system design is executed in accordance with AED’s requirements with an eye toward FAA expectations.

Phase 2 Block 0 will be the first GBSAA system to follow DO-178C Level B Design Assurance Level guidance. Preparations for fielding the system must occur in parallel with system development and certification.

FIELDING THE SYSTEM

Implementation of the GBSAA system is unique to each fielding location. The USAIC team has to begin the fielding process at least two years before the system is approved for operation. One of the initial steps is to coordinate site visits through the major commands down to the installation’s Force Management Office. Determining the GBSAA operational area requires an analysis of the fielding installation’s airspace, location of the UAS launch and recovery airfield, and UAS flight path and operational areas.

With the required operational area established, the sensor engineer identifies general locations where the radar could

EYES ON THE SKY

The placement of radar, such as the one shown here, is a key question among many addressed in site preparations for fielding GBSAA systems. The total number of radar towers needed for GBSAA is site-dependent, taking into consideration factors such as terrain, total area, and airspace ceiling. This 3-D radar tower at Dugway Proving Ground, UT, has proven successful in controlling multiple manned and unmanned aircraft sharing common airspace. (U.S. Army photo)



be placed to provide the needed coverage area for the system. Topographical maps, aeronautical charts, military reservation boundaries, and satellite imagery are used to select candidate radar locations.

Preference is given to locations that fall within the boundaries of a military reservation. This reduces the logistical burden of dealing with nonmilitary parties, arranging lease agreements, providing enhanced security, and establishing communication from the radar site to the GBSAA Processing Unit. Potential radar placement sites are assessed for proximity to roads, power, and communication infrastructure.

USAIC also contacts the fielding installation to find out any initial concerns about the candidate radar locations and to inquire about other potential sites. As additional information is gathered, the number of potential sites is reduced to a handful of candidates for further analysis.

The candidate radar sites are provided to the radar manufacturer for line of sight (LOS) analysis, using Digital Terrain Elevation Data to determine the LOS from a candidate radar location. LOS plots help determine the estimated level of radar coverage; the installation of multiple radars provides overlapping coverage, resulting in sensor redundancy in the system for safe operations. It also

mitigates potential areas of poor radar coverage from a single radar that may have limited LOS because of a hill or other obscuring element.

CONDUCTING THE SITE SURVEY

Once the initial radar placement study is complete, the next step is to conduct the site survey.

During the coordination leading up to the site visit, the USAIC team requests in-brief participation from certain key agencies that will have an interest in the fielded GBSAA system. Typical participants include representatives from the installation's Directorate of Plans, Training, Mobilization, and Security; the offices for Air Traffic and Airspace, Force Management, Range Control, Environmental, Public Works, and Master Planner or Real Property; G-3 Aviation; the Combat Aviation Brigade; Network Enterprise Center (NEC); and other UAS-related offices.

Two teams from the USAIC office coordinate with local site representatives. A radar team assesses candidate sites, and an operations and airspace team assesses local operations and airspace considerations for the site. The two teams' efforts are tightly coupled and rely on the expertise of system engineers, sensor engineers,

operations and flight engineers, airspace and Certificate of Authorization managers, and logisticians.

Following are the events of a typical site survey:

Day 1—The visit begins with the USAIC team coordinating with local representatives and providing a brief on the GBSAA system, after which the two USAIC teams begin to address specific site survey objectives. The operations and airspace team meets with installation airspace and flight representatives to understand how GBSAA and the UAS will integrate into existing flight operations.

Meanwhile, the radar team conducts an aerial assessment of the candidate radar locations. A helicopter hovers at each of the candidate location at designated altitudes to identify any LOS obstructions, while recording a 360-degree video for further LOS analysis. This information will be analyzed later to confirm LOS to the necessary distances and tower height estimates.

Day 2—The operations and airspace team continues its assessments of nearby airports and airfields whose flight operations could impact GBSAA operations. The radar team meets with representatives from the local NEC to discuss communication and network requirements, followed by a discussion with Public Works about site preparation requirements and procedures. The radar team performs ground assessments of the candidate radar sites, which will allow the team to establish a site's proximity to roads, power, and communication infrastructure.

A preliminary frequency sweep is also conducted to identify any spectrum conflicts within the radar's transmitting

THE PROTOTYPE "SAFE STATE" GBSAA SYSTEM, ENABLED—FOR THE FIRST TIME—AN UNMANNED AIRCRAFT TO FLY AT NIGHT IN THE NATIONAL AIRSPACE SYSTEM WITHOUT A VISUAL OBSERVER OR CHASE PLANE.

band. The team also visits candidate building locations for the GBSAA Processing Units, which receive sensor data from the radar.

Day 3—The USAIC team provides an out-brief to the installation representatives on the advantages and disadvantages of each candidate site. After discussions, the agreed-upon tasks and timelines are presented with the responsible representatives identified.

After concluding the site survey, the USAIC team analyzes the data collected and continues coordination efforts with site representatives. Once the analysis is complete, final radar locations are presented to the gaining installation for approval. Site preparations can begin, and the fielding plan can be implemented.

CONCLUSION

With the first GBSAA system scheduled to go operational in mid-2014, many factors must be considered to ensure successful fielding. Adherence to certification standards requires extensive planning, coordination, and synchronized execution across the USAIC extended team, which currently includes USAIC, Massachusetts Institute of Technology Lincoln Laboratory, Syracuse Research Corp., and Johns Hopkins University.

In addition, the radar and airspace teams continue to coordinate and obtain proper authorization from all organizations involved at each site, with radar sites currently being selected.

For more information, contact Randy Tisor, PEO Aviation Public Affairs Officer,

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HARNESSING THE GRAY EAGLE

The Army is currently funded to field GBSAA systems to five sites using the 3,200-pound Gray Eagle UAS. Fielding of GBSAA requires careful, detailed coordination with military and civilian authorities at each installation, including an analysis of the installation's airspace, location of the UAS launch and recovery airfield, and UAS flight path and operational areas. (U.S. Army photo)

SETTING *the* TABLE *for* 2013



Advice for the logisticians
of tomorrow from the
logisticians of today



FLEXIBILITY INTO THE FUTURE

The U.S. Army is focused on developing Soldiers with multiple critical competencies—in mission generation, repair network, deployment and distribution, supply chain management, Joint logistics, and life-cycle logistics. Here, a group of host-nation trucks (HNTs) are ready to deliver retrograde cargo to Bagram Airfield, Afghanistan, Aug. 24. The 1157th Transportation Company provided security for HNTs. (Photo by SGT Gregory Williams, 3rd Sustainment Command (Expeditionary))





This article was originally published in the November-December 2012 issue of Military Logistics Forum (www.mlf-kmi.com).

The reason behind change is sometimes necessity, sometimes circumstance, and sometimes desire. One thing that is constant is that change will never truly take shape without innovation. Innovation of equipment and material things can help facilitate change, but innovation of the mind is the real driver.

Nurturing a skill and a leader in any specialty takes education, training, and experience. Waves of change are impacting the military today and for the foreseeable future. The logistics leaders of today have guided the military through more than a decade of engaged conflict and are now leading the way forward into the new era. *Military Logistics Forum* wanted to understand how the leaders of today are working to instill the culture and mindset in future logisticsians to innovate the art and science of logistics for years to come.

To do that, we asked what advice key logisticsians leaders had for the

next-generation logisticsians as they prepare to rise through the ranks and bring forth new efficiencies and innovation for the supply chain of the future.



LT GEN BROOKS L. BASH

*Director for Logistics, J4
Joint Chiefs of Staff*

The CJCS [Chairman, Joint Chiefs of Staff] *Capstone Concept for Joint Operations* anticipates the Joint Force of 2020 (JF2020) will operate in an increasingly complex, uncertain, competitive, and rapidly changing environment, an environment

***"YOU MUST HAVE THE COURAGE,
BORN OF KNOWLEDGE AND
INTELLECT, TO CHALLENGE THE
STATUS QUO."***

under tremendous fiscal pressures. This new reality, and the speed of crisis development, will increasingly

PREPARED TO DEPLOY

The next generation of logisticsians must be prepared to deploy on a moment's notice into an austere operating environment, and redeploy from there to another. Here, Marines with Combat Logistics Battalion 31, 31st Marine Expeditionary Unit (MEU) maintain proficiency with the M240B machine gun and the M249 squad automatic weapon during a live-fire training exercise Dec. 12 at Camp Hansen, Okinawa, Japan. The 31st MEU, the only continuously forward-deployed MEU, is the Marine Corps' force in readiness in the Asia-Pacific region. (Photo by LCpl Codey Underwood, 31st MEU)

challenge the Joint Logistics Enterprise (JLEnt) to support and sustain globally integrated operations. To meet these future challenges, our logisticsians must be able to quickly adapt to changing circumstances; challenge the status quo; be confident in their knowledge; capably represent logistics needs to the commander; and, most importantly, think critically. As such, my best advice for our next generation of logisticsians is simple: Be knowledgeable in your craft and pursue continual learning.

Logisticsians are the linchpin to JLEnt effectiveness, and your development begins with the motivation to embrace two key objectives. First, you must become a technical expert in your core logistics discipline and have a working knowledge of the breadth of logistics disciplines within your service. Second, you must pursue a path of continual learning. The study of logistics disciplines and more general disciplines will improve your aptitude for problem-solving and critical thinking. Knowing your job and understanding



how it fits into a broader operational environment are absolutely foundational toward building personal credibility.

Specifically, as a logistician, you must be able to translate logistics-speak into warfighting impact, and then you must credibly convey your informed views and positions to the commander ... especially if that logistics view challenges the preferred operational scheme of maneuver. You must combine expertise with critical thinking to develop a deep understanding of the logistics impact on readiness, and to clearly and confidently articulate risk during the development and execution of military plans. You must have the courage, born of knowledge and intellect, to challenge the status quo.

To fulfill the imperative to develop professional logisticians for the JF2020, I and other senior leaders of the JLEnt are leading two key efforts. First, we have worked to identify and affirm the needed core logistics competencies for the JF2020 environment. And second, we are developing a strategy and action plan to ensure that key logistics concepts associated with our core competencies are integrated into all levels of learning through targeted educational, training, and experiential opportunities.

The remarkable logistical successes of our past were enabled by our people, and so, too, will be the successes of our future. However, no matter how well we collectively develop training and educational opportunities, the crucial factor for logistics success will be based on the preparedness of you, our Joint logisticians. As our national security environment evolves, so too must our logisticians.

By knowing our jobs and through continuous learning, we will position ourselves to evolve and adapt in order to

meet the opportunities and challenges of the future. If you do that, I have no doubt you will be successful—and more importantly, we will continue to have the greatest Joint logistics force in the world.

[The *Capstone Concept for Joint Operations: Joint Force 2020* is online at http://www.jcs.mil/content/files/2012-09/092812122654_CCJO_JF2020_FINAL.pdf.]

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MG KENNETH S. DOWD

*Director of Logistics Operations (J3)
Defense Logistics Agency*

I have been in the fight in Kuwait, Iraq, and Afghanistan, and one of the biggest things I would suggest to a new logistician is to be aggressive. We have to make sure [logisticians] have a seat at the table with the warfighter. It is important to hear what the warfighter's issues are so we can be part of the solution, or at least be at the table so we can provide input to a plan.

I would warn a new logistician about being too cautious; don't sit in the second row when all the other major players are at the head table. Our new logisticians need to be competent so they can be at the table and feel comfortable telling that three- or four-star general that if they go up this hill or take that route, they will run out of fuel. We have to feel confident and competent enough to give the leaders that kind of forecasting advice.

Young logisticians of the next generation need to be out in

the fight. Go where the guns are blaring. It's hard to do logistics back here at home; logisticians need to be where the warfighters are. They have to walk the ground in Afghanistan, know the customer, know the warfighter, and work their issues.

Something I learned during my career is that it is important to keep not only my boss but also other generals well-informed. I would send them a weekly note on the hot logistics issues that might impact their fight or mission. We have to be good at providing strategic communications to the warfighter.

If you want to be a great logistician, I suggest you look for the tough jobs. You need to do "muddy boots" kinds of logistics jobs. I encourage the new logistician to get out there and do the tough stuff in extreme weather conditions in order to experience how the system holds up. You have to know what the warfighter is going through to really be able to provide logistics support to them.

The logistician of the future has to know how to build relationships. A lot of folks like to do it through email, but I feel it is important to walk around and talk to as many people as possible. That's how I build relationships.

I think a logistician's ability to build relationships is almost as important as being competent. As a logistician, I need to be able to connect with the warfighter so they have confidence in my ability

"IF YOU WANT TO BE A GREAT LOGISTICIAN, I SUGGEST YOU LOOK FOR THE TOUGH JOBS."



MOVING TO THE RHYTHM OF BATTLE

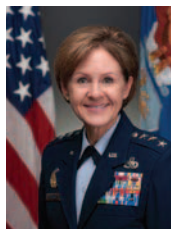
Since 9/11, Air Force logisticians have responded to mission requirements in Iraq, Afghanistan, Haiti, Japan, Libya, and other locations across the world. Here, U.S. Air Force members load a C-17 Globemaster III Sept. 12 during a redeployment mission at Camp Bastion Airfield in Helmand

province, Afghanistan. The C-17, with its expansive airlift and transport capabilities, plays a major role in the redeployment of U.S. military forces and provides logistical flexibility during times of conflict. (Photo by SSgt Clay Lancaster, U.S. Air Forces Central Public Affairs)

to get them what they need, when they need it. In other words, because of the relationships I built with warfighters, they had confidence in me.

I would tell the logistician of the future that you should never allow a warfighter to have to look back and say, “Hey, where is my fuel?” or “Where is my cold weather gear?” We always have to provide what the warfighter needs on time and on target; the warfighter should never have to “look back.” If you have built a strong relationship with that warfighter, they won’t have to look back.

I also encourage the logistician of the future to think outside the box. Don’t be afraid to do so. Some of the best solutions often come when you’re able to think outside the box.



LT GEN JUDITH A. FEDDER

*Deputy Chief of Staff for Logistics, Installations, and Mission Support
U.S. Air Force*

Since 9/11, Air Force logisticians have responded to mission requirements in Iraq, Afghanistan, Haiti, Japan, Libya, and other locations across the world. The sustained high impact of these logisticians highlights the need for success in demanding and collaborative environments. However, current and future national security challenges require the next generation of Air Force logistics leaders to be equipped to lead and sustain a global logistics enterprise in a budget-constrained environment characterized by volatility, uncertainty, complexity, and ambiguity. As a result, Air Force



**“... OUR LOGISTICIANS
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senior logistics leaders have identified three strategic priorities we will achieve within the next 10 years.

My advice to young logisticians is to focus on these three priorities: 1) Evolve logistics core competencies to fully support Joint doctrine; 2) Posture logistics resources for the next fight; and 3) Drive cost-effective readiness for product support and operational logistics. To help focus on these priorities, we have crafted a Deliberate Continuum of Learning (DCoL) to develop airmen as our next-generation logistics leaders. DCoL is singularly focused on developing critical competencies in mission generation, repair network, deployment and distribution, supply chain management, Joint logistics, and life-cycle logistics—logisticians with multiple competencies.

Future leaders should understand and take advantage of our ongoing efforts to hone current training and education plans and adapt them to this new paradigm. We know there are many training and educational opportunities available to our logisticians throughout their career; these opportunities need to be timely and provide targeted and effective training for officers and civilians to serve in current or future positions. In some areas, we have significant training gaps that we are addressing. The bottom line is, we are fundamentally changing the way we deliberately train, educate,

and assign enterprise logisticians across the Air Force and DOD.

In the future, I expect logisticians to have a broad enterprise view of logistics and supply chain management processes to sustain Air Force operations in a Joint environment. Most importantly, our logisticians must be competent and innovative fiscal stewards who can help shape efficient and streamlined logistics systems and processes. Furthermore, we must collaborate with sister services, industry, and academic organizations to build a holistic approach to training and educating that will result in leaders who are well-versed across the spectrum of national defense logistics.

Future leaders should be gaining insight now in fundamentals like Joint logistics processes, performance-based logistics, enterprise repair networks, and contractor and organic partnerships that will help them develop breadth. They should also take advantage of the increasingly deliberate, focused training to build depth in key logistics functions. This blend of training, education, and experience will result in the kind of logistician we will need for enduring mission readiness.



**LTG KATHLEEN
GAINES**

*Deputy Commander
U.S. Transportation
Command*

Let there be no doubt, we logisticians have an incredible track record. We have a sound foundation in the best logistics training available anywhere, and that training has been put to good use through a decade of war. We ensured that our warfighters had

everything they needed to accomplish the mission, sometimes resorting to extraordinary means supporting global operations from contingency operations to humanitarian relief.

We can never afford to fail, and we haven't. We cannot, however, fiscally afford to continue as before.

Think Enterprise

Speaking directly to the next generation, logisticians today have given you a legacy of doing the nearly impossible and making it look easy. In the future, we need to examine how to deliver at the least cost, using the entire enterprise (all services and agencies, in addition to commercial and international partners) as your resource—not just assets at hand. Clearly define your requirements and challenge all assumptions! When submitting your organization's requirements, you should provide rank-ordered criteria, ask for costed options, and identify where you are flexible.

Learn

Take advantage of training and education. Training and education are just part of what you will need in the future. More often, “soft skills” like critical thinking, negotiations, and conflict management are ignored but are essential in relationship-building. Don't get me wrong—you need to be grounded in supply chain basics, but these often neglected skills are critical at senior levels. We know it will continue to be true that in the end, it's not about

**“CLEARLY DEFINE YOUR
REQUIREMENTS AND
CHALLENGE ALL
ASSUMPTIONS!”**

planes and trucks and ships, it's about the people. Logistics begins with people and ends with people. How you treat people is the foundation of a relationship.

Communicate and collaborate

Hone your communication skills. You have to be able to get your point across in prose and speech—in minutes sometimes! Vet your ideas with others—inside and outside your organization. Put yourself in the shoes of your audience. Present your concept, and address their needs and mitigate their concerns.

Use this foundation to build collaborative relationships and teams. We accomplish so much more through teamwork and come up with better ideas when we come

together as a team than we do on our own. Ask yourself, “Who am I teaming with?” Is the circle large enough? Through teams you can continue to encourage a culture that is creative and rewards innovation, delivers value and builds trust, is always collaborative, and empowers others through stewardship and smart risk-taking. This sounds easy, but when money gets tight and stress levels peak, this is often when people stop communicating and partnering, as they fear they will lose a competitive edge.

Use these principles to guide your way. They will prove crucial as our military develops its new footing amid economic and strategic challenges.

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RADM MARK F. HEINRICH
*Commander
Naval Supply Systems
Command [NAVSUP]
and Chief, Supply Corps*

The next generation of military and civilian logisticians will have to be responsible leaders as they prepare to rise through the ranks. First and foremost, they will need to recognize and act upon what's important to their bosses. Education and experience are important foundations, but not tickets to leadership. The ability to apply education and experience from earlier tours or jobs

COALITION OPERATIONS

Junior logisticians are developing with more Joint and Coalition experience than in the past. Here, Soldiers with the U.S. Army's 515th Transportation Company Forward Logistics Element convoy with members of 3rd Royal Australian Regiment to Patrol Base Mirwais in

Uruzgan province, Afghanistan, during a resupply mission Aug. 17. The 515th is assigned to the 391st Combat Sustainment Support Battalion, 16th Sustainment Brigade, based in Germany. (Photo by SPC Nevada Jack Smith, 117th Mobile Public Affairs Detachment (Hawaii))





JOINT LOGISTICS SUPPORT THE WARFIGHTER

Soldiers from the 132nd Engineer Company (Multi-Role Bridge) of the California Army National Guard support loading operations for Task Force Anchor, alongside Naval Mobile Construction Battalion 133 aboard Camp Krutke in Helmand province, Afghanistan, Oct. 16. Task Force Anchor, made up of Naval Mobile Construction Battalion (NMCB) 133 personnel, provides engineering support for theater coalition forces. (U.S. Navy photo by PO3 Drew Verbis, NMCB 133)

will help cultivate these efficiencies and innovations. Our junior logisticians are developing with more Joint and Coalition experience than in the past, and as our supply chains and operations become increasingly Joint, these young logisticians are nurturing a broad tool set that far exceeds the knowledge that I had as a junior member of our military-civilian-contractor logistics team.

In order to stand out among the best who adhere to these principles, logisticians must embrace our Navy enterprise resource planning (ERP) system and its importance to the future of naval logistics. Navy ERP is a SAP-based supply chain software solution that delivers efficient and effective

global supply logistics support to Naval and Joint warfighters. Navy ERP also enables us to understand where every dollar is spent, to make cost-wise decisions across NAVSUP's business lines of operation, to improve program management and asset utilization, and, critically, to provide transparent and auditable financial records.

"EVEN WHEN THEY THINK NO ONE IS WATCHING, WHEN THEY THINK IT DOESN'T MATTER, THAT IS PROBABLY WHEN THEIR INTEGRITY MATTERS MOST."

Our system is in its early years, and we are grooming it—making it “hum.” We are a world-class organization, and all world-class organizations should be able to pass a financial audit. We will leverage ERP to achieve this goal, because logisticians of the future have to give appropriators of the future the confidence to fund us so that we can sustain our operating forces. If an appropriator thinks we're inefficient or are wasting funds in this harsh budget environment, we will not be successful. Hence, the sooner a logistician understands Navy ERP's functionality and embraces its value, the more likely it is she or he will be successful.

The Navy has a phrase, the “PESTOF Pillar,” which stands for people, equipment, supplies, training, ordnance, and facilities. It encompasses both infrastructure and shore support and explains how the interrelations of the different pillars affect the readiness and operational effectiveness of a weapon system. Because our future logisticians will be involved in every area of the PESTOF Pillar, ADM Bill Gortney, Commander of U.S. Fleet Forces Command, has coined the “Readiness Kill Chain.” The idea is that one missing link in the PESTOF Pillar can break the chain. Logisticians should consider this concept from another vantage point: The more value you add, the more relevant you are to your shareholders—fellow logisticians, your customers, the Department of Defense, our private industry partners, and taxpayers.

Ethics are critical! More than anything else, when we talk about the next generation of logisticians, they must leverage ethical decision-making every day. This means choosing the right course every time they encounter a tough decision.

Logisticians are held to a particularly high moral standard as the primary stewards for the Navy of U.S. taxpayers' money. Their "currency" is their decision-making capability to choose the right course of action every time. Logisticians will foster respect up and down the chain of command by making honest recommendations to their seniors and peers, as well as seeking honest recommendations from junior personnel. They should always encourage new ideas and deliver bad news forthrightly.

As military and civilian logisticians, they will be the standard by which juniors measure themselves. Even when they think no one is watching, when they think it doesn't matter, that is probably when their integrity matters most. Maintain dignity and do what's right.

It is ingenuity, skill, and determination that will make our future logisticians true leaders that contemporaries will emulate and admire. Press on!

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**MAJGEN
CHARLES L.
HUDSON**
*Commander
U.S. Marine Corps
Logistics Command*

After over a decade of sustained ground combat operations, the operating environment is shifting. As we maintain vigilance in the USCENTCOM theater and rebalance our posture in the Pacific, crisis response and expeditionary operations will require a new logistics perspective. Supply chains will not run through heavy, fixed, and secure installations inside an area of operations. Austerity, leanness, and speed will be the defining characteristics of logistics

"GET COMFORTABLE WITH A THIN AND STRETCHED SUPPLY CHAIN, ONE IN WHICH SUPPLIES AND EQUIPMENT ARE LIMITED TO OPERATIONAL NECESSITIES ONLY."

networks. Our forces will be dispersed over large areas and separated by vast distances of open ocean, and logisticians must approach this challenge from an expeditionary perspective.

Tomorrow's logistician must reexamine how we integrate air, ground, and naval logistics capacities to our advantage in the distributed battlespace. The climate at the tip of the expeditionary spear is uncertain, chaotic, and unforgiving. Expeditionary supply chains are complex and challenging endeavors, particularly since the distant destination is a tactical one, constantly on the move and frequently under attack. As we reemphasize the maritime nature of the global battlespace, logisticians must be keenly aware of the naval component of the supply chain.

The next-generation logistician must take a fresh look at how we structure and employ our prepositioning capabilities. Changing the location of inventory within the expeditionary supply chain can alleviate both inventory and distribution stress, thereby allowing combat forces to remain operationally mobile yet tactically lethal. Instead of being burdened with the cost—cube and weight—of heavier equipment necessary in some combat environments, expeditionary forces can draw that equipment from prepositioned supplies just prior to employing it.

I also think there are enduring principles that should continue to guide your actions in any tactical situation, regardless of how

the supply chain of the future evolves. Expeditionary is a mindset. Get comfortable with a thin and stretched supply chain, one in which supplies and equipment are limited to operational necessities only. Be prepared to deploy on a moment's notice into an austere operating environment, and redeploy from there to another.

Flexibility in planning and execution is vital. Logistics opens and preserves the commander's tactical options, extending his reach across the expeditionary battlespace and enabling him to exploit fleeting opportunities. Understand your commander's intent and translate it into actionable logistics options.

Initiative and innovation are critical characteristics of the expeditionary logistician. Ensure that your part of the supply chain moves with the rhythm of battle. Don't wait for the perfect solution. Take initiative, figure things out as you go, and keep your commander on the move.

Study your craft. To keep pace, it is paramount that tomorrow's logistician be a constant and diligent student of all aspects of warfare, fluent in both tactics and logistics across the range of military operations.

Lastly, and most importantly, leadership always counts. There is no substitute, never a stand-in for leadership. No technological advance or supply chain innovation can ever replace the need for leaders on the battlefield, setting the



example, inspiring trust, and forging an esprit that endures amid the crucible of combat. This, above all other duties, demands your fullest attention and commitment. *Semper fidelis.*



**GEN DENNIS
L. VIA**
*Commander
U.S. Army Materiel
Command*

In the words of the Secretary of Defense, we are at a “strategic turning point”—a turning point that will require us to shape and equip a force that is smaller, leaner, and more agile while retaining its ability to support a broad spectrum of missions and contingencies around the globe. As a result, the Army Materiel Command is seeking an innovative approach to logistics—providing real-time readiness for our forces.

The next-generation logistician should seek to do the same. The most effective way to meet the evolving needs of our Army and our combatant commanders is to engage in predictive logistics—anticipating and meeting the needs of the warfighters and getting them what they need, when and where they need it. We must provide our warfighters the flexibility they need to conduct missions in an increasingly complex and uncertain environment.

America’s warfighters cannot afford to wait for the tools they need to succeed. The next-generation logistician must seek



HEAVY LIFTING

Logisticians must provide warfighters with the flexibility they need to conduct missions in an increasingly complex and uncertain environment. Here, SPC Pete Sigala of 626th Brigade Support Battalion, 3rd Brigade Combat Team “Rakkasans,” 101st Airborne Division (Air Assault) (3/101), prepares to hook a sling load of supplies to a helicopter Nov. 5 at Forward Operating Base (FOB) Salerno in Khost province, Afghanistan. Sling loads help resupply outlying combat outposts and FOBs with fuel, water, food, and other essential supplies, allowing the warfighter to deploy farther forward. (U.S. Army photo by SFC Abram Pinnington, 3/101 Public Affairs)

ways to blend the “state of the art” with the “art of the possible.” Logisticians are entrusted to provide the best possible equipment, the best possible resources, the best possible solutions to the warfighter ... the equipment and supplies they need, when and where they need them. In a time of declining resources and increasing technology, the next-generation logistician should be positioned to leverage existing technologies, investigate emerging technologies, and minimize duplication and redundancy.

We must never lose track of the fact that our day-to-day mission has a direct impact on the warfighter. Everything our workforce

researches and produces should benefit the Soldier—from our research and development

programs to our weapon systems to our aviation assets, and beyond.

We must continue to lighten the load our Soldiers carry into combat. We must continue to seek ways to provide effective, efficient alternate energy sources. We must encourage our workforce to continue to develop and field innovative solutions to complex logistics challenges. We cannot fail the warfighter.

We—logisticians and Army Materiel Command—must stay postured to support future requirements. We will face tough choices and challenges that will force us to be more innovative in the ways we provide support to the warfighters. Our future success as logisticians requires innovation, critical thinking, and an ability to move from concept to completion rapidly and resourcefully.

**“THE NEXT-GENERATION LOGISTICIAN MUST
SEEK WAYS TO BLEND THE ‘STATE OF THE
ART’ WITH THE ‘ART OF THE POSSIBLE.’ ”**



TOTAL LOGISTICS INTEGRATION

The Logistics Modernization Program (LMP) is a fully integrated system of supply chain management and maintenance, repair, and overhaul planning and execution that supports warfighters around the globe by providing needed materiel for communications and electronics, aviation and missiles, combat vehicles and armaments, Army sustainment, and Joint munitions. It provides asset management and accountability, architecture and acquisition compliance, and financial transparency from factory to foxhole. (Photo courtesy of Product Director U.S. Army Logistics Modernization Program (PD LMP))

BEYOND SUSTAINMENT

How the U.S. Army Logistics Modernization Program is taking materiel delivery and accountability to the next level

by Mr. Gabriel Saliba

Now in the design phase for its Increment 2, the U.S. Army Logistics Modernization Program (LMP) continues to rely on a mix of industry best practices, lessons learned, and strong working relationships to provide an integrated enterprise solution that provides total asset management, accountability, compliance, and financial transparency.

By developing, acquiring, fielding and sustaining the best-available equipment and services, the LMP supports the Army's national-level logistics and finance mission to provide America's warfighters with the decisive advantage they need to prevail. It is deployed at more than 50 sites across the nation with approximately 21,000 users within

Headquarters, U.S. Army Materiel Command (AMC), U.S. Army Communications – Electronics Command (CECOM), U.S. Army Aviation and Missile Command (AMCOM), TACOM Life Cycle Management Command, U.S. Army Sustainment Command (ASC), U.S. Army Joint Munitions and Lethality Life Cycle Management Command (JM&L LCMC), and Defense Finance and Accounting Service.

In December 2011, the program was reorganized to better align with the Business Capability Lifecycle (BCL) model, which breaks DOD program efforts into manageable, stand-alone increments.

The BCL process, supported by Business Process Reengineering (BPR), strives to

FIGURE 1

U.S. ARMY LOGISTICS MODERNIZATION PROGRAM (LMP) CAPABILITIES

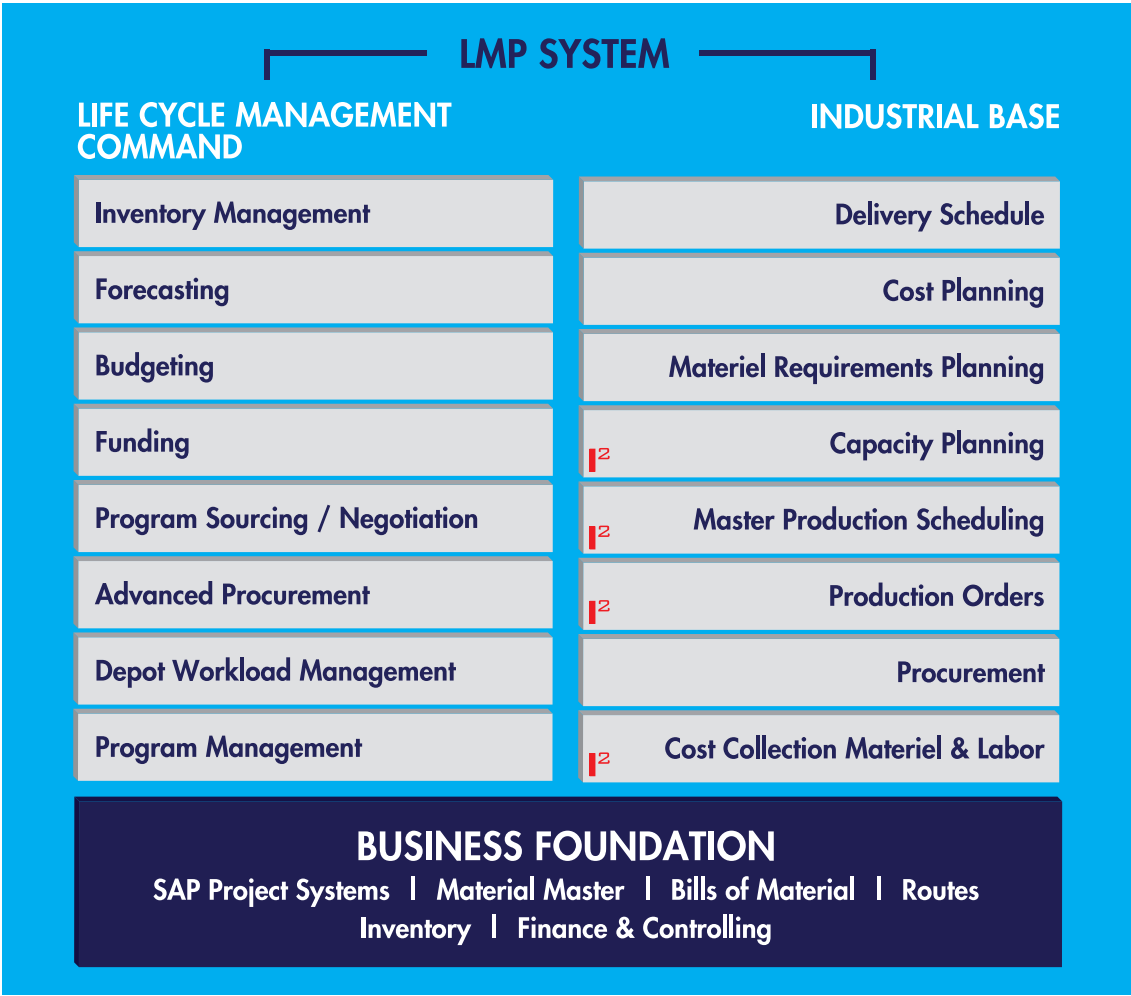
Integrated Enterprise Resource Planning System Based on SAP Software – Cradle to Grave

Handles 2M transactions daily

Interfaces with 70+ DOD systems

~21,000 users
50+ Army & DOD locations

Manages \$22B in inventory



WHERE

JUL 03 CECOM, Tobyhanna Army Depot, HQ AMC

MAY 09 AMCOM, Corpus Christi Army Depot, Letterkenny Army Depot

OCT 10 TACOM, JM&L LCMC, ASC

I² Existing LMP capabilities that will be expanded with Increment 2 functionality (additional 14,000 users).

Through its SAP-based, commercial-off-the-shelf solution, the LMP manages and tracks the order and delivery of materiel from U.S. Army Materiel Command (AMC) to warfighters when they need it, anywhere across the globe. LMP Increment 1 is the deployed operational/production baseline that supports life cycle management commands and the AMC industrial base end-to-end business processes. LMP Increment 2 (LMP I2) will add capability to the depots, addressing shop floor automation and specific Army and DOD strategic business transformation goals, such as Item Unique Identification. (SOURCE: PD LMP)



rapidly deliver capability to end users and to shorten each phase of development in order to deliver technology more quickly as it evolves. BCL also streamlines the documentation and execution processes so that programs are accountable and operational. Tiered accountability enables timely decision-making by the appropriate levels within a chain of command, reducing the impact of potentially long staffing times for needed approvals.

Taken together, these elements will contribute greatly to the speed and accuracy of fielding the LMP Increment 2 capabilities to an additional 14,000 LMP users across AMC.

LMP MISSION

The LMP was established in 2003 to significantly improve Army efficiency and effectiveness by fundamentally transforming the systems and processes that support and supply the warfighter. By taking full advantage of Army Enterprise Resource Planning (ERP) technology and supply chain innovations employed in the private sector, LMP set out to integrate the Army's ponderous, 30-year-old logistics systems into a single, unified supply system that would better manage its supply chain at both the national and depot levels.

Through its SAP-based, commercial-off-the-shelf solution, LMP manages and

tracks orders and deliveries of materiel from AMC to warfighters when they need it, anywhere across the globe. (See Figure 1.) Under the stewardship of the Program Executive Office Enterprise Information Systems, the LMP completed its third and final deployment in October 2010 and transitioned to sustainment in November 2011.

The LMP is an excellent example of how logistics and financial ERP tools are developed, deployed, and sustained. Using industry best practices, coupled with lessons learned from previous deployments and close working relationships with partners, customers, and user communities, the LMP has replaced two major legacy systems: the Commodity Command Standard System and the Standard Depot System. It handles 2 million transactions daily, manages \$22 billion in inventory, and interfaces with more than 70 DOD systems, exceeding industry standards with a system response time of less than two seconds per transaction in 97 percent of all cases.

The LMP is critical to the Army's goal of achieving an integrated enterprise solution that provides asset management and accountability, architecture and acquisition compliance, and financial transparency from factory to foxhole. The program provides state-of-the-art automated support to Army arsenal and

depot activities worldwide and improves Army operations by:

- Reducing the processing time for multiple sales orders from approximately five minutes per transaction to less than five minutes per batch of transactions.
- Reducing the time to create, fund, and accept maintenance orders from approximately two weeks to a matter of hours.
- Increasing the accuracy and visibility of maintenance actions.
- Improving the ease of inputting purchase requisitions by eliminating interruptions and saving transactions for later access.
- Providing drill-down capabilities to track order details, delivering superior user accountability and tracking for transaction execution and corrections by integrating logistics and financial transactions in real time, thereby providing a comprehensive audit trail of events and data processed in LMP for each user and transaction.
- Offering greater oversight of materiel movement.

INCREMENT 1

In December 2011, the deployed operational and production LMP baseline—which AMC is now using—was accepted by the DOD Deputy Chief Management Office (DCMO) as Increment 1 and was determined to be in the

TAKEN TOGETHER, LMP INCREMENTS 1 AND 2 WILL FULLY ENABLE END-TO-END SUPPLY CHAIN VISIBILITY AND INTEGRATION OF AMC MISSION OPERATIONS, AND SUPPORT THE ARMY BUSINESS SYSTEMS INFORMATION TECHNOLOGY STRATEGY.



THE NEW-LOOK LMP

The U.S. Army Logistics Modernization Program Increment 2 will build upon Increment 1 capabilities, addressing critical and emerging Army needs. LMP integrated the Army's 30-year-old logistics systems into a single, supply system to better manage its supply chain at both the national and depot levels. (SOURCE: PD LMP)

sustainment phase of the acquisition life cycle. But this doesn't mean that Increment 1 work is done.

LMP Increment 1 supports end-to-end business processes for life cycle management commands and the AMC industrial base in the areas of product life-cycle management, supply chain planning, finance, acquisition, maintenance, manufacturing and remanufacturing, warehouse inventory management, and distribution. Sustainment and fixes for these business areas, as well as compliance, are at the forefront of current LMP Increment 1 work efforts.

Increment 1 work also includes completing functional releases that will address and correct deficiencies, such as improving the Enterprise Data Warehouse and Extended Warehouse Management

systems, along with addressing AMC critical priorities within the scope of LMP Increment 1 as they arise. Other Increment 1 efforts will continue to address both statutory and regulatory financial compliance and auditability requirements.

While LMP Increment 1 answered the original call for an ERP solution for AMC's national-level logistics and finance needs, it does not currently support certain Army critical and emerging requirements. Enter LMP Increment 2.

INCREMENT 2

LMP Increment 2 will enhance the already deployed system by adding capability to the depots, as well as addressing shop floor automation and specific Army and DOD strategic business transformation goals, such as Item Unique

Identification. For Increment 2, the BCL process, along with BPR efforts, will enable the LMP Product Management Office to best manage requirements for accountability and delivery of new capability, ensure that requirements and scope are well thought out, and ensure fast and efficient delivery of new capability.

Taken together, LMP Increments 1 and 2 will fully enable end-to-end supply chain visibility and integration of AMC mission operations, and support the Army Business Systems Information Technology strategy, which serves as the road map for unified enterprise solutions and business processes and encompasses the overall Army ERP strategy.

LMP Increment 2 is currently in the design phase of the acquisition life cycle. By full deployment in FY16, Increment 2 will have completed three waves and seven releases to an additional 14,000 users, to include functionality that will complement the current LMP system. Specifically, Increment 2 will focus on:

- **Expanded Industrial Base (EIB)**—In addition to supporting maintenance planning, scheduling, inventory management, and parts support for industrial base missions, LMP Increment 2 will support the execution of maintenance and production, specifically capture and tracking capability using Item Unique Identification, and weapons system configuration and genealogy. It also will enable Automatic Identification Technology to reduce data entry errors and allow industrial base technicians to quickly view planned tasks and record actual execution.

Additionally, EIB functionality will support a standard enterprise solution for shop floor automation using the SAP

Complex Assembly Manufacturing Solution and Plant Maintenance module in support of tool crib management.

