

DESIGN ■ DEVELOP ■ DELIVER ■ DOMINATE

ARMY AL&T

ASC.ARMY.MIL

JANUARY-MARCH 2012

LOGISTICS LESSONS LEARNED



NO MORE 'STEEL MOUNTAIN'

Responsible Reset
Establishes Efficiencies

THE MATERIALS DIFFERENCE

S&T Seeks to Tap
Potential Capabilities



From the Editor-in-Chief

TALK BACK

For more news, information,
and articles, please visit the
USAASC website at
<http://asc.army.mil>.
Click on the Publications
tab at the top of the page.

To contact the Editorial Office:
Call (703) 805-1034/1038
or DSN 655-1034/1038

Articles should be submitted to:
DEPARTMENT OF THE ARMY
ARMY AL&T
9900 BELVOIR RD.
FORT BELVOIR, VA 22060-5567

Our fax number is (703) 805-4218.
Email:
usarmy.belvoir.usaasc.list.usaascweb-army-alt-magazine@mail.mil
or
usarmy.belvoir.usaasc.list.usaascweb-army-alt-magaz-ltr@mail.mil

Unlike past wars, in which equipment was rushed to theater only to have accountability “lost,” the visibility of equipment in the current two-theater war is unprecedented. By the time this issue of *Army AL&T* hits the street, the withdrawal of troops and equipment from Iraq will be complete. In what the *Wall Street Journal* coined an “invasion in reverse,” U.S. troops have driven 16 million miles to move “a mountain of equipment [and] personnel” from more than 500 bases in the last year and a half, according to LTG Frank G. Helmick, Commanding General, XVIII Airborne Corps and Deputy Commander for Operations, U.S. Forces-Iraq, speaking Dec. 7 during the final briefing from Iraq to Pentagon reporters.

In 2009, LTG James H. Pillsbury, then Deputy Commanding General and Chief of Staff of the U.S. Army Materiel Command, assembled and led the Responsible Reset Task Force, or R2TF. Facing a December 31, 2011, deadline directed by President Obama, the R2TF took the lead in identifying equipment for redistribution within theater, retention for Army Prepositioned Stocks, transfer to Afghan units, donations to the Iraqi government and to our own state and local governments, or disposal in accordance with approved guidelines. The remaining equipment was returned to the United States for repair and reissue to units.

This issue of *Army AL&T* focuses on these and other enormous logistical challenges facing the U.S. Army in a two-theater war, and our many successes along the way. Read about how lessons learned have been and continue to be integrated into day-to-day operations; the marked improvements in asset visibility achieved over the years; and the positive impacts that smart management of supply inventories and reduced maintenance burdens can have on unit operations. Finally, a note on the Materiel Enterprise: it's not just for Army senior leaders anymore! Creating opportunities at the operational level to share ideas and propose

solutions to common problems is the focus of an article on bringing acquisition and logistics together.

Incorporating the lessons learned from Iraq into modern doctrine is just one way we learn from the past. Along those lines, we've created a new section, Then and Now, where we look at ideas circulating at the beginning of *Army AL&T* Magazine in December 1960 and juxtapose them with current efforts. See all past issues in our archives at <http://live.usaasc.info/magazine/alt-magazine-archive>.

Our guest columnist this quarter in our Critical Thinking section is Jan R. Frye, Deputy Assistant Secretary, Office of Acquisition and Logistics in the U.S. Department of Veterans Affairs, who provides insights on better buying power opportunities through shared procurement.

If you couldn't make the AUSA Annual Meeting and Exposition in October, turn to our Conference Call section, where you'll find stories and links to presentations that have a direct impact on you and ongoing Army initiatives such as modernization, energy alternatives, and transformation of the Army Civilian Workforce.

Finally, this issue has a convenient pull-out OASAALT Organizational Chart showing the various reporting relationships, roles, and responsibilities of the Headquarters, Deputy Assistant Secretaries of the Army, Direct Reporting Units, Program Executive Officers, and others.

While 2012 brings new challenges, it also brings new opportunities to serve our Soldiers even better than before. We hope this issue provides you with information you can use to meet that challenge and to create better products, increase efficiencies, and learn from the past. Please share this magazine with others and, if you have any comments or suggestions, don't hesitate to contact me at usarmy.belvoir.usaasc.list.usaascweb-army-alt-magaz-ltr@mail.mil. I look forward to hearing from you.

Nelson McCoub III
Editor-in-Chief

ARMY AL&T

JANUARY–MARCH 2012



FEATURES



FROM THE AAE

4 BUILDING ON OUR ACQUISITION SUCCESSES

Affordability improvements and streamlined requirements yield a productive acquisition process



ACQUISITION

8 FROM DATA TO DECISIONS

Army's first D2D demonstration streamlines battlefield communications

14 INTEGRATION MANDATE

U.S. Army Acquisition Corps stands up new directorate

17 SECURING COMMUNICATIONS

PD COMSEC's capabilities keep up with rapidly growing network

22 INFORMATION ADVANTAGE

Modernization of enterprise terminals will enhance net-centric operations

28 LIGHT TACTICAL VEHICLES AHEAD

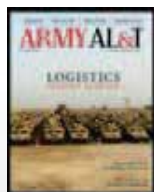
Army preparing to produce JLTVs, recapped HMMWVs

32 EYES ON THE ENEMY

Army, Pentagon seek small, 'throwable' robots for Afghanistan

36 REDUCING RISK, NOT MANPOWER

Unmanned systems bring lifesaving capabilities, but saving money in personnel has yet to be achieved



ON THE COVER

Vehicles from 1st Battalion, 82nd Field Artillery Regiment, 1st Brigade, 1st Cavalry Division are ready for inspection and turn-in at the Mobile-Redistribution Property Assistance Team Yard on Contingency Operating Station Echo, Iraq, Oct. 16, 2011. (Photo by SGT Gregory Snyder.)



LOGISTICS

40 SUSTAINMENT LESSONS LEARNED

From force structure to operations to accountability, after-action reports from Iraq and Afghanistan highlight challenges met while fighting two wars

44 NO MORE 'STEEL MOUNTAIN'

Army's Responsible Reset Task Force establishes efficiencies, visibility in drawdowns from Iraq and Afghanistan

50 TRANSFORMATIONAL JOURNEY

Military Surface Deployment and Distribution Command navigates dramatic changes in movement of cargo for overseas contingency operations

54 SYNCING SUPPLY WITH DEMAND

Army's new equipment tracking and distribution system marks fundamental change in logistics

59 HOW MUCH IS ENOUGH?

Army must 'right-size' inventory of spare and repair parts procured for high-intensity operations as it adjusts to new realities

62 MANAGING INFORMATION

Global Combat Support System-Army integrates supply, property accountability, and maintenance operations

65 OPERATIONAL ENERGY: A FORCE MULTIPLIER

Logistics Innovation Agency and its partners explore advanced energy, water, and waste technologies and solutions to improve efficiencies, reduce demand, and save lives

69 FLEET MANAGEMENT

A sustained strategy to reduce maintainer burden

74 ACQUISITION MEETS LOGISTICS

Bringing the Materiel Enterprise to the operational level

FEATURES

MS. HEIDI SHYU

Acting Assistant Secretary of the Army
for Acquisition, Logistics, and Technology
(ASAALT)/Army Acquisition Executive

EDITORIAL BOARD

LTG JACK C. STULTZ
Chief, U.S. Army Reserve/Commanding
General (CG), U.S. Army Reserve Command

LTG DENNIS L. VIA
Deputy CG/Chief of Staff,
U.S. Army Materiel Command

LTG ROBERT P. LENNOX
U.S. Army Deputy Chief of Staff (DCS), G-8

LTG WILLIAM N. PHILLIPS
Director, Army Acquisition Corps and Director,
Acquisition Career Management

LTG SUSAN S. LAWRENCE
U.S. Army Chief Information Officer/G-6

MG JAMES K. GILMAN
CG, U.S. Army Medical Research
and Materiel Command

MG R. MARK BROWN
Deputy for Acquisition and Systems
Management, Office of the ASAALT
(OASAALT)

WIMPY PYBUS
Deputy ASA (DASA) for Acquisition Policy
and Logistics, OASAALT

DR. JEFFERY P. HOLLAND
Director of Research and Development,
U.S. Army Corps of Engineers

ROY A. WALLACE
Assistant DCS, G-1

THOMAS E. MULLINS
DASA for Plans, Programs,
and Resources, OASAALT

JAMES C. SUTTON
DASA for Services, OASAALT

KEITH B. WEBSTER
DASA for Defense Exports
and Cooperation, OASAALT

LEE THOMPSON
DASA for Strategic Communications and
Business Transformation, OASAALT

DR. MARILYN M. FREEMAN
DASA for Research and Technology, OASAALT

CARMEN J. SPENCER
DASA for Elimination of Chemical Weapons,
OASAALT

KIM D. DENVER
DASA for Procurement, OASAALT

CRAIG A. SPISAK
Director, U.S. Army Acquisition
Support Center (USAASC)

NELSON MCCOUCH III
Executive Secretary,
Editorial Board, USAASC



SCIENCE & TECHNOLOGY

78 THE MATERIALS DIFFERENCE

The S&T community seeks to tap the vast potential of new substances for game-changing capabilities in battery power, Soldier protection, and much more

83 HONORING INNOVATION

Armywide awards program recognizes
the greatest inventions of 2010

88 MENDING THE MIND

Multidisciplinary efforts converge to help service members
and veterans facing brain injuries

94 S&T CIRCLES THE GLOBE

RDECOM Forward Element Commands find technology
solutions, promote theater security cooperation



CRITICAL THINKING

98 SHARE AND SAVE

Jan R. Frye, VA's Deputy Assistant for Acquisition
and Logistics, sees cost-cutting opportunities
in collaboration with DoD



CONTRACTING

102 'SEPARATE CONTRACTING
FROM ACQUISITION'

Q&A with Dr. Jacques S. Gansler

106 ACCOUNTABILITY IN ACQUISITION

New Milestone Agreement promises more methodical
tracking process and better communication



EFFICIENCIES

110 GOING LEAN

How Letterkenny Army Depot built a prize-winning
culture of process improvement

114 FINANCIAL MANAGEMENT MILESTONE

U.S. Army General Fund Enterprise Business System
goes global

118 CONSTRAINTS AND CONTROLS

PEO/SYSCOM Commanders' Conference takes an in-depth
look at current cost-management challenges and solutions

128 FISCAL FIXES

DoD Comptroller emphasizes acquisition community's involvement in managing the defense budget

131 EFFICIENCIES IN EXPERTISE

USAASC-sponsored Excellence in Government Fellows explore Army use of Federally Funded Research and Development Centers and University-Affiliated Research Centers

135 LEAPS AHEAD

ASAALT recognized for 'best in the Army' Lean Six Sigma business transformation results

138 DOLLARS & SENSE

Tracking ASAALT's efforts to identify and meet cost-saving and cost-avoidance goals



FIELD EXPEDIENT

139 QUICK THINKING

New facility in Afghanistan aims to develop battlefield solutions faster, with Soldiers' help



COMMENTARY

142 FROM THE DIRECTOR, ACQUISITION CAREER MANAGEMENT

Changing the acquisition paradigm

145 MODERNIZATION: WHERE THE ARMY WENT WRONG



CONFERENCE CALL

148 AUSA 2011 ANNUAL MEETING AND EXPOSITION

The outlook for the year ahead

149 ACQUISITION PLAYBOOK

Key players in 'team sport' discuss positions and priorities

152 ENERGY ALTERNATIVES

Army focuses on Soldier, basing, and vehicle power improvements

156 CIVILIAN TRANSFORMATION

New career management programs, Web tools promise support for employee advancement in uncertain times

DEPARTMENTS



159 CAREER CORNER



169 SPOTLIGHT



172 THEN & NOW



173 FOR THE RECORD



175 OFF THE SHELF

EDITORIAL STAFF

NELSON MCCOUCH III
Editor-in-Chief

MARGARET C.
(PEGGY) ROTH
Senior Editor

ROBERT E. COULTAS
Departments Editor

BRITTANY ASHCROFT
Editor

CHRISTINA SNEED
Layout and Graphic Design

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

Private subscriptions and rates are available from: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402 (202) 512-1800

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

POSTMASTER:
Send address changes to:
DEPARTMENT OF THE ARMY
ARMY AL&T
9900 BELVOIR RD
FORT BELVOIR, VA 22060-5567

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

By order of the
Secretary of the Army

RAYMOND T. ODIERNO
General
United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to
the Secretary of the Army
1134801





FROM THE AAE

FROM THE ARMY ACQUISITION EXECUTIVE
MS. HEIDI SHYU

Building on our ACQUISITION SUCCESSES



FROM THE AAE

As we press forward together with a mind to best serving our Soldiers, it strikes me as both prudent and worthwhile to reflect for a moment on how we can build on our collective progress and recent successes as an acquisition community.

As you know, we have been immersed in ongoing improvements emphasizing affordability, streamlining requirements at the front end of the procurement process, incentivizing innovation, increasing competition, and harnessing emerging technologies. We pursue these aims with hard work and unwavering resolve to ensure that we deliver Soldiers the best available equipment and capabilities.

The Army has worked vigorously over the last 10 years to adjust to the fast-changing demands of wars in Iraq and Afghanistan, in some instances adjusting procurement approaches in order to meet the urgent needs of forces in combat.

STUDIES IN SUCCESS

The Army has achieved success in countless acquisition efforts, adjusting and meeting the fast-changing demands of the

two wars. Our successes include the rapid procurement of large-scale systems such as Mine Resistant Ambush Protected Vehicles, Strykers with a Double V-Hull, and unmanned aerial systems. We have also rapidly procured communications equipment like Force Battle Command Brigade and Below and smaller items for the individual dismounted Soldier, such as digitally enhanced night vision goggles, protective body armor, and lighter-weight weapons.

Other Army acquisition successes include the delivery of flame-resistant uniforms, Individual Gunshot Detection systems, and thousands of small tactical robots able to clear caves and buildings in search of IEDs.

The Army has committed to a new way of doing acquisition—a more agile approach that emphasizes affordability, embraces innovation, supports competition, and rewards technological maturity. Where commercially available solutions exist, we have committed to adopting them. Where our needs depend on rapidly evolving technologies, we avoid trying to reinvent them. In some cases, we can blend formal programs of record

with promising commercially available technologies and bring improved capability to the force faster. Above all, where opportunities arise to efficiently reduce costs, we seek to capitalize on them. The decision to cancel the Ground Mobile Radio, for example, was fully consistent with this approach, reflecting advances in radio technology, as well as recent efforts to revise requirements, in pursuit of more effective and affordable solutions.

NIE

The Army's ongoing semiannual Network Integration Evaluation represents an effort to streamline acquisition. The NIE is designed to evaluate and integrate emerging technologies in the combat-relevant environment of White Sands Missile Range, NM, allowing the Army to execute with a directed requirement. This operational assessment of systems signifies an important step forward as equipment is tested in combat-relevant environments before fielding, thereby reducing initial equipment and weapon issues and necessary modifications in theater.

The NIE represents a new way of doing business for the Army, with the ultimate

DELIVERING CAPABILITY

Lessons learned in the acquisition community allow the Army to provide the best technology and equipment for Soldiers, both mounted and dismounted, such as this Soldier with 3rd Battalion, 187th Infantry Regiment, 101st Airborne Division on a joint patrol with Afghan National Security Forces in Andar District, Afghanistan, in January 2011. (International Security Assistance Force photo by U.S. Air Force SSgt Joseph Swafford.)

goal of delivering new battlefield-ready capabilities to Soldiers. The NIE is used for rapid evaluation of capabilities to include software-programmable radios able to move voice, video, data, and images across a terrestrial network to satellites, sensors, software, unmanned aerial systems, and handheld devices such as smartphones for dismounted individual Soldiers. The NIE connects them with all of these programs to one another and up to higher echelons of command with key, battle-relevant information. The NIE is designed to ensure that the Army keeps up with the fast pace of technological change by tracking and in some cases leveraging the latest in commercial technological innovation.

The first NIE, organized around a 3,800-Soldier Brigade Combat Team, finished up in July 2011. The second one finished in November.

'A NEW WAY OF DOING BUSINESS'

The Army's ongoing Network Integration Evaluation (NIE) allows Soldiers to test and evaluate new technologies before they are fielded to Soldiers downrange. Here, SSG Reag Wood from 1st Battalion, 35th Infantry Regiment, 2nd Brigade Combat Team, 1st Armored Division uses a handheld device as a translator to communicate with a "town elder," a role played by SGT Steven Howell from 1st Battalion, 6th Infantry Regiment, during the NIE 12.1 exercise at White Sands Missile Range, NM, in November 2011. (Photo by LTC Deanna Bague.)



INTEGRATION

Another area of effort and improvement in the acquisition community is system-of-systems interoperability and integration.

The Army's current transition to a common operating environment (COE) represents part of this critical approach and focus. The COE provides a framework to build from and around, allowing for early integration between systems and improved interoperability.

Achieving and maintaining interoperability and integration early on are critical, allowing us to reduce or avoid costs and to keep to program schedules later in the acquisition process.

BETTER BUYING POWER

As we strive to codify many of these important improvements to the acquisition process, we should be mindful that

we are laying the groundwork for better acquisitions tomorrow.

DoD's target is to save \$450 billion over 10 years. Army acquisition is making great strides in working with the Office of the Secretary of Defense to meet these goals through a number of cost-saving measures, many of them outlined in Dr. Ashton B. Carter's Better Buying Power initiatives aimed at maximizing productivity and gaining efficiencies throughout the entire acquisition life cycle.

Some of our critical approaches in this effort include formally building affordability metrics into the structure of programs and considering cost as an independent variable in the acquisition process. By establishing affordability as a key performance parameter woven into the developmental structure of acquisition programs, program executive officers and individual project managers are encouraged to find innovative methods of delivering needed technologies while simultaneously lowering costs, finding additional savings, and avoiding unneeded expenses.

REQUIREMENTS

Performing requirements trade-offs to drive down costs in certain circumstances is another great example of how we are realizing some of these important goals. In our Joint Light Tactical Vehicle program, for instance, we have synchronized requirements with our Marine Corps partners and in some cases made key trade-offs wherein we give up certain requirements in order to drive down unit costs. We managed to significantly drop the per-vehicle cost without compromising the core capabilities and valued technologies fundamental to the new vehicle. We will deliver Soldiers a JLTV engineered with an unprecedented blend of protection, payload, and performance for a light tactical vehicle; the JLTV will



bring much-needed capabilities to the force such as increased survivability, off-road mobility, and onboard electronics, among other things.

An underlying message here is that we need to continue our efforts to focus on mature technologies and achievable requirements; in fact, we encourage our PEOs, PMs, U.S. Training and Doctrine Command brethren, and industry partners to question, refine, and streamline requirements wherever possible, especially at the front end of the process so as to avoid the delays and cost overruns often associated with the pursuit of unrealistic requirements.

PROCESS

The Army has also achieved substantial savings by conducting Capability Portfolio Reviews; CPRs are aimed at increasing efficiency and eliminating redundancy by looking holistically across groups or “portfolios” of programs with a mind to how they impact one another and the Army as a whole.

The Precision Fires CPR, for instance, resulted in at least \$1 billion in savings for the Army because the service was able to identify some redundant capabilities and, among other things, cancel the Non-Line-of-Sight Launch System.

While we applaud these important savings, it is also important that we seek to eliminate redundancy in a manner that preserves the development of what is needed for our Soldiers. In fact, it is our firm belief that finding ways to become more efficient and responsible with our taxpayer dollars is in no way incompatible with meeting the current and future needs of our force.

CONTRACTING

Multiyear contract buys, such as those we’ve pursued with the improved Chinook



SMART BUY

The improved CH-47F Chinook helicopter is being acquired by the Army through multiyear contract buys, which will yield a projected cost avoidance of more than \$373 million over five years. Advancements include a new machined airframe, vibration reduction, digital source collectors, and compatibility with joint digital connectivity requirements. (U.S. Army photo.)


“F” model and Black Hawk helicopters, provide yet another instance wherein we have concurrently delivered much-needed new technology and reduced cost; our five-year, FY13 to FY18 purchase plans for the Chinook “F” will result in a projected cost avoidance of more than \$373 million. Multiyear buys, which are also in effect for the Black Hawk “M” model helicopter, provide tremendous stability with the prime contractor and its suppliers; in addition, they allow us to acquire long-lead items in larger quantities in advance, thus driving down prices.