- **Extended Ammunition**—LMP Increment 2 will replace several systems currently used to receive, store, survey, and issue ammunition, and streamline the business processes governing all aspects of ammunition management.
- **Non-Army Managed Items**—Increment 2 will allow LMP to tap into the Defense Logistics Agency (DLA) Army inventory, expanding LMP's view of available assets and allowing the Army to more effectively and efficiently use existing inventory.
- **Army Prepositioned Stock (APS)**—The planning of war reserve requirements is currently performed outside of LMP, requiring offline analysis and manual entry of thousands of lines of materiel requirements at multiple APS sites. Through Increment 2, LMP will be able to link into the APS system automatically and share data.
- **National Maintenance Program (NMP)**—With Increment 2, LMP will better sync with NMP for maintenance and repair of AMC-owned materiel. Additionally, the NMP maintenance execution system will be replaced with Global Combat Support System – Army, and the workload and management processes in LMP will be integrated to track execution costs, provide delivery dates, and allow Army item managers to more effectively plan materiel support for the warfighter.
- **Other Army ERP-DLA Integration**—Through Increment 2, LMP will better meet requirements for data that are interchangeable with the other Army and DLA ERPs.

IMPORTANCE OF BCL

Recognizing that technology is evolving constantly and rapidly, incremental, short-term solution delivery has become

an industry best practice, especially for information technology business systems. The BCL process was formed with this in mind.

The BCL model requires rapid capability delivery, typically in no more than 18 months from program initiation. Since June 2011, DOD Defense Business System (DBS) programs with life-cycle costs of more than \$1 million, including LMP, are required to follow the BCL process.

BCL is not solely for acquisition, however. It is an end-to-end model that integrates requirements, investments, and acquisition processes in a single governance framework. It uses tiered accountability, delegating authority, and accountability for program outcomes and compliance at the appropriate levels within an organization and its chain of command.

To promote successful solution delivery, BCL requires a well-scoped problem statement; a clear understanding of functional and technical constraints and assumptions; contextual analysis, such as where and how capabilities fall within the context of the Army ERP strategy and “to-be” business process analysis, among other activities, to properly scope a solution and break it into manageable, stand-alone increments.

Although the BCL is designed to compress solution delivery timelines, it does not eliminate programs' regulatory or statutory requirements, or the need to support Army BPR efforts.

BPR is designed to help organizations fundamentally rethink how they do business to improve cost, schedule, and performance. Specific to DOD, BPR seeks to ensure that business processes supported by a DBS are as streamlined and efficient as possible, and that they

work to eliminate or reduce the need to tailor commercial-off-the-shelf systems. Spearheaded by the DOD DCMO, the BPR effort will help DOD rationalize its DBS portfolio, improve performance management, control scope changes, and reduce fielding costs.

CONCLUSION

The capabilities delivered in LMP Increment 1, and those that will be delivered in Increment 2, directly affect how and when warfighters receive the materiel they need to maintain and repair equipment.

Much work remains to be done before full deployment can be achieved as planned in FY16.

The LMP Product Management Office will continue to focus its efforts to support the Army Business Systems Information Technology and ERP strategies using BPR and BCL to remain accountable for delivering a capable system on time and within budget, and for meeting or exceeding expected performance outcomes. It also will continue to leverage industry best practices, lessons learned, and inputs from the customer and user communities to ensure that the LMP delivers capabilities with maximum efficacy to streamline Army efforts for its national-level logistics and finance mission.

For more information about the LMP, go to <https://www.po.lmp.army.mil>.

MR. GABRIEL SALIBA is Product Director U.S. Army Logistics Modernization Program within Program Executive Office Enterprise Information Systems. Saliba holds a B.S. in business and management from the University of Maryland. He is Level III certified in program management and a member of the U.S. Army Acquisition Corps.

SCIENCE &
TECHNOLOGY



GLOBAL SOLUTIONS

DOD looks to foreign technologies for mature capabilities that can save money

by Mr. Jason Craley

IMPROVING SMALL ARMS CAPABILITY

The Foreign Comparative Testing (FCT) Program is exploring new 40 mm technologies from a Singapore-based vendor, for possible use to satisfy proposed requirements and capability gaps specified in the Army's Small Arms Capability Based Assessment. The U.S. Marine Corps also has an interest in the 40 mm grenade ammunition. Here, SGT Nicholas Mitchell of 1st Squadron, 33rd Cavalry Regiment, 3rd Brigade Combat Team, 101st Airborne Division (Air Assault) scans a ridgeline near the village of Kote Khel, Khost province, Afghanistan, Oct. 28. (U.S. Army photo by SGT Christopher Bonebrake, 115th Mobile Public Affairs Detachment)

Scanning the globe for the latest technology is a continual process for DOD. Since 1980, the Office of the Secretary of Defense (OSD) has leveraged new and evolving technologies through a program called Foreign Comparative Testing (FCT), with the mission to find and assess “here and now” solutions to meet the operational needs of American service members.

Over the past 12 years, enhanced body armor from Germany, a mine-clearing system from Denmark, and a bunker-busting, multipurpose rocket warhead from Norway were a few of the 105 items tested and deployed by U.S. forces that originated in the FCT Program. Other examples include advances in lightweight body armor and lighter, longer-lasting rechargeable batteries.

Another recent project focused on enhancing combat readiness by supplying fuel for the Army's most important asset: the Soldier. The project verified the capabilities of a French-developed meat processing system that had been unavailable in the United States. The system uses a unique dehydration process to produce a ready-to-eat meat that has a shelf life of up to three years at room temperature.

With an expanded menu and supplemental nutrients to improve cognitive and physical performance, Soldiers will be much better prepared to engage the enemy. They will also get a much-needed morale boost when this ready-to-eat meat with improved taste hits the field. “Meals, Ready to Eat will never be the same,” said William “Randy” Everett, a member of the International Technology Integration



SEEKING NEW TECHNOLOGIES

The search for game-changing military technology leads the Army and DOD to foreign expositions and displays. Once identified, a new technology may be acquired through the FCT Program. Here, SGT David Drugagh of 1st Battalion, 4th Infantry Regiment, talks about the capabilities of the Mine Resistant Ambush Protected vehicle with Heidi Shyu, Assistant Secretary of the Army for Acquisition, Logistics, and Technology, June 11 during the 2012 Eurosatory International Exhibition in Paris. (U.S. Army photo by SSG Brooks Fletcher, U.S. Army Public Affairs)

Team of the U. S. Army Research, Development, and Engineering Command (RDECOM).

By focusing solely on mature technologies, FCT acquisitions avoid the high costs associated with extended research and development (R&D). For example, it was estimated that government R&D costs would have been \$2–3 million to build a comparable processing system for the meat dehydration project from scratch. Furthermore, the project would take at least three to five years to develop.

By testing and incorporating the already mature French system, these upfront R&D costs were avoided and tastier, long-lasting meat products will be on the way to U.S. service members much sooner. (See related article on Page 89.)

As of Oct. 31, 2012, 671 FCT projects had been initiated, and 600 of those completed. Of the 311 projects that met service requirements, 256 were transitioned for procurements worth \$10.8 billion.

CONSTANTLY EVOLVING

The FCT Program adapts continually to changing environments. Before 1989, the program was referred to as the Foreign Weapons Evaluation and NATO Comparative Testing programs and focused initially on NATO allies. That year, the program was reborn as the Foreign Comparative Testing Program with authorization from Congress. At the end of the Cold War, the program broadened its scope to involve countries such as South Korea, Australia, and South Africa, which have supplied life-saving technologies.

The South African-developed Mine Protected Clearance Vehicle, or Buffalo, was successfully evaluated in 2002. It uses V-shaped hull technology to counteract roadside explosives. The timing could not have been better, as the Buffalo would be used extensively throughout Iraq and Afghanistan and save lives.

With the coming withdrawal of forces from Afghanistan and DOD facing a new age of fiscal austerity, the FCT Program

helps meet new challenges by promoting Joint programs and resource sharing. By doing more with less, the program makes efficient use of taxpayer dollars.

EVALUATE AND BUY

Despite a huge number of technologies on which to focus, the OSD has one clear goal for the FCT Program: evaluate and buy capabilities.

“The FCT Program takes the best technology the world has to offer and puts it directly in the hands of our young men and women in the field. The program has been a tremendous asset to the Army, and it has been a privilege for RDECOM to take the lead for our service,” said Thomas Mulkern, leader of RDECOM’s International Technology Integration Team, which oversees the Army FCT program.

Each military branch and the U.S. Special Operations Command conduct FCT programs. Each nominates mature military or commercial products that provide a needed solution. Each service also conducts assessments and fields the technology when it is approved for acquisition.

FCT successes have been many. Since the program’s inception, projects from 31 countries have been completed, and foreign vendors have teamed with U.S. industry in 34 states. Considerations such as exportability and intellectual property limitations are considered upfront during the initial proposal submission process. Successful proposals that are selected for funding have a strategy in place to address problem areas and allow the U.S. military access to critical information once an item is fielded.

The program is an example of how NATO and other foreign partners help satisfy U.S. technology requirements or help shore up operational deficiencies. Because



BRINGING THE BUFFALO TO BEAR

The FCT Program allows vendors from foreign countries and U.S. industry to work together and quickly address the needs of warfighters. An example is the South African-developed Mine Protected Clearance Vehicle, or Buffalo, which was successfully evaluated in 2002. The 37-ton Buffalo uses V-shaped hull technology to counteract roadside explosives. Here, a Buffalo from the 883rd Engineer Battalion extends its robotic arm

to unearth hidden improvised explosive devices that might otherwise not be discovered, during a demonstration of its abilities Feb. 13, 2012, at Forward Operating Base Lagman, Zabul province, Afghanistan. (U.S. Army photo by SGT Christopher McCullough, 3rd Stryker Brigade Combat Team, 2nd Infantry Division)

the FCT Program focuses on mature technologies, each project has accelerated acquisition. The program gets the world's best technology to the field fast, normally in less than 18 months.

The program also produces significant cost savings. FCT's estimated savings for U.S. R&D has been \$7.6 billion over 30 years. By contrast, the OSD has invested \$1.17 billion in the program.

An acceptable FCT project must have a high Technology Readiness Level, which means that basic research and testing must already have been completed, and the capability must have been proven in a setting similar to real-world operations.

Without the need for extensive R&D, a technology can be fielded much faster than it otherwise would be.

INTENSE COMPETITION

Each year, the OSD selects projects, and competition is fierce because of resource constraints. Only a few Army projects that meet strict criteria are selected. For calendar year 2012, 12 FCT proposals were initiated with Army chief technology officers; of those, three were selected:

- The 40 mm Counter Defilade Grenade and Fire Control Systems, which will expand the U.S. inventory of 40 mm low-velocity grenade ammunition,

in use for at least 50 years with no increase in functionality, capability, or lethality. This FCT project will test new 40 mm technologies from a Singapore-based vendor and consider their applicability to proposed requirement documents and capability gaps specified in the Army's Small Arms Capability Based Assessment.

- The Armor Processing FCT project, which evaluates small arms protective body armor inserts fabricated using a new isostatic, high-pressure processing technique from an Australian vendor. This novel process has shown promising ballistic performance results and has the potential to reduce the weight of personal body armor while lowering cost.



ENHANCEMENTS IN BODY ARMOR

Enhanced body armor is among the 105 items tested and deployed by U.S. forces that originated in the FCT Program. Currently, program officials are evaluating small arms protective inserts fabricated using a new isostatic, high-pressure processing technique from an Australian vendor. This novel process has shown promising ballistic performance results and has the potential to reduce the weight of personal body armor while lowering cost. Here, CPL Bobby Liverman of 5th Battalion, 20th Infantry Regiment clears an area in the district of Spin Boldak, Kandahar province, Afghanistan, Sept. 9 during Operation Southern Strike III. (U.S. Army photo by 1LT Veronica Aguila, 117th Mobile Public Affairs Detachment)

- The Mine Resistant Combat Boot FCT project, which will test and evaluate a Colombian anti-personnel mine-resistant combat boot against other blast boots that the Army is currently using. Results will help determine whether the Colombian boot is more effective and should be procured by the Army.

CONCLUSION

All proposals are submitted for competition for FCT funding by government program managers and are associated with a Program of Record. This is done to ensure that all FCT projects address valid

needs, and makes it highly likely—over 80 percent in the past 30 years—that a vendor product that tests successfully will be procured by DOD.

There are many ways foreign vendors can enter the FCT process. One is to solicit help from their respective embassy representatives in the United States. Another is to hire professional consultants to broker their business with DOD. Additionally, vendors can contact the Army Comparative Technology Office (CTO) directly with information on a product or products.

FCT Proposals for FY14 are currently being accepted from Army technology officers on the OSD CTO Portal website at <https://cto.acqcenter.com/osd/portal.nsf/Start?ReadForm>.

Initial draft proposals are due to the RDECOM International Technology Integration Team by March 1. Final versions will be due by May 1, after a period of refining the proposals with RDECOM. OSD selections are expected by July. Finally, the resulting projects will get underway in October 2013, the start of FY14, pending the availability of funding.

For information on submitting an Army FCT proposal for FY14, contact one of the following members of the RDECOM International Technology Integration Team: Jason Craley at jason.craley@us.army.mil or 410-278-8591; William “Randy” Everett at william.r.everett@us.army.mil or 410-306-4824; or Rino Imperiale at rino.imperiale.civ@mail.mil or 410-306-4828.

MR. JASON CRALEY is a general engineer at the U.S. Army Research, Development, and Engineering Command (RDECOM). As a member of the RDECOM International Technology Integration Team, he is responsible for identifying candidate technologies for the Foreign Comparative (FCT) Testing and Defense Acquisition Challenge (DAC) programs, as well as evaluating FCT and DAC technical proposals and managing subsequent programs. He holds B.S. degrees in aerospace engineering and international studies from Worcester Polytechnic Institute, and an M.S. in engineering management from the University of Massachusetts Amherst. Craley is a member of the American Institute of Aeronautics and Astronautics, and is a published author.

FCT PROGRAM DELIVERS *NEW* MEAT RATION

by Mr. Roger Teel



FUEL FOR THE FORCE

Troops may be eating osmotically dehydrated meat on future battlefields. Here, Dr. Randal P. Garrett, Chief Operating Officer for FPL Foods LLC, guides a sheet of osmotically dehydrated meat onto a conveyor belt at FPL Food's Cayce, SC, processing plant. (Photos by Tom Faulkner, U.S. Army Research Development, and Engineering Command (RDECOM))



INCORPORATING TECHNOLOGY IN RATIONS

The osmotic dehydration process was invented by a French company and is now being researched in the United States. Here, Robert Gardner, a food technician with FPL Foods LLC in Cayce, SC, clears the metal extruder to ensure a smooth and consistent sheet of meat as it enters the continuous

osmotic dehydration process. A second sheet of parchment is laid over the meat from the roll on the right. Nutrients and flavoring are added when the meat is being ground, before it undergoes dehydration.

Food scientist Dr. Tom Yang is constantly searching for ways to improve the nutritional value of military rations, as well as the taste. The DOD Foreign Comparative Testing (FCT) Program helped him deliver one in 2012.

“About three years ago, I went to the International Institute of Food Technologists Exhibition in Paris,” said Yang, a senior food scientist with the DOD Combat Feeding Directorate, an element of the U.S. Army Natick Soldier Research, Development, and Engineering Center. “A French company was marketing osmotic dehydration as a continuous process. This process is very novel, and I [thought], this has potential for application to military rations.”

“It’s a very simple concept,” Yang said. “You take lean meat and grind it up. This can be beef, poultry, pork, or even seafood, fish,

or a combination—even fruit or vegetables.” Nutrients and flavoring are added when the meat is being ground, before it enters the dehydration process.

FROM PROJECT TO PRODUCT

To fund the project and purchase the necessary equipment, Yang submitted a proposal through the FCT program managed by the U.S. Army Research, Development, and Engineering Command’s (RDECOM’s) International Technology Integration Team for the Office of the Secretary of Defense, Comparative Testing Office. By investing in new technology, the FCT program is delivering innovative and cost-effective new products to American industry, which, in turn, is creating new markets and jobs.

The Combat Feeding Directorate is now partnering with FPL Foods LLC, a meat processing company headquartered in

Augusta, GA, to develop the product. The continuous osmotic dehydration processor was installed in the company's Cayce, SC, meat processing plant in May.

"To our knowledge, this is the only system like this in the United States," said Dr. Randal P. Garrett, a food scientist and FPL Foods' Chief Operating Officer.

The new dehydrated meat product costs about one-third what a similar product would cost and has an estimated two- to three-year shelf life at ambient temperatures. The dried meat is tender, making it not only a potential alternative to traditional beef jerky, but also a potential additional shelf-stable ration component.

'ON THE LEADING EDGE'

"For us to be competitive, we have to be on the leading edge" of new technology, Garrett said. "We're in tune with Army requirements. We've done our initial development—six runs so far—and consumer marketing is coming once we have a variety of products to show."

Yang estimates the osmotic dehydrated meat product will be ready for military test and evaluation in summer 2013.

For more information, go to www.army.mil/rdecom.

MR. ROGER TEEL is a Public Affairs Specialist for the U.S. Army Research, Development, and Engineering Command and a veteran Army public affairs practitioner, serving on active duty for 23 years before becoming a DA Civilian. He holds a B.A. in journalism from Indiana University and is a former Defense Information School journalism instructor. Teel was named the Department of the Army Civilian Journalist of the Year in 1999.



CHEAPER RATIONS FOR TROOPS

The osmotically dehydrated product is cheaper than a similar product and has an estimated two- to three-year shelf life at ambient temperatures. Here, Stephanie Holmes, a food technician at FPL Foods LLC's Cayce, SC, processing plant, rolls a sheet of the new dehydrated meat product as it comes off the conveyor.



BETTER CHOW ON THE BATTELFIELD

Scientists are looking for ways to improve the nutritional value and taste of combat rations. Cutting a sample of osmotically dehydrated meat is Xingchu Li, a food scientist with FPL Foods LLC.

GREATEST INVENTIONS *of 2011*

Army's top 10 inventions emphasize
Soldier protection and precision

by Ms. Teresa Mikulsky Purcell and Mr. Dan Lafontaine

For nearly a decade, the Army has recognized the top inventions that boost warfighter effectiveness and survivability, through the U.S. Army Materiel Command's Army Greatest Inventions program. The winners for 2011, chosen by a panel of field-grade officers and NCOs with recent combat experience, hone in on technologies and refinements that protect Soldiers and provide them with operational precision capabilities in the field.

The latest winning inventions, which were first fielded in 2011, span a variety of crucial areas, from munitions, machine guns, and precision mortars, to video feeds from unmanned aircraft, to protective gear and vehicle armor. No matter the invention, people working on them shared the same motivation: support the Soldier.

"The ability of people to work as a team and integrate all of the sophisticated technology in a way that reduces the burden on the Soldier is really how we achieve this leap forward in

capability," said Patti Alameda, Competency Manager for the Mortar and Common Fire Control Systems Division at the U.S. Army Armament Research, Development, and Engineering Center (ARDEC).

CASE IN POINT: EXCALIBUR

A good example is Excalibur, the world's first GPS-guided, cannon-fired projectile.

"What sparked the development of the Excalibur was that maneuver commanders needed more precision to avoid casualties among civilians who might be in the vicinity of a target, or to reduce risk to friendly forces in a close fight," said Peter DeMasi, the Excalibur Deputy Product Manager for Program Executive Office (PEO) Ammunition's Project Manager Combat Ammunition Systems (PM CAS).

"That's what Excalibur provides, and that means maneuver commanders have for the first time the ability to service



BETTER BEAD ON THE ENEMY

The M982 Excalibur Increment 1a-2 is a GPS-guided, 155 mm extended-range, precision-guided projectile that has a range capability of 37.5 kilometers, representing a dramatic improvement in accuracy over conventional artillery ammunition. (U.S. Army photo)

targets precisely with reduced collateral damage. It also means that the maneuver commander now has the ability to utilize

both close air support and artillery to do the job,” DeMasi said.

The M982 Excalibur Increment 1a-2, one of the 2011 Army Greatest Inventions (AGIs), is a GPS-guided, 155 mm extended-range, precision-guided projectile that has a range capability of 37.5 kilometers, which is a dramatic improvement in accuracy over the hundreds of meters for conventional artillery ammunition. The extended range is achieved through the use of folding glide fins, which allow the projectile to coast from the top of a ballistic arc toward a preprogrammed target. This increased reliability boosts the probability of destroying a target and decreases the number of rounds needed to fire.

According to DeMasi, Excalibur must stand up to very tough conditions: A round starts at rest and then, propelled by an explosion, accelerates inside the length of a cannon tube to a velocity exceeding 1,000 mph. “The challenge,

then, is getting the state-of-the-art electronics that are nestled inside the round’s relatively small nose cone to reliably support GPS reception after enduring what can only be described as—without exaggeration or hyperbole—an extremely hot and bumpy ride.”

He added that when the first increment of Excalibur was delivered to troops, it received a 2007 AGI award. “With Increment 1a-2, we improved the range of the projectile significantly, giving the commander approximately 53 percent greater reach. Considering that Excalibur 1a-2 now has a maximum range greater than any other U.S. 155 mm projectile, this is a significant enhancement.”

But Excalibur is just one example of the many successes achieved through the Army’s top 2011 inventions, which will be formally recognized at a ceremony this spring. Following is a look at the rest of the winners.

PRECISION MORTAR IMPROVEMENTS

ARDEC’s Alameda was involved in two winning inventions that are part and parcel of each other: the Accelerated Precision Mortar Initiative Cartridge (APMI) and the Precision Lightweight Universal Mortar Setter System (PLUMSS).

“There were many difficult technological hurdles we crossed previously, during our development of digital fire control systems requiring interface with smart projectiles, that culminated in the APMI and PLUMSS,” said Alameda. APMI is a 120 mm GPS-guided mortar cartridge that provides infantry commanders with precision-strike capability that has “never been achieved before,” she said.

“Typically mortars are fired in volleys against an area target because of their

inherent inaccuracy, but with APMI, you have the potential to destroy a target with only one or two rounds,” said Peter Burke, Deputy Product Manager Guided Precision Munitions and Mortar Systems for PM CAS. Because of its GPS accuracy, APMI gives Soldiers the opportunity to employ the mortar where they previously would not, such as closer to friendly forces or in urban areas. It also reduces the logistical burden of ammunition resupply.

APMI replaces the current fuse in the standard M934 higher-explosive round with modifications to the fuse well and fin configuration, to provide low-cost guidance capability that significantly improves the accuracy of mortar rounds. GPS coordinates are inputted from current mortar-lightweight or standard mortar-ballistic computers with the addition of PLUMSS, a highly transportable, all-weather, rapid-response, indirect fire control system.

The use of PLUMSS has improved the Circular Error Probable—a measure of accuracy defined as the radius of a circle centered at the mean in which 50 percent of the round impacts are contained—from 75 meters to 10 meters. It uses GPS for precision to provide indirect fire support that decreases the ammunition expenditure rate, limits collateral damage, and provides accurate first-round effects on target.

According to program personnel, commonality and interoperability among already fielded platforms eliminate the need for additional resources for training and sustainment, while providing valuable lessons learned during development.

SOLDIER PLATE CARRIER SYSTEM

The Soldier Plate Carrier System (SPCS) was spearheaded by PEO Soldier’s Product



PRECISION ACCURACY

The Accelerated Precision Mortar Initiative Cartridge invention is a 120 mm GPS-guided mortar cartridge that provides infantry commanders with precision-strike capability never before achieved. Here, PFC Aaron Wilson of 1st Squadron (Airborne), 40th Cavalry Regiment, Task Force Spartan

prepares 120 mm mortar rounds to fire Feb. 8, 2012, at Camp Clark in Khost province, Afghanistan. The mortar teams were testing their systems to use new precision-guided mortar munitions. (U.S. Army photo by SPC Ken Scar, 7th Mobile Public Affairs Detachment)

Manager Soldier Protective Equipment, in response to an Operational Needs Statement requesting a lighter-weight alternative to the Improved Outer Tactical Vest (IOTV) for Soldiers conducting combat operations in the mountainous regions of Afghanistan. The idea was to decrease the overall weight and thermal burden on Soldiers and thus improve their combat effectiveness.

The SPCS was designed as a lightweight, hard-armor plate carrier system with a modular, lightweight load-carrying equipment attachment that has a

quick-release capability. The SPCS consists of an outer carrier with soft armor ballistic inserts and a cummerbund for system stabilization. It provides the same ballistic protection from rifle threats as the IOTV, with an optimized area of vital organ coverage around the torso.

The SPCS is fielded to infantry brigade combat teams, Stryker brigade combat teams, and heavy brigade combat teams deploying in support of *Operation Enduring Freedom*. Ongoing post-combat surveys and feedback from Soldiers in the

field on the plate carrier system continue to provide input for future modifications and redesign efforts, which will include a simpler quick-release mechanism and a better-integrated cummerbund system.

M2A1 .50-CALIBER MACHINE GUN

The M2A1 is an enhancement to the .50-caliber M2, including a modified barrel, barrel extension, barrel support, barrel handle, flash suppressor, and a fixed headspace and timing configuration. An automatic, crew-served weapon, the M2A1 can fire single-shot and automatic

rounds with right- and left-hand feed. It is recoil-operated, link-belt-fed, and air-cooled. Upgrades have increased product durability and Soldier safety by moving the headspace and timing adjustment task above the operator level.

“The M2A1’s fixed headspace and timing enhancement resolve the number one safety issue for Soldiers operating the weapon system,” said Laura Battista, M2 Product Director for PEO Soldier’s Product Manager Crew Served Weapons. “The M2A1 addresses this concern by moving the adjustment task above the operator level, thereby minimizing the risk of malfunctions or injuries in the field. This also frees up vital Soldier training time for other critical tasks.”

A more durable barrel extension is also a significant M2A1 enhancement. “The barrel extension is machined from maraging steel, thus increasing the durability and reducing part breakage over the current M2,” said Robert Sulzbach, M2A1 Project Officer at ARDEC’s Weapons and Software Engineering Center. “Maraging steel is a strong, tough, carbon-free iron alloy, which contains nickel, cobalt, titanium, and molybdenum. The steel is heat-treated to an extremely high tensile strength, resulting in longer life and greater durability for the component.”

LTC Thomas Ryan, Product Manager Crew Served Weapons, said, “The

upgrades we’ve incorporated will keep this weapon relevant well into the future.”

OH-58D LEVEL 2 MANNED-UNMANNED TEAMING

“As operations picked up in Iraq and the number of unmanned aircraft systems [UAS] was reaching critical mass, the Army found a compelling need to quickly get direct viewing of UAS sensor data into the Apache helicopter to greatly enhance its capability,” said Layne Merritt, Chief Engineer, Aviation Development Directorate, Aviation and Missile Research, Development, and Engineering Center (AMRDEC). According to Merritt, manned-unmanned teaming between Army UAS and rotary-wing attack and scout platforms has been an objective since



SAFETY ISSUE RESOLVED

The M2A1 .50-caliber machine gun is an enhancement to the .50-caliber M2, with a modified barrel, barrel extension, barrel support, barrel handle, flash suppressor, and a fixed headspace and timing configuration,

making the weapon safer to operate. (Photo courtesy of Program Executive Office (PEO) Soldier)

“THE ABILITY OF PEOPLE TO WORK AS A TEAM AND INTEGRATE ALL OF THE SOPHISTICATED TECHNOLOGY IN A WAY THAT REDUCES THE BURDEN ON THE SOLDIER IS REALLY HOW WE ACHIEVE THIS LEAP FORWARD IN CAPABILITY.”

the 1990s, but with the immediate need in Iraq, the Army could not wait for further development, testing, and integration.

The Level 2 Manned-Unmanned (L2MUM) Teaming for the OH-58D Kiowa Warrior helicopter is a real-time system that can receive encrypted and unencrypted video and metadata in the common bands within a long range. Based on technology originally developed for the AH-64 Apache helicopter, the software provides the user with UAS location on a standard Falcon view moving map display along with the metadata, which provides better and quicker situational awareness farther from the target and the engagement than was possible before.

L2MUM allows for specific aviation attack assets to see and understand strategic objectives. L2MUM also provides and receives intelligence to and from various ground elements, and tactically enables destruction efforts on specific targets.

“Putting together a qualified production package required enterprise-wide commitment and cooperation to meet this critical operational demand,” Merritt said. “PM Apache, PM UAS, and the Aviation Applied Technology Directorate [of AMRDEC] worked together diligently to put together a technical package that was integrated and qualified quickly and sent to combat operations.”

The solution designed for the Apache helicopter was called Video from Unmanned Aircraft Systems for Interoperability Team – Level 2, or VUIT-2. L2MUM is a refined version of this capability. Merritt said that a typical comment received from a warfighter about the system was, “VUIT in the AH-64s makes it ridiculously powerful.” He added, “It is clear that this capability brings a huge leap in capability to the Army.”

PELVIC PROTECTION SYSTEM

In response to an increased threat to dismounted Soldiers from buried improvised explosive devices (IEDs) in the war theater, Product Manager Soldier Protective Equipment at PEO Soldier now provides them with the Pelvic Protection System (PPS), which helps prevent serious injuries to the pelvis, femoral arteries, and lower abdominal organs from a blast or small fragmentation threat. It also limits the amount of sand and debris that can penetrate wounds sustained from IEDs, which can result in complications and serious infections.

“There were a lot of significant injuries, and very traumatic injuries occurring to Soldiers in the lower extremity area,” said LTC Frank Lozano, Product Manager Soldier Protective Equipment. “It’s very traumatic, very heartbreaking, when Soldiers go through those types of events,

and they are very young, and then they come home and they are not able to have children.”

The PPS, which was rapidly fielded in 2011 to support evaluations and Soldier assessments, is a two-tiered system. The first tier, worn close to the body, is the Protective Under Garment, resembling bicycle shorts. It is made of a breathable, moisture-wicking material. The Protective Outer Garment, worn over the combat uniform, is made of ballistic material similar to the soft panels in the IOTV that provides added protection to the inner thighs, femoral artery, and groin.

Beyond protecting troops from wounds, pelvic undergarments can support morale, said Jim Martin, a sociologist at Bryn Mawr College in Pennsylvania and a retired Army colonel. As *USA Today* quoted Martin in an April 2, 2012, article, “It [the PPS] conveys a very strong message on the part of the Army and government to give you the best equipment possible, that they’re not just concerned about executing the mission but your safety and well-being, too.”

Soldier feedback has helped the Army make the garments lighter and more breathable. “When you’re wearing something close to your skin in 100-degree temps, sometimes those minor adjustments go a long way,” said Lozano.



REDUCING SOLDIER INJURIES

PEO Soldier's Product Manager Soldier Protective Equipment, in conjunction with the U.S. Army Natick Soldier Research, Development, and Engineering Center, developed the Pelvic Protection System, which helps prevent serious injuries to the pelvis, femoral arteries, and lower abdominal organs from a blast or small fragmentation threat. (Photo courtesy of PEO Soldier)

According to the Pentagon, the underwear has resulted in a 40 percent reduction in wounds to troops' genitals, key arteries, and abdomens. "It's hard to call this a success story when someone loses a limb," Lozano said. "But I have met Soldiers who, if they weren't wearing their protective ensemble, they would be dead."

HELMET SENSOR AND DATA RETRIEVAL SYSTEM

To address traumatic brain injuries (TBIs), PEO Soldier developed the Generation II Helmet Sensor (HS) and Data Retrieval System (DRS) to measure, record, and store data from pressure events and responses associated with explosions, blasts, and other shock and impact events. More than 13,000 have been fielded to five brigade combat teams in Afghanistan.

The device, weighing just two ounces, is mounted and attached inside the helmet, and effectively records the correlation between forces on the Soldier's head and mild TBI. If a potentially injury-causing concussive event occurs, the DRS uses wireless communication to detect which sensors have data that need to be downloaded, generating a summary report.

Once downloaded, the data are used by medical authorities to determine which Soldiers require immediate examination and in administering their long-term care. The data are also analyzed by the DOD and Army medical experts to support the development of an injury risk criterion and to correlate data with potential injury-driven events.

"[Screening] is the important part, so we can realize that a Soldier has been through a traumatic event," said Lozano, whose product office manages the HS program. "Combat is inherently a traumatic event, and there's very little way to avoid that. But what we want to be able



TRACKING TRAUMATIC BRAIN INJURY

The two-ounce Generation II Helmet Sensor, mounted inside the Soldier's helmet, effectively records forces on the head for correlation with mild traumatic brain injury. If a potentially injury-causing concussive

event occurs, the Data Retrieval System uses wireless communication to detect which sensors have data that need to be downloaded, generating a summary report. (Photo courtesy of PEO Soldier)

to do is immediately understand if those traumatic events have been realized or manifested in the state of a concussion. And if that has occurred, then we want to allow the Soldier the right amount of time to heal."

He added, "I really can't say we're seeing a number change in TBIs, [but] the intent is that over the next couple of years, we would hope that we would see the number of TBI cases drop."

The National Football League is interested in an exchange of information that could aid in developing future systems

that can target and measure effects on specific parts of the human body.

OH-58D COMMON MISSILE WARNING SYSTEM

Housed in the Project Management Office Aircraft Survivability Equipment (ASE) for PEO Intelligence, Electronic Warfare, and Sensors, the OH-58D Common Missile Warning System (CMWS) provides missile warning and countermeasures for infrared guided missiles, increasing aircraft and Soldier survivability against guided-missile attacks. The technology detects a fired missile and then dispenses flares

to detour the missile away from the aircraft. Before CMWS, the OH-58D Kiowa armed reconnaissance helicopter had no protection or countermeasure capabilities against the threat of infrared guided missiles.

CMWS was a collaborative effort of ASE, PEO Aviation's Armed Scout Helicopter Project Office, and AMRDEC's Aviation Engineering Directorate to develop system requirements under several constraints: limited space on a small platform, reduced weight, and a short time period. Responding to an Operational Needs Statement, the team rapidly fielded the

technology and installed the first unit in January 2011.

CAIMAN EXPLOSIVELY FORMED PENETRATOR ADD-ON-ARMOR KITS

The U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC) invented an armor package that is easily integrated into multiple variants of Mine Resistant Ambush Protected (MRAP) vehicles with little modification to existing armor. The new package better protects the driver and commander sides of the vehicle as well as the gunner's high position, which previously was vulnerable to explosively formed penetrator attacks.

A collaborative group tackled the urgent request, creating concepts in less than 48 hours and using small, cost-effective standard panels that allow for quick replacement of damaged armor. Team members included TARDEC's Center for Ground Vehicle Development and Integration, G2 Security, and Ground Systems Survivability; and PM MRAP within PEO Combat Support and Combat Service Support.

Because time was not available to test the effectiveness of the new armor, the smaller armor panels were designed similar to the current, proven production armor. The standard welded bosses were replaced with bolted bosses, which reduced production time and eliminated warping of the aluminum plate without compromising performance.

The first prototype kit was fabricated and shipped to Iraq in June 2011, followed by 100 more in July, all in support of *Operation New Dawn*. An additional 1,140 kits were required on an accelerated schedule, so PM MRAP turned to Blue Grass Army Depot, KY, and Rock Island

Arsenal, IL, which completed production and shipped the remaining kits to theater by mid-September.

SOLDIER GREATEST INVENTION

In addition to the top 10 AGI awards, the Army has a special award that recognizes a Soldier's contribution.

The 2011 Soldier Greatest Invention is the Small Unit Tactical Light, created by CPL Buddy Jacobucci of Brighton, CO.

Now retired from the Army, Jacobucci served with Bravo Company, 4th Battalion, 31st Infantry Regiment, 2nd Brigade Combat Team, 10th Mountain Division (Light Infantry). The motion-activated, infrared floodlight, which is camouflaged like a rock to blend in with the surroundings, can be positioned to illuminate target areas when motion is detected, using a 12-volt DC passive motion sensor. A thermal imaging sensor is encased in the motion sensor to pick up objects that emanate substantial heat, such as a person, large animal, or vehicle.

The device has a day/night photoelectric sensor, automatically switching off during the day to conserve battery life.

Placed along the perimeters of avenues of approach and at points identified by vulnerability reports, the infrared light enables the occupying force to see the target or enemy with night vision goggles, without alerting those being seen. This helps to extend security perimeters and allows the on-guard Soldier to determine whether activity is from friendly, enemy, or animal sources. According to Jacobucci, the Small Unit Tactical Light increases readiness, survivability, capability, lethality, and situational awareness.

CONCLUSION

The AGI awards program is designed to encourage and reward those fighting the war from research laboratories throughout the Army to develop the best solutions for the Soldier. Nominations come from across the Army and reflect innovation, progress, and the Army's commitment to developing, acquiring, and fielding lethal, cutting-edge equipment that can sustain the success and safety of its greatest asset: the Soldier.

Dale Ormond, Director of the U.S. Army Research, Development, and Engineering Command (RDECOM), a subordinate command of U.S. Army Materiel Command, commended the scientists, engineers, and inventors for their efforts to empower, unburden, and protect Soldiers. "All of the nominated inventions demonstrate significant contributions to the warfighter. The 2011 award winners demonstrated significant impact to Army capabilities, potential benefits outside of the Army, and inventiveness."

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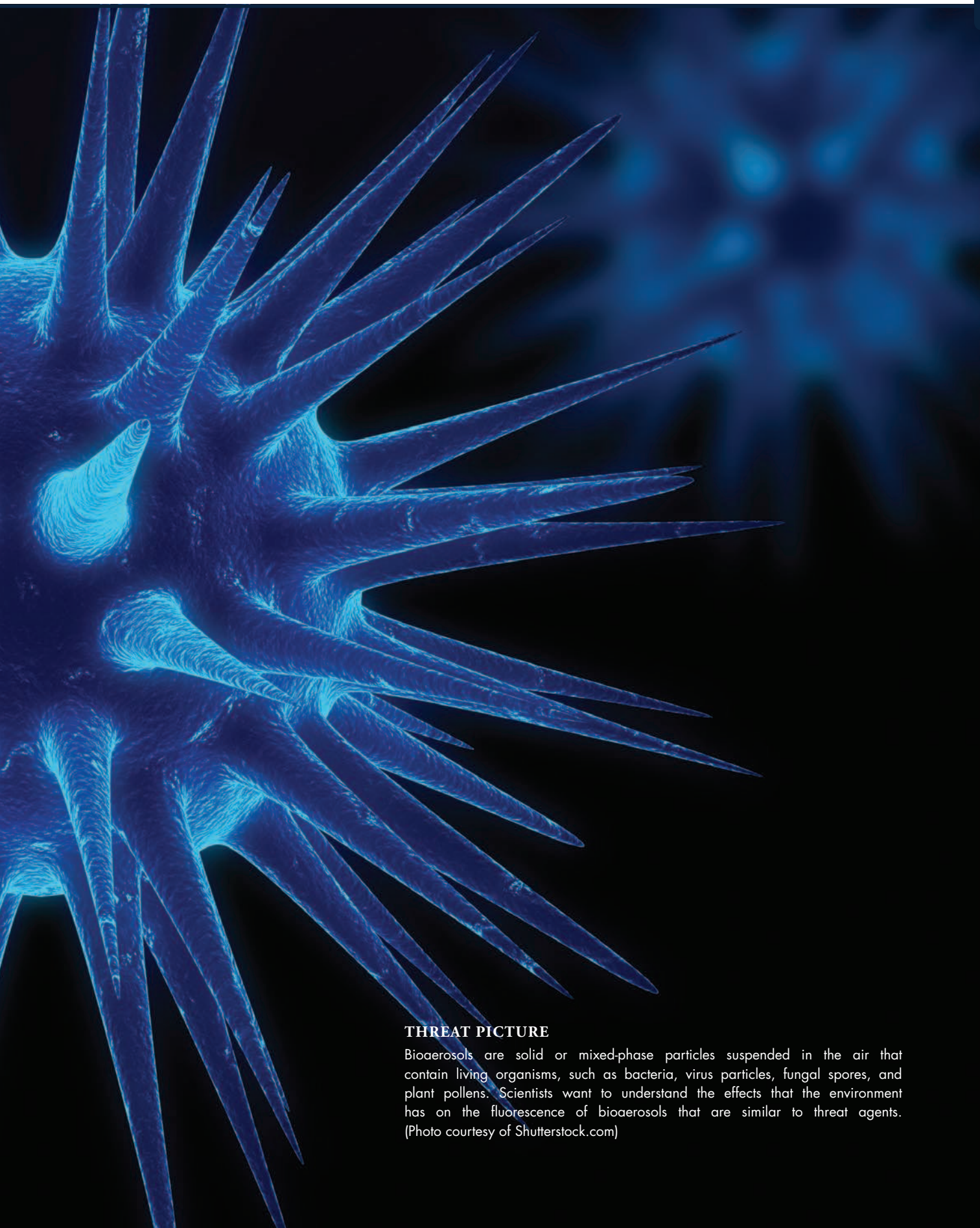
MR. DAN LAFONTAINE provides contract support to the Public Affairs Office of the U.S. Army Research, Development, and Engineering Command through BRTRC. He has a B.A. in journalism from the University of Richmond.