Purchasing data rights and Technical Data Packages is another effective means to achieve cost avoidance, because it allows the government to own TDPs for key technologies and then to increase competition among vendors interested in developing and producing the materiel.

This approach paid dividends for the Army’s Family of Medium Tactical Vehicles program; the Army’s acquiring

of the TDP and resulting competition for the contract wound up saving more than \$1 billion. In yet another instance, the Army’s purchasing of the data rights to the Precision Guidance Kit, a GPS-guided 155mm round, resulted in more than \$19 million in cost avoidance due to increased competition among contractors.

CONCLUSION

Overall, lessons from each of these scenarios help us make tremendous gains in acquisition now and going forward. Many of the improvements to the acquisition process chart our course to a better, more efficient, and prosperous future. As we continuously endeavor to improve the results of our requirements, resourcing, acquisition, and sustainment process, let us not forget our many successes. Army acquisition is truly a team effort. I look forward to working with all Army organizations and stakeholders to continue meeting the needs of our present and future Soldiers. 





FROM DATA TO DECISIONS

Army's first D2D demonstration
streamlines battlefield communications

by MAJ Jonathan M. Swan and Jim Hennig

With the constant flow of battlefield data provided by digital systems, it can be tough for commanders to pinpoint what is most important and choose a course of action.

That could change with Data to Decisions (D2D), a new DoD initiative to connect different information sources in ways that enable faster, better decisions while reducing information overload. Thousands of data sets can provide little tangible information, potentially resulting

in incorrect or delayed conclusions. At worst, decision makers can ignore important data if the data are obscured or difficult to manipulate. One of the primary aims of the D2D effort is the intelligent synthesizing of data to create valuable, relevant information.

That will allow the commander to ask a question and get a coherent answer quickly. Reducing a pile of information down to the key pieces needed results in less of a cognitive load and can improve outcomes on the battlefield.

DISMOUNTED DEFENSE

One Data to Decisions (D2D) vignette focused on defending a company-size outpost against rocket and mortar attacks. This event involved patrols by dismounted troops using handheld mission command systems (pictured), sending and receiving information about friendly and enemy force locations. (Photos by Edric Thompson, Communications-Electronics Research, Development, and Engineering Center Public Affairs.)



FOLLOWING FRIENDLY FORCES

CPT Joseph Mucci, Company Commander for the D2D capabilities demonstration at Fort Dix, NJ, uses the Joint Capabilities Release of Force XXI Battle Command Brigade and Below/Blue Force Tracking to track the locations of friendly forces and to send and receive text messages.

We recently helped lead the Army's first capability demonstration in support of D2D during the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) and Network Modernization Event 2011 (E11) at Fort Dix, NJ.

MISSION-TESTED

The July-August event, conducted by the U.S. Army Research, Development, and Engineering Command's Communications-Electronics Research, Development, and Engineering Center (RDECOM CERDEC), involved many current and emerging tactical communications technologies, incorporated into mission scenarios run by members of the New Jersey National Guard. While the Fort Dix exercise has taken place annually since 2003, this was the first time that several of the technologies involved were evaluated through the lens of D2D.

Aimed at the brigade level and below, those technologies included a combination of sensors, mission command decision aid systems, and artificial intelligence applications from across the CERDEC portfolio. We want to assess

how well these technologies can reduce manpower and time, increase accuracy, and lead to more effective information products as decision aids.

The missions focused primarily on reconnaissance, such as tracking the movements of enemy forces or discovering a weapons cache, that required individuals and systems to collect and process massive amounts of information, said Dr. Randy Zimmerman (LTC, USA Ret.), a consultant for the event. Knitting together satellite, radio, and cellular communications, the network connected ground troops patrolling through the woods, commanders in vehicles, higher headquarters leadership back at the tactical operations center (TOC) tent, and an unmanned aerial system flying 7,000 feet overhead collecting video footage.

"The end state we're trying to achieve is sharing information from the leading edge and the Soldiers all the way back into the TOC, and then back down again," Zimmerman said.

Results and lessons learned from E11 are reported to the Assistant Secretary of

the Army for Acquisition, Logistics, and Technology (ASAALT), in support of the Army's network modernization strategy. The event also informs and reduces risk for the Network Integration Evaluations, a series of semiannual field exercises at White Sands Missile Range, NM, and Fort Bliss, TX, where a similar network architecture is being tested on a much larger scale.

Since the D2D capability demonstration, CERDEC has examined the effectiveness of various technologies through interviews with Soldiers and system-generated data. Researchers are attempting to gauge how each technology affected the speed, accuracy, and completeness of actions taken by decision makers at various echelons of the brigade.

LESS CLUTTER

Another D2D vignette focused on defending a company-size outpost against rocket and mortar attacks. This event involved patrols by dismounted troops using handheld mission command systems, including Command and Control Mobile Intelligent Net-Centric Software, to send and receive information about friendly and enemy force locations. Combining that information with feeds from sensor and radar systems such as Tactical Unattended Ground Sensors and Cerberus towers, the Soldiers were able to monitor the enemy's progress in real time and block opponents from certain areas of vulnerability.

"If a commander is a couple of miles away in the vehicle, he can see exactly where we're at, and we can send up enemy spot reports and let him know exactly what's going on if we need to call for fire," said SSG Robert Waterman, who led a squad of dismounted Soldiers during the exercise. He said the digital graphics- and text-based communications were a vast improvement from what he experienced while deployed to Iraq.

At the TOC, MAJ Paul Tavarone monitored information feeds and issued updated orders using Tactical Information Technology for Assured Networks (TITAN), another application included in the D2D evaluation. TITAN helped de-clutter the commander's screen and filter the information to meet specific mission needs, while providing a simplified template for orders that linked graphics, photos, and text to the common operating picture (COP).

"I know how it works on paper and acetate, and doing it this way is much more efficient," Tavarone said. "I think you can act on [information] much easier when you see it graphically, rather than just in paper form."

COMMANDER'S PERSPECTIVE

The D2D capabilities were also an improvement for those receiving the orders.

"Being able to get the information accurately and quickly—without the use of the radio or a runner or things of that nature—the margin of error for not understanding the mission, or all the additional coordinating instructions, is much better," said CPT Joseph Mucci, the Company Commander for the exercise. "Anyone that wants a clear picture of the battlefield, you're going to get a lot of information. But so long as you understand what's going on and you have a clear picture of your Soldiers and the mission, everything else is just that much more help."

TITAN also enabled mission command systems, such as Command Post of the Future (CPOF) and Force XXI Battle Command Brigade and Below/Blue Force Tracking, to incorporate key data from other environments that commanders needed to make decisions, such as logistics

information on troop strength or biometrics information on an enemy captured at a checkpoint, said Dr. Israel Mayk, CERDEC's Technical Lead for TITAN.

Other capabilities relevant to D2D but not shown in the vignettes were demonstrated separately. In one scenario, for example, the unit detected a minefield—crucial information that Soldiers typically would have to enter manually into a series of systems before it reached the commander and the COP of the battlefield. Instead, an artificial intelligence application called Warfighter Associate combed through various text chat tools, detected conversations about the minefield, pulled out the grid coordinates, and delivered them to CPOF, averting possible danger.

"That information automatically shows up on the CPOF common operating

FROM INFORMATION TO ORDERS

MAJ Paul Tavarone (right) and SFC Samuel Grimes monitor information feeds and issue updated orders using Tactical Information Technology for Assured Networks, one of the applications involved in the D2D capabilities demonstration at Fort Dix.



picture 15 to 20 minutes before it normally would have, and there's also the possibility that it never would've shown up there," said Dan O'Neill, a CERDEC Computer Scientist who helped develop Warfighter Associate under the Tactical Human Integration of Networked

Knowledge (THINK) Army Technology Objective. "It might've been missed in all of the activity going on. So we pick it up automatically, it is placed in the COP more quickly, and prevents guys from stumbling in there and maybe getting blown up."

REAL-TIME PROTECTION

Combining information provided by dismounted Soldiers with feeds from sensor and radar systems, such as Tactical Unattended Ground Sensors and Cerberus towers (pictured), Soldiers were able to monitor the enemy's progress in real time and block opponents from certain areas of vulnerability, during last summer's D2D capabilities demonstration.



The artificial intelligence, and the doctrinal and tactical knowledge base that drive Warfighter Associate, can then de-clutter the CPOF display, highlight important information, provide alerts and suggestions, and present information to help the user determine and execute the right course of action. This is based on Warfighter Associate's ability to observe operator actions along with the state of the battlespace to infer user goals and needs, leading to more informed decisions.

The 2011 D2D evaluation helps lay the groundwork for a broader capabilities demonstration required by ASAALT in 2013. Future demos probably will include a larger number of emerging technologies.

The D2D challenge is a holistic initiative that cuts across technology programs and policy. We are trying to verify and validate that the technologies we're working on have a positive impact to the materiel solutions that are put in our Soldiers' hands.

MAJ JONATHAN M. SWAN is Chief, Electrical Power and System Integration for the Command and Control Directorate in CERDEC. He holds a B.S. in mechanical engineering from Virginia Polytechnic Institute and State University. He is a Signal Officer serving in the Acquisition Functional Area.

JIM HENNIG is Acting Associate Director for Systems Engineering for RDECOM. He has more than 20 years' experience in distributed software system development and integration in the military command and control domain. Hennig has a B.S. in mechanical engineering from the University of Toledo, an M.S. in software engineering from Monmouth College (NJ), and is a Ph.D. candidate in systems engineering at Stevens Institute of Technology.



PEO AMMUNITION



PM
Combat
Ammunition
Systems



PD
Joint
Services



PM
Close
Combat
Systems



PD
Joint
Products



PM
Towed
Artillery
Systems



PM
Counter
Explosive
Hazard

PM
Maneuver
Ammunition
Systems



A large military truck, possibly a communications vehicle, is parked on a paved area. It has a tall mast with a large antenna and various electronic equipment. Four people are standing in front of the truck: two in dark uniforms, one in a camouflage uniform, and one in a blue and white striped shirt. The background shows a desert landscape with mountains, utility poles, and a chain-link fence.

INTEGRATION MANDATE

U.S. Army Acquisition Corps stands up new directorate

As part of continuing acquisition reforms designed to improve procurement practices, streamline requirements, better manage cost and schedule issues, work more closely with industry, and integrate new technologies before they are sent to theater, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) has stood up a directorate that will manage system integration and the new Agile Process of acquisition.

Headquartered at Aberdeen Proving Ground, MD, the System of Systems Integration (SoSI) Directorate has been tasked to spearhead acquisition management of the Network Integration Evaluations (NIEs) and to serve as a key team manager of what is termed the “Agile Process.”

The Agile Process focuses primarily on filling identified and prioritized capability gaps by integrating emerging technological materiel solutions in iterative, predefined, predictable windows for testing and insertion. These windows are aligned with Army Force Generation, the systematic process whereby brigades equip, train, and deploy.

FASTER MODERNIZATION

By employing the Agile Process, the Army can keep pace with industry and technological advances, accelerating network modernization to a rate unachievable using traditional acquisition strategies. This acquisition process will seek technology improvements from both large and small industry partners to fill hardware and software needs as determined by requirements analysis.

ESTABLISHING THE NETWORK

Soldiers and civilians prepare a Warfighter Information Network-Tactical (WIN-T) Increment 2 Tactical Communications Node at the System of Systems Integration (SoSI) Directorate’s motor pool at Fort Bliss, TX, in preparation for Network Integration Evaluation (NIE) 12.1 last fall. WIN-T Increment 2 was one of 47 systems under evaluation in NIE 12.1, the second NIE. (Photos courtesy of SoSI.)

“THIS IS MORE THAN ALIGNING OUR PROGRAMS OF RECORD. STANDING UP SYSTEM OF SYSTEMS INTEGRATION WILL HELP ESTABLISH A NETWORK TECHNICAL BASELINE AND ALIGN THE ACQUISITION COMMUNITY CLOSER TO INDUSTRY TO ENSURE THAT WE HAVE THE MOST ADVANCED TECHNICAL SOLUTIONS TO REQUIREMENTS.”

“The formation of the directorate, in part, was a result of acquisition reform recommendations recently studied under the Army Acquisition Review and recently conducted organizational construct reviews to better support the Agile Process and the Network Integration Evaluations,” said COL(P) Dan Hughes, SoSI Director. “We will serve as the acquisition team lead for implementation of the Agile Process and the NIEs, increasing performance of the Army’s materiel integration function.”

SoSI will help implement a number of the recommendations arising from the Acquisition Review, such as working more closely with industry, acquiring more technical data packages, and conducting integrated testing earlier and more often in the acquisition process. In addition, organizations within the directorate will work to improve the synchronization of requirements and acquisition procedures

at the front end of the process to ensure achievable, clearly defined cost and schedule goals.

“This is more than aligning our programs of record,” said MG R. Mark Brown, then Deputy for Acquisition and Systems Management in the Office of the ASAALT. “Standing up System of Systems Integration will help establish a network technical baseline and align the acquisition community closer to industry to ensure that we have the most advanced technical solutions to requirements. We must continue to leverage the innovation that is present in the private sector.”

MANAGING NEW CAPABILITY

One of the SoSI’s first jobs, when it was stood up in October 2011, was to lead the acquisition management of NIE 12.1, held at White Sands Missile Range, NM, Oct. 31 through Nov. 19.



INTEGRATION EXPERTISE

Hundreds of engineers, developers, and Soldiers provide integration, training, and acquisition expertise to support the Army's NIE efforts at SoSI's motor pool facility at Fort Bliss.

NIE 12.1 was the second exercise in a series of semiannual evaluations designed to integrate and mature the Army's tactical network and continue to establish the Integrated Network Baseline. Two systems underwent formal testing—the Rifleman Radio and Soldier Radio Waveform Net Manager. The Rifleman Radio delivers network connectivity down to the Soldier level using Soldier Radio Waveform to transmit voice and data simultaneously. Additionally, 47 systems from industry and government agencies were evaluated to determine system maturity, integration readiness, and operational value.

The NIE process is much bigger than just evaluating network capability, however. The NIEs also seek to properly execute systems integration of both networked and non-networked capabilities, which will greatly reduce the integration burden on deployed units. As a result of the NIE process, units in theater will now receive Soldier-tested and properly integrated capabilities ready for use.

Ten program executive offices were involved in NIE 12.1, along with more than 3,800 Soldiers from the 2nd Brigade, 1st Armored Division, the composite

brigade at Fort Bliss, TX, designated as the Army's network testbed.

While managing the NIE acquisition effort, SoSI will continue working on the Agile Process, assessing technology that may become part of a future NIE event, and working more closely with industry and other government agencies to manage logistics, training, and maintenance plans for the systems that show promise coming out of the NIEs.

—*System of Systems Integration Directorate Staff*



SECURING COMMUNICATIONS

PD COMSEC's capabilities keep up with rapidly growing network

by Chris P. Manning

INTEGRATING SOLUTIONS

A Soldier tries out a Simple Key Loader (SKL) fielded by Project Director Communications Security (PD COMSEC) during Armed Forces Day 2011 at Aberdeen Proving Ground, MD. PD COMSEC is eliminating stovepipes by integrating network encryption and security efforts across Army organizations. (U.S. Army photo.)



The Army's network has never been more important. We are more connected than we have ever been, and with the network serving as the centerpiece of Army modernization, this connectivity stands to improve dramatically within the next few years. As we learn to leverage this connectedness to provide our Soldiers with a decisive advantage on the battlefield, we must also ensure that the enemy does not gain access to the information that provides that advantage. That is the role of communications security (COMSEC).

COMSEC has become so ubiquitous that it may be taken for granted. We as an Army have come to expect our communications to be private, protected, and secure, often without even thinking about it. But as the Army's communication capabilities continue to evolve, so, too, must the security environment in which they develop and mature.

LEGACY SYSTEM

SGT Justin Green (left) and PFC Michael Moore program an SKL to allow their radios to communicate securely between vehicles during a detail in Baghdad, Iraq, in 2009. The Army is developing the Common Load Device to augment and possibly replace the SKL and other legacy devices in the future key management infrastructure. (Photo by TSgt Johnny L. Saldivar, U.S. Air Force.)



Staying ahead of that curve is the purpose of Project Director (PD) COMSEC, which was chartered in September 2010 under the Army's Program Executive Office Command, Control, and Communications-Tactical (PEO C3T). PD COMSEC resulted from an April 2008 memorandum in which the then-Commanding General (CG) of the Communications-Electronics Command, LTG Dennis L. Via (now Deputy CG and Chief of Staff, U.S. Army Materiel Command), recommended that the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) establish an O-6-level project management office within PEO C3T to centrally manage programs of record for the cryptographic modernization, key management, and overall life-cycle management of Army COMSEC.

SYNCHRONIZING SOLUTIONS

PD COMSEC's role is to procure, sustain, and field capabilities that secure and encrypt data on the Army's tactical network. There are more than 380 separate cryptographic and ancillary models in the field.

Equally important is establishing a central point from which program offices can interact with acquisition professionals, so we can synchronize the multitude of capabilities and program offices that require COMSEC. Many program managers face the same COMSEC challenges; PD COMSEC can provide them with centralized expertise for a more efficient and effective solution.

For example, many systems engineers deem Type 1 encryption necessary on capabilities that require less than the top-secret protection it can provide. Type 1 encryption qualifies a system or device as certified by the National Security Agency (NSA) for use in cryptographically securing classified U.S. government information.

PD COMSEC offers potentially less costly alternatives to Type 1 when lesser security levels are appropriate, based upon expected uses of the system.

We have also seen Army developers approach industry to solve COMSEC challenges for which viable solutions already exist. Some systems engineers may make their initial approach the sole solution to an issue. These individual, ad hoc approaches to COMSEC problems at times have prevented the COMSEC community from efficiently reaching its overall objectives.

Often, capabilities must be replaced within a short time because they were created without determining that they could function throughout the expected life of the host platform. This is both costly and inefficient.

PD COMSEC is working to prevent such outcomes. It offers knowledge that covers the broad scope of the Army's COMSEC products, viable options, and specific timeframes in which a key will become outdated. In cryptography, a "key" is a parameter that determines the functional output of a cryptographic algorithm or cipher. The algorithm would be useless without a key. In encryption, the key is the process of changing plaintext into ciphertext, or vice versa during decryption.

MEETINGS OF THE MINDS

As a relatively new organization, the PD understands that it must take a proactive approach to better synchronizing Army COMSEC. It has begun hosting semiannual COMSEC Integration-Integrated Product Team forums, with the first taking place at Aberdeen Proving Ground, MD, in October 2011. The forums, held at various Army acquisition hubs, provide a place for subject-matter experts from various organizations to discuss COMSEC



SECURE TRANSMISSIONS

U.S. Navy LT Reginald Dagsa, Civil Affairs Officer, uses the SKL to fill the Army Navy/Portable Radio Component-152 (AN/PRC-152) in March 2011 at Camp Atterbury Joint Maneuver Training Center, IN. The fill loaded by the SKL allows the AN/PRC-152 to transmit and receive sensitive information, ensuring communications security. (Photo by SSG Jocelyn Ford.)

integration challenges and lessons learned. Industry is also leveraging these forums to present the future objectives in their plans.

At the forums, PD COMSEC is articulating innovative, cost-effective communications security approaches to Army platform integrators. The integrators can use this information as they determine the most effective ways to build COMSEC features into their future capabilities.

Along with fostering greater dialogue, we are taking decisive action on streamlining COMSEC procurement.

Before the establishment of PD COMSEC, the Army lacked a holistic approach to replacing legacy crypto equipment in the field with new, modernized equipment. Individual units and system owners instead would request devices as needed, identifying equipment by type rather than quantity. This approach was often inefficient with regard to providing the

right number of systems to the right units at the right time.

We are now pursuing a new strategy involving a more detailed, Armywide equipment assessment in order to plan COMSEC purchases over several years. By tapping into the reserve of COMSEC equipment that has already been manufactured, PD COMSEC will fulfill troops' needs for modernized devices, while at the same time aligning future purchases so that they meet the Army's longer-term priorities.