BEATING BIOAEROSOLS

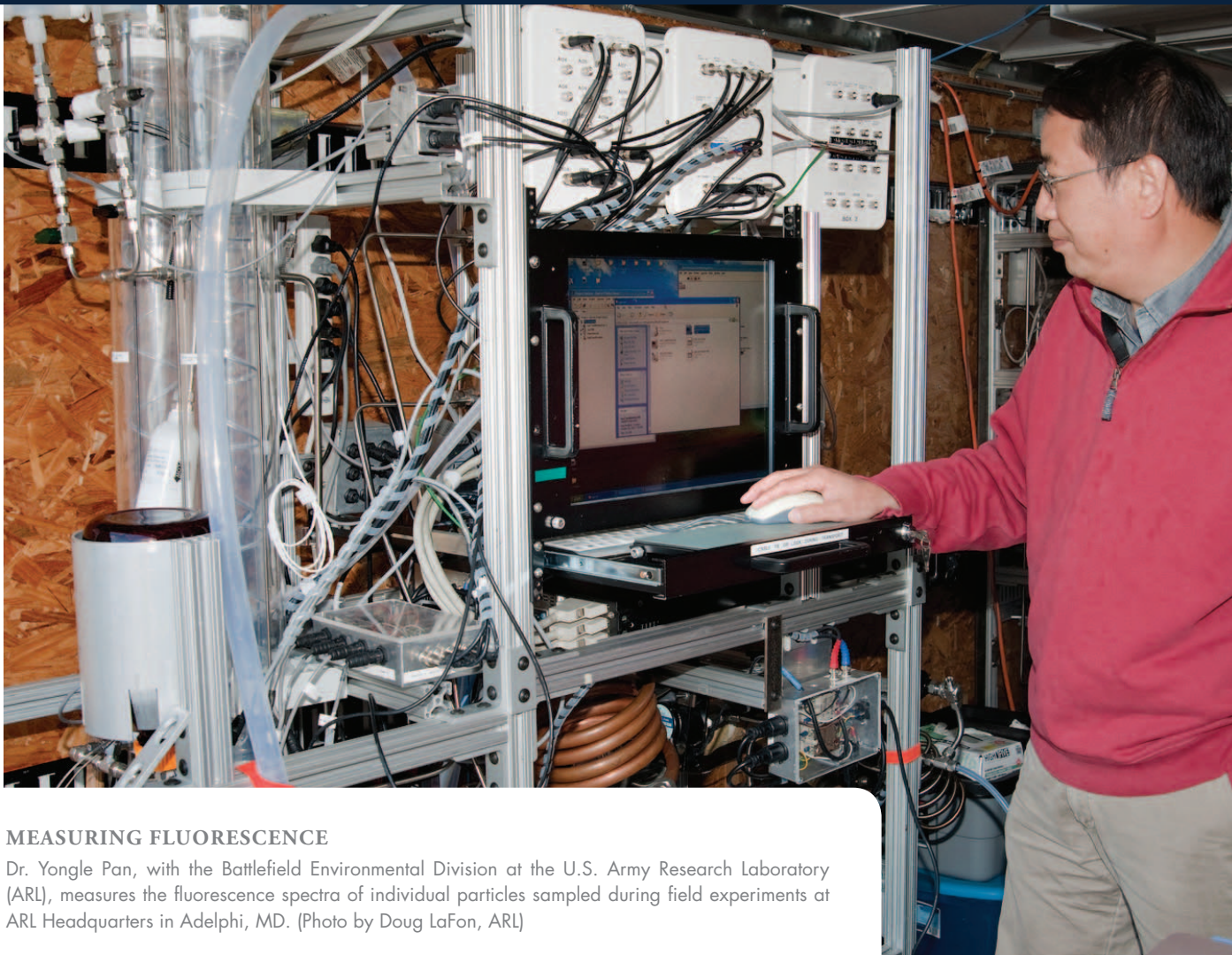
Basic research leads Army to develop means of
protecting Soldiers from bioagent threats
now and in the future

by Dr. Stephen Lee



THREAT PICTURE

Bioaerosols are solid or mixed-phase particles suspended in the air that contain living organisms, such as bacteria, virus particles, fungal spores, and plant pollens. Scientists want to understand the effects that the environment has on the fluorescence of bioaerosols that are similar to threat agents. (Photo courtesy of Shutterstock.com)



MEASURING FLUORESCENCE

Dr. Yongle Pan, with the Battlefield Environmental Division at the U.S. Army Research Laboratory (ARL), measures the fluorescence spectra of individual particles sampled during field experiments at ARL Headquarters in Adelphi, MD. (Photo by Doug LaFon, ARL)

Americans seldom come face to face with the reality of biological warfare outside of an occasional television encounter—but the threat is very real, and evolving.

The Defense Threat Reduction Agency (DTRA) has the mission of safeguarding the United States and its allies from global weapons of mass destruction, a top priority of the National Command Authority. DTRA has been the official Combat Support Agency for countering weapons of mass destruction since 1998.

One of the questions currently in the forefront at DTRA is how the environment modifies bioaerosol threats, according to

Dr. Sari Paikoff, a physical scientist in DTRA's Chemical and Biological Threat Agency Sciences.

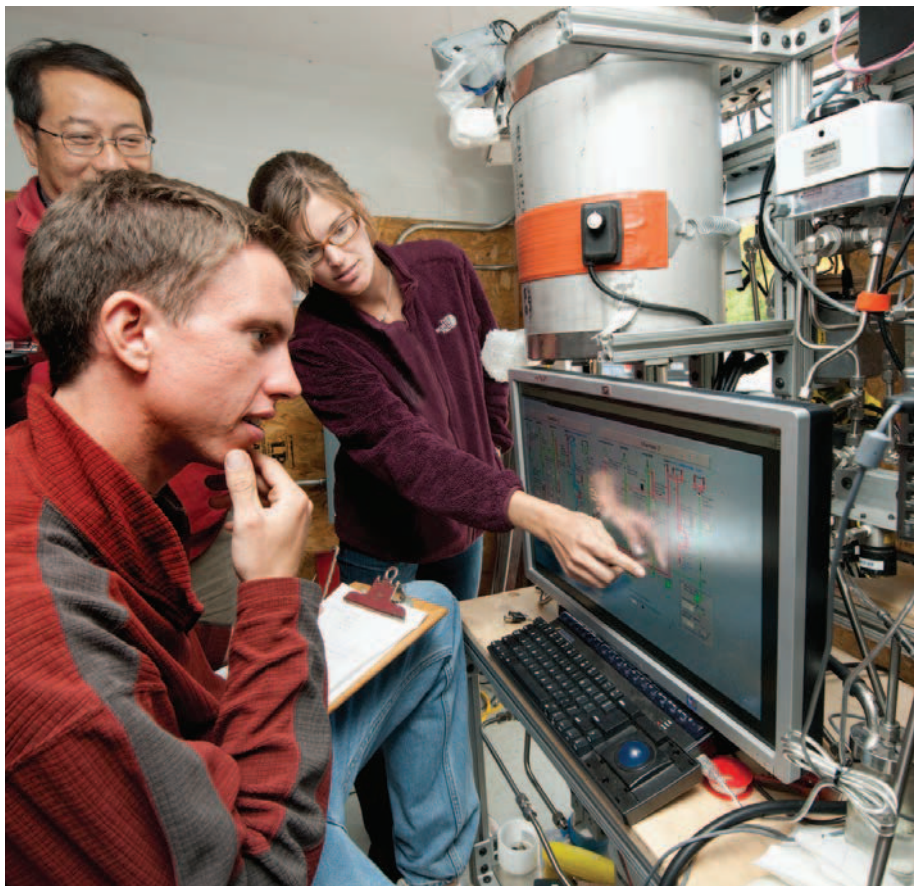
Bioaerosols are solid or mixed-phase particles suspended in the air that contain living organisms, such as bacteria, virus particles, fungal spores, and plant pollens. DTRA is exploring how findings from bioaerosol research could model and predict the effects of the environment on the ability to detect bioagents using fluorescence-based detectors.

Fluorescence-based devices tend to be less bulky, less expensive, and more able to integrate with other sensor components than conventional laser or inorganic light-emitting detection methods.

BUILDING ON BASIC RESEARCH

This project addresses a DOD need to better understand the properties of bioaerosols, especially aerosolized bio-warfare agents, in order to improve the use of instruments designed to detect concentrations of such agents amid mostly innocuous background particles.

The U.S. Army Research Laboratory (ARL) had the idea in the early 1990s that fluorescence could be measured for individual bioparticles, and the particles sampled one at a time from the atmosphere. ARL performed the research, which indicated that it should be possible to build systems that could rapidly detect the presence of biowarfare agents.



COMPARING PARTICLES

Nathan Taylor and Jill Matus, both graduate students at Texas A&M University, show Dr. Yongle Pan changes in the makeup of bioaerosols that were dispersed in natural polluted air from the outside environment during field experiments. (Photo by Doug LaFon, ARL)

DTRA took steps to move the discovery along to develop a commercially viable bioagent detector that operates as a trigger to turn on instruments, which can then identify specific agents. Private companies now manufacture such fluorescence-based trigger instruments.

DEFINING THE PROBLEM

The main purpose of the study *Effects of Atmospheric Processing on the Properties and Transport of Bioaerosols*, a three-year undertaking that will end in February, is to understand the effects of the atmosphere—specifically sunlight, humidity, and gases

such as ozone, oxides of nitrogen, and terpenes—on the fluorescence of bioaerosols that are similar to threat agents.

Bioaerosols are not only a threat to the more than 1.4 million U.S. service members; they are also a concern for the civilian population.

Technological developments have furthered progress in the longstanding, persistent problem areas of anthrax, plague, or viruses released into the atmosphere, but there is still work to be done.

Further exploration includes these questions: If anthrax is released in the air, where will it go? Is it still deadly after it has been in the air for some time? Over time, does it still fluoresce in a way that can be detected with fluorescence-based instruments?

ARL partnered with the Johns Hopkins University Applied Physics Laboratory (JHU/APL), Sandia National Laboratories, and Texas A&M University in hopes of using their combined expertise to determine how the environment affects bioaerosols.

The researchers, led by JHU/APL with just over \$2 million from DTRA, completed field experiments on Oct. 22 at ARL's headquarters in Adelphi, MD.

INVESTIGATIVE METHOD

The team selected Adelphi as the field test site in part because of its proximity to Washington, DC, whose atmospheric pollution is comparable to that of other large cities, and because of ease of access.

As Dr. Joshua Santarpia of Sandia, one of the investigators of this project, described the novel instrument, "We use two drums with chambers inside. One is filled with the natural polluted air from the outside environment, with only the particles removed. The other is filled with highly purified air."

Natural daylight passes through the transparent walls of each of the chambers.

Texas A&M researchers, led by Dr. Don Collins, Professor of Atmospheric Sciences and Director of Texas A&M's Environmental Programs in Geosciences, developed the drum chambers, called Aerosol Chambers for Evolution Studies. They are similar to those formerly used for atmospheric research, with two

THIS PROJECT ADDRESSES A DOD NEED TO BETTER UNDERSTAND THE PROPERTIES OF BIOAEROSOLS, ESPECIALLY AEROSOLIZED BIOWARFARE AGENTS, IN ORDER TO IMPROVE THE USE OF INSTRUMENTS DESIGNED TO DETECT CONCENTRATIONS OF SUCH AGENTS AMID MOSTLY INNOCUOUS BACKGROUND PARTICLES.

crucial adjustments: sealing them from ambient air exposure, and rotating the chamber to keep the particles inside suspended longer for scientists to study.

SAMPLING SINGLE PARTICLES

ARL researchers, led by Dr. Yongle Pan, measured the fluorescence spectra of individual particles sampled from the

drum using the Single-Particle Fluorescence Spectrometer (SPFS) developed in cooperation with Yale University. The SPFS makes real-time measurements of single-particle ultraviolet (UV)-laser-induced fluorescence spectra excited by two pulsed lasers. The fluorescence spectra and amplitudes measured, and the effects of sunlight, ozone, other oxidants, terpenes, etc., on this fluorescence are central to several bioagent detectors that have been deployed by DOD and the U.S. Department of Homeland Security.

“The particles are drawn into the cell by a partial vacuum. When a particle scatters light from both of the focused different-wavelength diodes, so that the light detected by each of the two photomultiplier tubes exceeds a threshold, then the UV laser fires, and the intensified charge-coupled device detector is gated on so it can record the particle’s laser-induced fluorescence spectrum,” said Pan, of ARL’s Atmospheric Sensing Branch, who developed the device with Dr. Ronald Pinnick and Dr. Steven Hill at ARL and Dr. Richard Chang, Henry Ford II Professor of Applied Physics at Yale.

ARL sampled atmospheric particles every hour during the field testing



TEST CHAMBERS

In their field experiments at ARL Headquarters in Adelphi, MD, the research team used two drums containing Aerosol Chambers for Evolution Studies. One was filled with natural polluted air from the outside environment, and the other with highly purified air, allowing the team to measure how bioaerosols are affected by the environment. (Photo by Doug LaFon, ARL)



FIELD RESEARCH

A mobile trailer outside of ARL Headquarters in Adelphi, MD, houses materials for several field experiments conducted in October to measure

the effects of the atmospheric environment on the fluorescence of bioaerosols. (Photo by Doug LaFon, ARL)

to determine the fluorescence spectral changes of individual bioaerosol particles held in the drum chambers.

JHU/APL researchers, led by Shanna Ratnessar-Shumate, the principal investigator for the project, prepared the bioaerosols, collected them after exposure in the drum, and studied them later for viability, addressing the pressing question, “Can this still kill you over time?”

CONCLUSION

“The nature of basic research is that we use the vision and deep understanding of science, coupled with the insights into potential threats of future environments, to lead the way for the next generation

of technology-enabled Army capabilities,” said Dr. John Pellegrino, ARL Acting Director.

Scientists at ARL work with academia and industry to look at all available possibilities for biological solutions, now and into the future. Often they don’t know how far-reaching the research will be until after their work is finished.

For more information about using single-particle fluorescence to detect bioaerosols, or to speak with researchers about the study Effects of Atmospheric Processing on the Properties and Transport of Bioaerosols, contact Dr. Yongle Pan at 301-394-1381 or yongle.pan.civ@mail.mil.

DR. STEPHEN LEE is Chief Scientist for the U.S. Army Research Laboratory, responsible for laboratory investments in basic science research. His work includes basic research directed toward hazardous management, encompassing studies in decontamination, detection, and protection. Lee holds a dual B.S. in chemistry and biology from Millsaps College, and a Ph.D. in physical organic chemistry from Emory University. He studied as a Chateaubriand Fellow at the Université Louis Pasteur in Strasbourg, France, exploring the origin of life chemistry. Lee is also an Adjunct Professor in the Department of Chemistry at the University of North Carolina at Chapel Hill.

MAKING RADAR MORE 'AGILE'

The AN/TPQ-53 Counterfire Target Acquisition Radar, which provides long-range counterfire target acquisition for mortars, rockets, and cannons, was named one of the top five 2012 defense programs of excellence in systems engineering because of a seamless link from development to production. Systems engineers and quality assurance engineers with the U.S. Army Communications – Electronics Research, Development, and Engineering Center supported the Q-53 radar, developing the predecessor system before its transition to Product Manager Radars, now assigned to Program Executive Office Missiles and Space (PEO MS). (U.S. Army photo courtesy of PEO MS)



AGILE S&T

Using the Agile Process to address capability gaps
in interceptors, launchers, and radars

by Mr. Patrick M. Duggan

Meeting Army goals and objectives for reducing total system ownership costs can depend largely on advances in technology. As technology improves, the Army will have opportunities to reduce the amount of equipment required by the operating force while improving operational capability; it should also provide the Army combat developer with opportunities to consider operational efficiencies in the force structure.

In the system life cycle, the Materiel Solution Analysis (pre-Milestone A) program phase is the best phase for incorporating the Agile Process and establishing incremental capability improvements that transition technology and leverage the Army's Network Integration Evaluations (NIEs).

The Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System is disciplined, robust, and proven, with clear lines of responsibility and accountability for developing, delivering, and sustaining warfighter capability. Occasionally, because of factors such as weapon system complexity and resource management, system development may take longer than desired, with financial and scheduling issues that can be difficult to overcome.

Remaining focused on warfighter capability gaps is important to help navigate this path. When addressing capability gaps in the counter rocket, artillery, and mortar (C-RAM), counter unmanned aircraft systems (C-UAS), and counter cruise missile missions, there are candidate solutions that involve complex weapon systems and subsystems and



BRIDGING CAPABILITY GAPS

Using the Agile Process in radar, launcher and interceptor acquisition will ensure that technical and system integration maturity are suitable to meet capability gaps. The Agile Process can assist with incremental delivery of early, low-cost, multi-mission capability. In the areas of counter rocket, artillery and mortar, counter unmanned aircraft system, and counter cruise missile capability, the early phases of the process call for technology that contributes to a multi-mission focus with sufficient maturity for laboratory review and network evaluation. (SOURCE: PEO MS)



INTEGRATING RADAR, INTERCEPTOR

The Sentinel radar system plays a part in the Army's Accelerated Improved Intercept Initiative (AI3) Quick Reaction Capability, which will complete its laboratory testing and flight test program in 2013. Here, Task Force Lightning Soldiers of the Florida National Guard conduct crew drills with the Sentinel radar system at Oro Grande Base Camp, NM. The Soldiers performed a variety of drills as part of the certification process, in preparation for deployment to the National Capital Region. (U.S. Army photo by CPT Kevin Lockett)

that vary in levels of technical maturity and interdependency at the system-of-systems level.

This calls for a holistic approach to meeting these gaps with multi-mission, multifunction capabilities. If candidate solutions were to involve unique configurations for each gap, then multiple configurations of similar mission equipment could result in high equipment density, with impacts on force structure and cost.

Using the Army's phased Agile Process, as discussed in *Army AL&T Magazine* ("Maturing the Agile Process," July-September 2012), will assist with incremental delivery of early, low-cost, multi-mission capability to the operating forces.

The ongoing work of the science and technology (S&T) community, Quick Reaction Capability (QRC) programs, and industry partners is vital to advancing technology that enables multi-mission capabilities requiring less equipment and reducing the logistical footprint and the time for delivery. Entry into the early phases of the Agile Process requires technology that contributes to this multi-mission focus across the areas of C-RAM, C-UAS, and counter cruise missile capability, while ensuring that the technology and system integration are mature enough for laboratory review and network evaluation.

MATURING NEW TECHNOLOGIES

The S&T community is maturing new technologies that have application across the system engagement sequence, including surveillance, track, target classification, fire control, weapons, and weapon lethality. QRCs that are applicable to these gaps are also in development, providing the user with options for future



ADVANCING LAUNCHER TECHNOLOGIES

The Army science and technology community is pursuing new technologies that could support a single launcher able to satisfy multiple capability gaps—counter rocket, artillery, and mortar; counter-unmanned aircraft systems; and counter cruise missile—but this a challenge, as each gap has unique mission scenarios. Here, Soldiers from 2nd Battalion,

263rd Air Defense Artillery, South Carolina National Guard, send a Stinger missile downrange from the Humvee-mounted Avenger launcher system at Range 91 near Oro Grande, NM, Oct. 23, 2011. (U.S. Army photo by SFC Alejandro Sias)

Program of Record (POR) ownership. Examples of such initiatives are interceptors, launchers, and radars.

Interceptors—In response to Operational Needs Statement 0362 (Mod 3), the Accelerated Improved Intercept Initiative QRC will complete its development, laboratory testing, and flight test program in 2013, concluding with a U.S. Army Test and Evaluation Command Capability and Limitations Demonstration in preparation for Urgent Materiel Release.

The Quick counter-UAS Concept (QUAC) is an S&T initiative demonstrating the Hellfire Longbow Missile in a ground-to-air mode under the control of the C-RAM Command and Control (C-RAM C2) system, with the Sentinel radar in support. QUAC has already demonstrated a lock-on before-launch capability.

The S&T community is also demonstrating an Extended Area Protection and Survivability (EAPS) hit-to-kill intercept capability intended for the

C-RAM mission. The EAPS missile offers improvements to firepower and coverage that support deep magazines and 360-degree protection.

In addition, the AIM 9X and AIM 120 legacy missile interceptors can be launched in a ground-to-air system context; however, the Army does not have a launcher readily available in the force for this capability. The AIM 120 is currently used in a ground-to-air role in the Norwegian Advanced Surface to Air Missile System.

A NEW LEVEL OF PROTECTION

The AI3 Quick Reaction Capability is intended to provide a new level of warfighter protection by destroying incoming rockets, artillery, and mortars. AI3, which could be fielded by 2014, recently completed successful testing at Yuma Proving Ground, AZ, shown here. (Photo courtesy of PEO MS)



Collectively, these missile interceptor concepts offer a broad range of options to meet capability gaps. Some interceptor concepts focus on a single gap, while others are capable of meeting multiple missions. Although these options are at different levels of maturity, most are above Technology Readiness Level 6, and others are close to that level. Also, these missiles use active and semi-active radar or electro-optical seekers. The active seeker does not pose the challenges of a highly synchronized system, as with a semi-active seeker.

Finally, directed energy is an electric fires technology that is not as mature as the missile interceptor technology, but solid-state laser solutions hold promise for low-cost-per-kill concepts supporting a 360-degree multi-mission capability within the next three to five years.

Launchers—Acquisition of a single launcher that can support each capability gap—counter-RAM, counter-UAS, and counter-cruise missile—is a challenge. Each gap has unique mission scenarios.

A separate launcher concept for each could be developed with the goal of minimizing launcher cost and supporting a specific interceptor. The result might be two or three different launcher configurations and their support systems. As previously noted, multiple configurations of similar mission equipment could result in high equipment density, with impacts on force structure and cost.

The best approach is to understand common requirements across the launcher and interceptor missions, then pursue a launcher design that satisfies these requirements while ensuring that there is

sufficient launcher performance to adapt to stressing scenarios that also support a multi-mission interceptor solution including one or more missile interceptor types.

The U.S. Army Aviation and Missile Research, Development, and Engineering Center is performing concept development of a multi-mission launcher in preparation for the Indirect Fire Protection Capability Increment 2 – Interceptor (IFPC Inc 2-I) milestone review. Technology for the launcher will provide a multi-mission intercept capability for vertical and non-vertical launch, depending on the mission requirement.

Radars—Surveillance and fire control support will be needed for both air target classification and RAM classification in support of a multi-mission capability. Currently, the Army does not have a

multi-mission radar POR with these capabilities. Sentinel radar requirements are directed at the air surveillance and track mission in support of C-RAM C2 and short-range air defense capabilities, including cruise missiles.

In contrast, the requirements of Product Manager Radars, within the Cruise Missile Defense Systems (CMDS) Project Office of Program Executive Office Missiles and Space (PEO MS), are focused on counter-battery target acquisition capabilities for the counter battery and C-RAM sense and warn mission areas.

Additionally, the U.S. Army Communications – Electronics Research, Development, and Engineering Center has demonstrated an air surveillance capability with the Lightweight Counter Mortar Radar. Within the S&T community, government labs and industry have technology that can improve radar time-power, tracking accuracy, sub-clutter visibility, and search/track range. This includes Advanced Electronically Scanned Array; digital beam forming; and gallium nitride transmit and receive microwave modules.

These improvements, individually or in combination, could be key enablers for a future multifunction, multi-mission radar capability. Regardless of the missile interceptor solution, there will be interdependency between the multi-mission launcher/interceptor defended area and the supporting surveillance and track capability.

Additional operational efficiencies result when radars are used within an architecture, in a mutually supporting role or mode through an integrated network environment. Transition of S&T to radar programs may be needed to enable mission planning of radar modes as well

as search tailoring techniques needed to realize these efficiencies.

THE ROLE OF NIE

The semiannual NIE can provide an excellent venue for evaluating how radar, launcher, and/or interceptor technologies contribute to the protection of mobile, semimobile, and expeditionary elements in an integrated network environment. Radar and launcher capabilities will be integrated under a system-of-systems networked communications architecture.

The C2 will be the Integrated Air and Missile Defense Battle Command System, which provides entry into a net-centric environment that facilitates communications and exchange of sensor and weapon data among the surveillance sensor, fire control sensor, multi-mission launcher, and interceptor.

Data collected during NIEs will provide an operational understanding of the suitability of radar and launcher technology, as well as a technical understanding of capabilities and limitations in an integrated network environment. Separately, laboratory testing and intercept flight testing of interceptor technology will provide the detailed data needed to assess lethality and multi-mission capabilities of candidate interceptor technologies. The laboratory assessment will verify that the technology is suitable for its intended unit architecture and that it reflects Army computing environment standards of the Common Operating Environment, which supports the Agile Process.

CONCLUSION

Using the Agile Process in radar, launcher, and interceptor acquisition will ensure that technical and system integration maturity are suitable to meet capability gaps, supporting incremental delivery of early, low-cost, multi-mission capability.

For S&T, QRCs, and industry technology, a transition plan should be developed early in the process with options for transitioning technology to a POR based on key milestones. Within PEO MS, the IFPC Inc 2-I program is a good example of how technology transition and current capabilities are brought together under incremental “blocks” of early multi-mission capabilities. The IFPC Inc 2-I system will operate as an integrated network of sensors and interceptors. The NIE, in line with the Agile Process, will provide the technical data and operational feedback on incremental solutions for battlespace awareness, defense planning, and networked sensor and interceptor architecture capabilities.

The Agile Acquisition timelines change how we acquire, test, and field technology while ensuring that Army technical standards for network infrastructure and tactical network communications are met. NIE recommendations and weapons testing will shape these timelines and provide the gates and key milestones for early, incremental modernization and transition of technology to the Soldier, depending on HQDA objectives and priorities.

For more information, contact Boyd Collins in the CMDS Project Office at 256-876-0875.

MR. PATRICK M. DUGGAN is Director, Systems Engineering and Integration in the Cruise Missile Defense Systems Project Office of Program Executive Office Missiles and Space. He holds a B.S. in physics and a B.S. in computer science from Henderson State University, and an M.S.E in aerospace engineering from the University of Alabama in Huntsville. Duggan is Level III certified in systems planning, research, development, and engineering, and is a member of the U.S. Army Acquisition Corps.

MAKING NUM 83R5 COUNT

The role of the professional statistician in
ethical decision-making for DOD

by SSG Douglas Ray (USA Ret.), Mr. Chris Gandy, and Mr. Thorsten Roberts

Appplied probability and statistics is one of the most important and powerful tools for decision-makers in science, technology, industry, and defense. When properly applied in the development and testing of armaments and warfighter systems, it has been shown to effectively quantify and mitigate risk, and to characterize and optimize systems to achieve the maximum level of quality, reliability, robustness, and performance.

Testing is costly, whether it is destructive or nondestructive. The objective of testing warfighter systems should not be to generate data, but to get the best quality of information for decision-making with the least amount of resources and the least usage of test assets necessary. Statisticians expect the information we gather to represent the “truth” as closely as possible.

Statistical knowledge can be better used in testing and evaluation, improvement, and characterization of armament systems

APPLIED MATHEMATICS

Statistics, properly used and understood, can effectively quantify and mitigate risk, optimizing the weapons the Army puts in the hands of Soldiers, who need and expect maximum reliability, robustness, and performance. Here, SPC Denise Sonnier, a gunner with the Louisiana National Guard’s 1086th Transportation Company, prepares rounds for

in DOD. Given the current focus on reducing the defense budget, stewardship of resources is more important than ever. It is DOD’s responsibility to truly do more with less.

MAXIMIZING RESOURCES

The professional statisticians in the Statistical Methods and Analysis (SM&A) Group of the U.S. Army Armament Research, Development, and Engineering Center (ARDEC) work with many integrated product teams (IPTs) to apply statistical knowledge to the product development process. SM&A Group statisticians specialize in design and analysis of experiments, Static and Sequential Sensitivity Testing, Simulation and Probabilistic Methods, Statistical Quality Control and Measurement Systems Analysis, Reliability Data Analysis, and Exploratory Data Analysis.

In collaborating with IPTs during test planning well in advance of execution, the statisticians have been able to design

the M240B machine gun of her Mine Resistant Ambush Protected Vehicle on May 23. The 1086th was on a 400-mile round-trip convoy from Bagram Airfield, Afghanistan. (Photo by SGT Ken Scar, 7th Mobile Public Affairs Detachment)



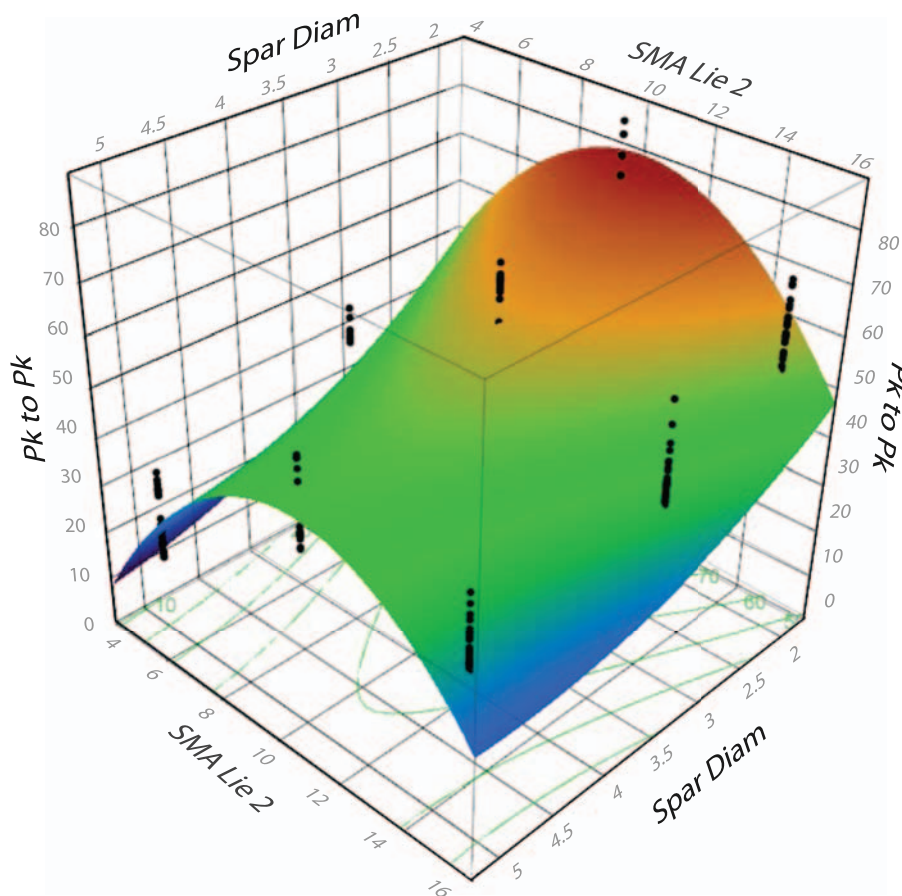
experiments to get more information and better prediction models for performance optimization, sometimes using significantly less resources, with benefits for cost, schedule, and performance. Here are true examples of the power of statistics:

- In one experiment, the contractor proposed building and testing nearly 870 units, at government expense. ARDEC's statisticians used response surface optimization, a powerful family of "designed experiment" that allows modeling of interactions and curvature in the response, or "measure of performance." (See Figure 1.) Thus the team planned an experiment that required only 21 test units and yielded much better predictions. (See Figure 2.)
- A small-caliber ammunition experiment proposed by a contractor called for more than 12,000 samples. ARDEC statisticians, using binary logistic regression, executed a successful test with 380 samples, resulting in meaningful prediction models. The statisticians proposed an efficient sequential test strategy and more powerful statistical methods to reduce an IPT's previously proposed usage of test assets from 450 to 30 units.
- An experiment to optimize a small-caliber ammunition projectile was designed using 18 runs by leveraging cutting-edge screening design techniques, versus the IPT's original proposal of nearly 650 runs.
- Simulation and probabilistic methods are being applied whenever appropriate, enabling IPTs in some instances to gain insight based on limited historical data, or even to eliminate certain test efforts altogether.

STATISTICAL DISCIPLINE

These examples illustrate the utility of statistics in the hands of experienced,

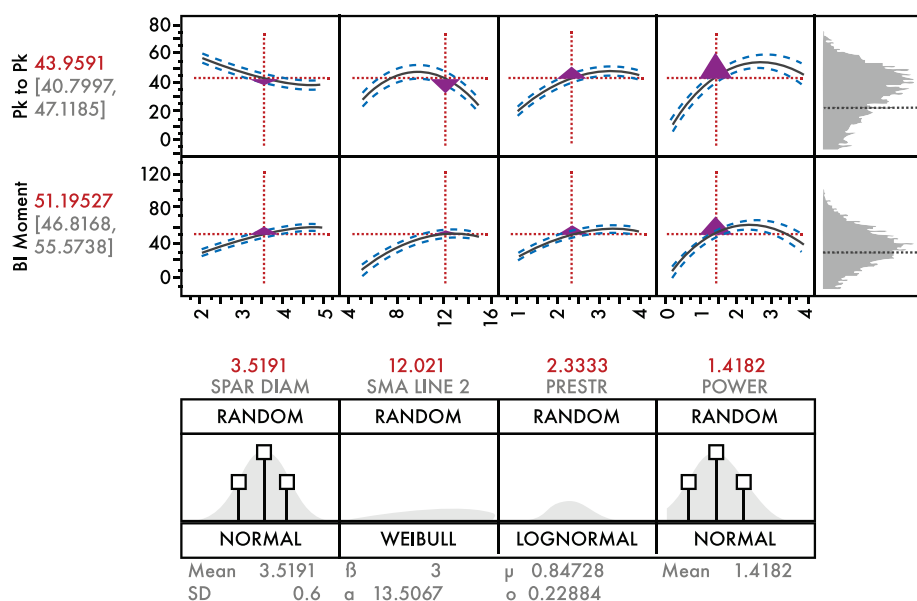
FIGURE 1 | RESPONSE SURFACE



In one example of the true power of statistics, a contractor proposed building and testing nearly 870 units, at government expense. The professional statisticians in the Statistical Methods and Analysis (SM&A) Group of the U.S. Army Armament Research, Development, and Engineering Center (ARDEC) used response surface optimization, which allows modeling of interactions and curvature in the response, or "measure of performance," to plan an experiment. (SOURCE: ARDEC SM&A Group)

competent, ethical practitioners. As mentioned before, we are concerned with the true performance of a system, and that means minimizing the risk of false conclusions based upon the data. It

also means that we must be cognizant of the proper application of statistical principles and concepts, as it is possible to use statistical methods improperly to give stakeholder results that support the

FIGURE 2 | **PREDICTION PROFILER**

The experiment designed by the ARDEC SM&A Group statisticians, while requiring only 21 test units versus the contractor proposal to build and test nearly 870 units, also yielded much better predictions. [SOURCE: ARDEC SM&A Group]

most desirable conclusion, versus the most correct one.

As citizens and consumers, we observe this on a daily basis: Politicians, the media, and corporate sales and marketing groups often cite statistical figures in making claims about their products, opinions, or political positions to influence public decision and opinion—where you shop, what you buy, who you vote for, etc.

Mark Twain's adage about statistics comes to mind: "There are three kinds of lies: lies, damned lies, and statistics." Statistics as a disciplined decision-making tool

should be leveraged to illuminate a topic, and it is the ethical responsibility of the professional statistician to do so. When this responsibility is abused, it reflects poorly on the credibility of the discipline.

ETHICAL GUIDELINES

We can avoid the misuse of this science by following some general guidelines for statistics, adapted to armaments engineering and other defense applications:

- Never choose statistical methods, or tailor your analysis, to give stakeholders the results that they want.

- Don't use statistical software as a "black box." The most comprehensive, accurate, and useful information is obtained from data when the analyst or practitioner understands the underlying mathematics and assumptions and how to interpret the diagnostic tests, and does not rely on the software alone. One of the most powerful tools in statistics is the eye. Just viewing the data in several ways often is enough to give initial insight into the behavior of the system being tested. For example, were there any time-dependent patterns in the data?
- Understand and report all assumptions, how they affect the results, and how to safeguard them in the interest of transparency as well as robust test design. This is key—statistics as a decision-making tool is concerned with truth. Also, sign your work; accountability is important. If you did the analysis, stand by it and be willing to defend your results. In addition, if your analysis uses work completed previously by others, you should credit the author.
- Support your organization's in-house statistical specialists and reliability analysts by taking advantage of their expertise. Involve them early in test planning; doing so often reduces test costs and schedule, and ensures valid test results.
- The statistician's role on the IPT is to work with the team members and subject-matter experts to tailor any test design to meet objectives by getting the most information from the least amount of data necessary. But it is also the statistician's responsibility to educate and enlighten other team members on the data analysis methods, assumptions, and interpretation of results, and to communicate these to stakeholders in a way that is understandable to nontechnical as well

as technical audiences. Those who work with statisticians should feel free to ask questions if there is something they don't understand, and continue to ask for further clarification until they do understand. It is important that team members understand the logic behind the analysis to ensure that program goals are being fully incorporated.

More information on ethics in statistical practice is available on these websites:

- American Statistical Association "Ethical Guidelines for Statistical Practice," <http://www.amstat.org/committees/ethics/index.html>.
- International Statistical Institute "Declaration on Professional Ethics," <http://www.isi-web.org/about-isi/professional-ethics>.
- Military Operations Research Society "Code of Ethics," http://www.mors.org/about/mors_code_of_ethics.aspx.

In addition, the SM&A Group provides statistics training workshops that are armaments-focused and highly interactive, with the objectives of enhancing the statistics competency within the ARDEC workforce, promoting knowledge sharing, and relating statistical best practices.

For more information on weapon and munitions test planning and data analysis, contact Douglas Ray (SSG Ret.) at 973-724-4347 or douglas.m.ray.civ@mail.mil; Thorsten Roberts at 973-724-3085 or thorsten.j.roberts.civ@mail.mil; or Chris Gandy at 973-724-8104 or christopher.j.gandy2.civ@mail.mil.

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MARK TWAIN'S ADAGE ABOUT STATISTICS COMES TO MIND: "THERE ARE THREE KINDS OF LIES: LIES, DAMNED LIES, AND STATISTICS." STATISTICS AS A DISCIPLINED DECISION-MAKING TOOL SHOULD BE LEVERAGED TO ILLUMINATE A TOPIC, AND IT IS THE ETHICAL RESPONSIBILITY OF THE PROFESSIONAL STATISTICIAN TO DO SO.



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PATH *TO* SUCCESS

Lessons learned from leading a Source Selection Evaluation Board to award, ahead of schedule

by Ms. Kelly Courtney

Each Source Selection Evaluation Board (SSEB) faces the challenge of reviewing and evaluating a number of proposals to provide the results to the Source Selection Authority (SSA). To conduct meaningful discussions and keep the board on schedule, particularly in an era that demands faster, more responsive acquisition, it is imperative that the board leadership be Soldier-focused, fully prepared, and a source of guidance for the team throughout the process.

One success story in this area is the Joint Assault Bridge (JAB), which began its Engineering and Manufacturing Development (EMD) phase with the award of two contracts in May 2012, a month ahead of the original schedule. The JAB is a program of Project Manager (PM) Force Projection within Program Executive Office Combat Support and Combat Service Support (PEO CS&CSS).

A successful process, in terms of time and contract outcomes, begins well before the board ever convenes. With the JAB, the SSEB set the stage for success by ensuring selection of the best vendors while propelling the program toward cost and schedule savings. The following lessons learned by the JAB SSEB can ensure timely execution of an award for the best value.