This effort will better align system deliveries with mission requirements and will significantly lower the overall funding needed. In many cases, units will no longer have to set aside their own operational dollars in order to meet their COMSEC requirements.

The initiative has a projected cost avoidance of nearly \$47 million during the next three years. It has already yielded benefits

to the field: PD COMSEC has used new equipment in stock at Tobyhanna Army Depot, PA, to supply several units that initially had planned to use their own funds to order more equipment.

While initially focused on the operational force, the effort ultimately will streamline COMSEC procurement for the generating force and Army installations as well. This situation illustrates how the Army can benefit from the partnership of COMSEC experts, project managers, and units to make informed decisions about how best to secure their systems.

IMPROVING DELIVERY

Aside from the cost efficiencies yielded by these efforts, PD COMSEC is improving COMSEC delivery to the field. In the past, COMSEC keys had to be received from a physical workstation. Soldiers traveling to deploy those keys in Iraq and Afghanistan were exposed to dangers, such as improvised explosive devices.

COMSEC HAS BECOME SO UBIQUITOUS THAT IT MAY BE TAKEN FOR GRANTED. WE AS AN ARMY HAVE COME TO EXPECT OUR COMMUNICATIONS TO BE PRIVATE, PROTECTED, AND SECURE, OFTEN WITHOUT EVEN THINKING ABOUT IT. BUT AS THE ARMY'S COMMUNICATION CAPABILITIES CONTINUE TO EVOLVE, SO, TOO, MUST THE SECURITY ENVIRONMENT IN WHICH THEY DEVELOP AND MATURE.

To lessen the logistics burden on Soldiers, PD COMSEC is leading the Army effort, in conjunction with the NSA, to deploy Over The Network Keying (OTNK) capability to the Army. This will reduce the need to receive COMSEC keys from a physical workstation.

The goal is to leverage the Key Management Infrastructure-based solution in the next generation of Key Loader. Key Loaders are used to load cryptographic keys to encryption devices that make data indiscernible to the enemy.

With OTNK, a user will connect to the Secure Internet Protocol Router network from any location, register his or her brigade's devices, and use the Key Loader to download keys for each of the brigade's systems. This will eliminate the burden of carrying transit cases that contain large key distribution systems, or searching for a COMSEC custodian.

With the increased insertion of commercial communication technologies into the Army network, PD COMSEC is also collaborating with NSA to resolve the

challenge of distributing commercial keys through military standard key distribution chains. We are advocating for Soldiers by engaging with NSA to synchronize how keys used with commercial solutions will be distributed. We are working to make sure there is a single key distribution system that meets all the needs of the Army, from Type 1/Suite A encryption to commercial solutions.

To further standardize the COMSEC process, we are working to design the Common Load Device (CLD), which will augment and may eventually replace legacy devices, such as the Simple Key Loader, in the future key management infrastructure. The CLD will support network modernization by configuring multiple types of tactical radios, such as the Joint Tactical Radio System family, as well as configuring various network nodes within the Warfighter Information Network-Tactical.

Testing of the CLD will be aligned with the Army's semiannual Network Integration Evaluation (NIE) events at White Sands Missile Range, NM, and Fort Bliss, TX, which are designed to rapidly

integrate and advance the tactical network. This is another improvement over past practices, in which COMSEC devices and key distribution capabilities were often an afterthought, added after a device or system was proven. The NIEs will include COMSEC as a priority in an integrated network environment.

As the Army network continues to grow, it is clear that with each capability enhancement will come the need for better COMSEC. The centralized approach taken by PD COMSEC is uncovering efficiencies and allowing the Army to better invest its resources in future COMSEC capability enhancements, which will help maintain our decisive advantage.

CHRIS P. MANNING is the Army's Project Director Communications Security. He holds a B.S. in electrical engineering from Michigan State University and an M.S. in the management of technology from the University of Pennsylvania. He is Level III certified in program management and in systems planning, research, development, and engineering – systems engineering.

350+ SYSTEMS

18 PRODUCT OFFICES

4 PROJECT MANAGEMENT OFFICES

1 CUSTOMER



**SUPPORTING OUR JOINT WARFIGHTER,
FIRST TO THE FIELD... LAST TO LEAVE**

INFORMATION ADVANTAGE

Modernization of enterprise terminals
will enhance net-centric operations

by Arthur Reiff



“A MAJOR PART OF THE MISSION OF THESE MET TERMINALS WILL BE TO PROVIDE FOR REACHBACK FOR DEPLOYED WARFIGHTERS, SO THEY HAVE ACCESS TO THE GLOBAL INFORMATION GRID, WHICH IS CRITICAL FOR THE NETWORK-CENTRIC BATTLEFIELD.”

In April 2009, the Army launched the massive Modernization of Enterprise Terminals (MET) program to upgrade its aging fleet of enterprise strategic satellite communications (SATCOM) earth terminals, with the award of a \$640 million contract to Harris Corp. of Melbourne, FL.

These new MET terminals will allow DoD services access to increased satellite bandwidth and will reduce acquisition and life-cycle logistics costs for Army, Navy, Air Force, and Marine Corps users.

Managed by the Defense Communications and Army Transmission Systems Project Office (DCATS) of Program Executive Office Enterprise Information Systems (PEO EIS), the MET program will produce approximately 100 SATCOM terminals to replace DoD terminals that are reaching the end of their life cycles. The first of these terminals is being built at Fort Belvoir, VA, with activation scheduled for May. After that, DCATS will provide terminals via the MET contract to DoD organizations until 2019.

The MET program is critical to the Army's and DoD's future ability to leverage the Global Information Grid and to

conduct network-centric operations in an increasingly information-rich battlefield environment.

“Net-centric operations require large hubs that can connect to many small terminals all around the world and facilitate their entry into the Global Information Grid,” said Don Hershberger, DCATS' MET Product Leader. “A major part of the mission of these MET terminals will be to provide for reachback for deployed warfighters, so they have access to the Global Information Grid, which is critical for the network-centric battlefield.”

AGING SYSTEMS

“One of the drivers for the MET program is that DoD's fixed-enterprise family of terminals has been out there for quite a few years,” said Steve McClintock, DCATS' Product Director Satellite Communications Systems. “We started deploying AN/FSC-78s in the 1970s, and AN/GSC-39s and AN/GSC-52s in the 1980s. So they are all approaching the end of their life cycles.”

Another driver, Hershberger said, was the launching of the new Wideband Global SATCOM (WGS) constellation of satellites, starting in 2007, to gradually phase

out the 1980s-vintage Defense Satellite Communications System (DSCS) satellite constellation.

“We knew WGS was coming up a number of years ago, and we wanted to make sure that we had terminals that would allow the DoD to fully exploit that new WGS system because WGS has a lot more capabilities and a lot more functions than the old DSCS,” Hershberger said.

For instance, while DSCS operates only in the military X-band, WGS operates in both X-band and military Ka-band. MET terminals can operate in X-band or dual simultaneous X-band/Ka-band.

“So MET terminals can operate not only on the legacy DSCS satellites but also on the new WGS satellites, as well as on commercial satellites, such as XTAR [commercial X-Band],” Hershberger said.

Hershberger pointed out that each WGS satellite has a throughput of approximately 4.75 gigahertz (GHz) of bandwidth—about 10 times the bandwidth capacity of a DSCS satellite. “One single WGS satellite has the bandwidth capacity of the entire 10-satellite DSCS constellation,” he said.

CONFIGURING CAPABILITIES

Customers will be able to order MET terminals in nine different configurations. Shown here are two 12.2-meter large fixed terminals that customers can order with X, X/Ka, or X/Ka/Ka capability. (Photo courtesy of Harris Corp.)

That equates to 2.1 to 2.5 gigabits per second (Gbps) of communications—enough to transmit, per second, approximately 3 million Web pages, 400 Predator video feeds, or 0.5 high-resolution CT (computed tomography) medical scans.

McClintock described WGS as not just a “bigger pipe” but “more pipes,” with the ability to switch between pipes on the satellite, coming up on one frequency and going down on another. “In the case of Ka-band, MET has the capability to operate simultaneously on both polarizations, thereby combining the capability of two earth terminals into one antenna,” he said.

MODULAR CONCEPT

Hershberger noted that there are three basic MET antenna sizes—12.2 meters, 7.2 meters, and 4.8 meters—and that MET terminals will be built using a modular design that incorporates common commercial-off-the-shelf components as much as possible.

“This can lower acquisition costs for large purchases up to 25 percent. It will also reduce life-cycle logistics costs, since so many components are common regardless of the antenna size,” he said.

The common components include frequency converters, transmit combiners,

receive dividers, X-band block converters, Ka-band block converters, 70 megahertz (MHz)-to-L-band fine-tune converters, a multi-terminal L-band matrix switch subsystem, and a control, monitor, and alarm (CMA) subsystem.

Customers will be able to order MET terminals in nine different configurations: a 12.2-meter large fixed terminal with X, X/Ka, or X/Ka/Ka capability; a hardened, 12.2-meter large fixed terminal, also with X, X/Ka, or X/Ka/Ka capability, that will protect against high-altitude electromagnetic pulse (HEMP); a 7.2-meter standard transportable terminal; a HEMP-hardened, 7.2-meter transportable terminal; and a

TERMINALS IN TRANSIT

Shown here is a 7.2-meter transportable terminal along with a van. The van compartment closest to the antenna includes space for antenna reflector panels and other antenna parts after they are disassembled. The compartment farthest from the antenna is the Integrated Equipment Shelter, which contains the electronics associated with antenna movement and signals to and from the antenna. (Photo courtesy of Harris Corp.)



4.8-meter small fixed terminal, for lower throughput requirements, that can be mounted on rooftops as well as on small pads. In addition to these nine basic configurations, the MET contract includes options for a large vanized (transportable) X-band-only or X/Ka-band terminal for installation at sites without an electronic equipment building.

Hershberger said that all MET terminal configurations include an antenna subsystem, transmit and receive subsystems, a CMA subsystem, a performance measurement and test subsystem (PMTS), and a frequency and time standard subsystem (FTSS). All configurations include a MET computing environment consisting of operator consoles and one or more servers, which host the CMA software, interactive electronic technical manual, supply support system, and other MET software components.

MET terminals will also include a number of subsystems that may be deployed as required on a site-specific basis, such as radomes, de-icers, an L-Band switch subsystem (LSS) for modem routing, a single carrier converter subsystem for support of legacy 70-MHz modems, and a fiber-optic interconnect facility that is used to route intermediate-frequency signals between MET terminals and remotely located modems. The CMA, PMTS, FTSS, and LSS can support up to six MET terminals simultaneously.

The MET contract offers an option for HEMP protection for selected large fixed terminals and transportable terminals.

“We offer HEMP protection because a low-yield nuclear explosion high above the ground can produce an electromagnetic pulse that can instantly overload or disrupt electrical circuits,” Hershberger said. “Our equipment is very sensitive to



UTILIZING COMMERCIAL COMPONENTS

System integration and test engineers at Harris Corp. conduct a system performance measurement test of a MET terminal at a subsystem rack of test maintenance and diagnostic equipment. From left are Charles Shupard, Joseph Wade, and Dustin Stoudt. The MET computing environment rack, at left, houses the control, monitor, and alarm subsystem. The use of common commercial-off-the-shelf components, such as this rack of equipment, will lower acquisition costs for large purchases of MET terminals up to 25 percent and will reduce life-cycle logistics costs. (Photo by Bob Goldberg.)

this and requires that the shielding be very effective in terms of attenuation, and that translates into money. So HEMP protection is expensive, which is why we have it as an option and not a standard feature on every terminal.”

“MET terminals will allow the Army to fully utilize the robust capability of WGS, as well as utilize XTAR satellites,” said McClintock. “In addition, the MET program will provide more flexibility for tactical units by allowing them reach-back at both X and Ka bands through one terminal.

“That translates to an information advantage by enabling robust net-

working of well-informed, geographically dispersed forces.”

ARTHUR REIFF supports the Project Manager Defense Communications and Army Transmission Systems in planning and evaluating large-scale military long-haul and satellite communication programs, as an Executive Project Integrator for AASKI Technology Inc. Previously he served for 35 years as a civilian employee of the U.S. Army. He holds a B.S. in electrical engineering from the City College of New York and an M.B.A. from Fairleigh Dickinson University. Reiff is Level III certified in program management and Level III certified in systems engineering. He is a member of the U.S. Army Acquisition Corps.



MEETING A NEED FOR MOBILITY

Wars are no longer fought from a fixed location, underscoring the need for consistent, reliable, mobile communications. (Photos courtesy of Project Manager Warfighter Information Network-Tactical.)

Army Develops Satellite Communications On-the-Move Laboratory

by Rich Hoffmann

The process to certify fixed satellite communication terminals is intentionally rigorous, the result of years of lessons learned on how best to ensure communications when Soldiers need it most. Wars, however, are no longer fought from a fixed location, underscoring the need for consistent, reliable, mobile communications.

Smaller, more dynamic terminals leverage the best of industry and Army investment in research and development. To ensure that an on-the-move Army has access to the communications it needs on the

evolving battlefield, a new laboratory at Aberdeen Proving Ground, MD (APG) is working to help develop, test, and certify satellite communications on-the-move (SATCOM OTM) terminals.

The U.S. Army Research, Development, and Engineering Command's Communications-Electronics Research, Development, and Engineering Center (CERDEC) built the SATCOM OTM Laboratory as a venue for on-the-move SATCOM development and to help with some of the numerous challenges involved in the transition of current systems to the military user.

The SATCOM OTM Laboratory, part of the 98,000-square-foot Joint SATCOM Engineering Center, provides the facilities to measure terminal acquisition and to track performance on the move. Test vehicles are instrumented and driven across rugged terrain while operating over active satellites. These courses on the APG campus are designed to test tactical ground vehicles.

Vehicle testing has been successful for a number of SATCOM OTM antenna system solutions, to include OTM operation over the Wideband Global SATCOM

(WGS) satellite constellation. The process for characterizing antenna systems is critical before fielding in order to define antenna parameters and to ensure that no unexpected performance limitations arise on the battlefield.

For comprehensive support of on-the-move testing, the lab uses diverse methods, including both vehicle testing and more accurate, repeatable laboratory testing. Formalizing this testing in a state-of-the-art facility was part of the vision for the SATCOM OTM Laboratory from the beginning, said Joe Shields, Chief of the CERDEC Space and Terrestrial Communications Directorate's SATCOM Systems Division.

Part of that vision is a motion simulator used to implement active satellite testing, as well as to simulate operations over satellites at high elevation angles in a laboratory environment. This testing will use a movable setup to allow a variety of elevation angles, for more complete tracking performance characterization.

"Testing over a full range of elevation angles is important because antenna system performance can be vastly different at high elevation angles. As the antenna has to point higher into the sky, it is more and more difficult to track," said Herald Beljour, the lab's Lead Technical Designer.

The importance of early and complete technical performance characterization cannot be overstated. Finding performance problems early in the development cycle will avoid costly changes after a system is fielded and will avoid situations in which the equipment does not perform as expected in combat situations.

The lab is already paying dividends as the venue for CERDEC's development of the next-generation SATCOM OTM system, which enables multi-band operation



TESTING ANTENNA SYSTEMS

Tactical ground vehicles are instrumented and driven across rugged terrain while operating over active satellites. Vehicle testing has been successfully demonstrated on a number of SATCOM OTM antenna system solutions, to include OTM operation over the Wideband Global SATCOM satellite constellation.

without requiring any equipment change-out. Military users will be able to connect over military satellites owned by DoD, as well as commercial satellites that operate in different frequency ranges. Two of the bands currently targeted, X and Ka, are available on the WGS satellite.

In addition to supporting development, the SATCOM OTM Laboratory will be used to conduct government certification testing for OTM antenna systems. This is in support of U.S. Army Strategic Command, which is responsible for operation of the WGS satellite payload.

When the laboratory reaches its full capability in late 2012, it will be the first DoD

facility that can do full SATCOM OTM characterization. It will accommodate any type of SATCOM OTM system, including exotic designs, over a full range of elevation angles, advancing the reliability of on-the-move satellite communications for years to come.

RICH HOFFMANN is Lead Electronics Engineer, Developmental Systems CERDEC Space and Terrestrial Communications Directorate (S&TCD), SATCOM Systems Division. He has more than 20 years of military communications experience with CERDEC's S&TCD. Hoffmann received his B.S. and M.S. in electrical engineering from Rutgers University.

LIGHT TACTICAL VEHICLES AHEAD

Army preparing to produce JLTVs, recapped HMMWVs

by Kris Osborn

OFF-ROAD DEVELOPMENT

Three different mission types of Joint Light Tactical Vehicle (JLTV) undergo off-road testing during the two-year technology development phase, which concluded in May 2011. (Photo courtesy of Lockheed Martin Corp.)





SLING-LOAD CAPABILITY

The JLTV was tested for sling-load transportability by the Army's CH-47D Chinook and the U.S. Marine Corps' CH-53E Super Stallion helicopters, using four-passenger General Purpose vehicles. (U.S. Army photo.)

"The purpose of the TD phase was geared toward refining the requirements in order to demonstrate the JLTV's ability to meet the designated capability gaps," Goddette said. "The program has succeeded in identifying and proving out those areas of needed development, and now the Army is analyzing what trade-offs might be required in order to best pursue an acquisition strategy that both lowers costs and delivers this needed capability to Soldiers."

The competitive prototyping and extensive testing pursued during the TD phase were designed to match technological capability with the vehicle's requirements, as well as to lower risk for an anticipated production phase.

"We demonstrated not only that the requirements were achievable, but we gained valuable insight into the cost of each capability and effect that one capability might have on another. We've learned that some trade-offs are necessary to pursue an overall strategy that best synchronizes requirements, resources, mature technologies, and a cost-reducing acquisition strategy," Goddette said.

After refining requirements during a two-year technology development (TD) phase for the Joint Light Tactical Vehicle (JLTV), the Army is poised to conduct full and open competitions geared toward producing JLTVs and recapitalizing High Mobility Multipurpose Wheeled Vehicles (HMMWVs), as part of a unified light tactical vehicle strategy.

The Army-led program envisions an accelerated developmental timeline for the next phase of the JLTV program, said COL David Bassett, Project Manager Tactical Vehicles within the Program Executive Office Combat Support and Combat Service Support.

"We're in the process of restructuring an acquisition strategy that responds to a shorter timeframe for these vehicles, to be able to reduce the cost of the next phase as well as get vehicles out there faster," Bassett said. "We're going to deliver vehicles into the field sooner, and we are working hand in hand with our user community to look at ways to drive down the cost of the vehicle."

The JLTV and HMMWV recap programs are designed to complement each other, he said. "While the recapped HMMWV will provide additional protection and

capability, the JLTV is being engineered with survivability enhancements and off-road capabilities to exceed what recapped HMMWVs will be able to do," Bassett explained.

NEW CAPABILITIES

The TD phase for the JLTV program, completed in May 2011, successfully demonstrated the vehicle's ability to meet a wide range of requirements. These requirements included fortified protections against blast attacks from improvised explosive devices, as well as improvements to off-road mobility, variable-ride height suspension, exportable power, and essential command, control, communications, computers, intelligence, surveillance, and reconnaissance capabilities, said Tim Goddette, Director of Combat Sustainment Systems.

The TD phase illustrated that the JLTV, as a next-generation light vehicle, will bring Soldiers an unprecedented blend of protection, payload, and performance, Goddette added. The 27-month TD phase included prototype vehicles from three teams of vendors: BAE Systems-Navistar International Corp., Lockheed Martin Corp.-BAE Systems, and General Tactical Vehicles (General Dynamics Land Systems and AM General LLC).

CURRENTLY, THE ARMY ESTIMATES THAT NEARLY 6,000 HMMWVS WILL BE RECAPPED AS PART OF THE HMMWV MECV PROGRAM, WITH THE POTENTIAL FOR ADDITIONAL VEHICLES SHOULD THE U.S. MARINE CORPS BECOME PART OF THE PROGRAM.

Operating in today's budget-constrained fiscal environment, Army developers are working on an approach to JLTV procurement that harnesses the best available technologies while minimizing costs and achieving efficiency.

One such approach includes the possibility of buying less add-on armor, known as B-kits, for the vehicles because not every JLTV will need the added protection, and new, lightweight materials are likely to become available in the future.