THE SOLICITATION

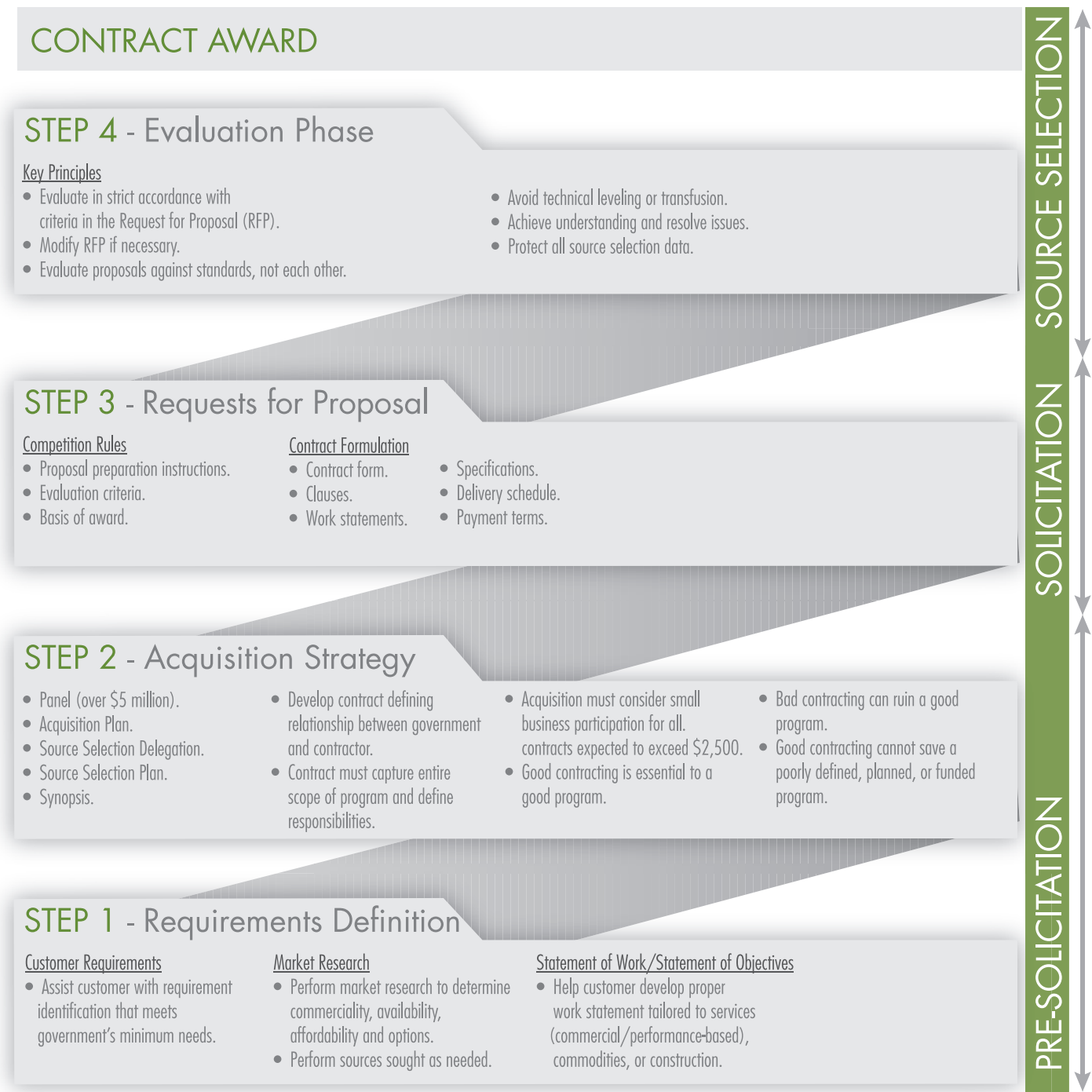
The success of the SSEB traces to a point well before proposals are received and the board convenes. It begins with the development of sound requirements and evaluation criteria. (See Figure 1 on page 120.) The government needs to develop a Request for Proposal (RFP) that has clear requirements, to avoid any confusion or misinterpretation.

The release of a draft purchase description or draft performance specification allows



Lessons Learned

FIGURE 1



SOURCE SELECTION PLAN

From defining requirements clearly to timely execution of a contract award for the best value, Source Selection Evaluation Boards (SSEBs) must navigate—and communicate—a wealth of detail, none of it trivial

(SOURCE: Defense Procurement and Acquisition Policy Directorate, Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics)

industry to ask questions upfront and helps the government clarify the true procurement objective and to understand what might be possible from industry. If the requirements are clear in the RFP, the SSEB can focus more time during discussions on how the offeror intends to meet those requirements, rather than explaining what they are.

It is also important to involve future SSEB members while developing the evaluation criteria (Sections L and M). Evaluators should be carefully selected from among subject-matter experts who can provide valuable input on the type of information that needs to be submitted with proposals and how it will be evaluated. Focusing on exactly what will be needed for evaluation and referencing specific paragraphs of solicitation requirements to be evaluated can pay dividends down the line.

PREPARING THE TEAM

As the time approaches for the board to convene, members need to understand the procurement and evaluation criteria before receiving proposals. While the RFP is on the street, evaluators can start to review documents that will help them throughout the evaluation process.

Evaluators need to read the Source Selection Plan (SSP), Sections L and M, performance requirements, solicitation attachments, and any applicable regulations to familiarize themselves with the “what” and “how” of the evaluation. If the evaluation will require access to specific databases and/or websites, the evaluator needs to request access in advance.

SSEB leadership, along with the procuring contracting officer (PCO) and legal advisor, should conduct training before the board convenes to review the source selection process, evaluation criteria, and

board administration. While it is important for each evaluator to know his or her specific factor, it is also important that each evaluator have an idea of the other evaluation factors.

After training, each evaluator should develop a checklist for his or her respective factors, outlining each of the proposal submission requirements as stated in Section L of the RFP. This checklist will serve as a useful tool when proposals arrive and evaluators need to determine whether each offeror provided a complete proposal.

SETTING A SCHEDULE

Once the board is underway, leadership needs to clearly communicate the goals and schedule to board members. The leadership should have a schedule prepared in conjunction with the SSP to include the major milestone events: opening of discussions, SSA briefings, evaluations completed for each phase, final proposal revisions, award, etc. Leadership also should strive to schedule SSA/Source Selection Authority Council (SSAC) briefings as early as possible, as the SSEB will be competing for time with the other meetings, travel, training, and leave schedules of people coming from many different organizations or offices.

In addition to preparing a schedule, SSEB leadership should have evaluators set goals between scheduled events, such as creating a template evaluation, completing draft evaluations, creating briefing charts, and setting up group reviews of evaluations. This will help evaluators better manage their time and will allow them a full understanding of the review process that must occur in each phase. Leadership should update this schedule each week to adjust for developments or setbacks.

DISCUSSIONS AND EVALUATIONS

After checking the proposal for completeness, evaluators should start creating an evaluation for just one offeror that can serve as a template for the other offerors. This should be reviewed by the board leadership, PCO, and legal advisor before creating other evaluations. The template sets a standard for format and content to be included in each of the evaluations—such as proposal references, solicitation references, offeror’s proposed approach, adjectival rating, supporting narrative, strengths, weaknesses, and summary—to ensure consistency. With a better idea of what the reviewers will be looking for, evaluators will save time in executing the remaining evaluations.

Once discussions are open, leadership should ensure that evaluators create evaluation notices that are in line with the SSP and Sections L and M. It is important to stay focused on what Section M states is being evaluated and limit requests for details to those that clarify what is being proposed or support an evaluation finding. If evaluators are not receiving the information they need in response to evaluation notices, it may help to set up a teleconference with offerors to clarify the intent of the evaluation notice. After the teleconference, a formal evaluation notice should be sent to follow up and get a written response from the offeror.

Throughout the process, communication among evaluators of the various factors is imperative. The technical team may receive a response to an evaluation notice that not only affects the technical factor but also could affect the cost/price or small business factor. The response could change, or be in direct conflict with, information submitted for another factor. Evaluators should make one another aware of these implications.



MINIMIZING OBSTACLES

Properly organized, prepared, and informed, each SSEB can successfully meet the challenge of reviewing and evaluating proposals for the Source Selection Authority, leading to an award on or even ahead of schedule. One success story in this respect is the Joint Assault Bridge (JAB) System, which began its Engineering and Manufacturing Development phase with the award of two contracts in May 2012, a month ahead of the original schedule. The JAB replaces the Armored Vehicle Launcher Bridge (AVLB) System seen here. The AVLB system uses a M48/M60 chassis, whereas the JAB consists of the M1A1 chassis with the heavy-duty A2 suspension, integrating the new launcher and the reclassified Military Class Load 85 bridge. (U.S. Marine Corps photo by LCpl Kevin Quihuis Jr.)

Finally, the SSEB should consider scheduling group reviews of initial, interim, and final evaluations to include the evaluator, factor chief, board leadership, PCO, and legal advisor. These reviews would occur after each reviewer in the chain of approval has read and commented on all of the evaluations for a certain factor. Such a practice allows for discussion of ideas and comments from individual reviews to obtain a group consensus and ensure consistency among evaluations.

All members in the chain of approval will be aware of any changes made to the evaluation. While waiting for final proposal revisions from the offerors, leadership should inform the team how evaluators should depict changes from

previous evaluations to the final evaluation document.

BRIEFINGS

SSA/SSAC briefings may be the only time that the board members interact with the SSA or members of the SSAC, so it is important that the evaluation findings and any issues are conveyed during these meetings.

In preparation for the meetings, leadership should provide evaluators with briefing template charts—to include purpose, Section M language, adjectival rating scale, offeror's approach, strengths, weaknesses, adjectival rating, price/cost breakdown, summary of adjectival ratings across all factors and all offerors,

contracting issues, and schedule—so that each evaluator knows the format and required content for the briefings.

It is very useful for leadership to conduct a practice briefing before each SSA/SSAC briefing to allow the team to grow comfortable with the material being presented. In addition, the entire team can serve as an audience for potential questions and information that may need to be added to the presentation so that each member on the council clearly understands the findings. If issues arise between the briefings, the SSA or SSAC members should be informed.

CONCLUSION

Board leadership is a key component in taking the SSEB team to award. With the right preparation, communication, and planning, the leadership can ensure that the government conducts a thorough but efficient evaluation that could reduce the program schedule.

As demonstrated by the one-month schedule savings because of an early award of the JAB EMD contracts, such gains set the stage for program success. The JAB is working through Program Management and User Jury Reviews; delivery of prototypes for government test is expected in October 2013.

For more information, contact PEO CS&CSS Strategic Communications at 586-282-6963 or go to <http://www.peo-cscs.army.mil/>.

MS. KELLY COURTNEY is a Procurement Analyst for PM Force Projection in PEO CS&CSS. She holds a B.B.A. from the University of Michigan. Courtney is certified Level III in contracting and Level I in program management. She is a member of the U.S. Army Acquisition Corps.

SSEB SUCCESS CHECKLIST

SOLICITATION

- ✓ Clarify requirements to avoid confusion.
- ✓ Get SSEB members' input to Sections L and M.

PREPARING THE TEAM

- ✓ Read and understand Sections L and M to know the “what” and “how” of the evaluation.
- ✓ Conduct training for evaluators on factors.
- ✓ Develop proposal submission requirements checklist.

SCHEDULE

- ✓ Clearly communicate schedule to SSEB.
- ✓ Schedule briefings as early as possible.
- ✓ Set goals for evaluators and adjust schedule accordingly.

DISCUSSION/EVALUATION

- ✓ Create an evaluation template.
- ✓ Keep discussions focused.
- ✓ If necessary, set up teleconferences with offerors to clarify evaluation notices.
- ✓ Encourage communication among factor evaluators.
- ✓ Schedule group reviews of evaluations.
- ✓ Communicate strategy for documenting final proposal revisions.

BRIEFINGS

- ✓ Prepare briefing templates for evaluators.
- ✓ Practice briefings with SSEB to prepare.



GETTING TO SUCCESS

Each SSEB has the challenge of reviewing and evaluating a number of proposals. In an era that demands faster, more responsive acquisition, it is imperative that the board leadership observe certain key areas of focus. (SOURCE: U.S. Army Acquisition Support Center)



'SMART' *CLOSEOUT*

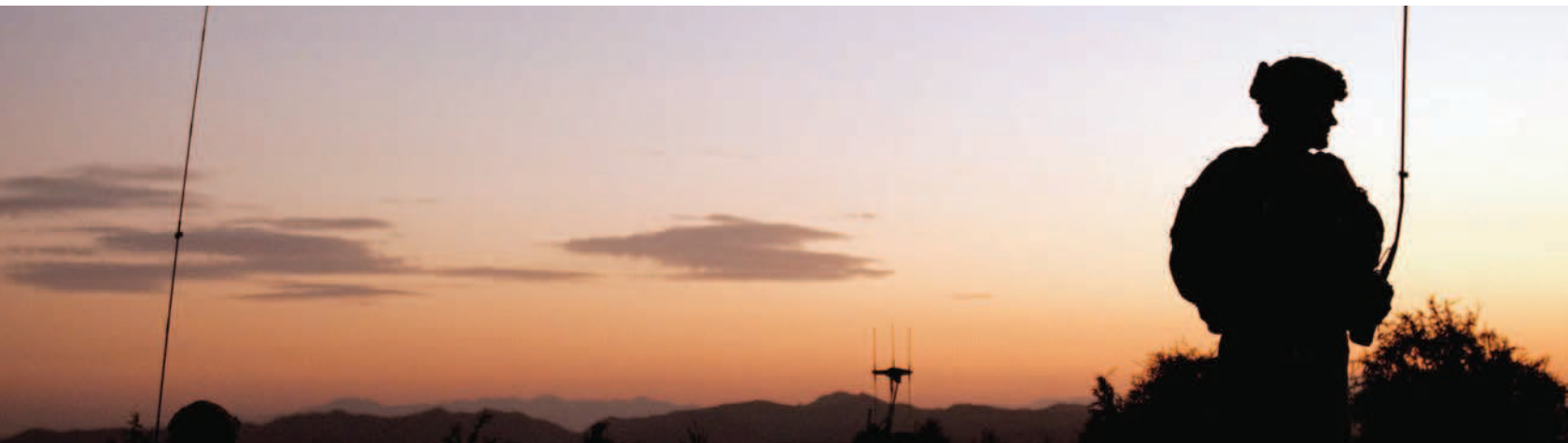
How the JTRS GMR Program Office planned and executed the end of a \$2 billion contract with six months remaining

by MAJ Jenny Tam



PRESERVING VALUE FROM GMR

When Frank Kendall, then-Acting Under Secretary of Defense for Acquisition, Technology, and Logistics, directed the cancellation of the Ground Mobile Radio (GMR) Program, the GMR Program Office needed to identify and ensure delivery of critical deliverables. The contract's products, deliverables, and artifacts were essential to support the future acquisition of a Non-Developmental Item to meet operational requirements for a mid-tier networking radio with a lower cost and reduction in size, weight, and power. Here, a Soldier from 4th Battalion, 319th Airborne Field Artillery Regiment, 173rd Airborne Brigade Combat Team coordinates an airdrop while other Soldiers pull security during a training mission March 13, 2012, at the Grafenwoehr Training Area in Germany. (U.S. Army photo by SPC Fredrick Willis, VIPER Combat Camera, U.S. Army in Europe)



SUNSET ON A PROGRAM

Following a Nunn-McCurdy review, the Joint Tactical Radio System, GMR Program faced cancellation, which led to closeout of the GMR System Development and Demonstration contract, rather than termination for convenience. Here, a Soldier with 3rd Battalion, 187th Infantry Regiment, 3rd Brigade Combat Team, 101st Airborne Division (Air Assault) performs a radio check Nov. 7 atop Little Gherghara, a mountain in the Sabari district of Khost province, Afghanistan. (U.S. Army photo by SGT Christopher Bonebrake, 115th Mobile Public Affairs Detachment)

Future budget reductions are likely to force the Army to restructure or, worse, cancel some programs. When this happens, program managers will have to decide how to end the program effort with the prime contractor. Closing out a contract under any circumstances can be difficult to accomplish effectively and efficiently. While contract closeout versus termination for convenience is not a new topic, the logic in deciding which path to take may not be clear.

In October 2011, after a Nunn-McCurdy review due to a significant reduction in quantity requirements (from 80,000 to 10,000 radios), the Joint Tactical Radio System, Ground Mobile Radio (JTRS GMR) Program faced cancellation. The GMR Program Office within the Joint Program Executive Office JTRS recommended to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) to close out the GMR System Development and Demonstration (SD&D) contract, rather than terminate for convenience.

The program office assembled the necessary expertise to analyze time and work remaining on the contract and to determine whether DOD could recover items of value for possible use in other DOD efforts. The program office also compared the estimated termination costs to the estimated funding needed to complete the contract, and the government had discussions with the prime contractor about completing the contract deliverables before the March 31, 2012, end of the contract's period of performance without the need for additional funding.

Program officials further identified the critical data deliverables and how to expedite disposition of property that would not be reused.

KEY CONSIDERATIONS

Several factors contributed to the recommendation to close the contract:

- The prime contractor indicated that it could complete the scope of work under the SD&D contract in the six months remaining until the end of the performance period.
- During the Nunn-McCurdy review, the program office estimated termination costs to be \$20 million, approximately the same amount needed to complete work on the contract.
- Completion of work enabled the government to obtain National Security Agency (NSA) certification for the Wideband Networking Waveform capability on the GMR system.
- Without incurring the additional expense of termination costs, the government could receive critical contract deliverables for reuse in future procurement efforts to acquire mid-tier networking radios.

In addition, "in a termination for convenience, the contractor is in an environment that incentivizes claims against the government," according to Professor Cory Yoder, Senior Lecturer and Academic Associate, Naval Postgraduate School. The relationship between the government and contractor under termination may not be amicable or cooperative; thus, the contractor may lack any incentive to deliver high-quality products during the remaining performance period. Also, it

may be difficult for the government to develop a future industry partnership with the contractor.

LEADERSHIP DIRECTION

In his Oct. 14, 2011, Acquisition Decision Memorandum (ADM), then-Acting USD(AT&L) Frank Kendall canceled the GMR Program and directed the GMR Program Office to “smartly close out” the GMR contract.

He directed the program office to: 1) complete the NSA certification of the GMR system, which included radio hardware, operating environment software, and the Wideband Networking Waveform, by the contract’s expiration date; and 2) identify and ensure delivery of critical deliverables. The contract’s products, deliverables, and artifacts were essential to support the future acquisition of a Non-Developmental Item to meet operational requirements for a mid-tier networking radio with a lower cost and reduction in size, weight, and power.

The program office defined smart close-out to mean that there would be no direct charges to the contract beyond the period of performance and that all ADM requirements would be met. To complete the first task, the program office made its Technical Management Division (TMD) and Readiness Management Division (RMD) responsible for NSA certification and for standing up a Production Integration Facility to maintain GMR software and hardware in the certified state. For the second task, the program office established a Contract Closeout Integrated Process Team (IPT) to close out the contract in a manner that avoided direct charges after the performance period.

The IPT included key personnel from the GMR Program Office and contractor

program offices, contracting officers, property control officers, and the Defense Contract Management Agency (DCMA). The IPT established a schedule, milestones, coordination links, and a battle rhythm of meetings and status reviews that were central to the closeout effort. The IPT fostered a collaborative environment that enabled timely delivery of contract deliverables and streamlined closeout efforts.

It cannot be assumed that contractors and DCMA personnel have experience in closing a contract. In this effort, only two people throughout the government and contractor staffs had such prior experience. This necessitated multiple

meetings involving DCMA, the program office, and contractor program offices to clarify processes and procedures for plant clearance; application of DCMA’s Plant Clearance Automated Reutilization Screening (PCARSS) system; approval of deliverables; coordination with the Defense Logistics Agency (DLA); and follow-up on contract actions.

Early collaboration with those who had decision-making authority enabled the group to adhere to schedule-driven activities. While it may not be feasible to identify all tasks upfront, it is possible to identify the major activities and refine them later. Holding three meetings per

SIGNING OFF

Closing out a contract can be difficult to accomplish effectively and efficiently. It cannot be assumed that contractors and DOD personnel have the necessary experience to close out a contract. When the Army canceled the GMR project, the service analyzed time and work remaining on the contract and determined whether DOD could recover items of value for possible use in other DOD efforts. Here, a 2nd Brigade, 1st Armored Division Soldier uses the GMR during the Army’s first Network Integration Evaluation, NIE 11.2, at White Sands Missile Range, NM, in June 2011. Soldier feedback and lessons learned from the NIE helped the Army restructure the GMR program. (U.S. Army photo by Claire Heiningen)





OPEN LINES OF COMMUNICATION

In conducting the GMR contract closeout, it was critical to look for efficiencies and strive for open communication. The GMR Program Office established a Contract Closeout Integrated Process Team (IPT) to close out the contract in a manner that avoided direct charges after the performance period. After the government gave disposition instructions to the prime contractor, the prime included subcontractors in the closeout IPT meetings. Here, SPC Todd Charity of 1st Squadron, 2nd Cavalry Regiment programs a radio inside his vehicle Oct. 13 during *Exercise Saber Junction 2012* near Hohenfels, Germany. (U.S. Army photo by SSG Jose Ibarra, 2nd Cavalry Regiment)

week and providing weekly updates to the program manager helped maintain momentum and schedule.

CHALLENGES IN EXECUTION

The \$2 billion GMR SD&D cost-plus-award-fee contract had more than \$180 million worth of property—5.4 million items such as radios, special test equipment, and production materials (capacitors, resistors, partially built-up circuit cards, nuts, screws, etc.)—that needed to come off the contract within the six months remaining in the period of performance. Property disposition was the greatest challenge in this closeout effort.

The IPT identified three critical tasks that drove the schedule for moving the

property off the contract: 1) obtaining accurate property lists from the contractor, 2) determining and then conveying appropriate disposition instructions for this property to the contractor, and 3) execution of those instructions by the contractor.

The contractor estimated it would take two months to provide the “final” property list to the government. In response, the program office directed the contractor to provide property lists as it generated them, rather than wait for the “last item” to be validated. In making this decision to maintain schedule, GMR assumed the risk that the lists would not be completely accurate. While there were a few instances of duplication or inaccuracies, the impact proved to be minimal.

To determine disposition instructions, the government established a property sub-IPT that included prospective claimants, such as government laboratories and other program offices, and provided them the property lists in spreadsheet format as they became available. The concurrent staffing and spreadsheet format reduced the time required for the government to generate instructions.

To minimize correspondence between the government and contractor, the program office issued “default” disposition instructions for routine or similar items for which there were previous instructions. This permitted the contractor to use the default instructions for items that it found after delivering the property lists to the government, rather than having to generate correspondence.

Reutilization of property by other government contracts at a contractor facility also shortened the schedule, because the contractor could transfer that property immediately to the other contracts. This was effective for large items, like environmental chambers, that were built into contractor facilities; it would cost more to dismantle, dispose, and ship the chamber than the chamber itself cost.

The program office learned two key lessons concerning the contractor’s disposition of property.

First, DCMA’s PCARSS system was not designed to dispose of large volumes of property quickly. The plant clearance process required impound of each item of property, then announcement for other government claims, followed by disposition—a process that would have introduced significant delay. To expedite closeout, the program office used the DLA property turn-in process through DLA Disposition Services (formerly

THE PROGRAM OFFICE ASSEMBLED THE NECESSARY EXPERTISE TO ANALYZE TIME AND WORK REMAINING ON THE CONTRACT AND DETERMINE WHETHER DOD COULD RECOVER ITEMS OF VALUE FOR POSSIBLE USE IN OTHER DOD EFFORTS.

the Defense Reutilization and Marketing Service), for items that the property sub-IPT did not claim and for unused production materials. DLA Disposition Services allowed the contractor to turn in similar items without generating detailed lists; once the property was at the DLA site, the contractor was absolved of responsibility.

Second, the effort to identify, prepare, assemble, pack and ship property took longer than anticipated. Experience was key, and to gain experience, the contractor conducted “pathfinder” activities on smaller shipments to prove out its processes for sorting, assembling, packing and shipping. This upfront work was essential, because as the effort to pack and ship property increased, the contract workforce decreased with the end of the performance period approaching.

The resolution of “in limbo” contract actions, such as deferred ordering, requests for equitable adjustments, and fee schedules, also required early focus. By negotiating a change of the award fee to a fixed fee, thus negating the need for an award fee board, the government was able to reduce the schedule.

Finalizing contract actions also took longer than expected, especially when legal staffs were engaged. For example,

DCMA’s patent closure process required that not only the program office but also the program office’s legal staff declare its opinion of the patent report, even though the contractor did not intend to file any patents. Other early activities included disposition instructions for classified documents and cryptographic items, and creating instructions for demilitarizing items.

CONCLUSION

If a program office must conduct contract closeout, it is critical to look continuously for efficiencies and strive for open communication. After the government gave disposition instructions to the prime contractor, the prime included subcontractors in the closeout IPT meetings.

This allowed the government to provide clarification directly to all parties and reduce response times. DLA and DCMA were excellent resources, but continuous coordination was needed to ensure that they stayed abreast of day-to-day developments and addressed contractor issues.

GMR successfully completed direct cost closeout activities without extending the period of performance. While it did not complete the shipping of property by the end of the contract period, the contractor did ship 95 percent of the property to intended consignees by early April

and completed shipments in May 2011. The program office avoided termination expenses, received critical deliverables, stayed within cost estimates, and maintained an amicable relationship with industry partners.

Facing a program cancellation, program managers should conduct a thorough analysis to determine whether it would be in the government’s best interest to continue work on the contract or terminate for convenience. If a decision is made to close out a contract, forming a government/contractor IPT as early as possible will help set the stage for a cooperative working environment that results in efficient contract closeout while minimizing direct costs.

For more information, contact the PEO Command, Control, and Communications – Tactical, Mid-Tier Networking Vehicular Radio Program Office in San Diego, CA, at 619-524-5784.

MAJ JENNY TAM was an Assistant Product Manager for the Joint Tactical Radio System, Ground Mobile Radios Program Office. She holds a B.S. in computer science from the United States Military Academy and an M.S. in computer science from the Naval Postgraduate School. TAM is Level II certified in program management.



GETTING A GRIP

ACC strengthens controls on government furnished property

by Mrs. Virginia E. Mitchell and Mr. David H. Groell

One of the key factors central to responsible and successful execution of DOD contracts is positive control of government furnished property (GFP). Getting a grip on GFP is critically important to sustain the gains made through government contracts while ensuring good stewardship and accountability of tax dollars.

GFP represents a significant monetary investment supporting work under myriad contracts, and the Army could do a better job of continuously focusing on management of these resources. Currently, the Logistics Civil Augmentation Program (LOGCAP) IV contract in Afghanistan contains 55,631 line items of property valued at more than \$1 billion,

including property transferred from the previous three LOGCAP contracts.

Federal Acquisition Regulation (FAR) Part 45 (online at <https://www.acquisition.gov/far/html/FARTOCP45.html>) and *FAR* Clause 52.245 (https://www.acquisition.gov/far/html/52_245.html) cover the policies and procedures for providing government property to contractors, and prescribe the management and use of government property as well as associated reporting, requirements, redistribution, and disposal.

The truth is that maintaining clear line-of-sight and positive control over GFP has always been a significant challenge, and failure to do so has proven to be a persistent area of risk of

SUPPORT INFRASTRUCTURE

Successful execution of contracting includes careful control of government furnished property (GFP) in the myriad contracts that support U.S. troops in theater. Here, William Shaw, Warehouse Manager for Logistics Civil Augmentation Program IV contractor DynCorp International LLC at Kandahar Airfield, Afghanistan, hands a case of ice to SGT Jay B. Bustamante of the 25th Brigade Support Battalion, 1st Stryker Brigade Combat Team, 25th Infantry Division. (Photo by James Arnold, DynCorp International)



potential loss, both physical and financial. During the drawdown from Iraq, it became clear that the Army had an incomplete understanding of what property was in theater. As sites closed, the amount of property on hand could not be reconciled with the assets reflected in property books. This issue persists in Afghanistan as the Army assesses the logistics necessary to remove and account for the property within theater.

A confluence of factors has led to increased vulnerability in the accountability of GFP. These factors include the sheer numbers of contracts awarded in support of overseas contingency operations and the contracts' associated logistic complexity; the multi-lateral pressures of mission execution under combat or otherwise austere conditions; lack of continuity in personnel resources; and the knowledge and levels of training of personnel assigned to provide on-the-ground oversight.

These challenges, common across DOD, called for strategic vision and an integrated approach—exactly what is taking place. Strategic objectives of the get-well plan include accurate identification of GFP requirements; accurate reporting of GFP in the hands of contractors; electronically tracking the transfer of stewardship, condition, and physical location of GFP; verification of GFP disposal; and reconciliation of GFP disposition by contract number.

PROPERTY REPORTING SOLUTIONS

To begin to address these issues, the Office of the Secretary of Defense (OSD) and the Army have taken a number of proactive measures.

DOD did not have in place the needed integrated, interoperable, net-centric and electronic data-driven capabilities to

effectively manage government property used on contracts. A number of solutions to address this are now in play, forming the cornerstone of GFP reporting. They include strong internal controls and oversight practices; interoperable, open architecture that enables a single face to industry; and a DOD Item Unique Identification (IUID) Registry and GFP Hub.

DOD Instruction (DODI) 5000.64 (*Accountability and Management of DoD Equipment and Other Accountable Property*, dated May 19, 2011; online at <http://www.dtic.mil/whs/directives/corres/pdf/500064p.pdf>) requires DOD agencies to establish policy, assign responsibilities, and provide procedures for DOD-owned equipment and other accountable property. The

Deputy Assistant Secretary of the Army for Procurement (DASA(P)) and U.S. Army Deputy Chief of Staff, G-4 (Logistics) formed a working group to ascertain the best plan of attack for meeting this mandate.

Several different accountable property systems are currently used, including the Defense Property Accountability System and Property Book Unit Supply Enhanced (PBUSE). The G-4 and (DASA(P)) decided jointly to use PBUSE as the official system of record.

Numerous disparities were noted between the data elements required within the DODI and actual data elements within PBUSE. These discrepancies were reported for funding to resolve them.

FUEL POINT MANAGEMENT

Failure to maintain control over GFP continues to be an area of potential risk, as commanders must be able to account for their assets to plan for movement in and out of the area of operations. This immense fuel point, operated by Logistics Civil Augmentation Program IV contractor Fluor, provides fuel to fixed- and rotary-wing aircraft. (Photo by Mary Susan Barkley, U.S. Army Materiel Command)



The Under Secretary for Defense for Acquisition, Technology, and Logistics (USD(AT&L) Jan. 7, 2012, memorandum titled *Standard Equipment Data Elements for Government Furnished Property Baseline Establishment* (online at <http://www.acq.osd.mil/pepolicy/pdfs/USA006862-11%20Standard%20Equipment%20Data%20Elements%20for%20Government%20Furnished%20Property%20Baseline%20Est%20.pdf>) established three basic requirements for the defense agencies:

1. Develop and submit a detailed project plan to implement the standard methodology for establishing a validated government furnished equipment (GFE) baseline for the DOD Components Financial

- Improvement Plan (FIP).
2. Report GFE in the IUID Registry and PBUSE (Army requirement).
3. Audit readiness of GFP by FY17.

EFFECTIVENESS TESTBED

The Army formed an enterprise resource called the Government Furnished Property Working Group (GFPWG) to address and meet these new mandates. To date, the GFPWG has met the first mandate, to submit a detailed plan and FIP.

As part of the plan, two contingency contracts were identified as most suitable to test the effectiveness of the policies and procedures developed: the Kuwait Base Operations and Security Support Services contract, and LOGCAP IV in Afghanistan. These contracts were selected for

the diversity of property they encompass (GFP; contractor-acquired property (CAP); green equipment, such as tanks, trucks, and generators; and white equipment, or commercial items purchased by or for the Army), and to supply commanders in theater with an accurate picture of the types and quantities of property assigned to the contracts in support of their missions.

While OSD recognized the weaknesses surrounding GFP and began to build a foundation for improvement, the Army remained limited in its ability to respond for a number of reasons, the biggest of which was simply the operations tempo. With the demands of the wars in Iraq and Afghanistan, the Army's focus remained squarely on mission execution





PROPERTY ACCOUNTABILITY

With the large and diverse role that contractors play in supporting U.S. troops in theater, from food to fuel, it is critical to maintain accountability and visibility of government furnished property, among other assets. Here, an Afghan contracted employee of Fluor cuts potatoes at the Grady Dining Facility May 15 at Bagram Airfield, Afghanistan. (Photo by Jon Connor, U.S. Army Sustainment Command Public Affairs)

and supporting the warfighter. After the initial drawdown in Iraq was complete, the Army gave far greater attention to the logistical challenges of moving the GFP out of theater and, subsequently, to the full scope of issues associated with management and control of GFP.

The major lesson learned, and a recurring theme in these experiences, is the critical importance of maintaining accountability and visibility of GFP to enable commanders in theater to see their assets and to enable planning for the movement in and out of the area of operations.

In specific response to the (USD(AT&L) memorandum of Jan. 11, the U.S. Army Contracting Command (ACC) tasked ACC – Rock Island, IL, where these contracts are being administered to provide the data elements mandated by the *FAR*, *Defense Federal Acquisition Regulation Supplement* (DFARS), and DODI. Once the data were supplied, the property listings

were scrubbed to determine what assets met the criteria established for reporting to PBUSE; those data were then provided to the U.S. Army Sustainment Command for input into the system.

During quarterly meetings of the GFPWG, necessary policies and procedures will be fine-tuned and prepared for distribution to the commands to establish an initial baseline of contracts containing GFP. This important step will lay the foundation for mission readiness, as well as accurate reporting to fulfill the strategic goals and objectives to be validated under the 2017 audit readiness standards for accountability.

LEVERAGING ACC EXPERTISE

Communities of Practice (CoPs) are force multipliers, and the GFP CoP is no exception. It is one of five ACC CoPs, each providing a specific forum for subject-matter experts and practitioners of a discipline to interact, collaborate, and

share knowledge and experiences pertinent to their tasks while also solving business problems. (See “Communities of Practice,” *Army AL&T Magazine*, July-September 2012.)

The GFP CoP team is working diligently to develop and socialize the community as a ready resource to property managers and contracting practitioners across the command and the Army. Team members’ experience assisting commanders and their staffs with property issues globally has provided an understanding of the magnitude of GFP and the on-the-ground issues in identifying and tracking it.

The most frequently asked questions from property managers and contract administrators in the field relate to appropriate use of contract clauses, primarily when to use them. Two commonly used DFARS clauses that can be confusing are 252.211.7003, *Item Identification and Valuation*; and 252.211.7007, *Reporting of Government-Furnished Equipment in the DOD Item Unique Identification Registry* (both online at <http://www.acq.osd.mil/dpap/dars/dfars/html/current/252211.htm>).

The first clause, 252.211-7003, is geared more toward contractors providing a deliverable in support of a contract line, sub-line, or exhibit-line item. So what do the contractors have to report? Basically the contractor is required to provide and register an IUID for each item that has a government unit acquisition cost of \$5,000 or more, or items listed under the contract-line, sub-line, or exhibit-line item that the program manager or procurement contracting officer has designated. These requirements must be spelled out within the contract.

The second clause, 252.211-7007, sets the requirements for GFE. Essentially, it

covers any item valued at \$5,000 in unit acquisition cost, or valued at less than \$5,000 in unit acquisition cost; and serially managed, mission-essential, sensitive, or controlled inventory, as identified in accordance with the terms and conditions of the contract. It is important to note that the “serially managed” designation does not mean that any item that has a serial number needs to be tracked. “Serially managed” refers to items designated by DOD to be uniquely tracked, controlled, or managed in maintenance, repair, and/or supply systems by means of its serial number.

CONCLUSION

While ACC is well on its way to addressing many of the issues critical to getting a grip on GFP, many challenges remain, which the ACC is working to resolve. They include:

- A lack of qualified and trained property administrative staff at headquarters and field levels.
- Inadequate training of contracting officers on new changes in the *FAR* and *DFARS*.
- The unknown quantity of contracts containing GFP and/or CAP.
- The unknown quantity, location, and dollar value of GFP and/or CAP.
- The lack of a standard mechanism to draw a population size from existing contract writing systems.
- Funding to fully implement the IUID Registry.
- Establishment of PBUSE, fully populated, as the accountable system of record for the Army.

It is clear that now, more than ever, contracting must be highly transparent, and contracting professionals must be responsible with taxpayer dollars in this environment of shrinking resources. With its collective approach, ACC is on the path



LOGCAP'S BROAD REACH

The Logistics Civil Augmentation Program (LOGCAP) IV contingency contract in Afghanistan is a testbed for the Government Furnished Property Working Group's evaluation of the effectiveness of policies and procedures developed to better identify and account for government furnished property. Here, an Afghan contractor for Fluor, one of two primary contractors for LOGCAP IV, processes laundry May 15 at Bagram Airfield, Afghanistan. (Photo by Jon Connor, U.S. Army Sustainment Command Public Affairs)

toward real accountability of GFP and has gathered the folks with the right experience, expertise, and skill sets to do just that.

For more information, contact David Groell at david.groell@us.army.mil; or visit the Government Furnished Property Community of Practice Army Contracting Command Portal/SharePoint site at https://acc.aep.army.mil/Contract_Operations/gfp/default.aspx. Access is limited to registered users; register at Army Material Command Enterprise Portal, <https://adfs.aep.army.mil/Registration/default.aspx>, using a valid DOD Common Access Card and selecting “email certificate” when prompted.

MRS. VIRGINIA E. MITCHELL is the Army Contracting Command (ACC) Source Selection Community of Practice

Lead and a Procurement Analyst at Headquarters, ACC, Contracting Operations, Policy Division. Mitchell holds a B.S. in social science from Bowling Green State University. She is Level III certified in contracting and is a member of the U.S. Army Acquisition Corps (AAC).

MR. DAVID H. GROELL is the ACC Government Furnished Property Community of Practice Lead and a Procurement Analyst at Headquarters, ACC, Contracting Operations, Contract Administration Division. Groell has deployed extensively in support of Army GFP management. He holds a Certified Professional Property Manager certification through the National Property Management Association and is Level II certified in industrial/contract property management. Groell is an AAC member.



LENDING A HAND

Personnel support and Soldier advocacy are among the many programs for which Human Resource (HR) Solutions provides a streamlined acquisition process. Here, a U.S. Army Wounded Warrior participates in the San Antonio Alamodome Punt, Pass and Kick event Jan. 4, 2012, during the U.S. Army All American Bowl. (U.S. Army photo by SFC Scott D. Turner, U.S. Army Accessions Command G-7)

THINKING BIG^{ON} SMALL BUSINESS

HR Solutions expands opportunities with IDIQ contract modifications

by Mr. Brent Thomas

On Sept. 25, 2012, Human Resource (HR) Solutions, a program office within the Army's Program Executive Office Enterprise Information Systems, completed a series of bilateral modifications to 43 indefinite delivery/indefinite quantity (IDIQ) contracts that have the potential to expand small business opportunities by giving the contracting officer broad discretion in setting aside task orders for small business concerns.

HR Solutions provides Army and DOD requiring activities with a streamlined acquisition process for centrally managed knowledge-based services through the use of 57 IDIQ contracts distributed

across four IDIQ contract suites (See Figure 1 on page 138):

- Personnel services and support (PS&S).
- Studies and analysis (S&A).
- Recruitment and retention (R&R).
- Management and administrative support (M&AS) Small Business Set Aside.

The HR Solutions staff of DA civilian acquisition professionals help requiring activities develop performance-based work statements for their requirement, facilitate the entire contracting process, and manage the full life cycle of the services contract, relieving the requiring activity of much of the administrative

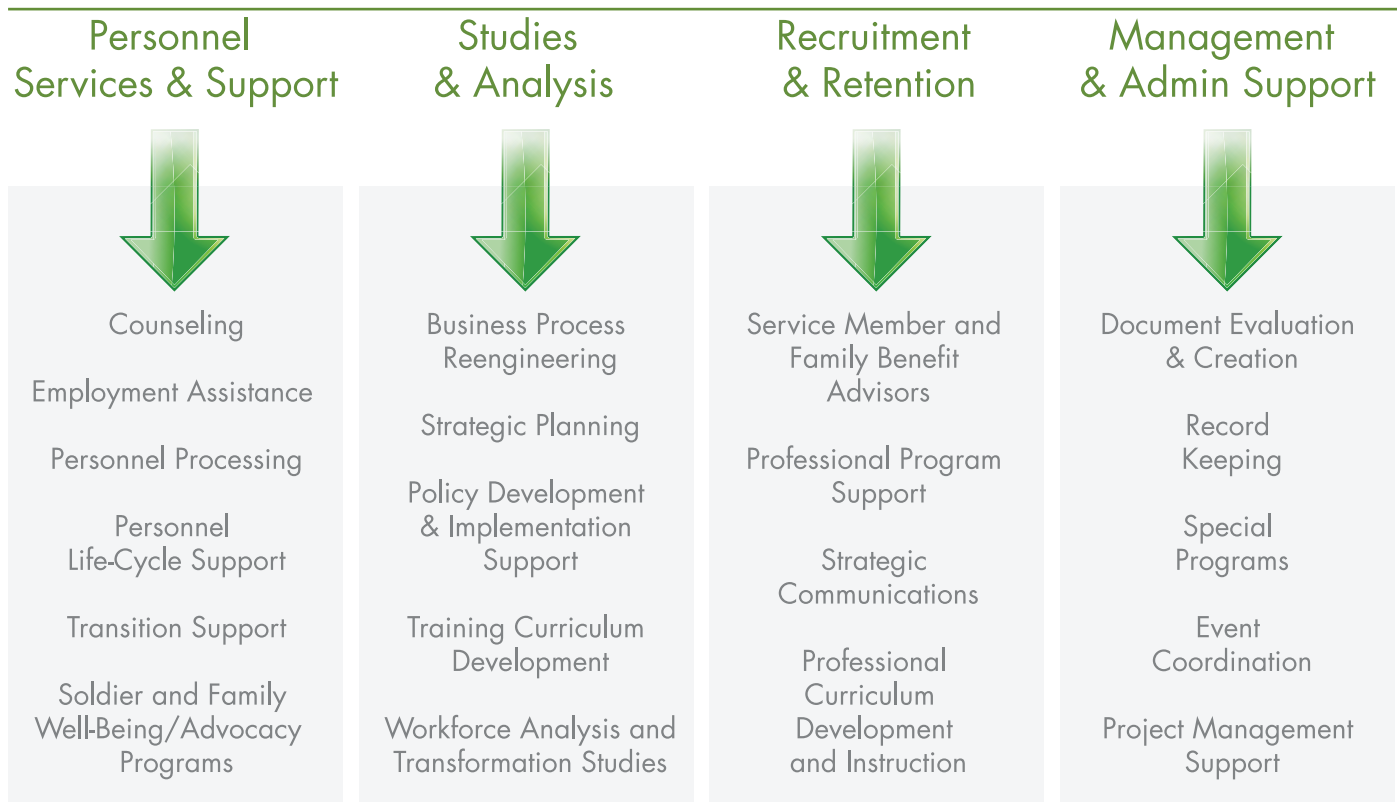
burden involved with acquiring and managing a services contract. (See Figure 2 on page 139.)