With its off-road ability, blast protection, and onboard electronics, the JLTV is being engineered to maximize Soldier protection without compromising mobility and vehicle performance. "We are now focusing on a vehicle that is 10,000 pounds lighter than an M-ATV [Mine Resistant Ambush Protected All-Terrain Vehicle] and yet we believe will offer as much protection as the original M-ATVs that the Army fielded," said Bassett. These enhanced technological capabilities will allow the JLTV to perform a wide range of missions and perform many roles that HMMWVs are currently unable to perform.

HMMWV RECAP

At the same time the Army is preparing for the next phase of the JLTV program, it has embarked on a competitive HMMWV recap program for what is called the Modernized Expanded Capability Vehicle (MECV). The MECV aims to improve the survivability of the existing HMMWV in the Army inventory.

The Army has released a draft Request for Proposal for MECV, with an award slated for this spring.

Thus far, the Army has been encouraged by a strong industry response to earlier Requests for Information and plans to



PASSING THE TEST

The JLTV, shown here on a test track at the U.S. Army Aberdeen Test Center, MD, is designed with fortified protections against blast attacks from improvised explosive devices, as well as improvements to off-road mobility, variable-ride height suspension, exportable power, and essential command, control, communications, computers, intelligence, surveillance, and reconnaissance capabilities. (U.S. Army photo.)

award multiple test vehicle contracts before downselecting to one vendor. Currently, the Army estimates that nearly 6,000 HMMWVs will be recapped as part of the HMMWV MECV program, with the potential for additional vehicles should the U.S. Marine Corps become part of the program. Both services continue to review requirements to determine the extent of collaboration needed.

The MECV program, which aims to improve survivability of the HMMWV while driving down weight and cost, does have the requirement that the base cab can be lifted by the Army's CH-47 Chinook helicopter, Bassett said.

OVERALL STRATEGY

The JLTV and HMMWV recap programs are designed to prepare American forces for a variety of anticipated future contingencies.

"These two competitive efforts are also synchronized with one another to invest

a limited amount of resources upfront, enabling a 'try before we buy' approach, and to capitalize on the vast experience our industry partners have gained over the past five years," Goddette said.

There are limits to how much payload and performance the Army can squeeze out, even with an upgraded HMMWV, without resulting in a vehicle cost whereby it makes more sense to buy a JLTV, Bassett said. "These two efforts together give us the best of both options, as we seek to modernize our light fleet while sustaining our significant investment in HMMWV."

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



PEO Ground Combat Systems



Providing Warfighters with a full spectrum of integrated ground combat capabilities modernized for future mission demands.

- **HEAVY BRIGADE COMBAT TEAM**

- Abrams Tank
- Bradley Family of Vehicles
- Armored Knight
- Paladin
- M113 Family of Vehicles
- Family of Recovery Vehicles

- **STRYKER BRIGADE COMBAT TEAM**

- **GROUND COMBAT VEHICLE**

- **ROBOTIC SYSTEMS JOINT PROJECT OFFICE**



Modernizing systems is an investment in our future!

Visit our Website: [Http://www.peogcs.army.mil](http://www.peogcs.army.mil)



EYES on the ENEMY

Army, Pentagon seek small, ‘throwable’ robots for Afghanistan

by Kris Osborn

The U.S. Army, U.S. Marine Corps, and DoD’s Joint IED Defeat Organization (JIEDDO) are working to procure and deliver thousands of small, easily transportable “throwable” robots equipped with surveillance cameras that are designed to beam back video from confined spaces, buildings, tunnels, and other potentially dangerous locations. “These robots can provide dismounted troops that extra bit of stand-off distance,” said LtCol Dave Thompson, the Marine Corps’ Project Manager Robotic Systems Joint Project Office (RS JPO).

JIEDDO has responded to a Joint Urgent Operational Needs Statement (JUONS) for an ultra-light reconnaissance robot capable of supporting dismounted operations in Afghanistan. Combatant commanders are anticipating an initial delivery of about 4,000 of the small robots, some of which are engineered to be thrown through a second-story window, to provide “eyes” on a potentially hazardous combat situation, said Matthew Way, JIEDDO’s Program Integrator for Mitigate and Neutralize.

JIEDDO conducted a market survey of what commercially available technologies might meet the needs of the JUONS, and tested numerous small robots to establish quantitative data with the National Institute of Standards and Technology. Then it chose three lightweight, throwable robots for a series of combat assessments in Afghanistan. The systems chosen were iRobot’s 110 FirstLook, MacroUSA Corp.’s Armadillo V2 Micro Unmanned Ground Vehicle, and QinetiQ North America Inc.’s Dragon Runner.

SMALL ENOUGH TO THROW

iRobot’s FirstLook is about 10 inches long and weighs less than 5 pounds. (Photo courtesy of iRobot.)

IN-THEATER ASSESSMENT

About 50 of each of these robots will be deployed with forces in various parts of Afghanistan to assess their capability to perform across different types of combat terrain. The bots will be placed with infantry, engineering, and explosive ordnance disposal units, among others, Way said.

“What we are going to try to do is give a sampling of every type of system downrange across different regions of Afghanistan. More than likely, there will be more than one system needed to answer this JUONS,” said Way. The theater assessment in Afghanistan is aimed at informing the development of requirements for tasks that the systems will need to perform.

“This OCONUS trial will give us the Soldier feedback that we need. This will allow us to go to industry and tell them what we want. JIEDDO can then use those precise requirements to support a rapid

“WHAT WE ARE GOING TO TRY TO DO IS GIVE A SAMPLING OF EVERY TYPE OF SYSTEM DOWNRANGE ACROSS DIFFERENT REGIONS OF AFGHANISTAN. MORE THAN LIKELY, THERE WILL BE MORE THAN ONE SYSTEM NEEDED TO ANSWER THIS JUONS.”

open competition to then field the final solution or solutions fulfilling the war-fighter need,” said Way.

At the same time, the Army-led RS JPO is coordinating efforts across DoD and is working to develop, purchase, and deploy several of the small, mobile throwable robots such as iRobot’s FirstLook and ReconRobotics Inc.’s Recon Scout XT throwbot.

“This is an area of joint interest. JIEDDO has a large part of this, as does the Army’s Rapid Equipping Force (REF) and the Marine Corps. We are all looking at similar systems. RS JPO is trying to do some coordination between all of these organizations and see if we can look at the systems that are out there, look at the requirements, and start to posture ourselves for the sustainment and the maintenance of these systems in the long term,” said Thompson.

The anticipated value of the throwbots is driven in part by the frequency of dismounted small-unit and squad patrols in Afghanistan, during which Soldiers and Marines routinely check areas for improvised explosive devices and insurgent activity, Thompson explained.

At the moment, many units use the Small Unmanned Ground Vehicle 320, a 32-pound tactical robot equipped with video reconnaissance technology; there is a need for something

BOT OPTIONS

QinetiQ’s Dragon Runner features an optional small manipulator arm that can lift about 10 pounds. (Image courtesy of QinetiQ North America Inc.)





THROWBOTS AT WORK

(Clockwise from left) iRobot's FirstLook is small enough to fit in a rucksack. The FirstLook is engineered to withstand a 15-foot drop. (Photos courtesy of iRobot.) ReconRobotics Inc.'s Recon Scout XT has the capability to withstand a 30-foot drop and includes an operator control unit with a small viewing screen and joystick. It is currently being acquired by the Rapid Equipping Force. (Image courtesy of ReconRobotics Inc.)

that is lighter, more easily transportable by dismounted units on the move, and able to be thrown into forward locations, such as buildings and caves, Way and Thompson said.

THROWBOT CAPABILITIES

The Recon Scout XT throwbot, for instance, is only 1.2 pounds; it is designed to withstand a 30-foot drop and provide eyes, or forward-positioned cameras able to capture images from dangerous locations. It is a small, barbell-shaped robot with wheels at each end of a titanium tube, along with a camera, antenna, and illuminator. The Recon Scout also includes an operator control unit with a small viewing screen and joystick. The Recon Scout is currently being acquired by the REF.

"The Recon Robot XT responds to the Soldiers' need to see where they're going before they get there. With this throwbot capability, warfighters gain situational awareness of an area, thus mitigating risks and casualties," a REF spokesperson said.

QinetiQ's Dragon Runner, originally developed for the Marine Corps, weighs about 14 pounds and includes cameras, motion detectors, and an optional small manipulator arm that can lift about 10 pounds.

iRobot's FirstLook is about 10 inches long and weighs less than 5 pounds; it has four built-in cameras facing different directions and is engineered to withstand a 15-foot drop. It is waterproof to 3 feet and is designed to climb steps as high as 8 inches.

The robot is configured like a miniature model of the well-known and widely used PackBot robot. The FirstLook's sensor payload includes cameras, thermal imagers, and chem-bio radiation sensors.

The Armadillo V2 is also about 5 pounds. It has four small wheels, is built to withstand 8-meter throws, and includes multiple cameras and thermal imaging.

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



GOING INTO HARM'S WAY

A robot checks a culvert in eastern Afghanistan. More than 2,000 robots are in operation in Afghanistan, performing dangerous tasks like this, interrogating improvised explosive devices, and inspecting insurgent safe houses. (Photo by Joint Robotics Repair Detachment-Afghanistan.)

REDUCING RISK, NOT MANPOWER

Unmanned systems bring lifesaving capabilities,
but saving money in personnel has yet to be achieved

by Maj Valerie L. Hodgson

In recent years, unmanned systems (UMS) have proliferated by the thousands in our Armed Forces. With increasing pressure to cut costs while maintaining our warfighting edge, it seems logical that UMS could reduce manpower and its associated costs while ensuring our national security. Unfortunately, while the recent UMS proliferation has improved our warfighting edge, it has not led to manpower reductions. Instead, UMS have *increased* our manpower needs—the opposite of what one might expect.

Two primary reasons that the proliferation of UMS has increased manpower needs are, first, that the priority for UMS is risk reduction, not manpower reduction; and, second, that current UMS are complementary to manned systems. Instead of replacing manned systems, UMS have their own manpower requirements, which are additive overall.

For example, unmanned ground vehicles (UGVs), or robots, are remotely controlled by a single operator. In Afghanistan, more

than 2,000 robots are in operation, performing dangerous tasks like interrogating improvised explosive devices and inspecting insurgent safe houses. Although they are “unmanned,” these robots do not allow 2,000 people to go home or perform other tasks. Instead, each robot requires a dedicated operator plus sustainment personnel.

The sustainment personnel consist of about 35 people from the Joint Robotics Repair Detachment (JRRD), supported by another 40 people from their higher headquarters—the Robotics System Joint Project Office within Program Executive Office Ground Combat Systems in Warren, MI.

The JRRD estimates conservatively that 81 lives (or limbs) were saved directly by these robots over a 15-month period between January 2010 and March 2011. This was determined by counting the number of “battle-damaged” robots as described in more than 4,000 work orders, which assumed that the robot took the “hit” in place of the military member. These figures confirm that the value of UGVs is

not in replacing service members or reducing manpower, but in the significant risk reduction they bring to dangerous jobs.

On the air side, unmanned aerial vehicle platforms like the T-Hawk, Raven, and Puma provide fast and convenient intelligence, surveillance, and reconnaissance capabilities to smaller military units, allowing a company or platoon-sized element to quickly get an overhead view of the local area.

In the case of T-Hawk, there are 95 systems in Afghanistan, each controlled by one operator, with the entire inventory maintained by five contract personnel. While embedded within the JRRD, these five personnel fall under PMA-263 Navy and Marine Corps Small Tactical Unmanned Air Systems, Program Executive Office Unmanned Aviation and Strike Weapons, which has its own staff to manage this platform. There are a number of stories about the T-Hawk saving lives, although the events have not been quantified.

The T-Hawk's manned counterpart could arguably be manned helicopters, but in no sense do we see helicopter squadrons packing up and going home. That is because the T-Hawk cannot replace the helicopter's many other capabilities. The T-Hawk may actually increase the manpower footprint, because its purpose is to increase capability and reduce risk, not to replace helicopter crews.

POTENTIAL TO SAVE

While UMS currently appear to bring improved capabilities and reduce risk at the expense of increased manpower, there is definitely potential for UMS to reduce manpower.

Technology is advancing at an exponential rate to improve upon our existing inventory. Also, UMS do not need all the ancillary equipment necessary to protect

human bodies and provide for human comfort that manned systems do (e.g., latrines, air conditioning, oxygen, interior lights, ejection seats, and heavy armor). An aircraft or vehicle can patrol longer and work in more dangerous conditions than manned systems. Furthermore, battle-damaged systems can be repaired and reused fairly quickly by a proficient crew. The same cannot be said for battle-damaged human beings, who require a significant number of medical specialists and physical therapy to recover.

Finally, using UMS to reduce manpower outside of CONUS has the added benefit of reducing the logistical manpower needed to support large numbers of human beings in a combat zone.

To realize this vision, two conditions are necessary: UMS require a much higher

level of intelligent autonomy (IA) to allow them to operate with less human involvement, and UMS must be designed with lower manpower needs over their life cycles. These ideas are not new; DoD is working to bring about both of these conditions. The *FY 2009-2034 Unmanned Systems Integrated Roadmap*, online at <http://www.acq.osd.mil/psa/docs/UMSIntegratedRoadmap2009.pdf>, advocates improving IA and reversing the operator-to-platform ratio from many people to one platform, to many platforms per person. In addition, improvements to the acquisition process in recent years show much promise for reducing the manpower requirements for *all* acquisitions, not just UMS.

THE CHALLENGES

While these initiatives are a good start, significant challenges remain.

Improved IA in UMS means, among other things, automated data collection and analysis; synchronized command and control among UMS operating in all domains (land, air, and maritime); and autonomous mission planning, tasking, and target identification among multiple UMS. While this presents an interesting vision, the reality is that such levels of IA introduce challenges pertaining to the laws of war, privacy, and ethics—matters under discussion by military leaders, lawyers, engineers, and robot ethicists. Without a doubt, politics will play a role, and strong, decisive leadership will be necessary to prevent “analysis paralysis” with regard to increasing IA in UMS.

Similarly, improving the acquisition process with regard to designs that affect manpower is getting attention but raises challenges. A 2009 RAND Corp. study (*Toward Affordable Systems: Portfolio Analysis and Management for Army Science and Technology Programs*, online at

A REPUTATION FOR SAVING LIVES

The RQ-16A T-Hawk, shown here at Kandahar Airfield, Afghanistan, in January 2011, is a reported lifesaver, although the events have not been quantified. Each is controlled by one operator, with the entire inventory maintained by five contract personnel. (Photo by SPC Jonathan W. Thomas.)



<http://www.rand.org/pubs/monographs/MG761.html>) shows that the acquisition process often overlooks opportunities to save on manpower until it is too late. The study states that 85 percent of life-cycle cost decisions are made after the design and development stage, when it is too late to refine the design to be more cost-efficient over the life cycle.

Both DoD and the Government Accountability Office (GAO) recognize that consideration of life-cycle costs early in a system's development can help control costs, but this often fails to get the attention it deserves. Manpower is a substantial element of life-cycle costs and should be an important part of the key performance parameters for UMS. A study by GAO in 2010 (*Unmanned Aircraft Systems: Comprehensive Planning and a Results-Oriented Training Strategy Are Needed to Support Growing Inventories*, online at <http://www.gao.gov/products/GAO-10-331>) recognizes that DoD encourages the acquisition community to consider life-cycle costs, but both DoD and GAO have found that insufficient consideration is given to these costs.

A PATH FORWARD

One could argue that reducing manpower should be a consideration in the acquisition of both manned and unmanned platforms. A promising tool is Human Systems Integration (HSI), a strategy of integrating human factors into engineering systems to achieve important cost and performance benefits. HSI has the potential to realize significant manpower savings for new acquisitions.

DoD began directing HSI planning in defense acquisition in 2008 with Department of Defense Instruction 5000.2, *Operation of the Defense Acquisition System*, online at <http://www.dtic.mil/whs/directives/corres/pdf/500002p.pdf>.



THE HUMAN SIDE OF UNMANNED SYSTEMS

MAJ Jeffrey Poquette, Assistant Product Manager, Small Unmanned Aircraft Systems within Program Executive Office Aviation, inspects a Puma held by contractor Mike Reagan after a landing in which the unmanned aircraft apparently crashed and broke. The Puma was designed to withstand sudden drops, with parts that are easily put back together. (U.S. Army photo by Kari Hawkins, Redstone Arsenal, AL.)

Andrew P. Sage and William B. Rouse cite an encouraging example in their 2009 book, *Handbook of Systems Engineering and Management, Second Edition*, in the Navy's use of HSI during the acquisition of the Zumwalt class of destroyers (DDG-1000): Forecasted savings were estimated at \$18 billion because of a reduction of manpower from 350 personnel per ship to 95.

UMS have done well to bring enhanced capabilities and to reduce risk as demanded by commanders, but so far they have not enabled a reduction in manpower. Yet the conditions necessary to bring about manpower reduction through UMS—increased autonomy and improved acquisition processes—are reachable, albeit with difficulty. Meeting these conditions could very well revolutionize warfare as we know it.

The 2011 National Military Strategy of the United States of America (*Redefining America's Military Leadership*, online at <https://acc.dau.mil/Community-Browser.aspx?id=427042>) foreshadows

a great change for our Armed Forces: "The complexity of this global system and the challenges therein demand that we—the Joint Force—think anew about how we lead."

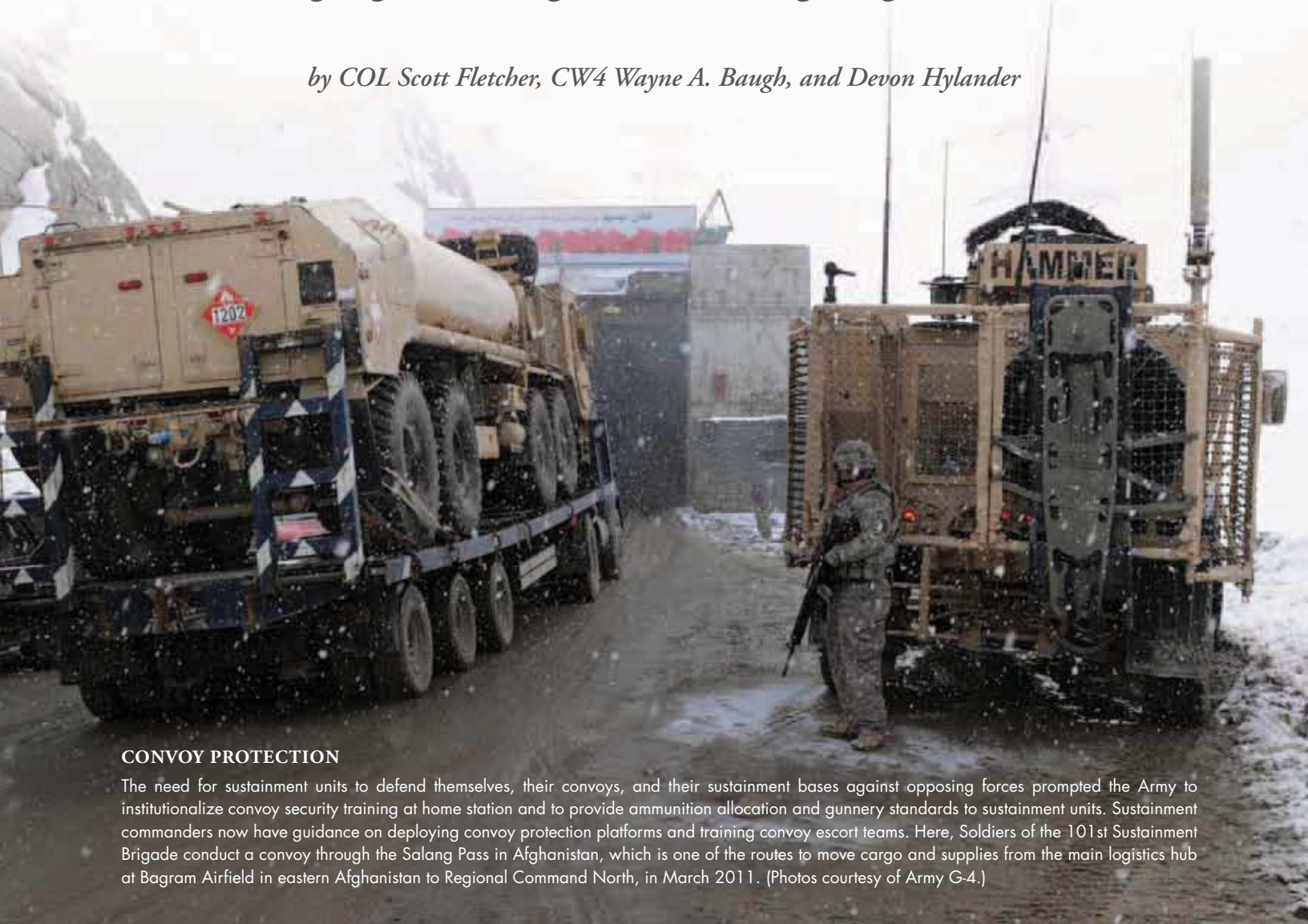
What this means for the future of manpower and technology remains to be seen. One thing is certain: UMS are here to stay. Whether or not they replace humans in combat remains to be seen. Nevertheless, regardless of our success in advancing unmanned technology, war always has been and always will be a conflict among humans. Until the "rise of the machines" takes over the world, no war will ever be wholly unmanned.