TOP-LEVEL GUIDANCE

The bilateral contract modifications implemented guidance from Army leadership. In a July 16, 2011, memorandum, Heidi Shyu, the Army's Senior Procurement Executive and then-acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology, provided guidance to further support the Army's small business program across the acquisition community.

On Sept. 13, 2011, Under Secretary of the Army Dr. Joseph W.

FIGURE 1



FOUR CONTRACT SUITES, MANY SERVICES

HR Solutions' four Indefinite Delivery/Indefinite Quantity (IDIQ) contract suites and 57 IDIQ prime vendors provide a wide variety of services that

are important to Soldiers and their families. (SOURCE: Glenn Hershfeld, HR Solutions Communications Management Specialist)

Westphal issued a memorandum titled *Maximizing Support for the Army Small Business Program* (online at <http://www.sellingtoarmy.com/content/maximizing-support-army-small-business-program>), which references the earlier memo and provides guidance to maximize opportunities for small businesses to compete at the prime contractor level.

BENEFITS TO REQUIRING ACTIVITIES

Before the bilateral modifications, HR Solutions' M&AS IDIQ contract suite was the sole suite set aside specifically for small businesses. While the PS&S, S&A, and R&R IDIQ contract suites

encompass both small business and non-small business prime vendors, requirements with a scope of work within these suites were competed openly among all of the prime vendors within that suite, regardless of size.

With the flexibility of being able to set aside requirements for small businesses across all of the HR Solutions' IDIQ suites, Army and DOD requiring activities will be able to continue their support of small business set-aside service contracts by using HR Solutions to recompete their requirement, and will benefit from the program's unique acquisition efficiencies.

For requirements other than non-small business set-asides, HR Solutions can award a performance-based services task order within 90 days of notification. Moreover, during FY 11-12, HR Solutions has shown a 25 percent cost avoidance compared with the requiring activity's independent government cost estimate for the services. HR Solutions anticipates a similar 25 percent cost avoidance with small business set-aside requirements, as well as a minor reduction of 1-2 days in the 90-day acquisition timeline.

BENEFITS TO THE ARMY

The benefit of the bilateral IDIQ contract modifications to the Army is that the

FIGURE 2

Centralized Knowledge-Based Services Acquisition Management & Support Introduces Streamlined Acquisition Rigor, Management, & Oversight



ONE-STOP SHOP FOR SERVICES ACQUISITION

By providing centralized acquisition and support for knowledge-based services, including quality assurance, requirements development, and contract management, HR Solutions aims to be a go-to source for services

acquisition. (SOURCE: Glenn Hershfeld, HR Solutions Communications Management Specialist)

USING HR SOLUTIONS HAS DEMONSTRATED A SIGNIFICANT COST AVOIDANCE ACROSS THE ARMY FOR SERVICE CONTRACTS THAT CAN NOW BE REALIZED IN THE SMALL BUSINESS SET-ASIDE ARENA.





SERVING THE SOLDIER

The contract suites and 57 IDIQ prime vendors contracted by HR Solutions provide key services for Soldiers and their families, including personnel processing, Soldier and family well-being programs, and transitional support. (DOD photo by SMSgt David H. Lipp)

change could help in reaching its small business goals. However, Armywide costs for knowledge-based services could see a decline as well. The small business set-aside modifications will allow HR Solutions to expand its customer base to include requiring activities that have existing small business set-aside contracts within the scope of all of HR Solutions' IDIQ contract suites.

Using HR Solutions has demonstrated a significant cost avoidance across the Army for service contracts that can now be realized in the small business set-aside arena. HR Solutions' small business set-aside task orders will remain performance-based, firm fixed-price orders.

CONCLUSION

HR Solutions supports the Army's goal to increase small business opportunities and the Secretary of the Army's plan to optimize services acquisition by providing a streamlined acquisition process and centralized acquisition management and support.

For more information, go to <https://www.HRSolutions.army.mil> or call 502-624-4225.

MR. BRENT THOMAS is the Project Director Human Resource Solutions. He has more than 15 years of acquisition management experience as an Army officer and DOD civilian. Thomas holds a B.S. in agribusiness from Iowa State University and an M.S. in materiel acquisition management from the Florida Institute of Technology. He is Level III certified in program management.



CRITICAL THINKING

LESSONSⁱⁿ LEADERSHIP

Executive trainer offers perspectives on the roles of personality, agility, and diversity in running organizations



This Critical Thinking interview is with Barry Berglund, President, Berglund Associates Inc. and Executive Instructor, Leadership Foundry. Berglund has worked internationally in the field of leadership development, focusing also on executive selection, organizational design, and change management. A faculty member of the Center for Creative Leadership (CCL) for more than 19 years, he served as an Assistant Vice President, a Senior Enterprise Associate, and Director of CCL's Brussels and San Diego locations.

Berglund has developed and conducted programs on leadership and management for corporate, academic, and civic groups. Since 1993, he has presented the annual Robert T. Stevens Leadership Program for the five U.S. service academies. Berglund's leadership development clients also include General Motors Co., Whirlpool Corp., Mars Inc., Gambro AB (Sweden), Elan Pharmaceuticals Inc., the U.S. Army, Navy, and Air Force, the

Congressional Management Foundation, Qualcomm Inc., Motorola, and Yale University.

Berglund served more than 20 years in the Army, retiring at the rank of lieutenant colonel. His military service included tours as a senior human resources manager at key military installations in the United States and overseas; as a personnel staff officer at the Pentagon, where he authored leadership policy; and as the Army's deputy director of worldwide business activities. His military decorations include the Legion of Merit and the Bronze Star Medal.

Berglund received a B.A. from the University of Minnesota and a Master of Public Administration from the University of Oklahoma. He is a member of the American Society for Public Administration and the American Society for Training and Development, and was appointed a Senior Fellow of the CCL in 2007 for his sustained significant contributions.





CROSS-SERVICE COMMUNICATION

While each service academy teaches leadership, the Robert T. Stevens Leadership Program brings together the top cadets and midshipmen to look at not only their individual leadership styles, but also those of the leaders from the other services with whom they will work. Here, Barry Berglund, who presents the Stevens program, poses with the cadet/midshipmen commanders of the five service academies at the conclusion of the program in September 2012 at the United States Military Academy (USMA), West Point, NY. (Photos courtesy of Barry Berglund)



EARLY LEADERSHIP TRAINING

As President of Berglund Associates Inc. and Executive Instructor for the Leadership Foundry, Barry Berglund presents the annual Robert T. Stevens Leadership Program for the five U.S. service academies: the USMA, United States Naval Academy, U.S. Air Force Academy, United States Coast Guard Academy, and U.S. Merchant Marine Academy. The top

eight cadets and midshipmen from their respective service academies attend the program, which is similar to the Acquisition Leadership Challenge Program (ALCP). Pictured is the class from the 31st program in September 2012 at USMA, West Point, NY.

Q. You have extensive experience leadership training in both the military and civilian worlds. What are some correlations between the two? Do those commonalities influence the way you approach your leadership teaching?

A. I'm always cautious when someone uses the word "correlation," as that implies a scientific study that validates causality. Having said that, my experience after 30 years of studying and teaching leadership is that absolutely, there are commonalities. I'd also broaden this work outside the United States, based on three years doing leadership program work in Europe back in the mid-'90s with non-U.S. organizations. The similarities include that what

people want most from their leaders is an opportunity to learn, to be valued, to make meaningful contributions, and to be respected for who they are and what they bring to an organization.

Frankly, I think the military services set a very high standard for leadership. That's not to say you ever get it completely right. At this moment in time, I believe more work is being done to ferret out toxic leaders from the military than at any other time. My old boss and mentor (and prior CCL President and CEO) LTG Walt Ulmer (USA, Ret.), has studied this subject intensively through both his work and studies done at the Army War College.

What it really boils down to is the answer to this question: "Should those who are led have some say in the success of their leaders and their selection for higher positions?" I think we all agree that they should. And if they did, I think we'd have the potential to eliminate the self-serving leaders a lot earlier, before they could do substantial damage to people or their organizations. Frankly, it's pretty discouraging to ask a class of 24 civilian and military folks, "Have you ever worked for a toxic leader?" and see almost all the hands go up.

It's the mechanics that bedevil the decision-makers. The Navy is absolutely committed to this in its command

selection process. Where you see convergence between the military and civilian leadership worlds is that we are seeing more and more pressure for unimpeachable ethical conduct. This goes for the corporate world, where we see more and more early departures from the executive suite and boardroom, and it occurs regularly in the federal world. And, as we've seen very recently, we do hold—and we ought to hold—our appointed and elected officials to the highest standard of personal conduct. I believe that anyone who has the authority to commit others to combat has to have the highest possible moral and ethical standards.

Q. As you know, the Army acquisition community is focused on being more “agile,” more flexible and responsive. What does the “agile” concept suggest to you?

A. This is a tall order. The word “agility” seems much in vogue. I suppose “agile policy” might help, but I don't think the *FAR* [*Federal Acquisition Regulation*] or the oversight folks would agree! I think most behavioral scientists, and we laymen, would agree that humans have different mental processes and attributes. There is an acknowledged neurological “wiring” for how we deal with change ... how quickly we move from one task to another. We've measured this for many years in leadership programs and classify people—which sounds dangerous—as “adaptors” or “innovators” measured by the Kirton Adaption-Innovation Inventory or [W. Christopher] Musselwhite's Change Style Indicator (Conserver-Pragmatist-Originator). I can tell you that the data I've been a part of for more than a decade do show differences between military and civilian leaders in this domain.

Think about it. We have an expectation that military leaders follow prescribed policies, rules, and protocols. They

have to. And those who are motivated for a military career tend to be those who understand this. Data from the Myers-Briggs Type Indicator point out a statistically significant difference between civilian and military leaders in the dimension that has to do with how information is gained (sensing-intuition). Senior leaders in the corporate world tend to be “intuitors,” while “sensors” prevail in the senior military leader ranks. Strategy development may be much tougher for a “sensor”—those who have to see, touch, taste, feel, hear, smell as a data-gathering source—and these kinds of conversations have to take place when you're dealing with asymmetric warfare, insurgency, and counterterrorism.

Obviously, agility doesn't have to be a natural attribute; if you know you tend to be pretty conservative, all you have to do is find someone who's not like you and ask them for their input.

Finally, one of the sophisticated psychological tests that has been used on senior military leaders shows that they score somewhat higher than their corporate counterparts in every single metric except two: sensitivity toward others and flexibility, where their scores are modestly lower. Based on my experience, this “self-awareness” piece is the foundation of effective leadership, and on a couple of important metrics I think it safe to say that it might even be tougher for military leaders to be naturally “agile.”

Q. What lessons from the Acquisition Leadership Challenge Program (ALCP) that you conduct for the Army and Air Force do you think apply to the concept of being more agile?

A. Just knowing your preferences is an enormous starting point. Until you know how you're wired, while you know

others aren't like you, having some actual data and understanding can be pretty helpful. We generally tell participants to take their instrumented feedback home with them and let their spouse or significant other read it. They'll probably hear a comment like, “How much did the Army pay for you to hear that? I've been telling you this stuff for the past 15 years!” This goes across the ranks; I've heard it as high as the four-star level.

Q. How do those lessons play out in day-to-day work?

A. We know that some folks really like to have their day scheduled, planned, and organized. It's always fun to ask a class, “How many of you have a to-do list?” Usually around 10 people out of 24 raise their hands. If you've served in any major headquarters, and particularly in the Pentagon, how often does someone drop a last-minute suspense on your desk and say, “Oh, we need this by COB today”? So much for the to-do list.

Some folks are fine with this. These are the same people who crammed for college exams the night before. But if you drop this on a superorganized person, they are not happy.

We also see the lesson played out in how different people use influencing skills. Last year, we began testing this. If you tend to “assert” rather than “bridge” to get things done, you may run into problems with your peers. If your primary conflict style is to “compete” when it might be better to “collaborate,” then you ought to have that information. We provide these data in our classes, along with a host of other data to amplify this self-awareness piece. After all, you can't really understand me if you don't understand yourself.

Q. Part of the ALCP training deals with using a common language between supervisors and subordinates. Can you explain how that is established?

A. Several weeks ago, we had an enormous compliment from a participant who was enrolled in the Level I program. Her boss had returned from attending a Level II program several weeks before. She said that her boss called everyone in, talked about what she'd learned, and shared some of the data about her style, her preferences, and the "ahas!" that evolved over the course of the program. As the rest of the office cycles through the programs, there will be a greater appreciation for differences, and hopefully a more creative workplace.

Very little that we do these days we do in isolation. The body of research is so massive showing that a diverse team of people working together produce a higher-quality product every single time, unless you have an expert. When we construct homogeneous teams, folks get along well, the work gets done more quickly, and they make more mistakes. This is research that does not need replicating, although if you've read Malcolm Gladwell's *Outliers: The Story of Success*, it may motivate you to really understand why the U.S. Air Force and all the commercial airlines devote a lot of training to air crew resource management! So, a common language just provides a foundation for improving how we perform and work with others who are like and unlike us.

Q. You mentioned that a "diverse" team of people working together produce a higher-quality product. What kind of diversity do you mean?

A. I was referring to diversity in a number of dimensions—for example, in the way they score on the Myers-Briggs Type



RAISING THE BAR

Part of the Level II ALCP curriculum is an exercise called Earthquake, designed to show participants the power of a team working together. The "HUAH" team, shown here at the ALCP in Atlanta March 9, 2012, earned the best score in the history of the program.

Indicator; the way people process information, what energizes them, whether they like data that's regularized or prefer to follow a hunch. We present individual data in the ALCP on how much individuals like to control others or be controlled, as well as basic information on those who may prefer working alone rather than with others. This is important, because it has to do with how readily they will work in a group, and whether they are likely to challenge something. Some people facing the unknown will dip a toe in the water to get a feel for it. Others prefer to do a cannonball.

Doing things in different ways in organizations has an inherent risk. Fortunately, it also presents tremendous opportunities. In a government organization, you have to have rules and processes in place. But within that framework, you also should be OK with "Why are we doing this?" questions. I remember well an

assignment where I walked into my new job and was told on the first day, "Oh, by the way, you are now the 'Army expert' on these four Army regulations," none of which I had ever read. Unless it's in Title 10, a rule or process can be changed, and even laws can be changed, though that surely isn't easy.

Q. What is the importance of self-awareness to the supervisor? To subordinates?

A. Beyond the psychometrics, which give us a lot of clues on our "wiring," there is a lot of evidence out there that people do not get good feedback. I can remember dark days during a Pentagon tour when I'd be so frustrated that I'd reread old OERs [Officer Evaluation Reports] to see how "wonderful" I was!

Let's face it. Our performance management system does not give us useful information on what we need to do. It's

retrospective. It's used primarily for promotion and assignment selections. I had an Air Force wing commander tell me that after attending a class, he went back to his wing and set a one-hour appointment with each of his officers, senior civilians, and NCOs to talk about their *development*, not their performance. Very illuminating. He said that none of them had ever had their boss even ask this question. If you are supervising somebody and you don't know what's important to them—where they see themselves in 5, 10, 15 years—then something is drastically missing.

Those of us who have the privilege to be in this business—and it is a privilege—know there's plenty of good work going on. I include in this work what happens in the pre-commissioning environment for officers and NCOs. Getting leadership development for the civilian workforce that's properly sequenced may not have had this same sense of urgency. I think that the behavioral science and leadership departments at the service academies do wonderful work—Leavenworth [the U.S. Army Command and General Staff College] and Carlisle [U.S. Army War College] as well.

I had the distinct honor of spending 19 years at the Center for Creative Leadership, arguably the most world-class organization in the domain of leadership research and training. I think we all pretty much agree that leaders need better and more frequent feedback that is not tied to an evaluation. 360 [degree feedback] surveys are commonly used just about everywhere as a development tool—and we use them in every Level II program, by the way. My colleague David Campbell—author of the Campbell Leadership Index, the tool we use for this purpose—wrote a book some years ago entitled “If You Don't Know Where

You Are Going, You Will Probably End Up Somewhere Else.” That pretty much sums it up.

Q. What can a supervisor draw from his/her subordinates to improve leadership style?

A. The first thing is pretty obvious: Just listen. Fact is, we don't get anywhere close to tapping into the human capital that's available to us. It may be “policy” or “procedure” or “regulations,” or you name it. Most people will resonate with a leader who pays attention to communicating with them, and that implies two-way communication, by the way. If all you are doing is talking to your folks, then you may not be listening. I remember one corporate CEO who told me that his favorite time of the week was Thursday lunch. That was the day he had a “diagonal slice” lunch with his crew. He never knew who'd be invited, but it was four folks who represented management, staff, all the way down to the loading dock.

I also believe that most people fundamentally want to do well if they are treated with fairness and respect. If times are tough, trust me, they know it. And if you're committed to improving your leadership style, there's nothing like asking your folks what they'd like you to do more of, less of, or what you should continue. But don't ask if you're not willing to do something. Your leadership style will be unique to you, and the best leaders I've ever known are never satisfied that they have the “magic bullet.”

Q. What trends have you seen in your acquisition workforce students?

A. Behavioral science is not an oxymoron; there is a science to it. I'm finding that acquisition folks are most like scientists and engineers. They are more introverted,

and they tend to be more data-oriented. In many cases, they were not aware of this, and there is certainly nothing wrong with it. I would also say they are intellectually curious, very comfortable challenging dogma, unafraid to challenge the status quo, and a lot of fun to work with. My data set across the Air Force and the Army Acquisition world now exceeds 3,500 folks from GS-12 to GS-15, and since the Air Force has a substantial commissioned population, that number includes lieutenants up through colonels.

Q. Are there other key principles of leadership that you believe go hand in hand with being agile?

A. Before anything else, I think the key principle is character. I worked with Whirlpool some years ago, and Dave Whitwam, who was then CEO, used to say regularly, “There is no right way to do a wrong thing.”

There isn't much agility tied to character or values, but if something is wrong in the foundation, you'll eventually have trouble in the upper stories of your building. LTG Ted Bowlds (USAF, Ret.), former Commander, Electronic Systems Center, helps out with our Air Force acquisition programs. Ted says—and I think he's right—“There will never be a parade honoring acquisition professionals.” After five years working with their acquisition folks, and more than a year with the Army, there is little doubt that this enterprise faces massive challenges related to funding, regulatory, and oversight requirements. But it does an amazing job taking care of our Soldiers, Sailors, and Airmen. If tenacity counts for agility in the whipsaw world of budget challenges, then I think the acquisition world is pretty amazing right now. **?**



BETTER BUYING POWER 2.0

New incentives aim to expand the impact of 2010 initiative

by Ms. Margaret C. Roth and Ms. Susan L. Follett

More than two years after DOD's acquisition leadership launched a major push to ensure affordability and increase productivity in defense spending, the acquisition workforce has received new guidance that institutionalizes Better Buying Power (BBP) initiatives and lays new groundwork for additional efficiencies to deliver better value to the taxpayer and the warfighter.

Frank Kendall, Under Secretary of Defense for Acquisition, Technology, and Logistics, issued a memorandum to the Defense Acquisition Workforce on Nov. 13: *Better Buying Power 2.0: Continuing the Pursuit for Greater Efficiency and Productivity in Defense Spending*. Kendall's memo builds on a Sept. 14, 2010, memo, *Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in*

Defense Spending, issued by his predecessor, Dr. Ashton Carter.

"In these last two years, we've made significant strides, to include institutionalizing many of these initiatives," Kendall stated in his Nov. 13 memo. "We are making good progress; we have learned from our experience, but we still have much to accomplish."

As DOD's resources are increasingly constrained, he noted, it is important to "wring every possible cent of value for the warfighters we support from the dollars with which we are entrusted by the American taxpayers."

WHAT'S NEW IN BBP 2.0

BBP 2.0 encompasses 36 initiatives organized into seven focus areas, replacing 23 initiatives in five focus areas spelled out in the first iteration, known as BBP

1.0. Among the current focus areas is a new one aimed at improving the professionalism of the acquisition workforce. Kendall repeatedly has called for senior acquisition leaders to develop a better understanding of the nuances of various contract vehicles so that they can pick the appropriate type for a particular program.

"My view is that at the end of the day, the professionalism and the capability of the workforce and how it's supported, more than anything else, affects acquisition outcomes," he said at a Nov. 13 briefing session on the memo. "The people that actually administer our programs, that plan them, that execute them to work with industry are really central to our success."

The memo outlines four goals in the focus area of professionalism, including the establishment of higher standards for key



MUCH ACHIEVED, MUCH TO DO

Better Buying Power (BBP) 2.0 represents a management philosophy of continuous improvement in acquisition practices. Here, Frank Kendall, the Under Secretary of Defense for Acquisition, Technology, and Logistics, briefs members of the media Nov. 13 at the Pentagon about developments in DOD's BBP initiatives. (DOD photo by Glenn Fawcett)

leadership positions and stronger professional qualification requirements for all acquisition specialties. "Frankly, I think that there's no more important legacy than any of us as managers can have than to leave behind a stronger workforce than the one we inherited," Kendall said.

The focus area also includes a continued emphasis on the cost-consciousness of the workforce and more recognition of excellence in acquisition management. Kendall said, "Running a major program is like having a major command. ... It's a lot of responsibility. And people who get to that level and get to do that deserve a lot of recognition for what they do."

Also new to BBP 2.0 are efforts to reduce cycle times while ensuring sound investment decisions. Kendall expressed his dissatisfaction with current cycle times and noted that he's trying to determine what factors are causing delays in getting products to the field, including possibly the requirements process, testing guidelines, a risk-averse mindset, or a less agile industry.

His Nov. 13 memo also spells out new initiatives in the focus area of improving tradecraft in the acquisition of services. Contracting for services is "half of what we spend money on with contractors" and offers the greatest potential for cost

reduction, Kendall said. He noted that the acquisition community "started down the path of managing that more aggressively and effectively, but there's still a long way to go there."

BBP 2.0 recommends an increased role for small business, greater use of market research, and the use of requirements review boards and other internal controls, such as trip wires, to reduce service costs.

OTHER INITIATIVES

The six additional focus areas in BBP 2.0 are designed to ensure that essential warfighting capabilities are delivered by better managing acquisition costs within



A SOLID FOUNDATION

BBP 2.0 recommends an increased role for small business in contracting with the U.S. Armed Forces. At top, Randi Elder (center), a project manager with the Fort Irwin Office of the Army Corps of Engineers (USACE) Los Angeles District, briefs potential offerers Jan. 18, 2012,

about the Fort Irwin (CA) Replacement Hospital, shown in an artist's rendering. USACE awarded a contract in June to build the new facility to replace the Weed Army Community Hospital. (U.S. Army photos by Brooks Hubbard IV, USACE)



BUILDING ON SUCCESSES

DOD's BBP initiatives, launched in 2010, have produced notable acquisition successes, including the considerable savings that the Army achieved in the Stryker program by combining FY12 buys of 292 Double V-Hulls and 100 Nuclear Biological, Chemical Reconnaissance System (NBCRS) vehicles into a single contract. Here, Soldiers from the 95th

Chemical Company, 2nd Engineer Brigade conduct decontamination operations of Stryker NBCRS vehicles Aug. 23 at Landing Zone Ranger, Joint Base Elmendorf-Richardson, AK. (U.S. Army photo by Percy Jones, U.S. Army Alaska)

the constraints of a declining defense budget. This includes controlling costs through the product life cycle, incentivizing productivity and innovation in industry and government, and achieving affordable programs.

Key to achieving affordable programs is enforcing previously imposed caps, Kendall noted. Initiatives to provide affordability caps for unit production and sustainment costs were put in place under BBP 1.0, and BBP 2.0 emphasizes the role of senior leadership in identifying and halting programs that will not be

within capped levels unless trade-offs are implemented to reduce costs. "We have to discipline ourselves to actually enforce those caps and make people reduce their costs to stay within the numbers that are affordable," said Kendall.

The push in BBP 2.0 to control costs during execution continues BBP 1.0's focus on "should cost"—the concept that managers set cost targets below independent estimates and manage contracts with the goal of achieving those targets. "It's a new thing for our managers to start having targets they were

trying to realize as they executed their programs," Kendall noted.

"Doing this has raised the cost-consciousness of our workforce tremendously, and it's been paying dividends."

The Nov. 13 memo also includes initiatives to incentivize industry by aligning profitability more tightly with DOD goals and using the appropriate contract types. BBP 1.0 emphasized the use of fixed-price incentive contracts, and BBP 2.0 refines that guidance to emphasize the use of the appropriate



SAVING ON SERVICES

Services represent half of what DOD spends on contracts and offer the greatest potential for cost reduction. BBP 2.0 aims to continue and enhance the push for more aggressive and effective management of service contracts. Here, Afghan and USACE personnel clean, repair,

and service the 110-kilovolt main disconnect switch assembly at the Sangin Substation in Helmand province, Afghanistan, March 3, 2012. USACE awarded a contract to improve transmission lines and substations, including Sangin. (Photo courtesy of USACE Middle East District)

contracting vehicle for the product or services being acquired, along with better training of management and contracting personnel.

Additionally, DOD will reassess the way in which it provides industry incentives to ensure that they're as cost-effective as possible while achieving goals. "I'm a big

believer in effective incentives, and I'm also a believer that we haven't been as effective with incentives as we could be," said Kendall.

MORE WORK AHEAD

The guidance in BBP 2.0 is preliminary, subject to a two-month period of review and comment by industry and

government stakeholders. It will be followed by a more detailed memorandum that will outline the specific goals and requirements for each initiative included in the final version.

"As we move forward with BBP 2.0, let me reiterate that this represents a management philosophy of continuous



THE IMPORTANCE OF PROFESSIONALISM

The professionalism of the acquisition workforce is a new focus area in BBP 2.0, which calls it “the most important single factor in the performance of the Defense Acquisition System” and recommends more recognition for excellence in the workforce. Nicholas Emanuel (center), a contract specialist with the Afghanistan Engineer District – South earned the

Excellence in Mission Execution Award in the FY12 USACE Excellence in Contracting Awards. Emanuel, shown at work in Afghanistan Oct. 25, deployed from the New York District of USACE to serve in Kandahar. (U.S. Army photo by Jasmine Chopra-Delgadillo, USACE)

improvement in our acquisition practices,” Kendall stated. “Improving the productivity of all our contracted work, both products and services, is not an easy task that can be accomplished with a simple set of policy changes. It will require the professionalism and dedication I know I can expect from everyone in the workforce.”



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BRINGING AGILITY *to* AMMO

Changes to acquisition strategy
result in better buying power
and greater efficiency

*by Mr. Aaron Rappaport,
Mr. Tim Joens, and Mr. Ronald Rapka*

SUPPLYING MULTIPLE SERVICES

Project Manager Combat Ammunition Systems (PM CAS) procures conventional ammunition for other services as well as the Army. Its new multiple-award, Indefinite Delivery/Indefinite Quantity (IDIQ) contract structure allows PM CAS to compete individual requirements, minimize unit cost through competition, and increase quantity by encouraging vendors to reduce their proposed prices when submitting bids for each individual delivery order that is competitively solicited. Here, Pfc Luis Rivera, a Mortarman with 3rd Battalion, 2nd Marine Regiment, uses an 81 mm mortar during a training exercise aboard Marine Corps Base Camp Lejeune, NC, Aug. 14. (Photo by Cpl Timothy Solano, 2nd Marine Division)



As conventional ammunition demands rapidly increased because of Overseas Contingency Operations (OCO), a new acquisition strategy was needed to fulfill requirements from the field efficiently.

Faced with a rapid increase in demand for conventional ammunition and a diminishing stockpile, the Project Manager Combat Ammunition Systems (PM CAS) of Program Executive Office Ammunition (PEO Ammo) developed and implemented an agile approach to respond to the fast-changing OCO requirements. PM CAS is the life-cycle manager for all

tube-launched, indirect fire munitions (artillery and mortar) and mortar weapon systems for the Army's current and future forces. Under the PEO's Single Manager for Conventional Ammunition responsibilities, PM CAS procures conventional ammunition for other services as well as the Army.

The dramatically increased ammunition demands of U.S. Marine Corps and Army brigade combat team modularity and supplemental OCO funding, along with several urgent Foreign Military Sales (FMS) cases, were well beyond pre-OCO planned production requirements

for artillery and mortar items. These surging demands were quickly depleting the traditional five-year production contracts. In most cases, the entire five-year contract quantity was being procured within two years. This had an especially dramatic impact in the case of items produced by PEO Ammo's small business partners.

It was evident that the traditional acquisition approach was not meeting the warfighter's needs in this changing environment. The typical acquisition process involves lengthy preparation periods to solicit, evaluate, and award contracts, and the process consumes considerable

THE SUM OF MANY PARTS

Among the many types of ammunition for which PM CAS developed a multiple-award, IDIQ acquisition strategy were 105 mm ammunition components. Here, SPC Nathaneo Freeman completes the assembly of 105 mm artillery rounds by attaching fuses to the tips Aug. 24 at Fort Bragg, NC, where paratroopers of 2nd Battalion, 319th Airborne Field

Artillery Regiment, 2nd Brigade Combat Team, 82nd Airborne Division (2/82) conducted defensive live fire exercises in preparation for a Joint Readiness Training Center rotation in October. (U.S. Army photo courtesy of 2/82 Public Affairs)



upfront man-hours even before a single proposal is received from industry. Maximum flexibility was necessary to respond to emerging OCO requirements, as the Army's stockpile of mortar and artillery ammunition items was rapidly decreasing.

To streamline the acquisition process, an innovative solution was needed that would:

- Enhance competition.
- Minimize acquisition cycle time.
- Reduce man-hours and costs.

An efficient buying approach would, in fact, require a cultural change from our traditional processes.

AN INNOVATIVE STRATEGY

PM CAS reached out to the U.S. Army Contracting Command (ACC) buying offices, competition advocates, small business offices, and legal offices at Picatinny Arsenal, NJ, and Rock Island, IL, to collaborate in developing a single acquisition strategy that all offices could support. With the assistance and partnership of these organizations, an agile acquisition strategy was born.

The result: A multiple-award, Indefinite Delivery/Indefinite Quantity (IDIQ), best value, 100 percent small business set-aside, long-term (10-year) strategy was developed and implemented for recurring production of ammunition components. Although IDIQ contracting is not new, its implementation for the buying of ammunition was a major paradigm change from the traditional five-year approach (base year plus four one-year options).

Extensive market research identified all PM CAS ammunition component requirements that were eligible to be set aside for small businesses. This unique

approach enhanced small business participation by providing suppliers the opportunity to bid on only those items that they were capable of producing, marking a shift from normal

(RFPs): one from ACC – Rock Island and the other from ACC – New Jersey, located at Picatinny. Industry submitted 167 proposals; 68 IDIQ contracts have been awarded.



MEETING THE DEMAND FOR ARTILLERY

The increased ammunition demands of the U.S. Marine Corps and the Army, along with Foreign Military Sales, exceeded planned production requirements for artillery and mortar items, quickly depleting the traditional five-year production contracts. Here, 155 mm artillery rounds for the M777 howitzer await use by artillerymen of 2nd Battalion, 8th Field Artillery Regiment Oct. 25 during a live fire exercise at the Yukon Training Area near Eielson Air Force Base, AK. (U.S. Army photo by CPT John Farmer, 1st Stryker Brigade Combat Team, 25th Infantry Division)

procurement procedures whereby contractors were required to submit proposals on all items.

A single acquisition strategy was successfully implemented for the procurement of 53 artillery and mortar components totaling \$2.7 billion. It included significant contract flexibility to cover unplanned surge and FMS requirements. This strategy was executed by issuing only two Requests for Proposal

This approach eliminated the need for more than 100 separate market surveys, synopses, acquisition strategies, and RFPs, while enhancing small business participation and competition. The outcome of this innovative agile acquisition strategy was to establish a flexible, efficient buying approach that has been delivering cost-effective ammunition to the warfighter, offers fair opportunity to many small businesses, and will meet or exceed customers' required delivery dates for the next decade.

READY TO DEFEND

Awarding multiple IDIQ contracts to qualified small business producers reduces the risk of delinquent deliveries to the warfighter because quantities can be split among vendors, resulting in earlier deliveries. Here, Coalition force members prepare an M120 mortar system for sustainment training in Farah province, Afghanistan, Nov. 20. (U.S. Marine Corps photo by Sgt Pete Thibodeau)



ADDITIONAL APPLICATIONS

Following successful execution of this small business strategy, PM CAS used the same acquisition approach for other ammunition components restricted to the National Technology and Industrial Base. Some of the other items procured using this strategy included 60 mm and 81 mm Mortar High Explosive Load Assemble and Pack (LAP); 60 mm and 81 mm Mortar Full Range Practice Cartridge LAP; and 60 mm, 81 mm, and 120 mm Mortar Propelling Charges and 60 mm and 81 mm Mortar Ignition Cartridges. Multiple-award artillery items were 105 mm and 155 mm Projectile Metal Parts; 105mm Cartridge Cases; and Artillery Supplementary Charges and Primers.

This Better Buying Power approach could yield similar benefits for other DOD

organizations facing all or some of the challenges that PM CAS has confronted.

The new multiple-award IDIQ contract structure for the buying of ammunition allows PM CAS to compete individual requirements, minimize unit cost through competition, and increase quantity by encouraging vendors to reduce their proposed prices when submitting bids for each individual delivery order that is competitively solicited.

Additionally, an inherent risk of the previous strategy was awarding one contract per end item, increasing the chance of a single-point failure. With multiple awardees, the risk of single-point failures is eliminated. Awarding multiple IDIQ contracts to qualified small business producers also reduces the risk of delinquent deliveries to the warfighter

because quantities can be split among vendors, resulting in earlier deliveries. This approach makes it possible to respond to urgent requirements by fielding high-quality ammunition to DOD and NATO allies for missions worldwide, while offering fair opportunity to all contractors with basic contracts for the items.

MUTUAL BENEFITS

After the IDIQ contracts are awarded, brief contemplation letters are issued. Ample time is allowed for contractors to respond with a single-page proposal rather than the traditional lengthy proposal.

This simplified approach empowers a junior-level member of the acquisition workforce to solicit, evaluate, and award the requirement with limited training and on-the-job experience. It also

affords acquisition program managers the opportunity to dedicate manpower to more complex procurements and increases the throughput of work. Further, this approach decreases the administrative burden on contractors responding to government requirements, which is especially important in the small business arena, where contractors have limited resources and expertise to develop lengthy proposals.

Under this approach, the average time from receipt of a requirement to delivery order award has been reduced to less than 45-60 days. Under the old acquisition strategy, historical cycle times were 18-24 months. It is estimated that this strategy will result in a government labor cost avoidance of approximately \$60 million over the 10-year contract life.

Most of the contemplation letters issued have resulted in effective competition and end-item savings. Individual component unit price reductions have ranged from 3 percent to 51 percent, with most of the reductions in the 11-18 percent range. For several components, this approach has resulted in nonincumbent and nonhistorical vendors winning delivery orders, thereby increasing the supplier base. Use of split awards (two or more contracts) under this IDIQ approach has created a very competitive environment, resulting in reduced end-item costs.

Two industry days introduced this innovative approach to the small business community. Draft RFPs were posted publicly; the comments received were considered in the resulting RFPs. Flexibility and increased contracting opportunities were offered to industry through solicitations with multiple line items, allowing contractors to pick and choose items on which to bid.

Numerous awards to new producers, as well as significant savings in industry's costs of preparing proposals, have proven this unique strategy to be effective for our small business partners. It strengthened the commercial and defense industrial base by allowing commercial contractors who were not past producers of ammunition items to participate on those items that fit their capabilities.

CONCLUSION

This acquisition strategy materialized through the combined effort of several organizations spread across multiple commands supporting PM CAS and PEO Ammo. This cross-fertilization was the catalyst behind cultural change that created unique opportunities to select best practices while streamlining acquisition processes, thus maximizing opportunities for small business and reducing single-point failures.

Small businesses have received 68 separate contract awards for 53 items. Under the old process of awarding a single end-item contract, small businesses would have received only 29 awards. These contracting dollars also contribute to the Army's small business goals. Many small businesses that previously had not produced ammunition-related items are now delivering items supporting PM CAS.

Industry responses to contemplation letters have been overwhelmingly strong, demonstrating that this strategy is meeting the guidance of the Under Secretary of Defense for Acquisition, Technology, and Logistics.

In addition, PM CAS received a 2012 David Packard Excellence in Acquisition Award for this IDIQ small business set-aside strategy. The Packard Award recognizes DOD civilian and/or military organizations, groups, or teams who have

made highly significant contributions that demonstrated exemplary innovation and best acquisition practices, reflecting achievements that exemplify goals and objectives established for furthering life-cycle cost reduction and/or acquisition excellence in DOD.

For more information, see the Office of Federal Procurement Policy guidance Best Practices for Multiple Award Task and Delivery Order Contracting at http://georgewbush-whitehouse.archives.gov/omb/procurement/interagency_acq/best_practices_multiple_award_task_contracting.html.

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CONSERVING CAPABILITIES

AMC's Public-Private Partnership program aims to preserve the Organic Industrial Base as operations shift to sustainment and workload requirements decrease

by Mr. James Dwyer

In upstate New York, three generations of the Frament family call Watervliet Arsenal home. From an industrial management specialist to an environmental protection specialist, the family is part of a storied workforce that spans almost 200 years. Today, the employees at Watervliet Arsenal are relied upon to produce the most advanced, high-tech, high-powered weaponry for cannons, howitzers, and mortars.

Halfway across the country at Red River Army Depot in Texas, employees are making history. The High Mobility Multipurpose Wheeled Vehicle recapitalization facility is able to produce more than 40 vehicles per day, up from just 12 in 2004.

Watervliet Arsenal and Red River Army Depot are part of the U.S. Army Materiel

Command's (AMC's) Organic Industrial Base. Made up of arsenals, depots, and ammunition plants across the Nation (see Figure 1 on Page 162), the Organic Industrial Base has facilities, manufacturing capabilities, and thousands of highly skilled, experienced professionals who provide combat readiness on a daily basis. These skilled craftsmen are uniquely qualified, one-of-a-kind, second- and third-generation industrial artisans.

After a decade of supporting a high operational and deployment tempo, AMC and its Organic Industrial Base are in transition. As the command shifts from supporting an Army at war to refitting and sustaining that Army, production, storage, and workload requirements at its Organic Industrial Base facilities are expected to decrease. Preserving these 20-plus facilities and their workforces,

considered a national treasure because they provide capabilities that in many cases do not exist elsewhere in the United States, is a top priority for AMC's leadership.

With this shift in AMC's focus and industrial base workloads, an enormous opportunity exists for the private sector. Through the Public-Private Partnership (P3) program, companies can take advantage of the critical capabilities and skill sets developed over the past decade by the Army's Organic Industrial Base. By bringing in new opportunities and business for development, the Army can maintain support critical to the warfighter.

HOW THE PROGRAM WORKS

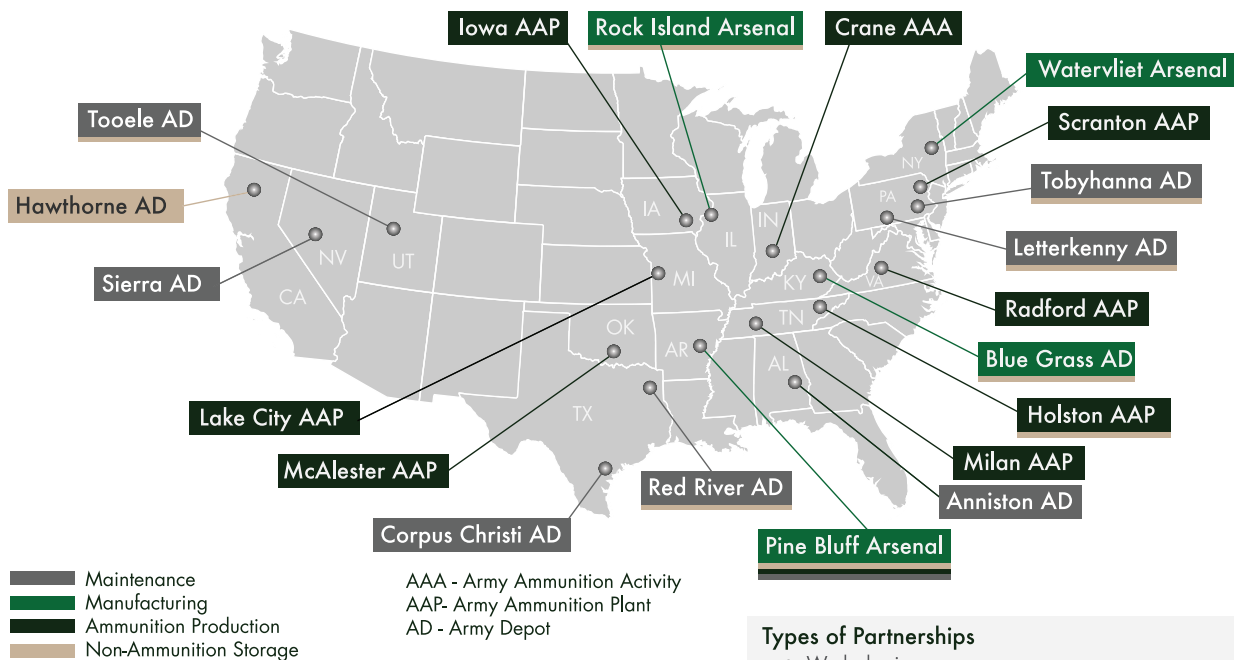
P3 is an agreement between an Army facility and one or more private industry entities to perform work or to use the



LEADERSHIP PRIORITY

The Public-Private Partnership (P3) program of the U.S. Army Materiel Command (AMC) has existed for more than 16 years, but is increasingly visible now because of its importance to sustaining the Organic Industrial Base. Here, GEN Dennis L. Via, AMC Commanding General, sees a 155 mm howitzer tube about to be forged during a visit Oct. 2 to Watervliet Arsenal, NY, where he was accompanied by Arsenal Deputy Commander Ed McCarthy (right). (Photo by Watervliet Arsenal Public Affairs)

FIGURE 1



PARTNERSHIP STATUTORY PROVISIONS

10 U.S. Code (USC) 2208(j): Permits depots financed through working capital funds to sell articles and services outside DOD if the purchaser is fulfilling a DOD contract and the contract is awarded pursuant to a public-private competition.

10 USC 2474: Requires the military departments to designate depot-level maintenance activities as centers of industrial and technical excellence, authorizes and encourages public-private partnerships, permits performance of work-related to depot-level maintenance core competencies, permits use of facilities and equipment, and permits sales proceeds for public-private partnerships to be credited to depot accounts.

10 USC 2539b: Authorizes the sale of services for testing materials, equipment models, computer software, and other items.

10 USC 2563: Authorizes the sale of articles or services outside DOD (excluding those authorized under 10 USC 4543) under specified conditions.

10 USC 2667: Allows leasing of non-excess facilities and equipment.

10 USC 2770: Authorizes sales of articles and services to U.S. companies for incorporation in end items to be sold to a friendly country or international organization under certain conditions.

10 USC 4543: Authorizes Army industrial facilities that manufacture cannons, gun mounts, and other items to sell articles or services out of DOD under specified conditions.

10 USC 4544: Authorizes Army working capital-funded industrial facilities to enter into contracts or other cooperative arrangements with non-Army entities to carry out a variety of activities under specified conditions.

Types of Partnerships

- Work sharing.
- Teaming.
- Direct sales.
- Armament Retooling and Manufacturing Support.
- Facility use.
- Facility equipment.
- Lease.
- Arsenal Support Program Initiative.

Manufacturing Processes

- Heavy and light machining.
- Seven-axis machining centers.
- Heat treatment, plating, and finishes.
- Guided boring and thick wall cylinders.
- Product design, development, engineering, and fabrication.
- Foundry and rotary forging.

Capabilities

- Overhaul, repair, and remanufacture.
 - Ground vehicles and helicopters.
 - Radios, radars, and other electronic items.
 - Chemical and biological protective equipment.
- Tool, die, and gauge development and production.
- Wood pallet manufacturing.
- Explosive and propellant production.
- Metallurgy.
- Storage and handling - controlled environment.
- Automated testing.
- Firing and test ranges.
- Railcar storage.
- Precision bearing analysis.

Public-private partnerships have proven to be win-win situations for the Army installations and their industry partners.

AMC INDUSTRIAL CAPABILITIES

The Army's Organic Industrial Base comprises 20-plus facilities—arsenals, depots, and ammunition plants—and their workforces, considered a national treasure because they provide capabilities that in many cases do not exist elsewhere in the United States.

Army's facilities and equipment. While the program has existed for more than 16 years, it is growing in visibility and becoming a key strategy to sustain the industrial base.

The goal of P3 is to fully leverage the power of partnerships to enhance and preserve AMC's unique organic industrial facilities, processes such as welding and testing, and personnel, while offering private industry access to those capabilities for mutual benefit. Partnership arrangements result in more effective fulfillment of Army contracts by private industry, at lower cost and reduced risk to

industry partners. They also sustain production lines and other systems, as well as the critical skill sets of our Nation's industrial artisans.

In executing partnerships, the Army Industrial Base depots, arsenals, plants, and centers provide services that are either not available in the private sector or not cost-effective for private industry to provide. Partnerships can take many forms, including:

- Teaming or work sharing, which incorporates a combination of Army depot and contractor facilities and employees

to produce or repair systems, equipment, and components. For example, Raytheon Co. and McAlester Army Ammunition Plant, OK, partnered in a work-sharing agreement in 2011 to produce Joint Standoff Weapons and the GPS-guided Excalibur projectiles. McAlester provided the trained workforce, while Raytheon provided the testing and inspection.

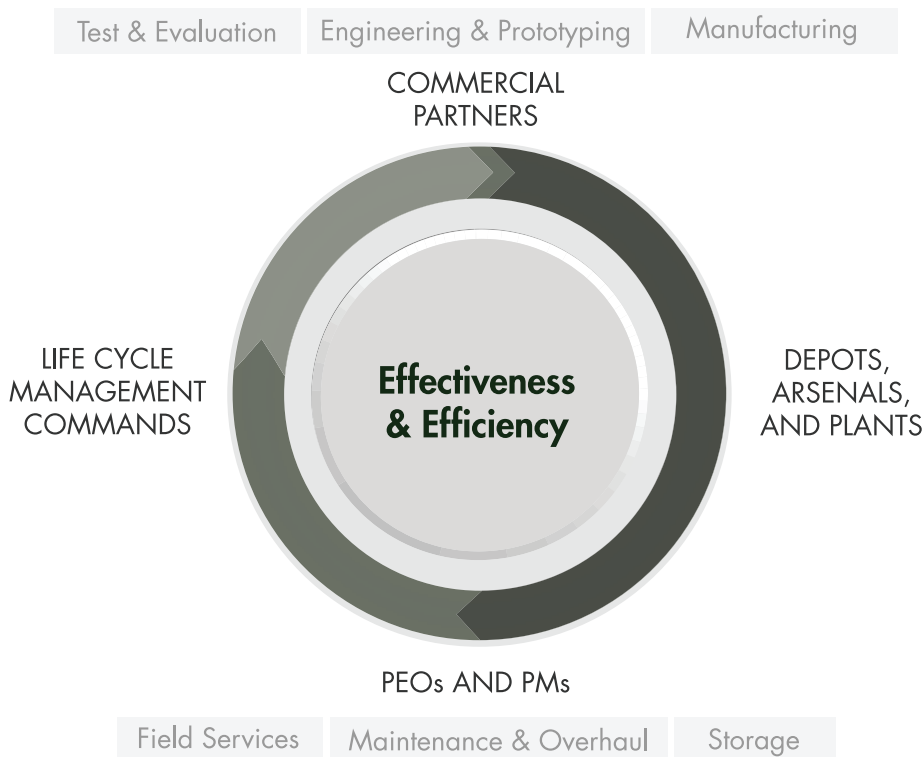
- Purchasing and direct sales, whereby private-sector firms purchase articles or services from an Army installation. For example, starting in 2011, Honeywell International Inc. purchased services from Corpus Christi Army Depot, TX,

A DRIVING FORCE

Red River Army Depot (RRAD), TX, is the Secretary of the Army Center of Industrial and Technical Excellence for the High Mobility Multipurpose Wheeled Vehicle (HMMWV) as well as other tactical and combat vehicles. Here, an employee works to rebuild a HMMWV at RRAD, whose recapitalization facility can produce more than 40 vehicles per day. (U.S. Army photo)



FIGURE 2



PARTNERS IN EFFICIENCY

The P3 program improves operational efficiencies and lowers the cost of products and services by maximizing output and potential. In FY11, AMC had P3 partnerships with more than 350 businesses, generating more than \$370 million in revenue and supporting 3,500 government and private industry jobs.

- to repair and test gears and seals for weapon systems.
- Leasing, whereby firms lease facilities and install their own equipment, or lease facilities and depot-owned equipment to produce goods and services for government or commercial customers. For example, Safety Management Services Inc. (SMS), an internationally recognized corporation that provides a variety of risk management services to commercial clients and government agencies, began a partnership with Tooele Army Depot, UT, in 2009 to conduct product explosive sensitivity

and reactivity testing at their facilities. SMS uses the depot's test site for about 30 weeks out of the year.

BENEFITS TO INDUSTRY

The P3 program benefits industry in several unique ways. It facilitates private industry access to U.S. Army Centers of Industrial and Technical Excellence and their advanced-technology equipment. Industry can take advantage of opportunities at places like Tooele Army Depot, which owns and operates a fully equipped machine shop with water jet, electro-discharge, and milling machines; or Blue

Grass Army Depot, KY, with more than 1,200 structures including igloos, supply warehouses, maintenance buildings, and munition sheds.

Industry can also take advantage of the diversified, highly skilled, and deployable workforce. Red River Army Depot has more than 3,000 multiskilled government employees who have technical experience and capabilities including the design, fabrication, and manufacturing of a wide variety of items, from specialty parts to unique prototype weapon systems and vehicles. And as more industry partners enter the unmanned aerial vehicle marketplace, the workforce at Corpus Christi Army Depot or Tobyhanna Army Depot, PA, can provide repair and maintenance using methodologies honed by Lean Six Sigma initiatives.

Finally, industry can protect its bottom line by using established facilities equipped with modern tooling and manned with trained and ready workers, rather than constructing new plants or training new personnel. In return, the Army improves operational efficiencies and lowers the cost of products and services by maximizing output and potential. (See Figure 2.)

CONCLUSION

Partnerships generate significant revenue and jobs for the Army, leading directly to sustainment and expansion of organic industrial capabilities. In FY11, AMC had P3 partnerships with more than 350 businesses, generating more than \$370 million in revenue and supporting 3,500 government and private industry jobs.

As the transition from combat to sustainment slows the operational tempo at Industrial Base facilities, opportunities for public-private partnerships will grow considerably. AMC is in the process

THE GOAL OF P3 IS TO FULLY LEVERAGE THE POWER OF PARTNERSHIPS TO ENHANCE AND PRESERVE AMC'S UNIQUE ORGANIC INDUSTRIAL FACILITIES, PROCESSES SUCH AS WELDING AND TESTING, AND PERSONNEL, WHILE OFFERING PRIVATE INDUSTRY ACCESS TO THOSE CAPABILITIES FOR MUTUAL BENEFIT.



MACHINING MORTARS

Watervliet Arsenal, NY, produces advanced, high-tech, high-powered weaponry for cannons, howitzers, and mortars. Pictured are newly machined 120mm mortar baseplates. (Photo by Watervliet Arsenal Public Affairs)

of developing a comprehensive strategic approach to business development to maximize those opportunities. Part of the plan includes leveraging major

commercial trade shows, where business decisions are often made, for industries such as automotive and heavy machinery.

The goal is to increase P3s steadily, at the same rate as U.S. economic growth, and ultimately to drive enough partnerships to maximize the capacity at each of the industrial base arsenals, depots, and plants. This growth is necessary for the U.S. Army to sustain the critical skills and capabilities it needs to maintain readiness for future operations.

For more information about the P3 program or how industry can partner with an AMC depot, arsenal, or ammunition plant, go to www.amc.army.mil/amc/partnership_opportunities.html or contact the AMC P3 program manager at 256-450-7128.

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COMMENTARY



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

THE SUM OF MANY SUCCESSES

Army Acquisition ‘changes the paradigm’ by
harvesting lessons learned to improve the process



TIME-TESTED, STILL EVOLVING

The Army is preparing to upgrade the battle-tested Abrams tank, primarily to improve space, weight, power, and cooling capacity and to prepare the Abrams to host next-generation electronics and networking technologies. Phase 1 of the Abrams upgrade is underway, with initial production slated for FY17. Here, an M1A2 System Enhancement Package V2 Abrams Main Battle Tank fires its 120 mm main gun Sept. 6 during a Table VI tank gunnery at the Udairi Range Complex near Camp Buehring, Kuwait. (U.S. Army photo by SPC Derrick Ramey, 3rd Brigade Combat Team, 3rd Infantry Division Public Affairs)

I'd like to begin by recognizing the dedication and sacrifice of our Soldiers serving on the front lines of freedom around the world in more than 160 countries. It is our Soldiers' courage and commitment that inspire us, the Army Acquisition team, to provide them with the world's best equipment and capability.

It is important to remember this and to build upon our many successes, because some of you may have heard the myth espoused by some critics who claim that Army Acquisition has failed to deliver since the "Big Five" systems of the 1980s. It is important for us to recognize that any accurate assessment of recent Army acquisition achievements would reveal instantly the indisputable facts verifying that this assertion is simply not true.

Army Acquisition has not only succeeded in developing and delivering thousands of systems, platforms, urgent capabilities, and individual items of equipment over the past several years, but we've also managed to effectively "change the paradigm" of acquisition by harvesting lessons learned and greatly improving the acquisition process. With key partners across the U.S. Army Training and Doctrine Command, the U.S. Army Materiel Command, and the Army G-3 and G-8, we have collectively made tremendous progress to improve key processes and deliver capability. But we have much more work to do.

Although there are far too many crucial acquisition successes to mention at one time, I'd like to highlight a few instances wherein Army Acquisition delivered critical capability to our Soldiers in harm's way.

ACQUISITION SUCCESSES

Our successes span the complete range of capability, from the development



and delivery of thousands of unmanned aircraft systems (UAS) to improved intelligence, surveillance, and reconnaissance in theater, to individual protective items for dismounted units, such as body armor, flame-resistant uniforms, and pelvic protection gear, to larger platforms such as the survivability-enhancing Stryker Double-V Hull (DVH) vehicles.

In fact, as of Dec. 3, 683 Stryker DVHs (of the total requirement for 789) had been produced and delivered, and all new production was slated to be complete by Jan. 1. The Stryker DVH is a newly configured platform engineered for increased Soldier protection against improvised explosive devices, roadside bombs, and other threats. More than 490 Stryker DVHs have been fielded in Afghanistan.

UAS is an area of exponential growth and acquisition success that continues to make

STANDING UP FOR THE SOLDIER

Army Acquisition continues to provide critical capabilities to Soldiers in harm's way, including individual protective items such as body armor, flame-resistant uniforms, and pelvic protection gear. Here, CPT Jacob Tiernan, logistics officer with Security Forces Assistance Team 11, provides security while entering Loy Kalay village during *Operation Southern Strike IV*, Kandahar province, Afghanistan, Nov. 15. (U.S. Army photo by 1LT Veronica Aguila, 117th Mobile Public Affairs Detachment (MPAD) (Hawaii))

an enormous impact on the war effort; at the beginning of *Operations Enduring Freedom* and *Iraqi Freedom*, the Army managed only a handful of UAS. Now it manages a fleet of 6,000 UAS, ranging from small handheld capabilities for dismounted units, such as the Puma and Raven, to larger, medium-altitude systems such as the Gray Eagle. Adding eyes over a hill or beyond the horizon, being able to beam back video feeds in real time, continues to be a pivotal technology.

The Army has also succeeded in engineering and delivering thousands of new, extremely effective M855A1 Enhanced Performance Rounds (EPRs). The EPR 5.56 mm ammo dramatically improves hard target performance while providing dependable, consistent effects against soft targets. The M855A1 is an environmentally friendly, lead-free projectile.

We have also delivered the Accelerated Precision Mortar Initiative (APMI), a 120 mm GPS-guided mortar cartridge that provides the maneuver task force commander with precision-strike mortar capability. The APMI cartridge, used in theater since April 2011, is exceeding its requirement to strike targets within a 10-meter Circular Error Probable. Its accuracy enables a commander to defeat a target with precision while reducing the



danger of collateral damage. APMI is currently in use by all dismounted 120 mm mortar platoons in theater. Another precision munition is Excalibur, a 155 mm, GPS-guided artillery round that truly puts “steel on target,” with more than 600 rounds fired in combat.

The network is the most important Army program, and Army Acquisition has made great strides in developing networking technologies, information technology systems, and electronics that bring important new capability to our Soldiers. For instance, the Army is now fielding Distributed Common Ground Station – Army (DCGS-A), a large, integrated data repository that integrates, accumulates, and stores real-time, combat-relevant intelligence information from more than 500 data sources. DCGS-A incorporates data from a wide array of sensors including space-based sensors, geospatial information, and signal and human intelligence, among others. DCGS-A is an innovative enterprise information system that reduces the Army’s intelligence data processing systems from nine separate programs to one common system.

NEXT STEP: SUSTAINMENT

Our acquisition strategy inspires us not only to develop and field new capabilities but also to sustain and upgrade some of

ENHANCING SOLDIER SURVIVABILITY

Army Acquisition has successfully delivered urgently needed capabilities, such as the Double-V Hull (DVH) Stryker vehicles, to troops in Afghanistan to improve protection against improvised explosive devices, roadside bombs, and other threats. Here, Coalition and Afghan security forces operate M1126 Stryker Infantry Carrier Vehicles Aug. 12 during an operation to arrest a Taliban attack coordinator in Kandahar province, Afghanistan. Most of the Strykers in Kandahar are the DVH variant. (DOD photo by SPC Kwadwo Frimpong)

SKY-HIGH EYES

The growth of unmanned aircraft systems (UAS) has had a profound impact on the war effort. In 2001, the Army had only a handful of UAS, but now manages a fleet of 6,000. These range from small handheld capabilities for dismounted units, such as the Puma and Raven, to larger, medium-altitude systems such as the Gray Eagle. Here, SGT Michael Tackett of the 3rd Brigade Combat Team, 25th Infantry Division (3/25) launches a Puma, a Tier I Small Unmanned Aerial Vehicle, during training Nov. 14 at Schofield Barracks, HI. (U.S. Army photo by SGT Hillary Rustine, 3/25 Public Affairs)



our essential battle-tested platforms. For instance, we are making progress with upgrades called Engineering Change Proposals (ECPs) for our Abrams, Bradley, and Stryker platforms. These ECP upgrades are geared primarily toward improving space, weight, power, and cooling capacity and preparing the vehicle platforms to host next-generation electronics and networking technologies.

Our Abrams ECP, for example, consists of a new armor package, an ammunition data link connecting the fire control system to the main gun, and an auxiliary power unit designed to provide more onboard power, among other things.

Phase 1 of the Abrams ECP is underway, with initial production slated for FY17.

CONCLUSION

Beyond these multiple successes, Army Acquisition has delivered many others: the Mine Resistant Ambush Protected (MRAP) vehicle and MRAP All-Terrain Vehicle; M4A1 carbine with more than 60 improvements; the world's best body armor, with nine improvements since this war began; aviation modernization, pelvic protection; new combat uniforms; XM25 precision weapon, nicknamed "the Punisher" by Soldiers in combat; and enhanced optics. The list goes on and on!

So, in a further attempt to dispel the myth that Army Acquisition can't deliver, the facts clearly speak for themselves. I am proud of your service and the tremendous results of your efforts. When you hear someone attempting to perpetuate a fact-free myth, I encourage you to ensure that they know the facts and the truth.

I am thankful that there are acquisition professionals across our Army who work incredibly hard to deliver capabilities to warfighters. You continue to make a difference and uphold that sacred trust with our Soldiers that we will never let them down!

DRAWING A BEAD ON IMPROVEMENTS

Soldiers continue to receive new and better gear to help them win on the battlefield, including the M4A1 carbine, with more than 60 improvements. Here, SPC Jessie Johnivan and SPC Kevin Conklin, paratroopers with 2nd Battalion, 505th Parachute Infantry Regiment, 82nd Airborne Division, pull security Aug. 29 on a rooftop in the village of Shituri, Afghanistan. (U.S. Army photo by SPC Alex Amen, 115th MPAD)



BACK *to the* BASICS IN LOGISTICS

As defense spending is reduced, the author argues a need for the force to rebuild a technical knowledge base before skills are lost

by BG Steven A. Shapiro

In this time of diminishing resources, senior logistics leaders need to coach, teach, and mentor subordinates on the technical basics of the profession. If we do not, the Army may lose a set of skills developed over decades that will be critical in the next several years—a skill set that exists only in a cadre of people, who are approaching retirement.

The last decade of war has seen the culture of our logistics force transform dramatically. We have a generation of sustainment leaders with more combat experience than most other generations, yet we have sacrificed technical expertise because of the uniqueness of the current fight. That technical expertise, hard fought and reinforced by generations of senior warrant officers, NCOs, and DA civilians, must not perish. This expertise must form the nucleus of the profession of arms for logisticians.

IN YEARS PAST

Much of the technical knowledge that I have learned during my 27-year career has come from subordinates. One of my earliest memories of being a second lieutenant is that of the senior warrant officer in the battalion throwing an Army regulation at me and telling me to research something. I did not know it then, but he was training and mentoring me in his own way—technical mentorship. He had experienced the post-Vietnam War Army, and this was his way of ensuring that Soldiers like me got the

technical knowledge to care for his Army in the future. As senior logisticians, we must ensure that we do the same for the next generation of logisticians.

It is easy to recognize the importance of tactical proficiency. For example, no one can deny the value of Soldiers experienced in conducting logistics convoys under fire. However, many junior logisticians do not understand that being technically proficient is just as important.

THE RECENT FIGHT

Since 9/11, Logistics Corps Soldiers have been required to operate outside of their core competencies in many ways. As Soldiers, we have accepted this, but it has contributed to the eroding of our technical competence. We have relied heavily on the Logistics Civil Augmentation Program (LOGCAP) to provide most of our support structure at large forward operating bases and even at some of our combat outposts (COPs) in both Iraq and Afghanistan. LOGCAP performs many functions, such as retail and wholesale fuel farms, supply support activities, dining facility operations, and Arrival/Departure Airfield Control Group operations.

As a result of the reliance on LOGCAP, many logistics Soldiers have been available to function outside their military occupational

LOGISTICS PROFESSIONAL

As the only NCO in his platoon other than his platoon sergeant, SGT Brandon Cleary, a squad leader in the 296th Brigade Support Battalion's Field Logistics Element (FLE), shoulders multiple duties. He is responsible for the physical security, supply loading, maintenance, planning, and navigation of convoy logistic patrols for the FLE, which supports the 1st Battalion, 23d Infantry Regiment out of Forward Operating Base Zangabad, Afghanistan. "If we weren't here, those guys wouldn't be getting food, water, ammunition, or any other supplies," Cleary says. Here, he directs a truck preparing to move containers during a convoy logistics patrol Nov. 4 in Panjwai, Kandahar province. (U.S. Army photo by SPC Nevada Jack Smith, 117th Mobile Public Affairs Detachment (MPAD) (Hawaii))





TRANSPORT DUTY

Since 9/11, Logistics Corps Soldiers have been required to operate outside of their core competencies. Here, PFC Shawn Crofutt, a quartermaster and chemical equipment repair specialist for Task Force (TF) Guns, 1st Air Cavalry Brigade (ACB), 1st Cavalry Division, returns to his forward operating base Jan. 11, 2012, after transporting a Soldier to a

nearby base in Afghanistan. TF Guns, a ground maintenance platoon, has regularly performed convoy missions outside its base to transport personnel, supplies, and equipment, a role traditionally held by combat arms troopers. (U.S. Army photo by SGT Richard Wrigley, 1st ACB Public Affairs)

specialties (MOSs) to fill gaps identified by commanders. For instance, petroleum supply and maintenance companies have been operating as convoy security companies, providing security to contracted host-nation trucks rather than operating fuel points or maintenance shops.

Every day, I see examples of our junior leaders relying on contractors for logistics missions that will be theirs in the coming years. This erodes not only the Soldiers' technical abilities but also the ability of

our junior leaders to lead from a technical perspective. We have to stem the tide on this now, before it becomes irreversible.

TECHNICAL MENTORSHIP GAPS

Even when our deployed Soldiers are performing their MOSs on a daily basis, they are often hampered by a lack of nearby senior NCOs and warrant officers to provide mentorship. Most of the COPs in Regional Command East are dispersed throughout several mountain

ranges and are accessible only by air or poor roads. Most have only a handful of junior logisticians to provide support, because of the dispersion of each forward support company.

For instance, most of the COPs are supported by only one food service specialist (MOS 92G) in the rank of specialist or private first class. That junior Soldier runs an expeditionary TRICON kitchen system by himself, often without visits from food service NCOs for months at a time

because of geographic challenges. This Soldier operates on limited experience without the benefit of having a mentor on hand to provide technical guidance.

BACK TO BASICS

We must take steps now, such as reading, understanding, and complying with regulations, and creating mentoring relationships, to stop the erosion of our technical competencies. In the absence of such measures, the next generation of senior leaders may lack the requisite technical knowledge to lead our Logistics Corps. We now hear the call for “back to basics” from our senior leaders, and I believe the timing is spot-on.

In many instances, the “basics” for logisticians means reading and following regulations and standard operating procedures and doing things by the book. The keepers of these basics are our senior warrant officers, NCOs, and DA civilians who grew up in an Army with Inspector General and other command inspections.

I was raised by a group of warrant officers, NCOs, and DA civilians who knew their trade. The warrant officers made me read the Army regulations before I asked them questions. In this way, they made sure all of my decisions were based on a true requirement. If the regulations did not support what needed to be done, they knew where to go for an exception to policy. They did not fly by the seat of their pants.

The supply sergeants and motor sergeants were hardliners. If it was not in black and white, it was not worth talking about. Verbal (or email) requests were not accepted for anything. Stock numbers and document numbers were mandatory. I was never allowed to just do what I wanted; I had to sign for everything. In this time of diminishing budgets, we



ON THEIR OWN

Most combat outposts in Afghanistan, dispersed over rough terrain and difficult to reach, are supported by only one food service specialist, a junior Soldier running an expeditionary TRICON kitchen system by himself, often without visits from food service NCOs for months at a time. Here, SPC Curtis Bess, a food service operations specialist assigned to the 25th Brigade Support Battalion, 1st Stryker Brigade Combat Team, 25th Infantry Division, prepares the grill Jan. 2, 2012, before feeding Soldiers at Combat Outpost Lion in southern Afghanistan. (U.S. Army photo by SSG Nazly Confesor, 319th MPAD)

must get back to adhering to regulations, and we must train our subordinates to do the same.

I now see this type of mentoring happening regularly when dealing with the senior logisticians on the U.S. Army Europe staff and in its formations. I see chief warrant officer 5s and senior DA civilians mentoring junior warrant officers on Property Book Unit Supply Enhanced operations and the transition from left-behind equipment to the unit-maintained equipment program.

We need to encourage and formalize this mentoring process and make it a priority. We need to get back to these standards, because we cannot afford to continue business as usual. I believe that empowering the warrant officers, NCOs, and DA civilians who run the technical aspects of our Army is the best way to get there. When we identify mid-level leaders who are not ready, we need our senior warrant officers and NCOs to prepare those

leaders through professional development programs and by coaching and mentoring them. If we do not, we are in danger of losing skills developed over decades, which are needed to get through the austere times ahead.

THE WAY AHEAD

Leaders can help bridge the gap to get back to basics in the following ways:

- First, make technical mentorship a priority. This is the best way to make sure the next generation of leaders understands their trade. Some of this may take the form of “tough love”—that is OK.
- Read, understand, and discuss Army regulations, unit standard operating procedures, and other essential documents. This should form part of your professional reading.
- Train and empower mid-level managers. They are tomorrow’s future logistics leaders.
- Do not make your surroundings a “zero



A NEW GENERATION

With time-honored technical logistics skills residing in a cadre of leaders who are approaching retirement, senior leaders need to coach, teach, and mentor subordinates on the basics of the profession as they rise in

the ranks. Here, the 113th Sustainment Brigade hosts an NCO induction ceremony at Camp Arifjan, Kuwait, June 7 for 63 new sergeants. (U.S. Army photo by MAJ Matthew Devivo, 113th Sustainment Brigade)

defect” area. Underwrite your junior leaders and technicians, making them informal leaders among their peers.

- Take responsibility for your footprint. Too often we find excess in somebody’s footprint that they claim is not theirs. If it happens in your battlespace, it is your responsibility, even with logistics.
- Take control of Global Combat Support System – Army fielding for your organization. Do not leave this to the product manager.
- Own your logistics data, because it is one of the Army’s most critical logistics assets.
- Use the Standard Army Management Information System the way it was designed to be used. If you are unsure about its operation, break out the user’s manual or ask a senior technician.
- Find out what you need to do to make

the Army audit-ready by 2017.

- Check on the Soldiers who are spending the Army’s money. They need your guidance.
- Reestablish maintenance “shootouts” as we enter the unit-maintained equipment program. Running these forums is a lost art in the greater Army. The lack of a materiel management command at the division, corps, and theater levels will make this hard, but it is worth it.
- Consider making motor stables a regimented process. It may sound old-fashioned, but it has worked in the past.
- Do your best to work field service representatives out of a job. They won’t be around forever.
- And finally, get ready for unit-maintained equipment. It’s coming.

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350+ SYSTEMS

18 PRODUCT OFFICES

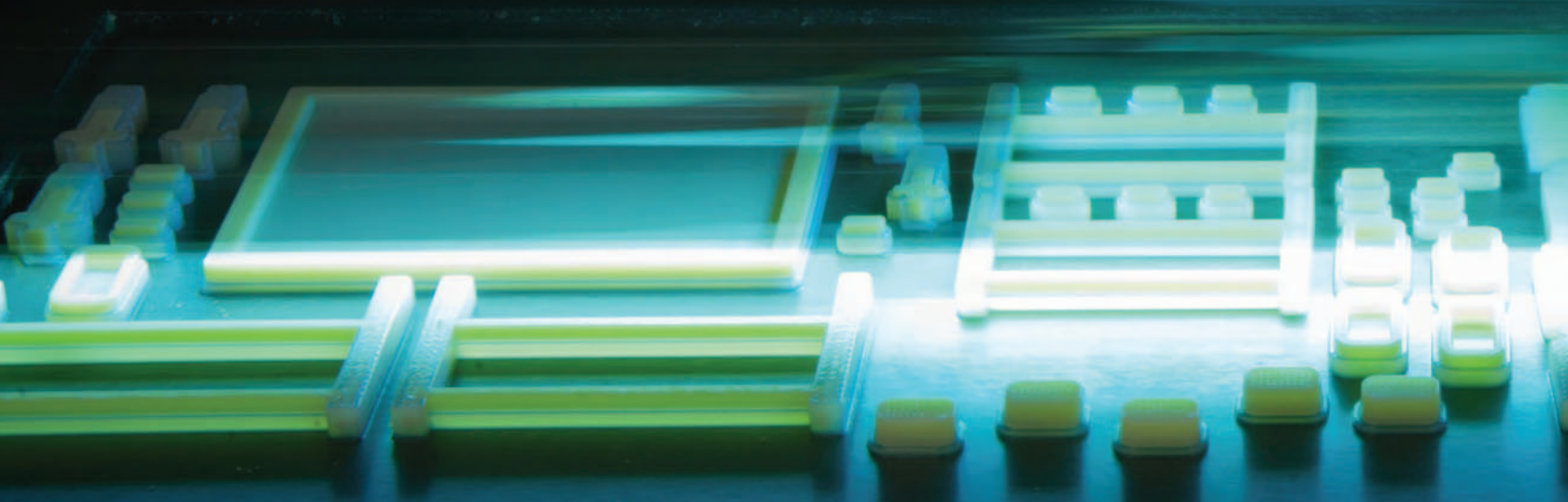
4 PROJECT MANAGEMENT OFFICES

1 CUSTOMER



**SUPPORTING OUR JOINT WARFIGHTER,
FIRST TO THE FIELD... LAST TO LEAVE**

FROM CONCEPT *to* REALITY



EXPANDING THE POSSIBILITIES

Army researchers can use 3-D printers in conjunction with laser scanning to reverse-engineer practically anything. For example, an Army technician scans part of a protective mask; as the laser passes over every square millimeter of the object, the computer plots 3-D points in its memory. On screen, the mask comes into view immediately as a 3-D object. Sending the file to the printer results in the creation of a solid copy within a few hours. (U.S. Army Research, Development, and Engineering Command (RDECOM) photos by David McNally)



Army researchers create plastic and metal objects in short order with state-of-the-art 3-D printing technology

by Mr. David McNally

When you walk into the Rapid Technologies Branch laboratory at Aberdeen Proving Ground, MD, you hear the overpowering hum of massive machines with robotic parts swinging past viewing windows, as technicians spray different objects with lasers attached to limber metallic arms.

Fifty years ago, what goes on in this lab would have been considered science fiction, but what these Army researchers do is scientific fact, and they do it fast. The engineers in this lab create 3-D objects out of plastic and metal in printers that seem like “Star Trek” replicators.

“It’s allowed us to develop items for the warfighter quicker,” said Rapid Technologies Branch Chief Rick Moore. The branch is part of the Advanced Design and Manufacturing Division of the Engineering Directorate at the Edgewood Chemical Biological Center. “We’re able to come up with concepts and designs using our software, print them out, and have them in an engineer’s hand the next day.”

‘KIND OF A MAGICAL THING’

This Rapid Technologies Branch lab is an element of the U.S. Army Research, Development, and Engineering Command, which has labs and research centers across the country. Army scientists, researchers, and engineers reach out to the team as needed.

3-D objects are created with computer-aided design (CAD) programs, but Moore and his team also use lasers to scan an object, creating a 3-D file. This process allows them to reverse-engineer practically anything.

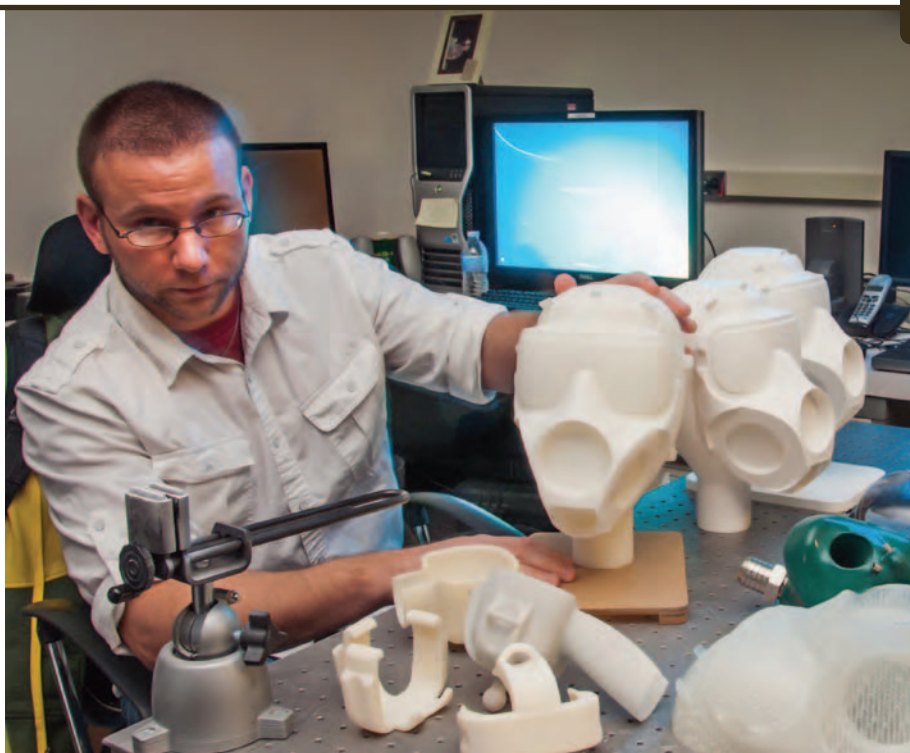
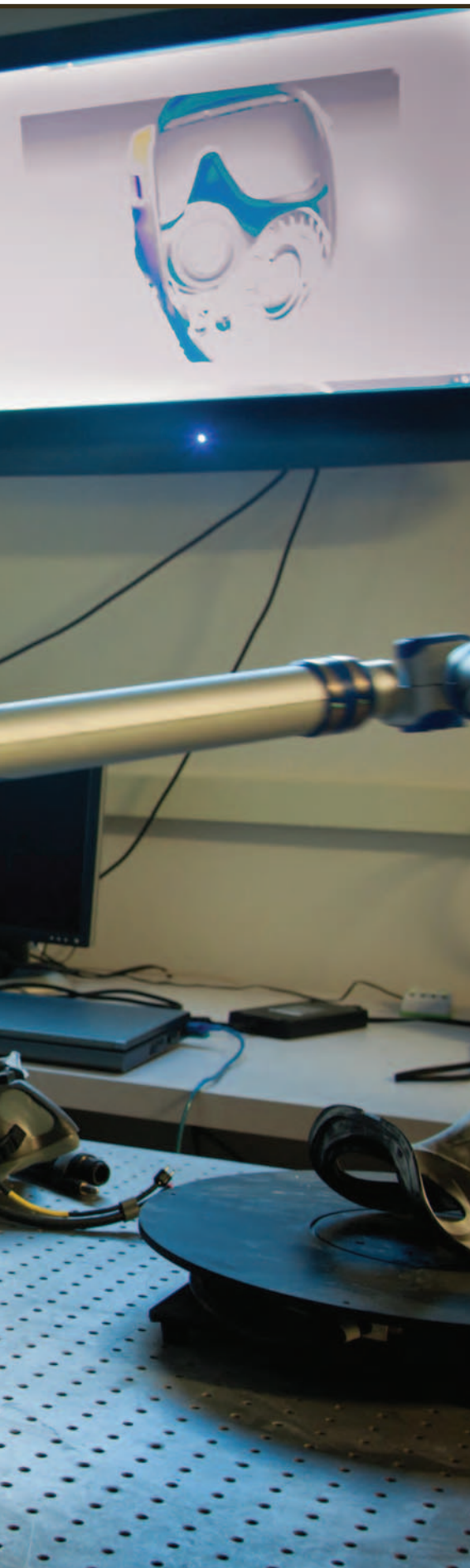
For example, an Army technician scans part of a protective mask. As the laser passes over every square millimeter of the object, the computer plots 3-D points in its memory. On screen, the mask comes into view immediately as a 3-D object. Sending the file to the printer results in the creation of a solid copy within a few hours.

“It is kind of a magical thing,” Moore said. “Seeing people who have never seen it before come through the lab [and]



A VIEW FROM ALL SIDES

3-D modeling artist Ryan Gilley laser-scans a protective mask as Rapid Technologies Branch Chief Rick Moore reviews the results on-screen. Their work for RDECOM allows the Army to develop concepts and designs, print them in 3-D, and have them in an engineer's hand the next day.



SOMETHING FROM NOTHING

3-D modeling artist Ryan Gilley displays some of the products he designed and printed using advanced manufacturing techniques at the Rapid Technologies Branch, Edgewood Chemical Biological Center, an element of RDECOM.

finally get it ... you can see it in their face. They think it's something from the future."

A VARIETY OF METHODS

The team's 3-D printers churn out new objects day and night. Researchers use a variety of techniques to get the job done. Some printers use lasers, while others spray heated plastic through printheads. One system uses a photopolymer resin—which the researchers refer to as a "vat of goo"—to hold the object in place as it is created, layer by minuscule layer.

One massive printer uses a carbon dioxide laser to melt powder precisely. As one layer solidifies, the platform drops a little, a fresh layer of powder is spread, and the laser moves to the next layer.

"In the end, we'll raise the platform up and we'll have the printed object encapsulated

in powder," Moore said. "We pull it out, shake off the excess powder, and then we've got a part."

Modeling artist Bradley Ruprecht said that other printers in the lab are similar to desktop ink-jet printers. "Instead of depositing ink on a page, the printhead deposits a photo polymer onto the platform. A photo polymer is liquid until it's exposed to ultraviolet light, and then it polymerizes, or solidifies, into a plastic," Ruprecht said.