MAJ VALERIE L. HODGSON is the Encroachment Management Program Manager for the Marine Corps Air Ground Combat Center, Twentynine Palms, CA. She previously served as the Officer in Charge of the Joint Robotics Repair Detachment in Afghanistan from October 2009 to July 2011. She holds a B.S. in nutrition science from the University of California.

SUSTAINMENT LESSONS LEARNED

From force structure to operations to accountability,
after-action reports from Iraq and Afghanistan
highlight challenges met while fighting two wars

by COL Scott Fletcher, CW4 Wayne A. Baugh, and Devon Hylander



CONVOY PROTECTION

The need for sustainment units to defend themselves, their convoys, and their sustainment bases against opposing forces prompted the Army to institutionalize convoy security training at home station and to provide ammunition allocation and gunnery standards to sustainment units. Sustainment commanders now have guidance on deploying convoy protection platforms and training convoy escort teams. Here, Soldiers of the 101st Sustainment Brigade conduct a convoy through the Salang Pass in Afghanistan, which is one of the routes to move cargo and supplies from the main logistics hub at Bagram Airfield in eastern Afghanistan to Regional Command North, in March 2011. (Photos courtesy of Army G-4.)



Over the past 10 years at war and in two very different landscapes, the Army has made significant strides in adapting its sustainment techniques, tactics, and procedures (TTPs) to meet the requirements of the Soldiers and units in the fight. Since we were in theater while making these changes, we were “fixing the engine in mid-flight,” so to speak, making the effort that much more challenging.

In order to capture all of the issues that deployed sustainment units were facing, as well as the solutions they implemented to overcome those issues, the U.S. Army Combined Arms Support Command (CASCOM) instituted an after-action reporting technique called the Reverse-Collection and Analysis Team (R-CAAT) program. Similar to the Collection and Analysis Team program used by the Center for Army Lessons Learned (CALL) at Fort Leavenworth, KS, the R-CAAT brings redeployed sustainment commanders and key unit personnel to CASCOM to collect all of their theater experiences and garner their feedback.

Since its inception in 2006, the R-CAAT process has amassed invaluable information about the state of our sustainment operations. This article briefly highlights the most important lessons learned from the R-CAAT program, and what the Army has done to bridge gaps and eliminate roadblocks.



MANAGING CONTRACT SUPPORT

One of the issues with sustainment in *Operations Enduring Freedom* and *Iraqi Freedom* was the lack of a systemic organizational process to manage the large number of contracts in theater. In response, the Army increased the available contracting officer's representatives and established the Operational Contract Support Course. Here, two contractors sort and load recyclable materials at Joint Base Balad, Iraq in December 2010.

MODULAR SUSTAINMENT FORCE STRUCTURE

Beginning in 2005, the Army transitioned from a division-centric force to a brigade-centric force, meaning that the force structure of units provided a “plug-and-play” functionality that enabled the Army to tailor sustainment brigades to meet the mission.

There was no home-based test to validate this modularity concept; it was tested in theater during deployments. Throughout the initial deployments of these tailor-made sustainment units, we were able to adjust and restructure according to the needs on the ground.

BUILDING STRONG RELATIONSHIPS

Commanders reported that superior sustainment on the battlefield resulted from the outstanding supporting and supported relationships that were built as sustainment commanders integrated themselves into the staff and battle rhythms of the maneuver commanders.

Due to the modularity within the Army, mission command supported a decentralized design that empowered custodians of resources and capabilities. As such, sustainment commanders were given the latitude to provide resources based on the maneuver commander's requirements.

ALONG WITH DISTRIBUTION MANAGEMENT, THE LACK OF PROPERTY ACCOUNTABILITY WAS HINDERING THE SUSTAINMENT MISSION. SPLITTING PROPERTY BOOKS, OVERSIGHT OF EQUIPMENT LEFT BEHIND AT THE GARRISON, AND TRACKING THEATER-PROVIDED EQUIPMENT ALL CONTRIBUTED TO THE ISSUE.

Maneuver and sustainment boundaries need not conflict. Sustainment brigades could provide support to multiple divisions and task forces by freely crossing through sectors owned by different battlespace commanders. It was this positive feedback that validated the shift to modularity.

INTEGRATED FINANCIAL MANAGEMENT AND HUMAN RESOURCES

Interviews through the R-CAAT program revealed that financial management and human resource (FM/HR) capabilities were not integrated into the support, planning, and operations (SPO) staffs of sustainment brigades and expeditionary sustainment commands. In addition, the role of FM/HR within these brigades and commands was not well understood.

To eliminate this gap, the Army implemented multiple solutions:

1. The Adjutant General School created an HR Plans and Operations Course for Human Resource Operations Branch (HROB) leadership.
2. The Financial Management School developed an FM Leader Preparatory Course.
3. Updated field manuals expand on the roles and responsibilities of HROBs and FM SPO teams, to include FM 1-0, *Human Resources Support*; ATTP 1-0.2, *Theater-Level Human Resources Support*; and FM 1-06, *Financial Management Operations*.

OPERATIONAL CONTRACT SUPPORT

R-CAAT program feedback exposed the lack of a systemic organizational process to manage the large number of contracts in theater. As a result, the Army implemented several initiatives that affected operational contract support (OCS) doctrine, policy, training, and organizations.

Through the teamwork of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology Integration Office and CASCOM, commanders saw an increase in available contracting officer's representatives and the establishment of the Operational Contract Support Course, which provides instruction on the processes and procedures for planning and integrating OCS. All S/G-4 positions in brigades and above, as well as logistics unit SPO staff, must complete the course.

OCS training has also been integrated into predeployment exercises.

CONVOY PROTECTION PLATFORM GUNNERY

Today's sustainment units will need to defend themselves, their convoys, and their sustainment bases against opposing forces. At the start of operations, there was a training and equipment gap in the planning and execution of convoy security by sustainment units.

To resolve this, the Army institutionalized convoy security training at home station and provided ammunition allocation and gunnery standards to sustainment units. Training Circular 4-11.46, *Convoy Protection Platform Gunnery*, published in April 2010, provides the first Army-wide standardized, table-based, mounted gunnery training for sustainment units and provides guidance for sustainment commanders on deploying convoy protection platforms and training convoy escort teams.

DISTRIBUTION MANAGEMENT

With the amount of equipment going into theater, distribution management became an obvious issue. Commanders identified gaps including the inefficient use of transportation assets, poor movement request management, lack of total asset visibility, and meager in-transit

visibility. Disjointed movement control operations disrupted the synchronization and integration of logistics efforts.

Supply Support Activity technicians cited shortages of material handling equipment (MHE) and management problems with the enormous volume of unidentified containers. The response was the establishment of the Centralized Receiving and Shipping Point (CRSP), a concept that increased transportation efficiency by shortening distribution routes between forward operating bases and the CRSP hub.

CASCOM championed using the Logistics Reporting Tool that is part of the Battle Command Sustainment and Support System to provide visibility of commodities and capabilities. CASCOM also developed container management TTPs and distribution management TTPs, and authorized the allocation of more MHE.

PROPERTY ACCOUNTABILITY

Along with distribution management, the lack of property accountability was hindering the sustainment mission. Splitting property books, oversight of equipment left behind at the garrison, and tracking theater-provided equipment all contributed to the issue. Commanders struggled with maintaining visibility and control over both contracted and locally purchased equipment.

CASCOM partnered with HQDA G-4, the U.S. Army Quartermaster School, U.S. Army Materiel Command (AMC), and CALL to institutionalize change.

These changes included:

1. A Command Supply Discipline Program (CSDP) handbook that highlights the tenets of property accountability, which was distributed to the field.



2. Numerous surveys to validate property accountability training and knowledge gaps.
3. A CSDP Program of Instruction module about property accountability, which was introduced to professional military education across the Army.
4. Increased rank structure and number of supply-trained personnel in the supply room and the property book office.

These endeavors supported and complemented the actions implemented by the Chief of Staff of the Army's Property Accountability Campaign, which from the 4th quarter of FY10 to the end of 3rd quarter FY11 resulted in nearly \$3 billion invested in filling unit equipment shortages.

MAINTENANCE AND RECOVERY OPERATIONS

One of the issues we faced early on and are still struggling with in the more remote areas of operation is recovering damaged equipment, especially the heavier fleet of Mine Resistant Ambush Protected vehicles and Strykers. The R-CAAT program made clear that there was not a single recovery system to move disabled or catastrophically damaged equipment to a repair location.

CASCOM and AMC worked together to develop requirements documents for a materiel solution to recover heavier equipment from the battlefield. Complementing this and further mitigating the capability gap was the action to increase the number of institutions producing Soldiers qualified for H8 Recovery Operations.

Lastly, CASCOM is working with U.S. Army Human Resources Command to manage the H8 Army Additional Skills Identifier down to the installations via requirements.



AERIAL DELIVERY

CW3 Joshua Hughes, who does aerial delivery for the 101st Sustainment Brigade; SGT Samuel Geerts, a rigger for the 11th Quartermaster Detachment; and COL Michael Peterman, Commander of the brigade, load bundles of fuel onto a truck as part of an aerial delivery using the Joint Precision Airdrop System in March 2011, which is one way the Army has strengthened aerial resupply capabilities. The volume of supplies airdropped has risen dramatically in recent years, from 2 million pounds in 2005 to 76.7 million pounds in the first 10 months of 2011.

AERIAL DELIVERY OPERATIONS

One of the things commanders sought during and after deployment was a better understanding of aerial resupply capabilities and systems, as well as the differences between using military vs. contracted aircraft and pilots. In addition, recovery of aerial delivery assets proved difficult, especially in more remote locations.

The solution came in the form of varied parachute systems, such as the Low-Cost Low-Altitude parachute and the Joint Precision Airdrop System. Furthermore, commanders needed to change their mind-set about aerial delivery, to think of it as a method of resupply instead of an emergency-only action.

Key evidence of this change is the amount of supplies airdropped: In 2005, 2 million pounds were airdropped; in 2008, 16.6 million pounds; and, as of the end of October 2011, 76.7 million pounds.

CONCLUSION

As briefly covered with this article, the Army and its sustainment components are always seeking ways to improve efficiency and effectiveness in supporting our Soldiers and units. These lessons learned are, at best, cursory; they are not the beginning,

nor are they the end, of what logisticians are learning and applying to improve how we provide agile sustainment to our forces.

COL SCOTT FLETCHER is Chief, Logistics Initiatives Group, HQDA, G-4. He holds a B.S. in math and computer science from The Citadel, an M.S. in administration from Central Michigan University, and an M.S. in national strategic resources from the Industrial College of the Armed Forces. Fletcher also is a graduate of the Joint and Combined Warfighting School within the Joint Forces Staff College.

CW4 WAYNE A. BAUGH is Ordnance Officer-in-Charge, Analysis and Integration Division, U.S. Army Combined Arms Support Command Directorate of Lessons Learned and Quality Assurance. He holds a B.S. in liberal arts from Excelsior College and an M.S. in logistics management from Florida Institute of Technology.

DEVON HYLANDER is a Strategic Communications Specialist supporting HQDA, G-4 for L-3 Communications/MPRI. She holds a B.A. in English from West Chester University, an M.Ed. in curriculum and instruction from National-Louis University, and an M.A. in public communication from American University.

No More 'STEEL MOUNTAIN'

Army's Responsible Reset Task Force
establishes efficiencies, visibility in
drawdowns from Iraq, Afghanistan

by Kris Osborn

The Army's Responsible Reset Task Force (R2TF), created to manage, implement, and sustain the drawdown of equipment from Iraq, is setting the stage for the eventual drawdown from Afghanistan.

Led by U.S. Army Materiel Command (AMC), the R2TF consolidates data and expertise to maintain visibility of all the processes and procedures surrounding the departure of equipment from theater, including washing, resetting, transportation, and logistical tasks.

"We moved tens of thousands of equipment from units in Iraq back into Kuwait and then back into our depots. About 40 percent of the equipment that populated the surge in Afghanistan came from

Iraq. The R2TF is a facilitator that helps match up the paperwork with an item, get it cleaned, get it on a boat, and get it back here," said James C. Dwyer, AMC's Deputy Chief of Staff for Logistics, G-4.

In total, the Iraq drawdown has resulted in the retrograde, or removal, of 2.7 million pieces of equipment, the transfer of thousands of items to the Iraqi Security Forces, and the closing of 490 bases; 97 percent of the bases in Iraq have been closed or transferred, with 15 remaining as of October 2011.

The Afghan drawdown will include the removal of about 250 forward operating bases (FOBs), 120,000 personnel, and 1.3 million pieces of equipment.





DRAWING DOWN FROM IRAQ

A Heavy Expanded Mobility Tactical Truck is loaded onto a Heavy Equipment Transport assigned to the 129th Transportation Company, Sept. 12, 2011, at Forward Operating Base Marez, Iraq. The 129th, a U.S. Army Reserve unit based in New Century, KS, was assigned to help the 230th Sustainment Brigade's Joint Task Force Hickory haul equipment out of forward operating bases that were closed as part of the responsible withdrawal of U.S. Forces by the Dec. 31 deadline. (Photo by SGT Shannon R. Gregory.)





PIECE-BY-PIECE INVENTORY

Each piece of excess equipment, like these night vision devices, must be inspected and inventoried before units can turn them in for reallocation as part of the drawdown of equipment. Aiding in this process are various information technologies, such as the Army War Reserve Deployment System, designed to provide visibility of equipment already in the inventory, and Theater Provided Equipment Planner, whereby the user can put information into a database so that a Life Cycle Management Commander can provide instruction on what to do with a given piece of equipment. (Photo by SPC Maurice Galloway.)

EQUIPMENT DISPOSITION

Stood up in October 2009, the R2TF helps determine where equipment needs to go after deployment. The task force includes representatives from U.S. Army Medical Command, the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT), and transporters, among others.

"It provides a link from the foxhole back to the commander. In some cases, equipment can be disposed of and does not need to be brought back to the United States. A key part of the task is to anticipate equipment flow planned for the future so as to maximize readiness," said COL Larry Fuller, Division Chief, Plans and Operations Division, G-3/5.

The ASAALT works in tandem with AMC to shepherd equipment through the R2TF process by placing program managers or their representatives in forward combat locations, said COL Don Moore, Chief of Forward Operations, Deputy for Acquisition and Systems Management.

"Our representatives provide forward support operations to the R2TF to make sure equipment is properly tracked and reset.

They also work to scrub equipment, at times removing government-furnished equipment," Moore said.

A key aim of the R2TF is to avoid a static, post-conflict buildup of war-damaged items like the "steel mountain" of equipment that accumulated following the Gulf War in the 1990s.

"There were acres and acres of equipment built up in Kuwait following the Gulf War. We did not have the integrated mechanisms for tracking equipment that we now have. We ended up with a lot of excess equipment," said Fuller.

The R2TF unit pools data and resources to track the flow of equipment all the way from its origin to its final destination, cataloguing necessary stops along the way. For example, an Abrams tank in Iraq typically went from its FOB in theater to Camp Arifjan, Kuwait, before being put on a boat back to a depot in CONUS.

"The R2TF has been a huge success. It has enabled us, for the first time in history, to retrograde and avoid having all of this equipment sitting on the docks for years and years and years, just like we did after

[Operation] Desert Storm. After almost every war the United States has fought, we've had trouble retrograding and getting stuff out," Dwyer said.

INFORMATION TOOLS

Various information technologies are woven into the fabric of R2TF, such as the Army War Reserve Deployment System, designed to provide visibility of equipment already in the inventory. The R2TF also uses a Theater Provided Equipment Planner, whereby the user can put information into a database so that a Life Cycle Management Commander can provide instruction on what to do with a given piece of equipment, Fuller said.

"If I have a truck that I no longer need, I can enter that into the system so that others can see it and determine the best path forward," he said.

About 99 percent of the large-scale items go back to a depot for reset, Fuller said.

The R2TF also works closely with the Army's Equipment Distribution Review Board, a special unit co-chaired by U.S. Army Vice Chief of Staff GEN Peter W. Chiarelli and AMC Commanding General GEN Ann E. Dunwoody that is tasked with analyzing equipment needs and charting a path forward for items leaving Iraq.

"We've efficiently and effectively retrograded tens of thousands of pieces of equipment from Iraq so that we could get them back to our depots," Dwyer said.

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

Data Portal Helps Army Manage War Zone Equipment

by Kris Osborn

A database and resourcing tool stood up by the Army in Iraq has greatly assisted in its efforts to maintain, sustain, and move equipment throughout the theater of operations. Now the Army is working to introduce this tool to the Afghanistan theater of operations.

Called the Materiel Enterprise Transition Common Operating Picture (METCOP), the database portal is designed to

simultaneously pool information from the deployment, sustainment, and operational elements of equipment management, said LTC Gregory Grzybowski, U.S. Army Training and Doctrine Command Assistant Capability Manager, Tactical Radios.

Tasked with managing and harmonizing important equipment information related to the war zone, the METCOP database establishes a centralized portal through

which changes and modifications are recorded and monitored by the chain of command, said Grzybowski, who previously served as Acquisition Director for the 402nd Army Field Support Brigade, Iraq, Kuwait, and Qatar.

METCOP is a commercial-off-the-shelf system stood up in April 2011 by U.S. Forces-Iraq (USF-I) Knowledge Management Office, he said.

“As we sustained or modified a particular system, we kept the operational community aware of any changes to the capability of a particular system. This allowed commanders to better understand the impact and risk to their Soldiers and to maintain continual situational awareness of their battlefield systems,” Grzybowski said.

“We wanted to ensure that operational field commanders had complete authority over how their equipment was being moved around. METCOP gave them awareness of when systems were planned to be moved and the ability to modify those plans to meet their operational needs. For example, we did not want to move force protection systems at FOBs [forward operating bases] without the commander assessing the risk and making the decision,” he said.

Data were provided by subject-matter experts (SMEs) from the three stakeholder

MANAGING THE DRAWDOWN

The Materiel Enterprise Transition Common Operating Picture (METCOP), a commercial-off-the-shelf database and resourcing tool, was stood up in April 2011 by U.S. Forces-Iraq and has greatly assisted the Army in maintaining, sustaining, and moving equipment during the drawdown from Iraq. Here, vehicles from the 4th Squadron, 9th Cavalry Regiment (4-9 CAV), 2nd Brigade Combat Team, 1st Cavalry Division arrive at Camp Virginia, Kuwait, from Joint Base Balad, Iraq, Nov. 10, 2011, as part of the drawdown. The 4-9 CAV was headed home to Fort Hood, TX. (Photo by CPT John Giaquinto.)





MISSION-CRITICAL EQUIPMENT

The METCOP process is designed to ensure that the operational community has the final decision-making authority to stand up or tear down equipment critical to mission requirements. METCOP addresses commanders' concerns that there was not enough oversight of the operation, sustainment, and movement of equipment. Here, from left, SPC Justin L. Hastings, SFC Jason N. Gouty, and SPC Alicia F. Martinez, all with 24th Brigade Support Battalion, 170th Infantry Brigade Combat Team, inventory equipment before a 215-mile supply run from Camp Deh Dadi II to Forward Operating Base Griffin, Afghanistan, in June 2011. (Photo by SSG Christopher Klutts.)

communities: operations, sustainment, and acquisition. METCOP's success hinges on the effectiveness of the SMEs' training and on good communications on how to implement the system; a help desk was set up to ensure that the portal would be used correctly, Grzybowski said.

"Prior to METCOP, we didn't have an integrated means for the three stakeholder communities to collaborate and work together to track the drawdown of personnel and equipment. The concern from commanders was that there was not enough oversight of the operation,

sustainment, and movement of equipment," Grzybowski said. "The first part of the effort was getting the stakeholders together, building a common definition, and translating that into a tool to ensure that data was implemented correctly."

The established METCOP process allowed this vetting to occur, ensuring that the operational community had the final decision-making authority to stand up or tear down equipment critical to mission requirements. Program executive officers (PEOs) and program managers (PMs) can access the database to check on

plans for moving equipment and produce reports for their leadership.

Once the database was up and running, it was published on the USF-I portal, Grzybowski said.

"We have basically created a software that pulls data and allows us to see equipment as it travels through the system from a FOB all the way back to a depot in the U.S. This helps us track millions of pieces of equipment," said James C. Dwyer, Deputy Chief of Staff for Logistics, G-4, U.S. Army Materiel Command.

The METCOP database is also a big help to forward-positioned PMs and PEOs who track the development and deployment of emerging technologies, said LTC Peter Lozis, Deputy Director, Army Systems Acquisition Review Council, Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT). The database helped ASAALT track technologies involving more than 52 different PMs, along with 2,200 personnel, Lozis said.

"Forward-stationed PMs tracked different types of equipment, including vehicles, shipping containers, and small items for the individual Soldier. The METCOP database allowed us to look at plans for equipment from multiple different levels. It helped PMs provide accurate logistics planning information and assisted their retrograde operations out of Iraq in a time-phased manner," Lozis said.

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



Equipment Once Used in Iraq Is Now Helping State and Local Governments

by COL Michael S. Oubre

Equipment once used in Iraq has been given new life across America, as state and local governments take advantage of an Army initiative that allows them to claim equipment brought out of Iraq that the Army no longer needs.

With the drawdown from Iraq, the Army has redistributed and retrograded millions of pieces of equipment and materiel. The equipment went to fill Army shortages, to build up the capabilities of the Iraq Security Forces and Afghanistan National Security Forces, to improve the warfighting capabilities of our Coalition partners, and to ensure the success of the U.S. Department of State as it assumes the mission in Iraq.

In addition, the Army is committed to ensuring that state and local governments in America have access to excess equipment that is not part of the Army modified table of allowances, commonly referred to as nonstandard equipment (NS-E). As of October 2011, 20 states had received 759 pieces of NS-E, valued at approximately \$11 million. For example, a Caterpillar tractor was used to fight wildfires in Oklahoma; floodlights, loaders, and generators were used to battle floods in Mississippi; and all-terrain vehicles are being used as learning opportunities for students at Walla Walla Community College in Washington state.

The Army collaborates with the National Association of State Agencies for Surplus Property (NASASP) to help meet state and local government needs. The Army also has worked with the Office of the Assistant Secretary of Defense for Homeland Defense and Americas' Security Affairs to expand access to organizations directly associated with homeland security, such as the Defense Logistics Agency (DLA) Law Enforcement Support Office.

Since February 2010, the Army, in conjunction with U.S. Forces-Iraq (USF-I), has used a modified process to review in-theater redistribution of excess materiel in Iraq. The revised process has allowed state and local governments improved access to unneeded equipment for potential reuse.

The Army funded a liaison officer in Kuwait to facilitate the efficient transfer of excess equipment to state and local governments.

Here's how the process has worked: The liaison receives a list of such equipment from USF-I and visually inspects the DLA Disposition Services warehouse in Kuwait for equipment that has been identified for disposal. The liaison then provides a list of this equipment to a NASASP overseas coordinator in Maine. The equipment is in "as-is" condition.

After vetting with state participants, the liaison coordinates any equipment desired by a state or local government for movement through the Defense Transportation System and the General Services Administration (GSA) to the receiving destination. The only cost to the state is for transportation of the equipment, at DoD rates, from Kuwait to its final destination.

Within the United States, the equipment is containerized and becomes part of the Army's overall retrograde process. DoD provides an invoice to GSA, which in turn bills NASASP for reimbursement.

The entire process can take 90 to 120 days, from the time equipment is identified until it reaches the state or local agency.

Enabling state and local governments to have access to excess NS-E in Iraq is a worthwhile cause and one that the Army fully endorses.

COL MICHAEL S. OUBRE is the Retrograde Division Chief, Army G-4. He holds a B.S. in mechanical engineering from the University of California, Santa Barbara, an M.S. in logistics management from the Florida Institute of Technology, and an M.S. in national resource strategy from the Industrial College of the Armed Forces.

TRANSFORMATIONAL JOURNEY

Military Surface Deployment and Distribution
Command navigates dramatic changes in movement
of cargo for overseas contingency operations

by COL Stanley Wolosz





The launch of combat operations in Afghanistan on Oct. 7, 2001, not only signaled the start of *Operation Enduring Freedom* (OEF), but also marked the beginning of a period in which the U.S. military has continually adapted to the challenges of an era characterized by persistent conflict.

Like many DoD organizations, Military Surface Deployment and Distribution Command (SDDC) has experienced radical transformation based on lessons learned while supporting the ongoing overseas contingency operation.

SDDC, the successor to Military Traffic Management Command (MTMC), is the Army Service Component Command of U.S. Transportation Command (USTRANSCOM) and a major subordinate command to U.S. Army Materiel Command. Whenever and wherever Soldiers, Sailors, Marines, Airmen, and Coast Guardsmen are deployed, SDDC is involved in planning and executing the surface delivery of their equipment and supplies. SDDC partners with the commercial transportation industry as the coordinating link between DoD surface transportation requirements and the capability that industry provides.

A BUMPY LANDSCAPE

To fully grasp the change SDDC has seen, it's important to understand what SDDC looked like at the turn of the 21st century.

In the past 25 years, a political landscape that was dominated by two global

superpowers has evolved into an arguably more delicate arrangement that is as unpredictable as it is complex.

The U.S. military has radically transformed along this bumpy and unpredictable path, from a forward-based approach with vast echeloned formations to a modular, brigade-centric structure that is home-based and deploys in smaller packages.

Military logistics similarly has transformed, adapting to the new way we fight while incorporating the new way we do business and the technology that drives it all.

OEF and the buildup for *Operation Iraqi Freedom* (OIF) further changed SDDC. Most notably, increasing U.S. military operations in Southwest Asia meant a greatly expanded surface transportation workload.

Before this point in the command's history, its predecessor, MTMC, focused solely on the strategic aspect of transportation, moving international unit cargo from seaport to seaport—commonly referred to as “port-to-port” operations.

Traditionally, international cargo traffic moved between seaports that maintained a permanent MTMC presence, and movement from those ports was coordinated by units stationed there. Similarly, military equipment returning from Europe would sail into an East Coast port, a local MTMC stevedore contractor would download the vessel, and unit traffic managers would coordinate onward movement with tendered carriers.

Port selection was determined largely by where MTMC had a presence and where contracts were in place to load or unload a vessel. This approach, while adequate in a static environment with a known threat, was not sufficient to support the modern force.

NEW WAYS OF THINKING

Resupply challenges via surface transportation became evident during the initial stages of OEF. As the U.S. footprint in Afghanistan grew, traditional military logistics units, storage sites, and supply lines were not an option.

Without a static military port structure, MTMC began to rely on commercial carriers with networks moving through established, albeit primitive, lines of communication (LOCs). Small-scale movement began through Pakistan and along the Northern Distribution Network routes used today. While there were many issues with throughput and reception, the small force and the access it had to abundant airlift overshadowed surface problems that would later prove significant.

Additionally, large-scale activity in the buildup and initial phase of OIF forced new ways of thinking; the inadequacy of distribution methods and gaps in force structure were evident. As the U.S. footprint in Iraq increased, so did contracted and commercial support to those forces.

While unit cargo flowing into Iraq was moved primarily on Military Sealift Command (MSC) naval or chartered vessels to the military port at Ash Shuaiba, Kuwait,

HEADING HOME FROM IRAQ

The first truck of a large convoy carrying military tactical vehicles pulls out of the staging area on Contingency Operating Base Adder, Oct. 25, 2011, as the U.S. military presence in Iraq was drawing down. In comparison with *Operation Enduring Freedom* in Afghanistan, redeployment from *Operation Iraqi Freedom* has been very forgiving from a logistics standpoint. Because cargo moved via regularly programmed convoys to Kuwait, there was no real impact if planning was inaccurate. Redeployment cargo might be delayed, but eventually the cargo found its way onto a vessel home. (U.S. Army photo by SPC Anthony Zane.)

the commercial distribution pipeline was filled with sustainment stocks and resupply, most of it in standard commercial shipping containers.

As our military established itself in Iraq, the ports, prime-vendor warehouse activities, and military supply activities were quickly overburdened. No specific command was charged with organizing the overall distribution effort and with synchronizing strategic, operational, and tactical moves.

Consequently, strategically directed sustainment cargo often entered the pipeline without a logic that considered reception or storage capacities. The theater transportation structure could not keep pace with the requirement.

CHALLENGES OF OEF

At the same time, focus on the larger effort in Iraq overshadowed what was happening in Afghanistan; the role of SDDC and the powerful commercial capabilities that the command brought to bear in Afghanistan were increasing in importance and transitioning from traditional mission sets.

TAKING PORT OPERATIONS TO THE FIELD

The Mobile Port Operations Center is a vehicle-mounted operation center designed to support the Military Surface Deployment and Distribution Command's (SDDC) initial communication systems requirements for more austere secondary port missions OCONUS, during small-scale, short-duration contingencies, exercises, or troop deployments. (U.S. Army photo.)



The military units engaged in *OEF* were accustomed to traditional deployment and distribution methods, whereby deliberate movements to and from seaports of embarkation and debarkation—known as SPOEs and SPODs—were the norm. For example, a unit was called forward to a port to meet “their” ship carrying equipment; when that ship arrived at the SPOD, “their personnel” met the vessel and ensured that the equipment moved to its final destination.

In *OEF*, exclusive air movements were cost- and lift-prohibitive, yet no dedicated SPOD existed—like Shuaiba, for instance. The only non-air option was commercial deliveries direct to their destination through SPODs without a U.S. military presence.

Initial vessel moves began as transload operations, in which a dedicated MSC vessel was loaded at the SPOE and moved to an intermediate transfer port, such as Salalah in Oman, or Fujairah in the United Arab Emirates. At these ports, SDDC personnel on the ground worked with carriers that accepted and configured the cargo for container and flat-rack movement. Cargo shipments were booked by SDDC and taken by carriers on smaller vessels into Karachi, Pakistan, with ultimate delivery via truck to their final destinations in Afghanistan. SDDC units located with the supported forces provided unit shipment data and coordinated across SDDC to get the most accurate picture.

Furthermore, sustainment cargo was shipped commercially from origin, moving in containers through Karachi and into the combined/joint operational area (CJOA). As forward operating bases (FOBs) in that CJOA increased, so did the amount of sustainment required, and with primitive reception capability

at many locations, cargo congestion at the Pakistani ports became another serious issue.

The only movement control structure in place was a movement control battalion (MCB) stationed at Bagram Airfield, with the primary responsibility for military movements inside Afghanistan. However, without a presence in Karachi, and with multiple carriers, subcontracted truckers, and a challenging Afghan road network, the logjam grew.

SDDC worked directly with the MCB, the Joint Task Force headquarters, and the commercial carriers to reduce the backlog.

Because a military presence in Karachi was impossible, SDDC hired a third-party logistics company to serve as the command's eyes and ears there, validating carrier on-hand reports and communicating adjustments in priority. The strict call-forward policy was rescinded, and free-flow movements of cargo began again.

SDDC linked this information with information from its forward nodes in Afghanistan, as well as with strategic booking and vessel information, to create a complete picture of inbound distribution. This “information picture” was, and remains, critical to military decision makers, and SDDC's role in building that picture became a core mission, far different from the hands-on, port-to-port missions of the past.

REDEPLOYMENT ISSUES

Redeployment from *OEF* via surface LOCs was also radically different from the past and was not what units had grown accustomed to in *OIF*.

OIF was very forgiving. Because cargo moved via regularly programmed convoys to Kuwait, there was no real impact if



KEEPING UP WITH CARGO

Using a 40-ton gantry crane, a 20-by-10-foot shipping container is lifted from the deck of the TSgt John A. Chapman, one of Military Sealift Command's 13 container and roll-on/roll-off ships, during a prepositioning mission at the SDDC Military Ocean Terminal Concord, CA. SDDC is involved in planning and executing the surface delivery of U.S. military equipment and supplies, in partnership with the commercial transportation industry. (U.S. Army photo by Mark D. Diamond, HQSDDC Command Affairs.)

planning was inaccurate. Redeployment cargo might be delayed, but eventually the cargo found its way to Shuaiba and onto a vessel home.

OEF was a different story. Empty commercial containers—of differing types to accommodate specific loads, as well as flat racks of multiple sizes—had to be “spotted” at the originating FOBs in the right amount and at the right time to facilitate redeployment moves.

Again, SDDC forces stepped in and took on the key task of working with units and translating equipment lists and availability dates into commercial bookings. Constant mission changes and the lead time required to “spot” empty equipment made this task extremely difficult. SDDC again assumed a nontraditional role, helping units through the booking, pickup, and movement phases.

As the number of FOBs increased, commercial carriers built new lanes and rates to accommodate them, and door-to-door

moves became the norm, for example, from a stateside installation directly to a FOB in the U.S. Central Command area of responsibility. Eventually, the utility of transloading from an MSC vessel at an intermediate port was questioned. Deployments, like sustainment, shifted to a door-to-door pattern, moving directly from origin to final destination completely under a single carrier's control. This method spread to *OIF* as well, first with door-to-door redeployments through Aqaba, Jordan, and Umm Qasr, Iraq, and later with deployment and sustainment moves into Iraq via these ports.

CONCLUSION

In 2003, DoD recognized the need for end-to-end synchronization and designated USTRANSCOM as its Distribution Process Owner.

Although the previous port management missions remain critical, SDDC's role clearly has expanded as the Army Component Command of USTRANSCOM. The command now is charged with

implementing best business practices while ensuring that we meet the unique needs of DoD “customers” worldwide.

Today, SDDC primarily uses commercial surface transportation carriers and moves unit cargo door to door, significantly expanding the command's role across the spectrum from tactical through operational to strategic operations.

SDDC has fully embraced successful business practices, capitalizing on the operational and fiscal benefits they offer. Force deployment methods likewise have transformed from dedicated military lift platforms to a heavy reliance on the commercial industry.

And while SDDC's name, mission, and operations have transformed to reflect its agile, responsive support to today's Soldiers, Sailors, Marines, Airmen, and Coast Guardsmen, lessons learned tell us that much more needs to be accomplished to ensure that SDDC continues to provide unmatched expeditionary and sustained end-to-end deployment and distribution today and into the future.

This article is an abbreviated version of a 2011 SDDC white paper titled “SDDC: Meeting New Complex Missions and Adapting for the Future.” The complete white paper is available on SDDC's website at https://www.sddc.army.mil/Who/SiteAssets/Wolosz-White-Paper-FINAL_web.pdf.

COL STANLEY WOLOSZ is Deputy Chief of Staff for Logistics, U.S. Army Pacific Command. Previously he served as SDDC Chief of Staff. He holds a B.A. in political science from the College of the Holy Cross, an M.S. in business management from Troy State University, and an M.A. in national security and strategic studies from the U.S. Naval War College.

SYNCING SUPPLY *with* DEMAND

Army's new equipment tracking and distribution system marks fundamental change in logistics

by Kris Osborn



A COMPREHENSIVE COUNT

Flatbed trucks carrying Mine Resistant Ambush Protected (MRAP) vehicles line up for inspection at the Redistribution Property Assistance Team yard at Camp Liberty, Iraq, in October 2011. The Logistics Information Warehouse (LIW) will reflect not only the Army's current inventory of MRAPs and other equipment, but also forecasted deliveries. Ultimately, all Army materiel will be visible in the LIW. (Photo by CPT Kurt Rauschenberg.)



Secretary of the Army John McHugh has designated U.S. Army Materiel Command (AMC) as the Lead Materiel Integrator (LMI), a distinction established to help the service implement a new, improved method of cataloguing, managing, tracking, and distributing equipment across the force.

The LMI is implicitly geared toward increasing the overall visibility of equipment throughout the Army. It draws upon a central database called the Logistics Information Warehouse (LIW) and a new software optimization tool designed to better integrate equipment management by linking supply with demand.

The LMI effort, to be formally established by Feb. 15, puts AMC in the lead role of coordinating equipment distribution; the idea is to successfully identify equipment needs and to facilitate or streamline distribution according to established priorities.

“The Army’s new approach for managing materiel is being designed to effectively and efficiently distribute and redistribute materiel to support the generation of trained and ready forces. Moreover, it must represent a different way of doing business that will foster open communication, improve collaboration, and eliminate redundancies in the process,” McHugh said in Army Directive 2011-06, *Designation of U.S. Army Materiel Command as the Army’s Lead Materiel Integrator (LMI)*, dated March 22, 2011. “As we transition into this new process for managing our materiel, I expect all Army commands and agencies to examine their logistical processes to make them more agile and efficient, as well as compliant with these changes.”

WHERE THE NEED IS

The LMI effort is designed to break the stovepipes and ad hoc strategies associated



GLOBAL INVENTORY

The thousands of items in the Theater Redistribution Center at the “W2N” yard on Camp Arifjan, Kuwait, represent one of many elements in the Army supply system, both in theater and in the United States, that the LIW and a new software optimization tool will better integrate. (Photo by CPL Christopher Bigelow.)

with the Army’s current approach and to pave the way toward a more efficient, timely, and economical approach to equipment management. Not only does the Army expect to have total visibility of equipment throughout the force, but it also will be positioned to better identify equipment needs and effectively match them with the supply base.

The software optimization tool is engineered to simultaneously account for a multitude of factors to calculate how to get the right equipment to the right place at the right time, said James C. Dwyer, AMC’s Deputy Chief of Staff for Logistics, G-4.

This new Decision Support Tool (DST) is aimed at determining how the Army can best predict and anticipate the equipment needs of a unit slated to deploy to

Afghanistan in six months. The DST will be able to predict the quantities of equipment a brigade would need based, at least in part, on historical requirements.

“The Decision Support Tool will optimize requirements and make decisions on the distribution of equipment. It provides an automatic feed of all of the demand requirements so we see them instantly. The optimization software is capable of solving thousands of equations at the same time. For example, we won’t take a tank and transport it from Fort Stewart, GA, to Fort Carson, CO, when there is a tank sitting much closer that we may not otherwise see,” Dwyer explained.

The current equipment management system relies on a host of different reporting and cataloguing entities that are



not always fully synchronized with one another, he said.

“LMI is going to break through these barriers. AMC will integrate all of those piles of equipment to make sure units have the equipment where they need it and when they need it at the least cost to the Army. We’ve basically taken the distribution of equipment out of HQDA as part of this new policy, and brought the responsibility to AMC. This is going to be a huge benefit to the Army,” Dwyer said.

MATERIEL ENTERPRISE EFFORT

As part of this broad effort, AMC and the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) are engaged in a large-scale collaborative endeavor referred to as the Materiel Enterprise (ME). The ME is structured to streamline communication, establish common business rules, and better manage the acquisition and sustainment of technologies and equipment throughout the life cycle.

As part of the ME, a main objective of the LMI effort is to ensure that the management of Army equipment is synchronized with ASAALT and AMC personnel as it moves through the Army Force Generation process, said Tim Goddette, Director of Combat Sustainment Systems, ASAALT.

Program executive officers and program managers in the acquisition community “will have the ability to see ourselves far enough into the future to project,

anticipate, and track our newest equipment for those already in the fight or training prior to deploying,” Goddette explained. “We want to see problems and fix problems before they become problems. Although there are at times issues with having accurate total asset visibility, that should not stop us from striving to move to a more synchronized process and continuing to make improvements.”