"Just like your ink-jet printer can mix colors together to get a different color, we can mix materials together. So we can make a rigid plastic, or adjust the shore value [the standard measure of hardness in polymers and rubbers] and make it the stiffness that you want. You can also make parts that have two different materials embedded in each other."



BRINGING IDEAS TO LIFE

Lester Hitch, a 3-D modeling artist in the Rapid Technologies Branch at Edgewood, removes a 3-D part from the powder holding it during the printing process. A printer uses a carbon dioxide laser to precisely melt powder. As one layer solidifies, the platform drops a little, a fresh layer of powder is spread, and the laser moves to the next layer.

SUPPORTING THE SOLDIER

One recent project involved coming up with a solution to help Soldiers carry a heavy piece of sensor equipment in the field.

“The Army Research Lab [ARL] asked us to develop a holder for a heavy hand-held sensor called a Mine Hound, which is used as an improvised explosive device detection sensor,” Moore said. “They wanted something that would cradle the handle so it’s putting more weight on the Soldiers’ vest and back, as opposed to just their forearm.”

The team scanned the sensor and came up with myriad design options in short order. “The fact that we could do this many designs and print them out and have them in [ARL’s] hands in one week gave them the option to choose between what works best for their application,” Moore said. “This is a good example of how we use the technology every day.”

Moore said the lab was going to make 10 of the part for testing. With ARL’s

approval, “we’re going to do the rapid tooling and use injection molding to make several thousand of the holders,” he said.

Injection molding is a more conventional manufacturing technique; however, the team uses 3-D printing technology to augment, test, and even make molds, a process that otherwise would add weeks or months.

“We are deftly pushing what we like to call ‘rapid tooling,’ ” Moore said. “It uses these technologies to build molds as opposed to conventional-machining a mold.”

FUTURE POSSIBILITIES

Moore sees the 3-D modeling and printing technology becoming more commonplace in the future.

“I see it expanding in the materials,” he said. “I see the speed increasing and the sizes of the parts increasing. There are also a lot of fascinating medical applications, which kind of overlap with what we’d like to do in the Army in the future.”

Medical personnel may use 3-D laser scans on a Soldier before he or she is deployed. This would ensure that all of the Soldier’s physical features are on file.

“If a Soldier comes back wounded, we’d have that data on our side where we could possibly build a prosthesis that is exactly how the Soldier used to look, instead of sculpting it and scanning it,” Moore said.

3-D printing may have been pioneered in the 1980s and brought to market in the mid-1990s, but combining the processes with more powerful software and accurate lasers offers potential for future manufacturing techniques.

“Every day we’re building parts for the customer, whether it is an exploded fragment or munitions,” Moore said. “The more our customers use 3-D printing, the more they’re relying on it to do their testing before they do the manufacturing. So it’s become an everyday thing.”

Moore said he and his co-workers enjoy their jobs.

“If you take a look at this equipment, how could you not like the job?” he asked. “I make stuff every day. I make something from nothing with state-of-the-art technology. The future is definitely fascinating.”

MR. DAVID MCNALLY is the Senior Writer/Editor for the U.S. Army Research, Development, and Engineering Command at Aberdeen Proving Ground, MD, and a retired Army Public Affairs NCO. He holds a B.A. in communications and an M.S. in management from Thomas Edison State College. He is a graduate of the Army Management Staff College Intermediate and Advanced Courses.

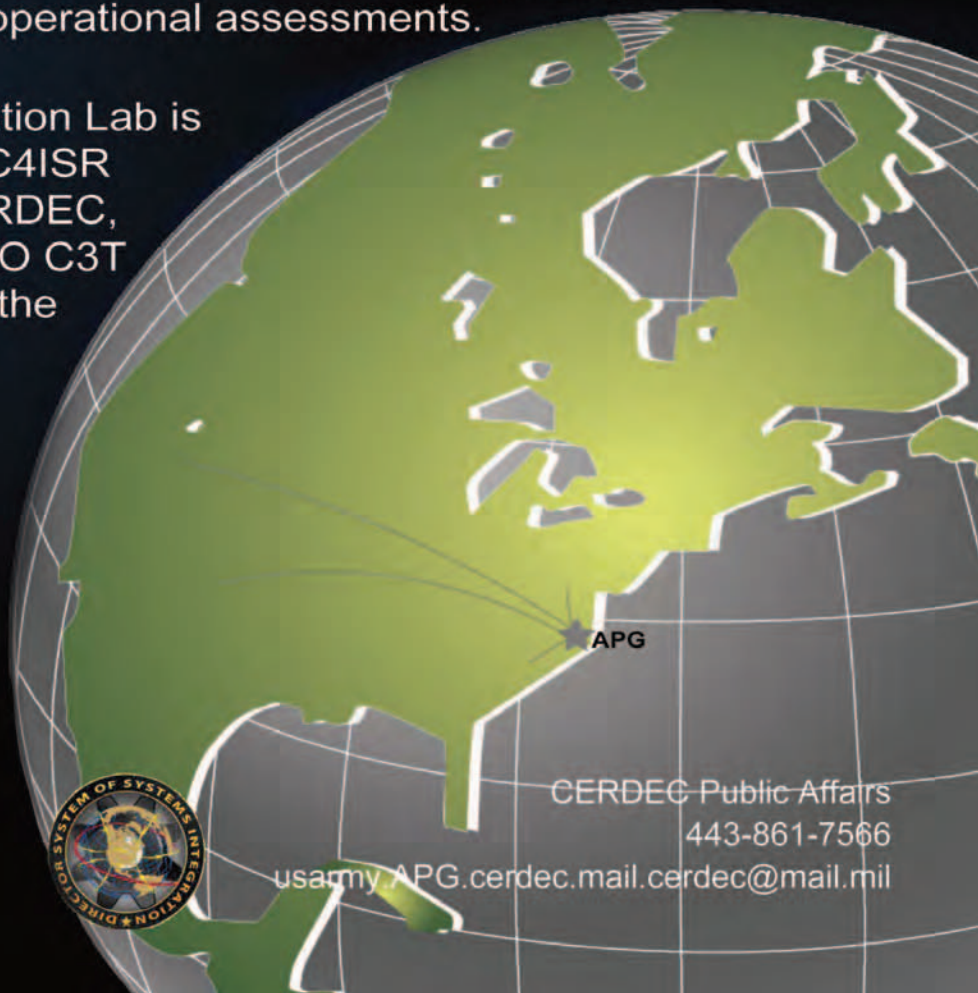


CSIL: Technically Enabling Agile Acquisition

The C4ISR Systems Integration Laboratory at Aberdeen Proving Ground:

- Provides lab connectivity and technical expertise necessary to technically evaluate system-of-system C4ISR technologies in support of Agile Acquisition.
- Currently implements a slice of a Brigade Combat Team network which mimics the NIE network architecture and allows concurrent evaluation of end-to-end network system performance.
- Performs lab-based risk reduction by identifying network and application issues prior to systems being accepted for evaluation in the field, maximizing efficiency of resources and allowing field evaluations to focus on operational assessments.

The C4ISR Systems Integration Lab is a partnership within APG's C4ISR Center of Excellence of CERDEC, ASA(ALT), SOSI, ATEC, PEO C3T and PEO IEW&S; Ensuring the proper technical evaluation and characterization of networked systems.



CERDEC Public Affairs

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READERSHIP SURVEY 2012

Arrmy *AL&T* Magazine staff conducted an online readership survey from Sept. 13 to Nov. 16, 2012, to solicit feedback on how to improve the publication and to identify topics that readers would like to see covered in 2013 and 2014. A total of 552 people responded, or 12 percent of the distribution population of 4,500 people. According to statistical standards, a response rate between 10 and 20 percent is sufficient to get an accurate opinion from the population.

First, I would like to thank the 552 readers who responded to the survey. It took time and effort to do so, and we sincerely appreciate the feedback, especially to our appeal for suggestions on how to improve *Army AL&T* Magazine and ideas for future articles. Second, I want to express my gratitude for the insight, creativity, and fresh perspective that respondents brought to the table.

In 2011, with recommendations from our readers and Editorial Staff, *Army AL&T* Magazine had a major “makeover.” The changes we made were comprehensive, from redoing the layout and design to make *Army AL&T* more inviting and easier to read, to improving the clarity of writing, to adding more specialty sections. These include Critical Thinking, where leaders from industry, academia, and elsewhere outside DOD comment on their successes and how the military can learn from them; and Spotlight, featuring profiles of individuals in the field who have achieved greater capability for themselves and their organizations.

All these changes were in hopes of making *Army AL&T* Magazine a world-class publication. And with 74 percent of respondents rating the quality of the magazine “good” or “excellent,” we are encouraged that our efforts are working. At the same time, we did not overlook the fact that 16 percent rated the quality “fair,” and that only 13 percent said the magazine helped them in their jobs. Nor did we fail to recognize that even the most congratulatory respondents made recommendations for how to improve the publication.

STATISTICAL HIGHLIGHTS

- 72 percent of respondents said the layout is inviting and easy to read; 17 percent said it is fairly easy to read.
- 75 percent said the writing is easy to understand, while 17 percent said it is fairly easy to understand.
- 60 percent said the magazine presents information on topics and subjects that are important to them, while 16 percent said they “agree somewhat” with that statement.
- 73 percent feel the quality of the writing is good to excellent, while 18 percent said it is fair.
- 70 percent said that the overall appearance and design of the magazine is good or excellent, and 18 percent said it is fair.
- Survey participants obtain their acquisition information from the following three main sources, in declining order of importance: Defense Acquisition University, newspapers, and *Army AL&T* Magazine.
- When asked how *Army AL&T* Magazine helps them strengthen their connection to the Army Acquisition Corps, 61 percent said that the magazine keeps them up to date on what other acquisition professionals are doing, and 11 percent said that it provides them with useful information.

To keep *Army AL&T* Magazine informative, relevant, and compelling, we are committed to satisfying as many reader concerns and recommendations as possible. Given the scope of the publication’s mandate, the direction we receive from our Editorial Advisory Board, and the wide variety of professionals who read *Army AL&T* Magazine, we realize that we will never meet all requirements in a single issue.

Over the course of any one year, however, we set out to cover major topics of interest to our readers. Some of the more frequently recommended article topics include policy announcements, changes, and implementation; trends and innovations in



WHAT OUR READERS SAID

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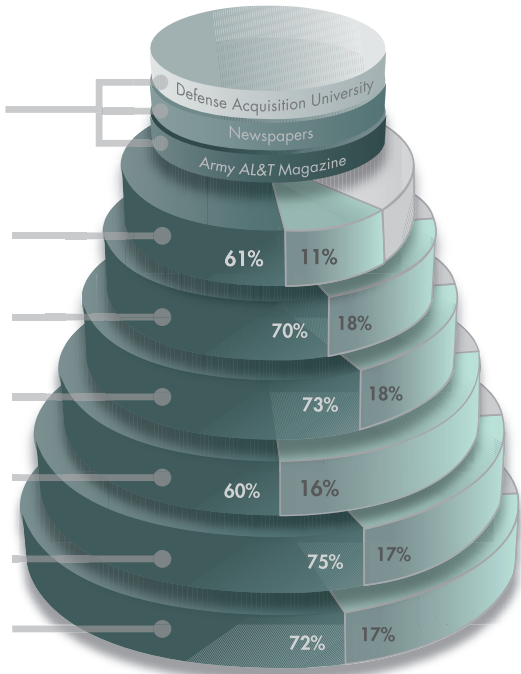
70 percent said that the overall appearance and design of the magazine is good to excellent, followed by 18 percent who said it is fair.

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72 percent of respondents said the layout is inviting and easy to read; 17 percent said it is fairly easy to read.



(SOURCE: U.S. Army Acquisition Support Center)

the medical field; a focus on “everyday” workers; quality assurance; contracting; and promotion and career opportunities.

Other recommendations we received for improving the magazine included: producing an easy-to-find, printable version and/or a more user-friendly electronic version; and more Soldier-focused and career development stories. Below is a sampling of reader comments from the survey categories with the most responses.

- **Better navigation.** “In the electronic format (how most of us get the information), the print format does not work. I spend way too much time scrolling up and down columns blowing up and shrinking pages to get much from the articles. It becomes a pain to try and read. An electronically friendly version is really needed.”
- **Shorter stories and more from the Soldier.** “I just don’t have the time to read long, drawn-out versions of something

that could be summarized on a page or two. Also, I’m interested in hearing more about what the Soldier has to say. Too often we hear from senior leaders, and not enough from the warfighter.”

- **Back to basics.** “Would be helpful to see more stories involving ACAT [Acquisition Category] III programs (e.g. documentation requirements, lessons learned, testing requirements, etc.). With 11 years of war winding down, it seems logical that a piece on traditional acquisition practices be published. This is relevant due to the fact that large-scale rapid fielding initiatives are likely to dwindle.”
- **Workforce initiatives.** “I would like to see more articles regarding shortages in the contracting profession and what initiatives Army is taking to address.”
- **Continuous learning.** “I’d be interested in reading more about education opportunities available to

civilians. And reading about success stories on military retirees continuing service as a government civilian. Keeping the knowledge and experience in service after a successful active military career is very important.”

- **More detailed and technical information.** “Less fluff and fewer human interest stories.”

Using your input, we will continue striving to deliver a top-quality publication every issue, through fully researched, well-written, germane, and informative articles, interviews, and columns, ensuring that *Army AL&T* remains the magazine of record for the Acquisition Workforce. My thanks to every reader who responded, and to all readers who look to this magazine for pertinent, compelling information and discussion.

Margaret C. (Peggy) Roth
Senior Editor

BEST OF *ARMY AL&T*

Magazine honors excellence with first annual ALTie Awards



Articles and artwork from contributors are the heart of *Army AL&T* Magazine. Our contributors—military and civilian alike—share our commitment to serve the Army AL&T Workforce by educating, informing, motivating, and instructing them, in support of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)) and Military Deputy.

In recognition of the tremendous talent, expertise, and effort that our contributors

put into keeping fellow members of the Army AL&T community informed, the U.S. Army Acquisition Support Center has established the *Army AL&T* Magazine Annual Awards, or ALTies, to recognize outstanding contributions to the quarterly professional journal.

ALTie Awards are being presented in January 2013 in the following categories of writing and the visual arts: Best Article, Best Commentary, Best Headline, Best Photo, Best Graphic, and Best Ad.

Over the past year, *Army AL&T* Magazine has won prestigious awards for outstanding content: the Public Relations Society of America's Bronze Anvil Award in the Magazine category, and the 2012 APEX Award for Publication Excellence in the category of Best Redesign.

"Where did that outstanding content come from? You, our contributors," said Nelson McCouch III, *Army AL&T* Editor-in-Chief. "Your articles, photos, and graphics define *Army AL&T* Magazine as ASA(ALT)'s flagship publication, with



topical, useful, actionable information that helps the AL&T Workforce execute broad and diverse missions, overcome challenges, and be highly innovative.

“You have succeeded memorably in telling the many and varied stories of how the Army AL&T Workforce develops, acquires, fields, and sustains the world’s best equipment and services for our Soldiers. Your knowledge and insight, and the skilled, artful ways in which you convey that knowledge and insight, ultimately help to give Soldiers the decisive advantage they need to prevail in any mission.”

The *Army AL&T* staff had some tough decisions to make in selecting the recipients of the inaugural ALTie Awards, McCouch noted. “We had many fine contributions to choose from in 2012,” he

said. “Here’s what we looked for in judging the best of the best.”

- **Best Article**—Does the article pose a challenge, a solution, and, even better, potential lessons learned for the future? In doing so, does it tell a clear and compelling story with authority? Does it make a difference outside its immediate audience of program managers and customers?
- **Best Commentary**—Does the commentary frame an important issue clearly? Does it offer well-supported opinions? Does it capitalize on valuable experience to offer useful insights?
- **Best Headline**—Does the headline grab the reader while conveying the essence of the article with succinct, evocative use of language?
- **Best Photo**—Does the photo represent a key aspect of the article in a clear and

visually appealing way? Does it take a creative approach to the subject while using well-balanced composition and effective lighting?

- **Best Graphic**—Does the graphic capture and condense key points in the article cleanly and clearly? Is it easy to read? Does it use color effectively?
- **Best Ad**—Does the ad make you want to know more about the organization and its mission with good use of crisp graphics and well-placed text?

To see who won the ALTie Awards for 2012, scan the QR code at the end of this article. Congratulations to all of you for a job very well done. We look forward to a whole new body of excellent work in 2013!



Margaret C. (Peggy) Roth
Senior Editor

Welcoming Two New Additions To the Trophy Case



A Bronze Anvil and an APEX award

The U.S. Army Acquisition Support Center (USAASC) recently won a Public Relations Society of America Bronze Anvil Award, recognizing outstanding elements in successful public relations programs, for *Army AL&T* Magazine, the flagship publication of the Army’s Acquisition, Logistics, and Technology (AL&T) community. The Bronze Anvil Awards annually honor tactics and elements that create successful public relations programs in multiple fields.

Army AL&T Magazine also recently won a 2012 APEX Award for Publication Excellence for *Army AL&T* Magazine. The award was given for excellence in graphic design, editorial content, and overall communications effectiveness. The APEX Awards for Publication Excellence, sponsored by the editors of *Writer’s Web Watch*, are a competition for communication professionals who create print, web, electronic, and social media.

USAASC’s publications are available online at <http://asc.army.mil>



CAREER CORNER

USAASC PERSPECTIVE

FROM THE DIRECTOR,
U.S. ARMY ACQUISITION SUPPORT CENTER

DEFENSE ACQUISITION WORKFORCE DEVELOPMENT FUND: CONTINUING TO GROW TOP-NOTCH PROFESSIONALS

In my commentary for the July-September 2012 issue of *Army AL&T Magazine* (“To Build a Stronger Workforce, Raise the Value of Their Work”), I provided an in-depth look at our efforts to strengthen the AL&T Workforce. That commentary explored in detail the initiatives led by the U.S. Army Acquisition Support Center (USAASC) under the guidance of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) Defense Acquisition Workforce Management Group Project Leads. In this issue, we’ll take a look at where the Army is focusing its efforts and explore some of the high-quality initiatives being developed to strengthen and expand capabilities and efficiencies throughout the AL&T Workforce.

The Army faces some very tough resource challenges. It is incumbent upon us all to take the time to examine our current programs and processes to see if they are still relevant and effective. Do they meet the needs of a world-class, 21st-century Acquisition Workforce in a



Craig A. Spisak
*Director, U.S. Army
Acquisition Support Center*

resource-restricted environment? We must measure the results of our current programs and determine if they are providing a true value at the cost of the current program. We may need to make changes or, in some cases, develop an initiative that will provide the desired result at an acceptable cost in terms of time and resources.

Over the past few years, we’ve invested much time, effort, and money into

recruiting and training our Acquisition Workforce using the Defense Acquisition Workforce Development Fund (DAWDF). Since 2009, we have hired more than 1,600 new acquisition civilians and have funded more than 300 initiatives totaling more than \$300 million. It is now time to ensure that we continue moving forward with our investment, training, and development.

We’re looking at high-quality initiatives developed by our Army Acquisition commands and organizations to see if those programs merit elevation to an enterprise level. Additionally, we are examining our current programs to see if they are still producing the expected results. If not, changes must be made to ensure that they achieve the desired results and remain relevant and cost-effective.

ACQUISITION LEADERSHIP CHALLENGE PROGRAM

One of the best initiatives that we have provided through DAWDF is the Acquisition Leadership Challenge Program (ALCP). We leveraged the Air Force’s



experience in conducting hundreds of ALCP classes to provide it to our workforce as a pilot program.

After successfully piloting more than 10 offerings in Atlanta, GA, we decided to bring ALCP to our acquisition sites in the Washington, DC, area, as well as Huntsville, AL; Warren, MI; and Aberdeen Proving Ground, MD. This 2 ½-day civilian leadership course provides an opportunity for those in grades GS-12 and -13 to receive instrument-based feedback on their leadership skills, and offers a follow-on course for GS-14/15.

The ALCP stresses self-awareness as the key to developing leadership and diversity. Its aim is to create

an innovative culture by helping participants understand each individual's personal preferences and behaviors, how they interact with their co-workers, and how they are viewed by others.

The ALCP training aims to improve team communication by providing participants with a common language, and helps develop leaders who value individual styles and behaviors. The end result is a leadership corps that is more capable of critical thinking and problem-solving, teamwork, creativity, and innovation. (See related article in Critical Thinking, Page 142).

Additional information on the program is at <http://asc.army.mil/web/>

career-development/programs/acquisition-leadership-challenge-program/.

MENTOR/PROTÉGÉ PROGRAM

Why is building our future leaders more important than ever? Statistics show that a large percentage of our organic AL&T Workforce is presently eligible to retire or will be eligible within five years. The Army Acquisition mission cannot afford to let this intellectual capital walk out the door, especially as we are growing the AL&T Workforce under the initial guidance memo from the USD(ATL), dated Oct. 7, 2011, on strengthening the DAW by improving capabilities.

To that end, in addition to using DAWDF, aka Section 852, to further incentivize

SPEAKING A COMMON LANGUAGE

The Acquisition Leadership Challenge Program is based on a number of objectives that aim to equip leadership with well-developed skills in communication, critical thinking, problem-solving, collaboration, creativity, and innovation.

ACQUISITION LEADERSHIP CHALLENGE PROGRAM (ALCP) I OBJECTIVES

OBJECTIVES

Develop an awareness of individual leadership strengths, weaknesses, preferences, styles, and behaviors.

Understand and apply "diversity of thought."

Learn a model for understanding and appreciating leadership challenges.

Assess and understand preferred styles for approaching leadership in individual and team settings.

Experience leadership styles in a work group activity with a shared and executable vision.

Identify and understand key organizational cultural traits that impact the organization's performance.

Develop an awareness and appreciation for multigenerational and cross-cultural environments.

Create a list of attainable goals and practical strategies to reach them, and appreciate the concept of lifelong learning.

ALCP I is targeted for those in the organization who are now being asked to lead smaller groups and "worry about things other than themselves."

ALCP II is targeted for those in the organization who are in a group level of leadership. They are now being asked to manage an organization.

SOURCE: U.S. Army Acquisition Support Center

and retain our current force, USAASC is embarking on the deployment of an Army AL&T Workforce-wide mentor/protégé program. While this program is not intended to be centrally managed by USAASC, it will be structured and offered in such a way to enable execution across the entire enterprise, regardless of level, command, or acquisition discipline. The objective will be to facilitate the transfer of practical capability through a seamless transition of knowledge from mentor to protégé.

USAASC is exploring an exciting capability based upon virtual human technology to link each mentor and protégé remotely. Called SIMCoach, the system is used by the medical community to facilitate anonymous yet expert guidance related to various health issues, particularly post-traumatic stress disorder. USAASC plans

to expand this virtual capability to the mentor/protégé environment.

SIMCoach is not intended to replace a face-to-face personal relationship; rather, it will enable a consistent message to be delivered at any time, at any location, to the AL&T Workforce member as it pertains to *Defense Acquisition Workforce Improvement Act* certification requirements, general business skills, and leadership competencies. The virtual system also will provide the mentor and protégé time to focus on functional competence and on organizational and personal strategic direction and goals, regardless of each person's physical location.

Additionally, a dedicated website is being developed that will house various resources to foster mentor/protégé

relationships. The Army Director of Acquisition Career Management will further this collaboration by partnering with commanders and program executive offices to ensure that the workforce is engaged and that the requisite tools are in place to provide all participants with a positive experience. To provide input on the mentor/protégé program, please contact Kelly Terry at kelly.l.terry2.civ@mail.mil.

We each play a role in our continued success in maintaining a high-quality, high-performing, agile Acquisition Workforce. Help strengthen the DAW by actively participating in improving and creating high-quality programs. For more information or to make suggestions on improving the workforce, please contact the USAASC Execution Chief, Jack Kendall, at john.f.kendall.civ@mail.mil.

We're Looking for the Best to Support the Best! "Army Contracting - A Force Multiplier"



Want to make a difference in the Army? Look into Contracting! Army Contracting has approval to grow the branch by adding 315 officers and NCOs in FY13.

MOS 51C-Contracting

Opportunity for NCOs E5-E6 (Sergeant to Staff Sergeant)

- The U.S. Army Acquisition Support Center is seeking NCOs from all MOS backgrounds with diverse experience to fill these positions through MOS 51C-Contracting. NCOs must meet the qualifications for reclassification.
- With the drawdown completed in Iraq, NCOs with experience in theater offer valuable expertise and insight principally suited for MOS 51C-Contracting.

Career Benefits

- Promotion potential to E9 (Sergeant Major).
- Receive college-level course work at the U.S. Army Acquisition Center of Excellence in Huntsville, AL.
- Receive a \$2,000 reclassification bonus.

FA51-Contracting and Program Management

Opportunity for Officers O3-O4 (Captain to Major)

- The U.S. Army Acquisition Support Center is seeking Officers from all FA backgrounds with diverse experience to fill these positions through the FA51-Contracting/Program Management program.
- FA51 officers have the vital job of providing forward contracting support to ongoing war zone and humanitarian missions worldwide.

Career Benefits

- Promotion potential to O9 (Lieutenant General).
- Receive college-level course work at the U.S. Army Acquisition Center of Excellence in Huntsville, AL.
- Career opportunities in five Acquisition Career Fields (worldwide locations): Contracting • Program Management • Test & Evaluation • IT • Simulations

For more information about career benefits, call 703-805-1048 or 703-805-2732 and go to:



<http://asc.army.mil/>



www.facebook.com/usaasc



www.twitter.com/usaasc



EDUCATION and TRAINING UPDATE

EDUCATION AND TRAINING OPPORTUNITIES

The 2013-14 Defense Acquisition University – Senior Service College Fellowship (DAU-SSCF) announcement is open Jan. 22 – March 28 to all eligible GS-14s and -15s who have met their current position certification requirements. For more information, go to <http://asc.army.mil/web/career-development/programs/defense-acquisition-university-senior-service-college/>. This program, located in Aberdeen, MD, Huntsville, AL, and Warren, MI, provides a great opportunity for civilians to attend an SSC in their area.

Acquisition Education and Training Portfolio: Based upon the huge success our sister service the Air Force has had with the Acquisition Leadership Challenge Program (ALCP), we piloted multiple offerings of the 2½-day course in FY12. For FY13, we are bringing the course to the Army Acquisition Workforce. For more information on how to apply, go to <http://asc.army.mil/web/career-development/programs/acquisition-leadership-challenge-program/>. At right is the FY13 ALCP training schedule, by location. All offerings and locations are subject to change; please check the above link for the latest information.

DEFENSE ACQUISITION UNIVERSITY HIGHLIGHTS

Students should continue to apply for available FY13 courses. Planning and applying early will afford them a better opportunity to obtain a class in the timeframe requested. Students should encourage their supervisors to approve training requests as soon as they apply. To ensure that they meet the prerequisite(s) before applying to a DAU course, students should view the DAU I-catalog at <http://icatalog.dau.mil>.

A weekly low-fill list is posted at <http://icatalog.dau.mil/onlinecatalog/tabnav.aspx> to allow students an opportunity to attend classes coming up in the next 60 days; these low-fill classes are available on a first-come, first-served basis.

Applications cannot be processed by the Army registrar office until the supervisor has approved the training. Students should apply through the Army Training Requirements and Resources Internet Training Application System at <https://www.atrrs.army.mil/channels/aitas>. For more information on DAU training to include systematic instructions, training priorities, and frequently asked questions, go to <http://asc.army.mil/career/programs/dau/default.cfm>. After receiving a confirmed reservation in the requested class, students must attend the class as scheduled. Cancellation requests for confirmed reservations must be submitted at least 30 calendar days before the class starts or by the reservation cutoff date, whichever is earlier, to avoid a “no show.”

FY13 Plan

DATE	OFFERING TYPE (ALCP I or II)	LOCATION
Jan. 14-18	Level I & Level II	Atlanta, GA
Feb. 25 – March 1	Back-to-back Level I offerings	Atlanta
March 11-15	Back-to-back Level I offerings	Huntsville, AL
April 29 – May 3	Back-to-back Level I offerings	Aberdeen, MD
May 20-24	Level I & Level II	Atlanta
June 10-14	Back-to-back Level I offerings	Warren, MI
July 29 – Aug. 2	Level I & Level II	Huntsville
Aug. 19-23	Back-to-back Level I offerings	Aberdeen

Any workforce-related inquiries (such as on DAU training, DAU course travel orders, certification, Individual Development Plans, or the Acquisition Career Record Brief) should be submitted through the Workforce Management Inquiry system in the Career Acquisition Management Portal: <https://rda.altess.army.mil/camp/>. Once logged into CAMP, click on the “Help Request” button for assistance. Otherwise, open a ticket without logging into CAMP at: <https://rda.altess.army.mil/camp/index.cfm?fuseaction=support.helpRequest>.

DAU provides a list of equivalencies at <http://icatalog.dau.mil/appg.aspx> for all courses delivered by DAU and/or predecessor courses that are considered acceptable toward meeting current acquisition career field certification requirements. To document equivalencies accepted by DAU that are obtained from non-Army schools, open a help desk ticket at <https://rda.altess.army.mil/>

[camp/index.cfm?fuseaction=support.helpRequest](https://rda.altess.army.mil/camp/index.cfm?fuseaction=support.helpRequest) and request that your ACRB be updated to reflect completion of any DAU equivalent courses. On Sept. 4, DAU approved the very first DAU equivalent vendor, Trio Consulting LLC, which is accredited to teach BCF 211 – Acquisition Business Management. Students interested in taking the BCF 211 DAU equivalent course should apply and contact the vendor directly. Trio instructors can bring the course to an organization to teach on-site; contact Trio directly via www.trio-consulting.com.

BCF 211 is splitting into two courses: BCF 220 (Web) and BCF 225 (classroom). The transition of BCF 211 – Acquisition Business Management to BCF 220 and BCF 225 starts Jan. 7. DAU has notified students with reservations in classes on or after that date of the change and the requirement to complete the prerequisite course, BCF 220, before attending the resident portion, BCF 225.

Students completing BCF 220 far in advance should review the course material at least two weeks before the resident BCF 225 course begins, to ensure successful completion.

DAU course management has a new process to allow higher-priority—specifically Priority 1—students first preference in its resident courses. As result, students in Priorities 2 through 5 will be placed on a waiting list for classes showing available seats. Students placed in wait status will roll into a reservation 65 days before the class start date if a Priority 1 student does not encumber a seat. Wait-listed students could still be bumped up to five business days before the class start date if a higher-priority student has applied within 65 days.

The new process minimizes bumping and allows Priority 1 students to see which courses actually have seats available for them.



DAU Alumni Association

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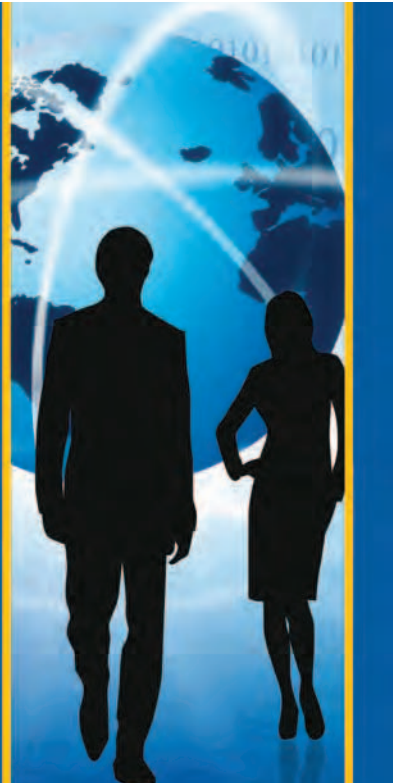
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ON THE MOVE

CAMARILLO TAPPED AS ASA(ALT) PRINCIPAL DEPUTY

The Honorable **Heidi Shyu**, Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASA(ALT)), announced that **Gabriel Camarillo** has been selected as the Principal Deputy to the ASA(ALT), effective Dec. 11, 2012. In this capacity, Camarillo advises the Assistant Secretary and Army leadership on all matters relating to Army acquisition, procurement, research and development, and logistics. He also participates in developing policies, programs, and processes to execute the Army's acquisition efforts.

Previously, Camarillo served since 2010 as Special Assistant to the ASA(ALT). He was the principal advisor to the ASA(ALT) on all matters under her authority, coordinating significant decisions across DOD organizations and providing oversight of external communications and congressional outreach.

Before joining ASA(ALT), Camarillo practiced law. As an associate at Akin Gump LLP, he was involved in complex commercial litigation, with experience in intellectual property matters, business



CAMARILLO NAMED PRINCIPAL DEPUTY TO ASA(ALT)

Gabriel Camarillo is the new Principal Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, advising the Assistant Secretary and Army leadership on all matters relating to Army acquisition, procurement, research and development, and logistics. Previously he was Special Assistant to the ASA(ALT). (U.S. Army photo)

torts, and contract disputes. Subsequently, his legal practice specialized in election law and campaign finance issues. He also represented candidates

and organizations in ballot access and First Amendment litigation.

Camarillo received his law degree from Stanford Law School and his undergraduate degree from Georgetown University. He is currently an adjunct professor at Georgetown's Public Policy Institute.

CONFIRMATIONS

The Senate confirmed the following general officer nominations:

BG Joseph Carvalho Jr., U.S. Army, for promotion to the rank of major general and assignment as Commanding General (CG), U.S. Army Medical Research and Materiel Command and Fort Detrick, MD.

BG David G. Clarkson, U.S. Army Reserve (USAR), for promotion to the rank of major general and assignment as Assistant Deputy CG for Reserve Affairs, U.S. Army Materiel Command (AMC), Redstone Arsenal, AL.

BG Karen E. LeDoux, USAR, for promotion to the rank of major general and assignment as CG, 88th Regional Support Command, Fort McCoy, WI.



HUGHES BEGINS AS RDECOM DCG

BG Daniel P. Hughes assumed duties as Deputy Commanding General of U.S. Army Research, Development, and Engineering Command, Aberdeen Proving Ground, MD, and Senior Commander, Natick Soldier System Center, Natick, MA, Nov. 1. Previously, he was Director, System of Systems Integration Directorate. (U.S. Army photo)

NOMINATIONS

Secretary of Defense Leon E. Panetta announced that President Obama has nominated **LTG John F. Campbell** for appointment to the rank of general and assignment as Commanding General, U.S. Army Forces Command, Fort Bragg, NC. Campbell currently serves as U.S. Army Deputy Chief of Staff, G-3/5/7, Washington, DC.

The President nominated the following Army colonels for promotion to the rank of brigadier general:

COL David G. Bassett, Deputy Program Executive Officer (DPEO) Combat Support and Combat Service Support, Warren, MI.

COL Leon N. Thurgood, DPEO Missiles and Space, Redstone Arsenal, AL.

ASSIGNMENTS

The Chief of Staff of the Army announced the following general officer assignments:

BG Mark W. Palzer, USAR, Commander, 143d Sustainment Command (Expeditionary), Orlando, FL, to Deputy Chief of Staff, Logistics, C/J-4, International Security Assistance Force, *Operation Enduring Freedom*, Afghanistan.

BG General Steven A. Shapiro, formerly Director, Materiel Enterprise Integration and Retrograde Operations Center, U.S. Forces – Afghanistan, *Operation Enduring Freedom*, to Deputy Commanding General, 1st Theater Sustainment Command, *Operation Enduring Freedom*.

CHANGE OF COMMAND AT USAMRMC, FORT DETRICK

MG James K. Gilman is relinquishing command of U.S. Army Medical Research and Materiel Command (USAMRMC) and Fort Detrick, MD, to **BG(P) Joseph Carvalho Jr.**, with a change of command ceremony scheduled for Jan. 11 at Fort Detrick. Carvalho is taking command of USAMRMC following an assignment as Commanding General (CG) of the Northern Regional Medical Command, Fort Belvoir, VA.

Carvalho earned his medical degree from the Uniformed Services University of the Health Sciences School of Medicine, Bethesda, MD, in 1983. He also holds a B.A. in mathematics from Gonzaga University and a Master of Strategic Studies from the U.S. Army War College. His medical specialty training includes internal medicine, nuclear medicine, and cardiology. His military training includes Army Airborne and Flight Surgeon schools, as well as Navy Diving Medical Officer and Scuba courses. He has also earned Special Forces and Ranger tabs,

and was awarded the Expert Field Medical Badge.

During *Operation Iraqi Freedom*, Carvalho served as Surgeon, Multi-National Force – Iraq and Multi-National Corps – Iraq, and earlier as Commander, 28th Combat Support Hospital, Fort Bragg, NC, and Chief of Professional Services, 44th Medical Command in Iraq.

Gilman has been CG of USAMRMC and Fort Detrick since June 2009. The USAMRMC change of command also marks his retirement from the Army after 35 years on active duty. A cardiologist by training, Gilman served in a variety of leadership positions during his career, including CG, Brooke Army Medical Center and Great Plains Regional Medical Command, Fort Sam Houston, TX; CG, Walter Reed Health Care System, Washington, DC; and Squadron Surgeon, 2nd Squadron, 2d Armored Cavalry Regiment, *Operation Restore Hope/Uphold Democracy*, Haiti.

His awards and decorations include the Distinguished Service Medal; Legion of Merit (with three Oak Leaf Clusters); Meritorious Service Medal (with two Oak Leaf Clusters); Army Commendation Medal (with Oak Leaf Cluster); and Expert Field Medical Badge.

Also entering retirement from USAMRMC is **Dr. Donald Caldwell**, Deputy Principal Assistant for Acquisition. A specialist in mechanical and biomedical engineering, Caldwell served DOD since 1980 and USAMRMC for the past 26 years. His career accomplishments include a U.S. patent in 2007 for the Non-Contact Respiration Monitor, a device used to help identify Soldiers in respiratory trouble on the battlefield. Caldwell also aided in the Army's development of the Noise Immune



JUSTICE RETIRES AFTER 42 YEARS

MG Nickolas G. Justice retired Nov. 1 after 42 years on active duty. His last assignment was Special Assistant to the Military Deputy/Director, Army Acquisition Corps, Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology. (U.S. Army photo by Erin Usawicz)

Stethoscope and Oxygen Concentrator, and upgrades to the Steam Sterilization Device. “Dr. Caldwell has been a long-term presence and a very steady performer at MRMCM, and I wish him well,” Gilman said. Caldwell has received the Army’s Achievement Medal for Civilian Service and the Commander’s Award for Civilian Service.

RDECOM WELCOMES NEW DCG

BG Daniel P. Hughes assumed duties as Deputy Commanding General of U.S. Army Research, Development and Engineering Command (RDECOM), Aberdeen Proving Ground, MD, and Senior Commander, Natick Soldier System Center, Natick, MA, on Nov. 1. Before coming to RDECOM, Hughes was Director, System of Systems Integration Directorate at Aberdeen.

Hughes previously served in a variety of project manager (PM) and program executive office (PEO) positions, including Deputy PEO (DPEO) Enterprise Information Systems, Fort Belvoir, VA, and DPEO Integration (Networks), Washington, DC; PM Joint Tactical Radio

Systems, Ground Domain, PEO Command, Control, and Communications – Tactical (PEO C3T), Fort Monmouth, NJ; and PM Fire Support, PEO C3T. He also served as Deputy for Ballistic Missile Defense Systems, Office of the Secretary of Defense.

JUSTICE RETIRES

MG Nickolas G. Justice retired Nov. 1 after more than 42 years of service, culminating in his assignment as Special Assistant to the Military Deputy/Director, Army Acquisition Corps, Office of the ASA(ALT). Justice’s previous assignments included Commanding General, RDECOM, and Program Executive Officer Command, Control, and Communications – Tactical.

His 20 years of acquisition experience included assignments as Assistant Deputy for Systems Management, Office of the ASA(ALT); Program Manager Force XXI Battle Command Brigade and Below (FBCB2) and Commander, Information Management Task Force, *Operation Iraqi Freedom*, Kuwait; and Project Manager, Transportation Coordinator’s Automated Information for Movement Systems.

Self-described as a former “bumpkin,” Justice joined the Army from his North Carolina hometown in 1970 as an infantry private. Reflecting recently on his 42-year Army career, Justice said, “We don’t always pause much to see how much things have changed. But you should. Stop sometimes and tell some of your war stories about what you’ve seen and how it’s changed.”

For Justice, the value of reflection comes from realizing “from where you came, where you are now, and where you are going. That gives you perspective on what you are doing now.”

SES REASSIGNMENTS

The Secretary of the Army has approved the following reassignments in the Senior Executive Service:

Stephen Kreider, from the position of Deputy Program Executive Officer (DPEO) Intelligence, Electronic Warfare, and Sensors (IEW&S) to the position of PEO IEW&S, Aberdeen Proving Ground, MD, effective Dec. 16, 2012.

Thomas Bagwell Jr., from DPEO Combat Support and Combat Service Support, to the position of DPEO Ground Combat Systems, both in Warren, MI.