Automating this process through the DST will pay large dividends, Goddette added.

The LIW will provide a key function for the LMI by serving as the Army’s authoritative materiel data repository, said Ed Agee, Chief, Materiel Readiness and Integration Branch, G-4 Support Operations in AMC Headquarters.

“LIW is going to be the one place where all authoritative data resources feed. The end result is total asset visibility. Given total asset visibility, we are going to be able to make better, more efficient decisions regarding how we distribute materiel in an environment where demands exceed supply,” Agee said.

Also, the Army will be better positioned to move equipment on a regional basis and align distribution according to geographical needs, to prevent unnecessarily moving things long distances, thus achieving cost avoidances, Agee said.

In addition, the LIW will be fortified with key information on depot production and

TOTAL ASSET VISIBILITY

The LIW is designed to record all equipment in the inventory, regardless of location, whether it is with the active or reserve component. Here, Soldiers assigned to the U.S. Army Reserve’s 824th Quartermaster Company prepare Container Delivery System (CDS) bundles for attachment to the anchor line onboard a C-17 Globemaster aircraft in July 2011. When the CDS bundles are rolled out of the C-17 from an undisclosed location in Southwest Asia, the static line is pulled, deploying the parachute to support deployed forces serving in Afghanistan. (Photo by SGT Shannon R. Gregory.)



IMPROVING EQUIPMENT TRACKING

The LIW's central database increases the visibility and tracking of equipment throughout the Army. Here, Mike Murphey moves supplies from the warehouse to the maintenance building at the Army Sustainment Command Logistic Support Team Complex on Camp Atterbury Joint Maneuver Training Center, IN, Nov. 7, 2011. The new complex replaces the tents and trailers that were previously used to issue and maintain equipment and vehicles for Soldiers undergoing predeployment training at Camp Atterbury. (Photo by SSG David Bruce.)

new contracts, to maximize awareness and management across the spectrum of equipment.

"You have disparate data sources all over the place right now. Right now, the LIW does not capture new-production equipment and does not capture new production on contract. If I had visibility of that, it would allow me to make better decisions about forecasted deliveries. I could be more proactive versus reactive and set the conditions for success," Agee explained. "Everything is coalescing around LIW. At our desired end state, all Army materiel will be visible in the LIW."

Reset, repair, and logistics modernization programs will also be entered into the LIW. The idea is to accurately track and account for all equipment in the inventory, regardless of location, whether it is

with the Army National Guard, Army Reserve, Army prepositioned stocks, or theater provided equipment, Agee said.

"You've got to know what you've got in your inventory before you can distribute it and move things around. We will be able to inform what we procure, what we modernize, what we divest, and what we extend the life cycle on by way of recapitalization," Agee said.

CONCLUSION

The LMI and LIW efforts are helping to institutionalize new policies and new business rules across the Army, initiatives that will help the service become more efficient in today's more constrained fiscal environment, in which overseas contingency operations funding is expected to decrease and the Army will have to rely more on the base budget, Agee said.

"The LMI will synchronize the distribution and redistribution of equipment in accordance with Army priorities and directives. Through coordination and collaboration, we will do a better job at optimizing our supply against demand.

The LMI approach represents huge culture change Armywide. The LMI approach is a journey and will serve as the Army's transformational foundation for evolutionary change in the Materiel Enterprise over time," Agee said.

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

Tool Suite Provides 360-degree Visibility of Assets and Materiel Readiness

by CW5 Timothy S. Barker (USA Ret.)

The Army's 360-degree Logistics Readiness (360dLR) management tools are moving the service toward a single enterprise tool that can provide standard answers to inquiries on quantity, ownership, and status of Army major items and repair parts, to support a variety of logistics requirements.

The 360dLR suite of tools provides visibility of assets and key logistics information that affect materiel readiness across the Army enterprise. A collaborative effort involving the Army G-4, the Logistics Innovation Agency, and the U.S. Army Materiel Command's Logistics Support Activity (LOGSA) defined a set of indicator areas that support the 360dLR management capability. This tool suite enables user-friendly access and analysis of information found in the Logistics Information Warehouse (LIW), the Army's authoritative logistics data repository.

Through the LIW, 360dLR uses original data from the Property Book Unit Supply Enhanced, Defense Property Accountability System, Army War Reserve Deployment System, Standard Army Retail Supply System, Logistics Management Program, Standard Army Maintenance System – Enhanced, Army Status of Resources and Training System, Readiness Integrated Database, Unit Level Logistics System – Aviation (ULLS-A) and ULLS-A (Enhanced), Army Materiel Command Installation Supply System,

and Joint Medical Asset Repository. By drawing from these authoritative sources, the 360dLR dashboard integrates the most current LIW data available into a consolidated common operational picture.

The suite of integrated 360dLR business intelligence reports enables senior leaders to make more informed and effective decisions to synchronize materiel readiness, shape Army Force Generation, and influence budget processes. It also provides “point and click” analysis of data to support the operational and tactical logistician's business information needs.

With 360dLR dashboards for supply classes VII (major items) and IX (repair parts), 10 interactive business intelligence reports have been deployed to the LIW and are available Armywide to support visibility and performance management for the following areas:

- Class VII Enterprise Inventory Visibility—Quantity on hand and ownership information for Army major items across the enterprise (wholesale, retail, and in-transit).
- Class VII Unit Receipt Tracking—Timeliness of major item issue and fielding processes from wholesale organizations to ensure accountability.
- Class VII Retrograde—Visibility of items in retrograde pipeline and assessment of the timeliness of shipments returning from theater.

- Class VII Unit Materiel Readiness—Serviceability of Army Status of Resources and Training System fleets.
- Class VII Sustainment Base Production—Assessment of planned vs. actual production for major item depot programs.
- Class VII Army Equipment Loss—Visibility of Army equipment losses and timeliness of disposition instructions.
- Class IX Enterprise Inventory Visibility—Quantity on hand and ownership information for Army repair parts and components across the enterprise.
- Class IX Non-Mission Capable Supply—Visibility and analysis of repair parts dead-lining major items.
- Class IX Readiness Supply Performance—How the supply chain is performing for critical repair parts affecting system readiness.
- Class IX Secondary Item Production—Planned vs. actual production for Class IX reparable programs.

To get started with the LIW and 360dLR management tools, establish a LOGSA account at <https://liw.logsa.army.mil>.

CW5 TIMOTHY S. BARKER (USA Ret.) is a Logistics Program Specialist with the U.S. Army Logistics Innovation Agency, HQDA G-4. He holds a B.S. in operational/organizational management from Western Illinois University. Barker has more than 35 years of Army logistics expertise. He is also a U.S. Army Ordnance Corps member.



HOW MUCH IS ENOUGH?

Army must 'right-size' inventory of spare and repair parts procured for high-intensity operations as it adjusts to new realities

by John T. LaFalce



RAMPING UP IN AFGHANISTAN

During the fast-paced buildup in Afghanistan, the Army moved a vast amount of supplies and Soldiers into theater. Now it must decide how to manage the eventual removal of that equipment to "right-size" the supply chain. Here, SGT Terrance Lee, then a 143rd Expeditionary Sustainment Command Supply Specialist, moves crates to help Soldiers construct a new work facility at Kandahar Airfield, Afghanistan, in May 2009. (Photo by SPC Elisebet Freeburg.)

With the end of operations in Iraq and leaner budgets ahead for DoD, the Army faces a new dilemma: how to “right-size” all of the inventory procured and maintained during the past decade to support high-intensity operations.

Currently, the U.S. Army Materiel Command (AMC) controls almost \$20 billion of DoD’s \$96 billion inventory of spare and repair parts. The inventory, primarily Class IX repair parts for weapon systems, is constantly in motion, flowing from manufacturers to storage locations, military units, and repair facilities, and then finally to disposal activities. This large and expensive network is the Army’s logistics support supply chain, and it is critical to the operational success of the military.

Historically, the U.S. government has significantly expanded its military capabilities to address global, regional, and

internal conflicts; then it dramatically reduces these investments once the immediate threat abates and other demands compete for federal dollars. The Civil War and both World Wars are textbook examples of this phenomenon, as is the dramatic swing in the Army’s inventory between 1989 and 2010 (see Figure 1).

After the buildup during the Cold War, inventories plummeted in the 1990s, reflecting decisions made to yield a “peace dividend.” In the past decade, the inventory was increased for operations in Afghanistan and Iraq.

Of particular interest is the Army’s Class IX inventory Requirement Objective in the Army Working Capital Fund. As it rises, new inventory is procured from industry to meet rising demand. As it falls, inventory levels must be constricted by buying less and disposing of unneeded assets. This is the current dilemma facing the Army and all of DoD.

The surge of secondary item inventory procured and maintained to support high-intensity operations in Iraq and Afghanistan must now be right-sized to support the Army as it adjusts to new geopolitical realities. Other key factors are current DoD-led efforts to realize operational efficiencies and the higher-order goal of reducing the government’s annual budget deficit and total debt.

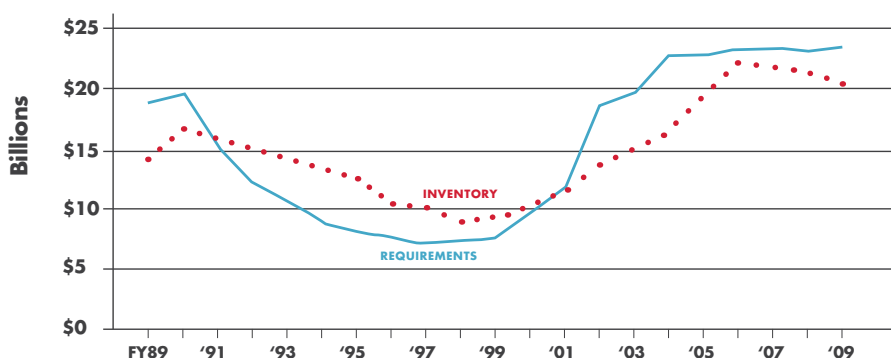
The key to right-sizing the Army’s investment in secondary items is to make smart inventory management decisions. In the years after the Cold War, the Army made arbitrary, shortsighted decisions to reduce inventory that proved expensive to rectify. Various inventories were targeted for reductions of x or y percent with little or no analysis.

Also, funding for new procurements, especially for aviation, was curtailed from 1997 to 2003, leading to indiscriminant disposal decisions by the Army to meet the inventory reduction targets. It also led to low stockage levels on many essential items because funding was not adequate to procure needed quantities of new inventory. When *Operations Enduring Freedom* and *Iraqi Freedom* began, the Army had to expedite procurement and commercial repair orders, at inflated prices, to meet the rising demands of deployed Army units.

The good news this time around is that DoD has a plan in place to guide the services in making smart inventory management decisions. Working collaboratively with each of the DoD components, the Deputy Assistant Secretary of Defense for Supply Chain Integration has developed a Comprehensive Inventory Management Improvement Plan. It is focused on improving secondary item forecasting, preventing the procurement of unneeded inventory, minimizing excess

Army Working Capital Fund

Figure 1



PEACETIME AND WARTIME

This chart shows the fluctuation in Army Working Capital Fund (AWCF) inventory expenditures, in then-year dollars, as compared with Army requirements since the end of the Cold War in 1989. (SOURCE: HQDA G-4.)



stock on hand, and creating an updated suite of DoD-level Class IX inventory management metrics.

To implement the plan, AMC initiated a “War on Excess” that has reduced dormant stock on hand by 2.5 million cubic feet and \$2.3 billion in five years. (Dormant stock is any secondary item with no demands at any one location for two or more years.)

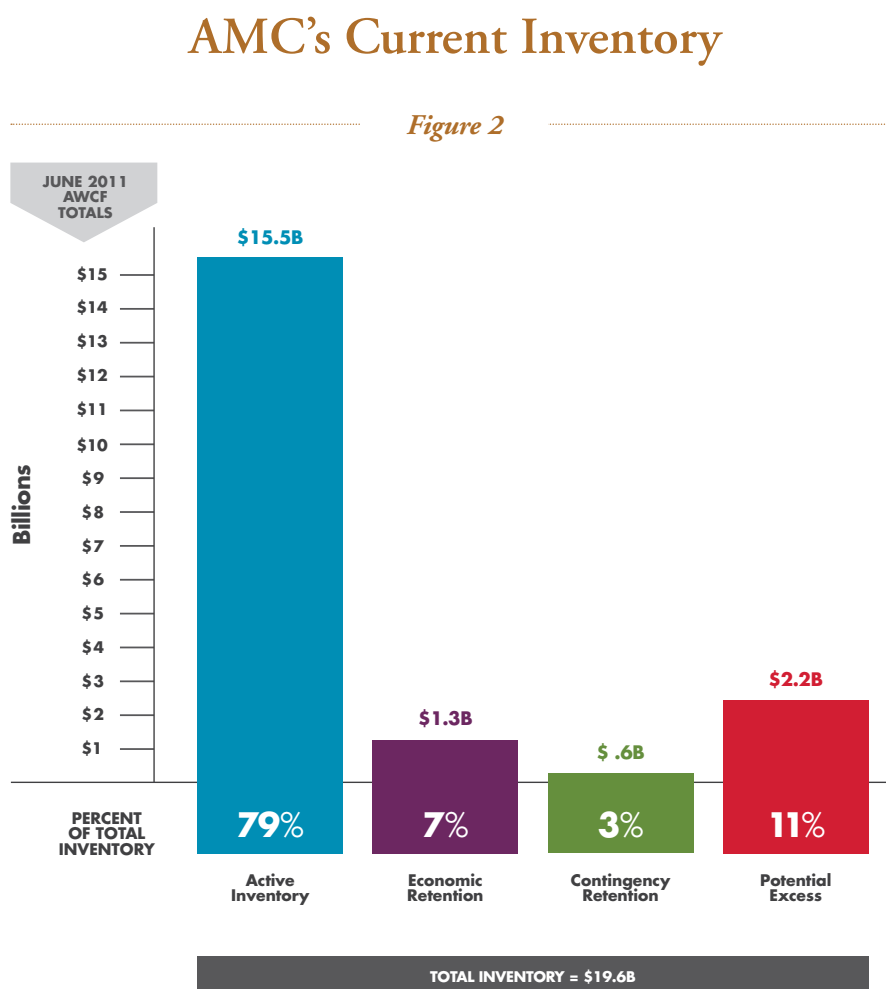
AMC also is focused on reducing Class IX procurements that exceed the changing Requirement Objective levels. This metric has fallen from 12.6 percent of all procurement due-in to 6.4 percent as of June 2011. DoD’s goal is to reduce on-order excess to 6 percent by 2014 and to 4 percent by 2016. This aggressive reduction will stop the delivery of secondary items that would be considered excess to requirements when received by the Army.

Currently, 79 percent of parts in the Army’s almost \$20 billion Class IX inventory are active, 7 percent represent economic retention, 3 percent are contingency retention, and 11 percent are potential excess (see Figure 2).

The goal is to increase the percentage of the active inventory category.

The economic retention category is computed by an Army model that weighs the benefits of retaining an item for potential future use vs. disposing of it.

The contingency retention category is determined item by item. It contains assets that otherwise would be identified for potential disposal by the requirements system. A good example is an unserviceable repairable that the Army bought and can be repaired at a later date as needed. This is a better business decision than disposing of unserviceable assets today and



TRACKING INVENTORY

This chart breaks down the AWCF inventory of almost \$20 billion into categories of use. The goal is to increase the percentage representing the active inventory category. (SOURCE: HQDA G-4.)

possibly having to re-procure them later. Contingency retention stock, and the policies that guide it, are closely monitored by AMC and DoD.

This is only part of many efforts underway to right-size the Class IX supply chain. Both the Army and DoD are also focused on improving capabilities for forecasting repair parts. The Army has completed deployment of its Logistics Modernization Program and is now fielding the Global Combat Support System-Army (see related article on Page 62).

Both of these new systems offer the promise of more efficient Class IX supply chain operations.

JOHN T. LAFALCE is a Logistics Management Specialist in the Supply Directorate of the Department of the Army G-4. He has a B.S. in business administration from the University of Kentucky, an M.S. in management from Texas A&M University, and an M.S. in national industrial strategy from the Industrial College of the Armed Forces. LaFalce is also a member of the U.S. Army Acquisition Corps.





MANAGING INFORMATION

Global Combat Support System-Army
integrates supply, property accountability,
and maintenance operations

by Carlos Morrison

“GCSS-Army enables Army leaders at all levels to know accurate tactical sustainment and financial management information in near-real time. This ability reduces the decision-making cycle timeline and provides leaders additional confidence in their decisions. GCSS-Army also enables Soldiers to perform their missions more effectively and efficiently. Overall, GCSS-Army improves the tactical sustainment mission performance at all levels, across all Army components.”

—LTC Tim Domke,

Product Manager Global Combat Support System-Army,
Program Executive Office Enterprise Information Systems

INTRODUCING GCSS-ARMY

Global Combat Support System-Army (GCSS-Army) was deployed to the 2nd Brigade, 1st Armored Division in August 2011. The system allows Soldiers to see and work with information in a single database, eliminating the need for separate stovepipe functional systems. With an anticipated user base of nearly 160,000 personnel, GCSS-Army fielding is estimated to take about two years for each of two waves, finishing by the 4th quarter of FY17. (Photo courtesy of Army G-4.)

Over the years, Soldiers and leaders have often asked two questions about their logistics information technology (IT) systems: Why can't the Army's tactical and installation logistics system be more like commercial business systems?; and why does the Army have separate IT systems for different logistics functions?

The Soldiers of the 11th Armored Cavalry Regiment (ACR) and the 2nd Brigade, 1st Armored Division (2/1 AD) are not asking these questions. Since July 2010 and August 2011, respectively, the two units have been using the Global Combat Support System (GCSS-Army) for integrated supply, property accountability, and maintenance operations instead of their legacy logistics IT systems.

Based on Enterprise Resource Planning (ERP) software, GCSS-Army provides these Soldiers the ability to see and work with information in a single database, eliminating the separate stovepipe functional systems that each unit maintained. GCSS-Army is a huge leap forward as the rest of the tactical- and installation-level Army continues to use legacy software, such as the Standard Automated Retail Supply System (SARSS) and the Standard Army Maintenance System (SAMS).

NEW CAPABILITIES

Although the legacy systems have served the logistics community well, GCSS-Army provides capabilities that the other systems just weren't built to provide. First, GCSS-Army has a roles and permissions capability to track personnel in the systems who are making transactions. With this capability, tactical and installation commanders can manage the internal controls of logistics and financial processes. Second, GCSS-Army has an embedded financial functionality, which directly links logistics and financial

actions, giving commanders greater control and visibility.

This combination of roles and permissions and embedded financials provides an added benefit: For the first time, tactical and installation logistics and financial processes are auditable. GCSS-Army can be used to show the accountability of funds and materiel.

In addition, units like the 11th ACR and 2/1 AD have accurate and consistent data across the business areas. No longer will Soldiers need to reconcile equipment records and open orders between the separate legacy systems. With GCSS-Army, sustainment leaders have greater access than ever to real-time performance metrics, requisition status, and job status.

The ERP on which GCSS-Army is built operates similarly to that used in commercial industry, including Coca-Cola Co. and Exxon Mobil Corp. Military agencies, such as the Defense Logistics Agency, the U.S. Marine Corps, the U.S. Navy, and the U.S. Air Force, also use ERPs, as do allied armies including those of Canada and Germany.

FIELDING PLANS

In October 2011, the 2/1 AD participated in an initial operational test and evaluation. Based on the successful completion of testing and approval for full deployment, GCSS-Army is scheduled to start fielding by fall of this year.

GCSS-Army will be fielded in two waves. Wave 1 will include supply chain warehouse and finance functionality, which will replace SARSS at tactical and installation levels. Once the first wave is complete, the Product Manager GCSS-Army will begin Wave 2, which fields functionality for property book, unit supply, and maintenance at tactical and installation levels, replacing systems like the Property



MULTIFACETED FUNCTIONALITY

Wave 1 of GCSS-Army fielding will include supply chain warehouse and finance functionality, which will replace the Standard Automated Retail Supply System at tactical and installation levels. Wave 2 will field functionality for property book, unit supply, and maintenance at tactical and installation levels. Here, Strykers are loaded onto an Air Mobility Command plane at Joint Base Balad, Iraq in October 2009, for transport to the United States, where they will be repaired and returned to fighting units. (U.S. Army photo by Mary Susan Barkley, U.S. Army Materiel Command.)