HISTORIC JUNCTURE AT PEO AVIATION

COL Bert Vergez, the Army’s first Project Manager for the Non-Standard Rotary Wing Aircraft, retired after almost three years in the job and 25 years in the Army, with a retirement ceremony Nov. 16 at Redstone Arsenal, AL.

Vergez became Project Manager Non-Standard Rotary Wing Aircraft (PM NSRWA) in January 2010 when the Under Secretary of Defense for Acquisition, Technology, and Logistics signed



FIRST NON-STANDARD AIRCRAFT PROJECT MANAGER RETIRES

COL Bert Vergez, the Army's first Non-Standard Rotary Wing Aircraft (NSRWA) Project Manager, accepts the Legion of Merit from MG William "Tim" Crosby, Program Executive Officer Aviation, during Vergez' retirement ceremony Nov. 16 at Redstone Arsenal, AL. Vergez retired after 25 years of service. Kelvin Nunn assumed the NSRWA charter on an acting basis. (U.S. Army photo by Sofia Bledsoe)

an Acquisition Decision Memorandum designating the Army as the lead service for the DOD Mi-17 helicopter and other non-standard rotary wing aircraft.

PM NSRWA's mission is to procure, field, and sustain non-standard rotorcraft for DOD, allied countries, or as directed by the Office of the Secretary of Defense in support of Security Force Assistance missions. Through Vergez' leadership, the Army successfully procured, delivered, and sustained Mi-17 helicopters and other non-standard rotary wing aircraft, to include the AH-1 Cobra, MD-530F, and Mi-35 helicopters.

During a change of charter ceremony Nov. 16, Vergez relinquished his responsibility as PM NSRWA to his deputy, **Kelvin Nunn**, in an acting capacity.

Vergez started the office with nothing, "not even a secretary," said **MG William "Tim" Crosby**, Program Executive Officer Aviation. Since then, "everything has just been straight-up done right," he said.

Vergez received several awards during his retirement ceremony, including the Legion of Merit.

NEW MANAGER FOR JLTV PROGRAM

The Army and Marine Corps Joint Light Tactical Vehicle (JLTV) program formally recognized a new Project Manager (PM) Nov. 2. In a ceremony in Warren, MI, management responsibility for JLTV officially transferred from **COL David G. Bassett** to **COL John Cavedo**.

"JLTV is one of the best-structured programs I've ever seen," said Kevin M. Fahey, Program Executive Officer Combat Support and Combat Service Support (CS&CSS), who officiated at the ceremony. "JLTV is critically important to providing our Joint Force the mix of protection, payload, and performance they need to succeed in full-spectrum operations."

Cavedo comes to JLTV from Fort Leavenworth, KS, where he served as Deputy U.S. Army Training and Doctrine Command Capabilities Manager for Mission

Command. "I deeply appreciate this opportunity," he said, "to help field the next generation of tactical vehicles for our Soldiers, Marines, and partners across the Joint Force."

Bassett's three-year tenure as PM included the completion of a competitive JLTV Technology Development phase. That successful effort allowed the services to reduce the subsequent Engineering and Manufacturing Development phase from 48 to 33 months and the target vehicle cost to \$250,000.

"JLTV represents a leap ahead in automotive technology," said Bassett, "improving tactical vehicle fuel economy, mobility, protection, and onboard power in a single vehicle. It promises a platform that can adapt to multiple missions and carry the networked capabilities our Soldiers need in future fights, and I wish the JLTV team well." Bassett is now the Deputy Program Executive Officer CS&CSS and has been nominated for promotion to brigadier general.

JLTV PROGRAM CHANGES HANDS

COL David G. Bassett (left), outgoing Project Manager (PM) for the Army and Marine Corps Joint Light Tactical Vehicle program, and incoming PM COL John Cavedo listen to remarks by Program Executive Officer Combat Support and Combat Service Support (CS&CSS) Kevin M. Fahey at a change of responsibility ceremony Nov. 2 in Warren, MI. (U.S. Army photo by Michael Clow, Program Executive Office CS&CSS)





2012 ARMY ACQUISITION AWARDS RECOGNIZE EXCELLENCE

by Ms. Tara Clements and Mr. Robert E. Coultas

EXEMPLARY WORK AT DCMA

MAJ Jason Good and LTC Yee Hang, both with the Defense Contract Management Agency, were among the 13 individuals and groups honored at the 2012 U.S. Army Acquisition Annual Awards ceremony for their work on behalf of Soldiers, the Army, and the Nation. Good received the Individual Sustained Achievement Award, and Yang was named the Acquisition Director of the Year at the Lieutenant Colonel Level. (U.S. Army Acquisition Support Center photos by McArthur Newell)



Thirteen individuals and teams within the Army Acquisition community were recognized for their exceptional skill, efficiency, and dedication in their service to Soldiers, the Army, and the Nation, during the 2012 U.S. Army Acquisition Annual Awards ceremony.

The theme for the ceremony, “Recognizing Army Acquisition Excellence,” paid tribute to the uniformed and civilian professionals who design, develop, and deliver capabilities that continually improve force protection and survivability, enabling Soldiers to execute decisive, full-spectrum operations in support of Overseas Contingency Operations.

“The depth and breadth of the 180 nominations for this year’s 12 awards were truly outstanding, showcasing the best and brightest in the Acquisition, Logistics, and Technology community,” said COL Andrew T. Clements, Deputy Director, U.S. Army Acquisition Support Center (USAASC) and master of ceremonies for the Nov. 7 event in Arlington, VA. The Army’s most senior leaders in the acquisition community attended the ceremony to recognize the award recipients.

“Today we celebrate our very best and acknowledge our superior, dynamic, and dedicated professionals,” said the Honorable Heidi Shyu, Assistant Secretary of the Army for Acquisition, Logistics, and Technology. “Our central mission is to equip Soldiers so they can execute their mission quickly and successfully and return home safe. That’s our priority. That’s why we’re here today.”

AWARDS COVER BROAD SPECTRUM

A record-breaking 180 nominees competed for the 12 awards. Following are the categories and the award recipients.

- Army Life Cycle Logistician of the

Year, recognizing excellence in the field of life-cycle logistics and achievements in improving the Total Life Cycle Systems Management process—**Preston Turner**, Director, Logistics Management, Project Manager Soldier Protection and Individual Equipment, Program Executive Office (PEO) Soldier.

- **Acquisition, Logistics, and Technology Continuous Performance Improvement**, recognizing contributions in the improvement of business processes, application of Lean Six Sigma methods, and operational and financial achievement in the service of our warfighters—**Retaining High Powered Serviceable T700-GE-700 & T700-GE-701C/D Aircraft Engines Lean Six Sigma Project Team**, PEO Aviation.
- **Contracting Noncommissioned Officer Award for Contracting Excellence**, highlighting exceptional leadership and significant achievements as a contracting NCO—**SFC Eric Sears**, 414th Contracting Support Brigade, U.S. Army Expeditionary Contracting Command. (See related article, Page 204.)
- **Director, Acquisition Career Management**, recognizing long-lasting contributions to the Army Acquisitions Corps throughout a civilian or military career—**Cheryl Maggio**, Deputy Program Manager, Chemical Stockpile Elimination, U.S. Army Chemical Materials Agency.
- **Acquisition Director, Project Manager, and Product Manager of the Year**, recognizing expertise in researching, developing, testing, evaluating, contracting, fielding, and sustaining warfighting systems. These four awards highlight professionals who ensure that our Soldiers have the materiel needed to fight wherever the battlefield or mission takes them:
 - **Acquisition Director of the**

HONORING ACQUISITION EXCELLENCE

The Honorable Heidi Shyu, Assistant Secretary of the Army for Acquisition, Logistics, and Technology, addresses the winners of the 2012 U.S. Army Acquisition Annual Awards at the awards ceremony Nov. 7 in Arlington, VA. She commended the 13 award recipients for their dedication to meeting Soldiers' needs. (U.S. Army Acquisition Support Center photos by McArthur Newell)

- Year at the Lieutenant Colonel Level—LTC Yee Hang**, Commander, Defense Contract Management Agency – Detroit.
- **Acquisition Director of the Year at the Colonel Level—COL Michael Hoskin**, Commander, 413th Contracting Support Brigade, U.S. Army Expeditionary Contracting Command.
- **Product Manager of the Year—LTC Terrece B. Harris**, Product Manager Improvised Explosive Device Defeat/Protect Force, PEO Ammunition.
- **Project Manager of the Year—COL Andrew DiMarco**, Project Manager Ground Combat Vehicle, PEO Ground Combat Systems.
- **Army Acquisition Excellence Awards**, highlighting four Acquisition Workforce individuals or teams whose work reflects outstanding achievement in support of Soldiers and Army transformation initiatives:
 - **Individual Sustained Achievement Award—MAJ Jason Good**, Defense Contract

Management Agency.

- **Equipping and Sustaining Our Soldier's Systems Award (Tie)—Soft Armor Team**, Product Manager Soldier Protective Equipment, PEO Soldier; and **Team C5ISR** (Coalition command, control, communications, computers, intelligence, surveillance, and reconnaissance), PEO Intelligence, Electronic Warfare, and Sensors and PEO Command, Control, and Communications – Tactical.
- **Information Enabled Army Award—Live Training Transformation Team**, Project Manager Training Devices, PEO Simulation, Training, and Instrumentation.
- **Transforming the Way We Do Business Award—Project Manager Chemical Stockpile Elimination**, U.S. Army Chemical Materials Agency.

“Overall, this competition reaffirms the talent and dedication of the Acquisition Corps, as well as the greater Acquisition



Workforce, to meet the needs of our Soldiers around the clock, around the world, 24/7. We never let our Soldiers down,” Shyu said.

SFC Eric Sears, who received the 2012 ASA(ALT) Contracting NCO Award for Contracting Excellence, said his three deployments reinforced his dedication to ensuring that Soldiers have what they need to accomplish the mission.

“When you’ve been in their shoes, it’s easier to see where they are coming from,” said Sears.

While deployed to Afghanistan, Sears was responsible for awarding and administering more than \$20 million in contracts supporting Regional Command West (RC-West). In addition, he served as the primary trainer for all RC-West contracting courses, supporting more than 10,000 Coalition troops.

“Combat experience has really helped me to see the larger picture as a whole,” Sears said. “Once you have visibility and

support for tens of thousands of Soldiers, it really allows you to see how a little change can make a big difference.

“This is the highlight of my career, to be selected for this honor,” said Sears.

Preston Turner, who was named the 2012 Army Life Cycle Logistician of the Year, attributed his success to “a lot of hard work and attention to detail.”

“I come to work every day with the passion to take care of Soldiers, and I’m sure members of my team feel the same way,” said Turner, Director of Logistics for PEO Soldier’s Project Manager Soldier Protection and Individual Equipment.

Tom Coffman, Team Lead for PEO Simulation, Training, and Instrumentation’s Live Training Transformation Team, described his team as happy and close-knit, almost like a family. The team received the Information Enabled Army Award.

“If you rarely laugh, then you’re in the wrong business,” Coffman said. “We

have fun in what we’re doing, but we are serious about getting the right product out to Soldiers.”

A complete list of the winners and nominees can be found at <http://asc.army.mil/web/aac-awards-ceremony-2012/nominees-winners/>.

MS. TARA CLEMENTS is a USAASC Public Affairs Specialist and the Access AL&T News Service Editor. She holds a degree in public relations from Radford University, and has more than 10 years of public affairs experience.

MR. ROBERT E. COULTAS is the Army AL&T Magazine Departments Editor and an Access AL&T News Service Editor. He is a retired Army broadcaster with more than 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.

PACKARD AWARDS HONOR OUTSTANDING ACHIEVEMENTS

by Mr. Robert E. Coultas

Program Executive Office Ammunition's Project Manager Combat Ammunition Systems (PM CAS) received a David Packard Excellence in Acquisition Award Nov. 2 for procurement innovations that have allowed it to compete individual requirements, minimize unit cost, and maximize competition and the quantity delivered.

PM CAS was one of two acquisition organizations to be honored with the annual Packard Award, which recognizes superior program management and accomplishment in successfully executing one or more of DOD's Better Buying Power acquisition efficiency initiatives. Also receiving the Packard Award was the U.S. Navy's DDG 51 Shipbuilding Program Office.

DOD's highest acquisition team award was first given in 1997 in honor of David Packard, a former Deputy Secretary of Defense (1969-71) and co-founder and Chairman of the Hewlett-Packard Co. Packard, who died in 1996, founded the Defense Systems Management College and was a strong advocate of excellence in defense acquisition practices.

Secretary of Defense Leon E. Panetta announced the award recipients during a Pentagon ceremony. The Secretary also awarded the first-ever Better Buying Power Efficiency Award, which recognizes innovation in Better Buying

Power (BBP) efforts. BBP was formally introduced to the DOD Acquisition Workforce in September 2010, with the objective of delivering needed warfighting capabilities within the constraints of a declining defense budget.

Frank Kendall, Under Secretary of Defense for Acquisition, Technology, and Logistics, hailed the award recipients for their efforts and accomplishments. "These three teams are at the forefront of our efforts to increase acquisition innovation and professionalism, as well as efficiencies," Kendall said. "We hope that these efforts are also recognized by others within the Department and are used as a template for increased innovation within the Acquisition Workforce."

A SIMPLER WAY TO ACQUIRE AMMUNITION

PM CAS, Picatinny Arsenal, NJ, received the Packard Award for establishing and implementing a highly efficient buying approach to acquiring critical ammunition. (See related article, Page 154.)

In response to an increased need for artillery and mortar items, the PM CAS team developed a multiple-award, indefinite delivery/indefinite quantity (IDIQ), 100 percent small business set-aside, best-value strategy for recurring production of ammunition. This single, simplified acquisition strategy

was successfully implemented for the procurement of 53 artillery and mortar components totaling \$2.7 billion and included significant room for both surge and Foreign Military Sales requirements.

The PM CAS team "dramatically reduced the average time from receipt of requirement to delivery—from 18-24 months to just 45-60 days—while also saving the government an estimated \$60 million," Panetta said.

COMPETITION CUTS SHIPBUILDING COSTS

The DDG 51 Shipbuilding Program Office, Program Executive Office Ships, Washington Navy Yard, DC, received the Packard Award for its success in conducting an innovative competition to procure three DDG 51 (Arleigh Burke) Class guided missile destroyers. Instead of a traditional competition, the team developed and executed a unique acquisition approach, called Profit Related to Offers, which gives a higher profit margin to the lowest realistic bidder. This new approach was in response to unacceptable pricing in shipbuilders' earlier proposals.

The Navy team set the standard for the follow-on multiyear procurement of future DDG 51 Class destroyers. "They created real competition in a situation where none had previously existed, awarded \$2.1 billion in contracts within six months, and saved the government \$298 million," Panetta said.

CRITICAL TREATMENT AND EVACUATION

The inaugural Better Buying Power Efficiency Award went to the Acquisition Rapid Response Medical Team for Tactical Combat Casualty Care and Casualty Evacuation, Special Operations Research, Development, and Acquisition Center, U.S. Special Operations Command,



A WINNING ARMY TEAM

Frank Kendall (center right), Under Secretary of Defense for Acquisition, Technology and Logistics, and LTG William N. Phillips (left), Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology and Director, Army Acquisition Corps, join in congratulating members of Program Executive Office Ammunition's Project Manager Combat Ammunition Systems (PM CAS) team on their David Packard Excellence in Acquisition Award, Nov. 2 during the awards ceremony at the Pentagon. From left are Phillips; Donna Ponce, Procurement Contracting

Officer, U.S. Army Contracting Command – Rock Island, IL; Maryellen Lukac, Director, Business Management, PM CAS; Rene Kiebler, Deputy PM CAS; Kendall; Martin Moratz, Chief, Conventional Ammunition Division, PM CAS; Aaron Rappaport, Acquisition Manager, PM CAS; and Ronald Rapka, retired Acquisition Manager, PM CAS. The team won the award for implementing a highly efficient buying approach for acquiring critical ammunition. (DOD photo by U.S. Navy PO1 Chad J. McNeeley)

MacDill Air Force Base, FL. The team developed an innovative battlefield casualty evacuation system to ensure that troops receive crucial medical treatments at the point of injury as well as timely evacuation, even from remote and inaccessible areas.

"Quite simply, the work done by this team of experienced combat medics, research experts, and acquisition professionals saves lives," Panetta said. "They

successfully developed and fielded pioneering capabilities that are ensuring our troops receive lifesaving medical treatments at the point of injury, helping them to survive and be evacuated within the critical 'golden hour.' "

For more information on the Packard Award and Better Buying Power Efficiency Award, go to <http://www.dau.mil/acqawards/packard/default.aspx>.

MR. ROBERT E. COULTAS is the Army AL&T Magazine Departments Editor and an Access AL&T News Service Editor. He is a retired Army broadcaster with more than 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.



SPOTLIGHT

SFC ERIC SEARS

by Ms. Margaret C. Roth

At the end of the day, it's not helping execute millions of dollars in contracts that brings SFC Eric Sears the greatest satisfaction. Nor is it working on a sprawling construction project.

For Sears, satisfaction is much more likely to come from getting hot meals to Soldiers on a forward operating base or arranging for them to have showers. As the Brigade Plans and Operations NCO in Charge for the 414th Contracting Support Brigade (CSB) in Vicenza, Italy, the 32-year-old Sears thrives on the challenge of making things happen for Soldiers in tough situations. For him, that is what defines being a 51C Acquisition, Logistics, and Technology (AL&T) Contracting NCO.

"Especially downrange, people don't realize the force multiplier that you can become," said Sears, who has deployed to Iraq, Kuwait, and, most recently, for 12 months to Herat, Afghanistan, his first deployment as a 51C NCO. Previously, Sears was a Motor Vehicle Operator.

"We had an office of four people; we supported upward of 20,000 Soldiers throughout Regional Command West in Afghanistan," Sears said of his assignment in Herat. "And it really allowed commanders the ability to react to situations or requirements that they wouldn't normally be able to if they had

to go through a traditional supply channel, because oftentimes those channels wouldn't exist."

In garrison, Sears added, "A lot of requirements will come in for basic infrastructure, life support, or whatnot around post. But when you're deployed, or especially supporting an exercise or contingency, nine times out of 10 you're there on [the] ground, talking to commanders, talking to vendors, talking to people who actually need the requirement.

"That's probably one of the best things I like about the job. It may take six or nine months, but at the end you might be able to say, 'OK, there's a fire base that I was responsible for contracting out to ensure it was built' ... there's a tangible effect that you can see."

SURPRISED BY SUCCESS

Looking back over his 13 ½ years in the Army so far, Sears confessed to being surprised by how far he has come. The Rochester, NY, native entered the Army in June 1999.

"I originally joined on a bet that I couldn't beat someone on the ASVAB [Armed Services Vocational Aptitude Battery], and I ended up liking what I heard" in the Army, Sears said. "I never thought I would go past the original six years' enlistment. However, I've had the

opportunity to work with some outstanding leaders and mentors who have helped to shape me."

Sears credits SGM Sandra Williams of the 906th Contingency Contracting Battalion; Kathryn Ford of U.S. Army Contracting Command (ACC) – Redstone; LTC Craig Gardunia (USA, Ret.), Army Acquisition Center of Excellence; MAJ Ashantas Cornelius, ACC – Redstone; and CSM Jeremy French (USA, Ret.), 414th CSB, for leading and inspiring him.

Williams, for example, was instrumental in encouraging Sears to finish his bachelor's degree. When he was accessed as a 51C in the summer of 2008, he had about 25 semester hours of college.

Within the first week, then-MSG Williams, his senior enlisted advisor in the 902nd Contracting Battalion at Fort Lewis, WA, "made me sit down and lay out a plan that said this is how I'm going to get my degree. And while I was only in the battalion for six months before I PCS'd ... she would keep checking and say, 'Where are you at? Where are you at?'"

Within 24 months—including a 12-month deployment to Afghanistan—Sears had his degree in hand, a B.S. in general management from Thomas Edison State College, from which he



CONNECTING WITH THE JOB

SFC Eric Sears aims to provide for members of his brigade what a master sergeant provided to him when he was starting out as a 51C Acquisition, Logistics, and Technology Contracting NCO: support in meeting their goals. While some need no prodding, others need friendly reminders of what the Army expects of them, he said. (Photo courtesy of U.S. Army Africa (USARAF) Public Affairs)



HONORING HIS PROFESSION

SFC Eric Sears' dedication to making a tangible difference for Soldiers led to his selection for the 2012 Assistant Secretary of the Army, Acquisition, Logistics, and Technology (ASA(ALT)) Contracting Noncommissioned Officer Award for Contracting Excellence. Here, Sears receives the award from Assistant Secretary Heidi Shyu, joined by MG Harold J. Greene, Deputy for Acquisition and Systems Management, and Kim Denver, Deputy Assistant Secretary of the Army for Procurement, Nov. 7 at the U.S. Army Acquisition Annual Awards Ceremony in Arlington, VA. (Photo by McArthur Newell, U.S. Army Acquisition Support Center)



MAKING TRAINING HAPPEN

In his current job as the Brigade Plans and Operations NCO in Charge with the 414th Contracting Support Brigade in Vicenza, Italy, SFC Eric Sears is responsible for training, making sure people attain the professional certifications required by the *Defense Acquisition Workforce Improvement Act* and the Army. Here, Sears works on day-to-day operations with fellow staff members Jeremy French (left), MAJ Eric Burke, and SFC Lasean Fox. (Photo courtesy of USARAF Public Affairs)

had also received an A.A. degree. He is now working on an M.B.A. in general management from Columbia Southern University.

"I've been more successful than I ever thought was possible," Sears said. "I feel lucky to have had the support of a great number of mentors."

Sears' dedication to making a tangible difference for Soldiers led to his selection for the 2012 Assistant Secretary of the Army Acquisition, Logistics, and Technology Contracting Noncommissioned Officer Award for Contracting Excellence, presented to him Nov. 7 at the U.S. Army Acquisition Annual Awards Ceremony in Arlington, VA.

The way Sears sees it, "You really have to work as a team." It just happens that for an individual award, "in the end, someone does get selected. It happened to be me. That's the way the cards fell."

GAINING VISIBILITY

When Sears applied for reclassification from Military Occupational Specialty (MOS) 88M to 51C, he was the first to do so in his combat support brigade at Fort Lewis; the process was new to everyone involved. Since then, word has gotten out about what it means to be a 51C AL&T Contracting NCO—the responsibilities, the challenges, and the rewards.

The 51C NCO's primary mission is to deploy as a contingency contracting officer and serve as a member of the Early Entry Module contingency contracting team. When not deployed, 51C NCOs serve as contingency contracting officers in support of Headquarters, Principal Assistant Responsible for Contracting, CSBs, contingency contracting battalions, and/or installation contracting offices for training and mission support.

“Typically in a unit, you are limited in the impact you make, whether it be to a particular section, platoon, or company, while as a 51C, your impact can be spread across thousands of Soldiers, Airmen, Sailors, and Marines,” Sears explained. The ability to work in a Joint environment was also appealing to him.

“The job is not for everyone,” Sears cautioned. “A lot of people are attracted to it because historically, it has had higher promotion rates.” But it would be wrong to view the MOS 51C as just a desk job, he suggested.

“If nothing else, a Contracting NCO needs to be flexible,” Sears elaborated, citing a popular saying: “You should never tell a customer no, but instead tell them how [a requirement] can be accomplished.” The job can, in fact, be very demanding, he said, but the rewards are great. “You’re working 14-hour days, seven days a week, to get the mission accomplished.”

Contracting NCOs “need to remember their roots,” Sears said. “The minute you forget the Soldier out in the field, you lose the ability to see the whole picture, which will ultimately make you less effective.”

Being a 51C has its share of administrative work, of course. In his current job with the 414th CSB, which he began in September 2011, Sears is in charge of training. He makes sure that people attain the Defense Acquisition University (DAU) certifications required by the *Defense Acquisition Workforce Improvement Act (DAWIA)*; pursue Continuous Learning Points as their jobs require; and receive training mandated by Army Regulation 350.1, *Army Training and Leader Development*. Sears also coordinates internal training on contracting-related issues.



‘FORCE MULTIPLIER’ IN AFGHANISTAN

While deployed to Herat, Afghanistan, SFC Eric Sears (right) took great satisfaction in helping commanders meet requirements that had a direct impact on Soldiers’ quality of life. Part of that effort was to host a conference for local Afghan vendors to help them understand the U.S. government’s contracting requirements. (Photo courtesy of USARAF Public Affairs)

Just as Williams did for him, Sears works to keep his colleagues on track with their training goals. While some need no prodding, others need friendly reminders. “It just takes a lot of sitting down with them and saying, ‘Hey, you realize that you have to do this.’”

Even an NCO who may have served as a 51C for five or six years needs a bachelor’s degree to become *DAWIA*-certified, Sears noted. “Without the *DAWIA* certification, their experience in the Army doesn’t translate across to the civilian world,” and both the NCO and the Army lose out on career opportunities and valuable expertise, he said.

“You really have to push for it and make them see the long-range picture, versus, ‘It’s hard to take a class now, or I don’t really want to go TDY to take this DAU course.’”

AIMING HIGH

Not working directly in the contracting field at the moment, Sears said, “I can’t wait for the day [in January 2013] when I can get back to a contracting position. I’d

like to continue the work that’s already been started to develop the field and improve the quality of life for Soldiers.”

His ultimate goal as a Soldier is to become ACC’s Command Sergeant Major. “I feel that this position really allows an individual to influence the growth and refinement of the 51C field,” Sears said.

Whatever the Army has in mind for him, “Right now, unless the Army kicks me out, I’m not planning on leaving anytime soon. I don’t see myself necessarily getting out at 20. It sounds kind of corny, but I just want to make the Army a better Army.”

MS. 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 three decades’ experience in journalism and public relations. She is a co-author of the book “Operation Just Cause: The Storming of Panama.”



FOR THE RECORD

CONGRESSIONAL UPDATE

FY13 NATIONAL DEFENSE AUTHORIZATION ACT

President Barack Obama signed the \$641 billion *National Defense Authorization Act for Fiscal Year 2013 (NDAA)* into law on Jan. 2. The bill, HR. 4310, authorizes \$552 billion for the defense base budget and \$88.5 billion for Overseas Contingency Operations—in all, \$1.7 billion more than the President requested.

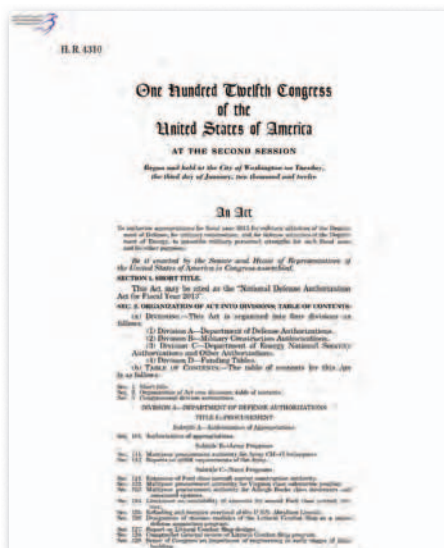
The *NDAA* determines responsibility for defense, establishes funding levels, and sets the policies whereby defense money can be spent. After the House and Senate reconciled differences between their respective versions of the bill, the House approved the resulting conference report Dec. 20 by a 315-107 vote; the Senate approved it the next day, 81-14.

The final legislation emerged from a conference committee that worked out compromises not just on funding levels, but also on provisions relating to terrorist detainees, restrictions on the military's construction of a biofuels refinery, plans for an East Coast missile defense shield, and policies regarding social issues.

FUNDING FOR ARMY PROGRAMS

The bill assures Army leaders of funding for key programs, including the authorization of a five-year multiyear procurement contract for the Army CH-47 Chinook helicopter beginning in FY13. In addition, the legislation fully supports the \$1.4 billion budget request for the CH-47 Chinook procurement and funding for the following programs:

- \$639.9 million for Ground Combat Vehicle development.
- \$373.9 million (research and procurement) for continued development and prototyping of the next-generation Paladin self-propelled artillery system.
- \$318 million to procure 58 Stryker vehicles specially designed



NATIONAL DEFENSE AUTHORIZATION ACT FOR FISCAL YEAR 2013

(SOURCE: Government Printing Office)

and built to detect nuclear, chemical, and biological agents.

- \$1.3 billion for UH-60 Black Hawk procurement.
- \$272 million for UH-72A Light Utility Helicopter procurement.
- \$984.9 million for remanufactured and new-production Apache Block III attack helicopters.
- \$103.3 million for Nett Warrior procurement.
- \$116 million for research, development, test, and evaluation for elements of the Joint Tactical Radio System. But the bill authorizes only \$366.3 million of \$556.3 million requested for procurement of radios (a reduction of \$190 million), due to Manpack radio contract delays.

The bill adds funding for the following programs:

- \$136 million for upgrades to the M1 Abrams tank to mitigate risk to the armored vehicle industrial base.
- \$140 million to accelerate M2 Bradley armored fighting vehicle upgrades and modifications, also to help mitigate risk to the armored vehicle industrial base.
- \$62 million for additional M88A2 Advanced Recovery Vehicles to mitigate the risk of the suspension of armored vehicle production through FY13.

The legislation denies funding for the multinational Medium Extended Air Defense System (MEADS), a joint venture by the United States, Italy, and Germany to develop a replacement for the Patriot defense program. Army leaders had decided to kill the program after next year.

According to a fact sheet released Dec. 18 by the House Armed Services Committee, the bill meets the goals of "... providing resources to meet the threats America faces; keeping faith with

America's men and women in uniform; aligning our military posture in a dangerous world, and rebuilding a force after a decade at war."

Sen. Carl Levin (D-MI), Chairman of the Senate Armed Services Committee, said, "The conference report on the *National Defense Authorization Act for Fiscal Year 2013* ... provides well-deserved support for the men and women of the armed forces and their families and provides them with the means to accomplish their missions."

ACQUISITION POLICY

The legislation also includes several provisions affecting acquisition policy. It seeks to improve the cost-effectiveness of DOD contracting by strictly limiting the use of cost-type contracts for the production of major weapon systems; enhances protections for contractor employee whistleblowers; restricts the use of "pass-through" contracts; and clarifies DOD access to contractor cost and price information. In addition, the bill strengthens and enhances legislative requirements to ensure appropriate consideration of small business in federal contracting.

SEQUESTRATION

On Jan. 2, President Obama signed the *American Taxpayer Relief Act of 2012*, a bipartisan agreement that delays until March 1 the possibility of sequestration, across-the-board 10 percent budget cuts. If Congress and the White House do not reach a

deficit reduction plan before March 1, DOD faces an estimated \$57 to \$63 billion in cuts to its 2013 budget.

Also on Jan. 2, Secretary of Defense Leon E. Panetta released a statement that "Congress has prevented the worst possible outcome by delaying sequestration for two months. Unfortunately, the cloud of sequestration remains. The responsibility now is to eliminate it as a threat by enacting balanced deficit reduction.

"This Department is doing its part to help the country address its deficit problem by working to implement \$487 billion in spending reductions in accordance with our new defense strategy," Panetta continued. "The specter of sequestration has cast a shadow over our efforts. We need to have stability in our future budgets. We need to have the resources to effectively execute our strategy, defend the Nation, and meet our commitments to troops and their families after more than a decade of war."



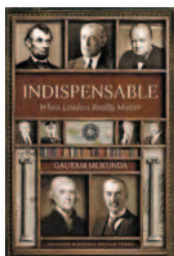


OFF THE SHELF

RECOMMENDED READING LIST

Army leaders have always encouraged their Soldiers to read. Even—and especially—in this age of information overload, the pursuit of knowledge through books is essential to develop a fuller understanding of acquisition, logistics, and technology. In the words of GEN Raymond T. Odierno, Chief of Staff of the Army, “We can never spend too much time

reading and thinking about the Army profession and its interaction with the world at large. ... There is simply no better way to prepare for the future than a disciplined, focused commitment to a personal course of reading, study, thought, and reflection.” On that note, we publish *Off the Shelf* as a regular feature to bring you recommended reading from Army AL&T professionals.

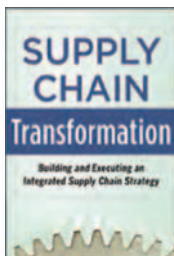


INDISPENSABLE: WHEN LEADERS REALLY MATTER

by Gautam Mukunda

(Boston, MA: Harvard Business Review Press, 2012, 320 pages)

Will your next leader be insignificant—or indispensable? The importance of leadership and the impact of individual leaders has long been the subject of debate: Are they made by history, or do they make it? In this book, Mukunda, Assistant Professor of Business Administration at Harvard Business School, looks at how and when individual leaders really can make a difference. Mukunda profiles a variety of historic and modern figures—including Thomas Jefferson, Abraham Lincoln, Winston Churchill, and groundbreaking cancer researcher Dr. Judah Folkman—telling the stories of how they rose to importance and how they made the most critical decisions of their lives. He analyzes their careers, identifies lessons to be learned, and reveals how an individual in a certain place at a certain time can save or destroy an organization and even change the course of history.

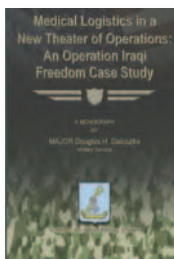


SUPPLY CHAIN TRANSFORMATION: BUILDING AND EXECUTING AN INTEGRATED SUPPLY CHAIN STRATEGY

by J. Paul Dittmann

(New York, NY: McGraw-Hill, 2012, 256 pages)

Given that a company's supply chain accounts for about 60 percent of its total costs, it is perhaps alarming that few organizations integrate supply chains in their business strategies; thousands of U.S. companies never even consider supply chain strategies. From this sobering fact, Dittmann, a bestselling author, former business executive, and now Executive Director of the Global Supply Chain Institute at the University of Tennessee, sets out to provide a comprehensive tool kit for creating and maintaining a customized supply chain system that improves the flow of materials and information. His book lays out an eight-step process that addresses everything from analyses of comprehensive strengths, weaknesses, opportunities, and threats and the competitive supply chain, to harnessing new technologies and winning organizational acceptance.



MEDICAL LOGISTICS IN A NEW THEATER OF OPERATIONS: AN OPERATION IRAQI FREEDOM CASE STUDY

by MAJ Douglas H. Galuszka

(Fort Leavenworth, KS: School of Advanced Military Studies, 2012, 78 pages)

Galuszka examines in detail the medical logistics system that supported U.S. Forces in the maneuver phase of *Operation Iraqi Freedom*, from March 20 to May 1, 2003, starting with a review of logistical lessons learned from World War II to the Gulf War. He describes the creation and execution of the medical logistical support system in Qatar and Kuwait, from site selection for the regional medical logistical warehouse in summer 2002 through the maneuver phase of the ground war. Galuszka concludes that the medical logistics support system was not functioning properly when the ground war began. He cites several factors, chiefly the late arrival of medical logistics units into Kuwait, and presents recommendations for future operations.



DEFENSE ACQUISITION REFORM, 1960-2009: AN ELUSIVE GOAL

by J. Ronald Fox, with contributions by David G. Allen, Thomas C. Lassman, Philip L. Shiman, and Walton S. Moody

(Washington, DC: Department of the Army Center of Military History, 2012, 282 pages)

For this book, Fox, a Jaime and Josefina Chua Tiampo Professor of Business Administration, Emeritus at Harvard Business School, draws on his research and experience as a former Assistant Secretary of the Army for Installations and Logistics (1969-71) and Deputy Assistant Secretary of the Air Force (1963-65). Examining the many attempts over the past 50 years to reform DOD's process of acquiring major weapon systems, Fox identifies important long-term trends and offers observations that could benefit defense acquisition decision-makers and the acquisition schoolhouse.



2012 DEFENSE ACQUISITIONS: ASSESSMENTS OF SELECTED WEAPONS PROGRAMS

(Washington, DC: Government Accountability Office, 2012, 189 pages; available in PDF at <http://www.gao.gov/assets/590/589695.pdf>)

The total estimated cost of DOD's 2011 portfolio of 96 major defense acquisition programs was \$1.58 trillion. While this represented a growth of 5 percent over the previous year, most of these programs lost buying power. About \$31.1 billion of the \$74.4 billion year-over-year increase can be attributed to factors such as inefficiencies in production, \$29.6 billion to quantity changes, and \$13.7 billion to research and development cost growth. Against this backdrop, the Government Accountability Office (GAO), the auditing arm of Congress, looks at what is being done right and wrong in DOD's planning and execution of these programs, including implementation of key provisions of the *Weapon Systems Acquisition Reform Act of 2009* and newer DOD initiatives, such as affordability targets and "should cost" analysis.

GAO's annual assessment, which for 2012 examines 37 programs across the military services, finds that while newer programs are showing higher levels of knowledge at key decision points, most programs still are not fully adhering to a knowledge-based acquisition approach. (A notable exception is the Army's M982 Excalibur Increment 1a-2 projectile.) Other Army acquisition programs in GAO's 2012 assessment include the Ground Combat Vehicle, Apache Block IIIA, Army Integrated Air and Missile Defense, and Warfighter Information Network – Tactical Increments 2 and 3.



INDUSTRIAL MEGAPROJECTS: CONCEPTS, STRATEGIES, AND PRACTICES FOR SUCCESS

by Edward W. Merrow

(Hoboken, NJ: John Wiley & Sons, 2011, 371 pages)

Billions of dollars in overruns. Long delays in design and construction. Substandard operability of completed projects. Such poor results characterize more than half of large-scale engineering and construction projects, including offshore oil platforms, chemical plants, and dams. Merrow, the founder and CEO of Independent Project Analysis Inc., establishes a clear, nontechnical understanding of why these major projects get into trouble, wasting money and hurting reputations. Merrow examines the effects of poor project management, destructive team behaviors, weak accountability systems, short-term focus, and lack of investment in technical expertise. The result of Merrow's analysis is a body of tools and principles that can provide a foundation for safe, cost-effective, successful megaprojects.

A wealth of suggested reading titles is in GEN Odierno's professional reading list, online at <http://www.history.army.mil/html/books/105/105-1-1/index.html>. Is there a book you'd like to recommend for this column? Send us an email at armyalt@gmail.com. Please include your name and daytime contact information.



REALISM = READINESS

The Reconfigurable Vehicle Tactical Trainer (RVTT) System uses a virtual environment to enhance Soldiers' pre-deployment training by simulating platoon-level training events as well as company and team collective training up to battalion task force level—a marked upgrade from early efforts, which used a 16mm camera strapped to the gun of an M60 tank. The RVTT can run as many as 32 simultaneous, independent exercises in a variety of combat vehicles, providing a level of training that gives Soldiers the technical edge as well as a psychological advantage. (Photo courtesy of Lockheed Martin Corp.)

THEN & NOW

1962 & 2012

In June 1962, the *Army Research and Development Newsmagazine* (now *Army AL&T Magazine*) reported on an “ingenious experiment in field training and performance evaluation” in which three platoons of M60 tanks trained in exercises at the Friedberg Training Area in West Germany—without firing a single round of ammunition.

The article describes how a 16mm pulse-operated camera was strapped to the gun of an M60 and activated by a switch controlled by the tank commander. The commander pressed the camera switch as soon as he saw the target, and the camera recorded gun movements at the rate of one marked picture per second. From this training setup, the Army was able to measure how many seconds were required for a tank commander to see the target, how many seconds elapsed between target acquisition and actual firing, and the accuracy of the gunner's lay on the target.

LTC William F. Mangum, Commanding Officer of the 1st Medium Tank Battalion, 32nd Armor, 3rd Armored Division, remarked, “The psychological effect on all crew members was obvious. Accuracy of lay, speed of reaction, and target hit possibility were no longer matters of

speculation.” The black-and-white photo records were an invaluable tool in training the Soldiers for their mission.

Fast forward to today's Reconfigurable Vehicle Tactical Trainer (RVTT) System, part of the Close Combat Tactical Trainer, a virtual environment the Army uses to enhance Soldiers' training before deployment to the front lines. The system simulates multiple realistic platoon-level training events, or company and team collective training up to battalion task force level. It allows for as many as 32 simultaneous, independent exercises in a wide variety of combat vehicles, including the M1 Abrams tank, the M2 Bradley Infantry Fighting Vehicle, and M3 Cavalry Fighting Vehicle, among others.

The simulators are networked to provide real-time, fully interactive, collective task training, vastly improving the effectiveness of Soldiers' training and ensuring them the psychological edge when it comes time to execute the mission.

For more information on RVTT, go to <http://www.peostri.army.mil/PRODUCTS/CCTT>. For a historical tour of AL&T over the past 52 years, visit the *Army AL&T Magazine* archives at <http://asc.army.mil/web/magazine/alt-magazine-archivel>.



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“What we’ve been doing over the last decade is adaptation, and some very successful adaptation. Innovation, on the other hand, comes from a much more methodical development of possibilities to [solve] longer-term problems. Our challenge is how to balance this adaptive/innovative aspect of our Army’s organization.”

LTG Keith C. Walker

*Deputy Commanding General, Futures and Director, Army Capabilities
Integration Center, U.S. Army Training and Doctrine Command*

Page 10