Book Unit Supply Enhanced and SAMS. Waves 1 and 2 will both be fielded to all Army components: active, Army National Guard, and Army Reserve.

With an anticipated user base of nearly 160,000 personnel, GCSS-Army fielding is estimated to take about two years for each of the two waves, finishing by the fourth quarter of FY17.

CARLOS MORRISON is Director, Corporate Information Office, Office of the Deputy Chief of Staff for Logistics (Army G-4/G-6). He holds a B.S. in business studies from New Hampshire College and an M.B.A. from Nova Southeastern University.



OPERATIONAL ENERGY

A FORCE MULTIPLIER

Logistics Innovation Agency and its partners explore advanced energy, water, and waste technologies and solutions to improve efficiencies, reduce demand, and save lives

by LTC Michael Scarlett

BASE CAMP TESTING GROUND

The Base Camp System Integration Laboratory (SIL) at Fort Devens, MA, enables the Army and the Joint Services to evaluate technologies in a live Soldier environment, ultimately providing solutions to reduce the energy demand and logistical burden on base camps in Afghanistan. The Army, for example, is testing the Smart and Green Energy Base Camp and Force Provider energy efficiency upgrades at SIL, including shower water recycling systems, shades and insulated tent liners for 600-Soldier Force Provider modules, and evaluation of micro-grid systems integrated with the standard 60-kilowatt tactical quiet generators. (U.S. Army photo by Product Manager Force Sustainment Systems, Program Executive Office (PEO) Combat Support and Combat Service Support.)



“Without energy, the Army stands still and silent.”

—GEN Peter W. Chiarelli, Vice Chief of Staff of the Army, July 2011

The Army is a significant consumer of energy and fuel. In fact, the Army accounts for approximately 21 percent of DoD fuel purchases from the Defense Logistics Agency. As a leading fuel consumer, the Army is researching how to decrease the demand for operational energy—the energy and associated systems, information, and processes required to train, move, and sustain forces and systems for military operations. Optimizing operational energy facilitates operational adaptability, improves distribution support at all echelons, and enhances freedom of movement and action by commanders.

GEN Martin E. Dempsey, Chairman of the Joint Chiefs of Staff, has stated that we must “focus on and view energy as an opportunity. ... Fundamentally, we know that saving energy saves lives.” The Army, as part of a much broader DoD team, has embarked upon an aggressive array of actions to achieve operational energy capabilities that better support Soldiers’ needs and, at the same time, address technological advances in weapon systems that will drive increased fuel consumption, almost exponentially.

MULTIPLE SOLUTIONS

Operational energy is a multi-scale and multidimensional challenge involving platforms, base camps, and Soldiers. The Office of the Deputy Chief of Staff (ODCS), G-4, Logistics Innovation Agency (LIA) is aggressively exploring, prototyping, and employing a combination of advanced energy, water, and waste technologies, and is leveraging industry

and U.S. Department of Energy efforts in energy management and control systems, solar harvesting, alternative fuels, waste to energy, and other technologies.

The work that LIA is spearheading, in collaboration with its partners, directly supports operational energy gaps in the areas of power generation, storage, distribution, control, and management. These efforts include:

- **Army Campaign Plan (ACP) 2012 Major Objective**—ACP 2012 will be the first instance of this important strategy document in which a Campaign Objective for energy has been added, with a supporting Major Objective for operational energy. The ODCS G-4 has staff proponentcy for the Major Objective, with LIA assigned

functional responsibility for supporting tasks, actions, and metrics.

- **Resourcing integration**—Institutionalizing operational energy within the ACP means that the concept and efforts will be included in planning documents and processes like the Planning, Programming, Budgeting, and Execution System. It will also enforce the consideration of operational energy in design, acquisition, procurement, and life-cycle management.
- **Culture and behavioral change**—The ODCS G-4 is sponsoring a study through the Army Study Program to assess the human-dimension aspects of operational energy. Operational energy must be a consideration in all Army activities. A challenge going forward will be to establish an enterprise approach to the extent that what may

RECHARGING SOLUTION

The Rucksack Enhanced Portable Power System, an initiative of the Communications-Electronics Research, Development, and Engineering Center, is a lightweight, solar-powered portable system that can recharge batteries and act as a continuous power source. It combines anti-glint solar panels, connectors, and adaptors and can charge most common military battery types in five to six hours. (U.S. Army photo.)





WATER RECYCLING AND REUSE

A new shower water reuse system, such as this one under evaluation at the SIL at Fort Devens, can capture and reuse 75 percent of shower wastewater, saving millions of gallons of water each year. (U.S. Army photo by David Kamm.)

have been considered “exceptional” in years past now becomes the “norm.” Commanders and operators should value energy as a resource and employ it as a tactical and operational enabler. Most important, all Soldiers should understand the direct correlation between operational energy and Soldier risk: The higher the volume of energy used in operations, the higher the potential for casualties.

- **Brigade Modernization Command (BMC) Network Integration Evaluation (NIE)**—LIA is working closely with BMC staff to explore the potential for energy and contingency basing operational testing in future NIE iterations. The NIE series of experimentation events has become a critical element

of the Army’s strategy for testing new capabilities and solutions that will benefit deployed forces.

- **Smart and Green Energy (SAGE) for Base Camps**—The SAGE for Base Camps project will demonstrate an integrated smart micro-grid design for medium-sized forward operating base camps. The goal is to develop an Army Facilities Components System electrical grid specification. The design is targeted for a 30 to 60 percent reduction in JP-8 fuel demand for power generation.
- **Kuwait Energy Efficiency Capability**—This initiative, to be conducted at Camp Buehring, Kuwait, will replace tents with relocatable energy-efficient shelters and split heating, ventilation, and air-conditioning

systems; install solar panels on shelters; integrate light-emitting diode (LED) exterior lighting; improve power distribution; maximize power utilization at a central power plant; and integrate other selected technologies.

- **Contingency Basing Integrated Technology Evaluation Center**—This initiative, conducted in coordination with Headquarters, U.S. Army Training and Doctrine Command Maneuver Support Center of Excellence, will establish a dedicated multiuse site for assessing contingency base technologies, construction designs, and techniques to improve the efficiency, sustainability, and survivability of existing and future medium-to-large base camps.
- **Future Base Camps**—Consistent with the Army G-4’s innovation, discovery, and exploration role, LIA is conducting preliminary research on future base camps that leverage the results of ongoing work such as SAGE, with the goal being potential alternative energy solutions, plug-in stations for electric vehicles, and improved vehicle component reliability and efficiency, all to drive down maintenance, support, and fuel costs.
- **Advanced Thermoelectric Generator (TEG) Power Source**—The TEG initiative will deliver a power source for use at dismounted squad and platoon levels that can recharge squad batteries in two hours or less, thereby reducing the number of batteries that must be carried on missions of more than 72 hours.
- **Sustain the Mission Project (SMP)**—The SMP is a decision support tool that allows Army action officers, analysts, and decision makers to evaluate and prioritize energy choices by calculating the fully burdened cost of fuel and benefits. The tool provides input for cost-benefit analysis to support acquisition, logistics, and other resource decisions. In addition, SMP helps in evaluating energy technology trade-offs.

ADDITIONAL EFFORTS

LIA is not the only organization addressing the Army's energy challenges. Organizations across the Army are providing tangible solutions for Soldiers.

For example, the Communications-Electronics Research, Development, and Engineering Center is working to reduce Soldier load with the Rucksack Enhanced Portable Power System, a lightweight solar-powered kit capable of charging batteries or functioning as a continuous power source. The Army Petroleum Center's Tactical Fuels Manager Defense system is automating fuel inventory tracking to improve visibility of fuels in theater.

Product Manager Force Sustainment Systems within Program Executive Office (PEO) Combat Support and Combat Service Support is working on Force Provider energy efficiency upgrades through a new Base Camp Systems Integration Laboratory at Fort Devens, MA. These upgrades include shower water systems that allow for reuse of 75 percent of the shower wastewater, development of shades and insulated tent liners for 600-Soldier Force Provider modules, and evaluation of micro-grid systems integrated with the standard 60-kilowatt tactical quiet generators.

Over the past five years, the Rapid Equipping Force, which provides urgent capabilities to Army forces deployed globally, has developed and deployed a number of energy and power solutions as diverse as battery scavengers, enhanced alternators, and large solar-cell blankets, all aimed at providing improved capabilities to our fighting force.

The U.S. Army Corps of Engineers (USACE) has efforts underway in mini-gridding contingency bases and using efficient centralized power management solutions through the USACE



INTELLIGENT ENERGY

Joe Barniak, a contractor with Project Manager Mobile Electric Power within PEO Command, Control, and Communications-Tactical, programs the Intelligent Micro Grid control unit at Camp Sabalu-Harrison in Parwan Province, Afghanistan. The micro-grid provides power to more than 60 structures at the camp with greater efficiency than the 20-plus generators it replaces. (U.S. Army photo by Summer Barkley.)

worldwide power contract. In addition, Project Manager Mobile Electric Power within PEO Command, Control, and Communications-Tactical will soon begin fielding Advanced Medium Mobile Power Sources, more efficient next-generation generators that use 20 percent less fuel than the currently fielded units.

CONCLUSION

Through continued partnerships and teamwork throughout the Army, LIA is leading a focused, deliberate, and compelling strategy that seizes upon opportunities, with the goal to drive culture change and expedite the fielding of capabilities to current operations while maintaining an operational edge through science and technology efforts. The bottom line is that by properly valuing

operational energy, the Army can better manage it to achieve desired effects at the operational and tactical levels.

By reducing the demand for operational energy, the Army lightens the load for our Soldiers, reduces the number of resupply convoys hauling fuel to far-flung forces, increases the resilience and adaptability of our units and their equipment, and, most important, saves lives now.

LTC MICHAEL SCARLETT is a Logistics Synchronization Officer, U.S. Army Logistics Innovation Agency, Office of the Deputy Chief of Staff of the Army, G-4 (Logistics). He holds a B.A. in history from Montana State University and an M.A. in history from Norwich University.



FLEET MANAGEMENT

A sustained strategy to reduce maintainer burden

by CW5 Art Gribensk



CONSTANTLY IN DEMAND

Army aircraft in theater, like this fleet of UH-60M Black Hawk helicopters on the flight line in Afghanistan, are maintaining a high operational tempo, with acceptable readiness rates. With more stock on hand, greater depth than ever, and the availability of contractor man-hours for maintenance support, there is concern that the Army may be losing sight of the root cause of reliability drivers, failure modes, and maintenance inefficiencies. (U.S. Army photo.)

The Program Executive Office (PEO) Aviation has implemented a new fleet management (FM) strategy for all aviation platforms. FM is a proactive approach that enhances platform visibility by gathering and analyzing data with the goal of reducing the maintenance burden on the Soldier. The project managers (PMs) are the trail bosses of this strategy and own the tools necessary to conduct effective

FM, which is now a core function within each project office in the organization.

Our aircraft are working at a high operational tempo (OPTEMPO) with acceptable readiness rates. There is a perception that there is no opportunity for improvement with the resources available to support the current fight. We have more stock on hand and with greater depth than ever. The Army provides us

with additional civilian contractor man-hours for maintenance support.

Because of this increase in resources, we are masking the root cause of reliability drivers, failure modes, and inefficiencies in our maintenance. Some root causes are not realized because of the repair and replacement process during reset and depot overhaul. With dwindling resources and the inevitable drawdown, we will lose the reachback, dollars, and man-hours that we are enjoying.

INTEGRATED MODERNIZATION

The modernized UH-60M Black Hawk helicopter, pictured here, will have integrated bussed data incorporated into the system designs, helping to reduce the Soldier's maintenance burden. (U.S. Army photo by J.D. Leipold.)



To increase the time on wing, we must understand the root causes of our component removals and their removal rates. Not until these facts are known and the root causes identified can we address them.

REDUCING THE BURDEN

The main goals of FM are to:

- Reduce the Soldier's burden.
- Increase availability and reduce mission aborts.
- Identify and reduce maintenance and reliability drivers.
- Monitor aircraft health and identify trends.
- Maintain fleet configuration and inventory management.
- Improve logistics synchronization and predictability.
- Accurately determine man-hour requirements.
- Monitor and understand fleet OPTEMPO.
- Control or reduce total ownership life cycle.

How do we define and measure "burden"? For our aviation maintainers, it can be defined as the total number of events our Soldiers are required to accomplish. "Events" are all the scheduled, unscheduled, and preventive maintenance and other support tasks that the maintainer performs.



BUILT-IN DATA GATHERING

Integrated bussed data systems incorporated into the designs of modernized helicopters, such as the CH-47 Chinook helicopter shown here during flare testing, provide “on platform” data-gathering capability. (U.S. Army photo.)

There are three basic ways to reduce burden: by reducing the total number of these events, the frequency of a single event, or the cost of an event. But only after identifying and analyzing the causes of these events can we reduce them. The challenge lies in having clear visibility and understanding of the events while seeking to improve the processes that facilitate burden reduction.

RELIABILITY-CENTERED TOOL

An important tool for FM is reliability-centered maintenance (RCM) analysis. RCM is a process that identifies the optimal failure management strategy for a system. Using this and other analytical tools, FM pinpoints maintenance, reliability, and cost drivers and sets in motion a continuous improvement process.

All aircraft or systems maintenance programs are built upon condition monitoring—periodic inspections or functional tests to identify impending

failures. Digital Source Collectors and Health Usage Monitoring Systems are being installed on all Army rotary-wing aircraft. Although an important new tool, condition-based maintenance (CBM)—which is based on evidence of the need for maintenance before failure occurs, using analysis of data collected automatically by sensors—will not totally replace this condition monitoring process, but rather will enhance it and automate the process where appropriate and effective.

For FM to be most effective, it must be part of a robust RCM process that periodically reassesses failure modes and drivers and their impact on readiness, cost, or burden on our maintainers. FM and the RCM process will identify candidates for improvement and recommend the best, most cost-effective approach.

DEFINING THE DATA

“On platform” data are all system, sensor, and performance data available through

existing integrated data busses or the use of “strap on” systems. This capability was resident in some aircraft before CBM came into use. The AH-64D Apache Longbow, for example, was equipped with the Maintenance Data Recorder in its design. The vibration data sensors, in the form of accelerometers, were added later using the Modernized Signal Processing Unit.

Modernized aircraft, such as the UH-60M Black Hawk and CH-47F Chinook, will have integrated bussed data incorporated into their system designs. Whether these systems were already present or were developed and strapped on later, they all provide “on platform” data gathering.

“At platform” data include the maintenance processes, activities, and recorded events that reside on the aircraft logbook computers. In the past, maintenance activities were recorded on forms and stored at the unit for airworthiness and

MAKING THE MOST OF MAINTENANCE

CW3 Shaun Steines, a Maintenance Test Pilot in Task Force Attack, 1st Air Cavalry Brigade, performs a track and balance procedure on Night Fury, the first AH-64D Apache Longbow helicopter in the U.S. military to reach 10,000 flight hours, at Forward Operating Base Sharana, Afghanistan, July 21, 2011. A track and balance is performed after a 125-hour scheduled maintenance event to make sure the rotor blades are properly balanced. Fleet management is a proactive approach that enhances platform visibility by gathering and analyzing data with the goal of reducing the maintenance burden on the Soldier. (Photo by SSG Joe Armas, 1st Air Cavalry Brigade, 1st Cavalry Division Public Affairs.)



maintenance management, then discarded every six months. The collection and movement of these data are moving from the flight line to the enterprise. The Navy's Joint Technical Data Integration technology is facilitating this data flow.

GREATER VISIBILITY

A main goal of FM is to gain visibility and begin to understand what our maintainers must overcome to launch and recover aircraft. Until recently, institutional mechanisms have had limited ability to see fleet trends.

The field traditionally communicates issues via Product Quality Deficiency Reports, DA Form 2028s, user conferences, "911" calls to the PMs, unit visits, demand analysis, and other limited, reactive measures.

Aviation's monthly readiness report offers very limited visibility of real issues, events, and failures experienced by our maintainers. For example, it does not track mission aborts, mission effective failures, or precautionary landings. For FM to be effective, these events must be recorded, understood, and correlated with their causes.

ROOT CAUSE ANALYSIS

Our Engineering Directorate's reliability, availability, and maintainability (RAM) engineers are now analyzing data using the Aviation Systems Assessment Program (ASAP), which will identify reliability, maintenance man-hours, mission effective failures, mission aborts, and cost drivers. ASAP thus will enable us to better understand what maintenance is being conducted, why, and at what cost.

All aircraft or systems maintenance programs are built primarily upon condition monitoring—periodic inspections or functional tests to identify impending failures. This method used the failure mode, effects, and criticality analysis (FMECA)



process during the initial development of the aircraft to identify the functions, functional failures, failure modes, and failure effects estimated at the time.

Based upon the FMECA process, periodic inspection programs were put in place to remediate estimated failure modes and effects. Temperature, pressure, and vibration sensors were installed for early warning of impending failure. Components that are tracked as Time Change or Retirement Change were based upon assumed usage rates, driving fatigue life expectations. Our scheduled maintenance inspection intervals are based upon condition monitoring and preventive maintenance practices to manage these failure modes.

Once established, these strategies are rarely revisited unless some significant event triggers a new FMECA. Catastrophic failure, mounting Quality Deficiency Reports, dwindling stockage levels in the wholesale system, and drastic, detrimental effects on operational readiness have been the traditional indicators that trigger a reevaluation. A more proactive approach is necessary to implement FM.

TASK-BASED MAINTENANCE

Analyzing data is arduous and labor-intensive. Task-Based Maintenance (TBM) is a concept that will automate much of this process, integrating our Interactive Electronic Technical Manual (IETM) maintenance recording systems.

TBM will make the conduct of maintenance easier by presenting the maintainer with instructions in an interactive checklist. It will also enable the PMs to improve maintenance processes used on aircraft.

PEO Aviation's implementation of TBM is under development. The Aviation Logistics Enterprise Platform will provide

digital logbook functionality while integrating various maintenance software applications, Ground Station Software, IETMs, the Maintenance Test Flight Calculator, and other software used on each platform. The Aviation Data Exploitation Capability will be the server at the unit that is used to gather, parse, and move data to the enterprise.

IMPROVING TIME ON WING

The depot overhaul process and the data gathered there are critical components of FM. To understand the complete life cycle of a component, one must understand its autopsy. Until recently, there was no institutional process to gather critical failure data at the depot—data that are key to performing RAM and RCM analysis to identify reliability drivers.

The Reliability Improvement through Failure Identification and Reporting program (RIMFIRE) establishes this process. RIMFIRE performs over-the-shoulder tear-down evaluations during the overhaul and records critical failure information. Originally instituted for engines, it now includes dynamic, rotating components. These data are being integrated into the ASAP process to give the PMs a more complete picture of the components' life and reliability issues.

At that point, there are three possible actions to keep components on the wing.

1. Adjust or improve the procedure (task, tools, training, etc.).
2. Adjust or improve the removal criteria or understanding of the criteria.
3. Remediate or eliminate the failure mode (through product improvements, engineering change proposals, and the like).

The majority—80 to 90 percent—of all time-tracked components never reach

their published thresholds for time between overhaul. We are finding that the FMECAs used to establish those times are not the failure modes driving removals. Once removed, these components are inducted into the depot overhaul process, where the failure mode data are lost. Subcomponents are replaced, and the component is repaired and put back into the wholesale supply system for issue.

Valuable data are lost in this process, including components' high no-evidence-of-failure (NEOF) rates. RIMFIRE captures this information, and with this knowledge, the PMs can better optimize diagnostic procedures or criteria to reduce those NEOF rates and increase components' time on wing, further reducing Soldiers' burden and life-cycle costs.

CONCLUSION

PEO Aviation's implementation of an effective FM program, in coordination with our life-cycle management partners, the U.S. Army Aviation and Missile Life Cycle Management Command, U.S. Army Aviation and Missile Research Development and Engineering Center, and other organizations will maximize efficiencies and synchronize efforts.

FM will enable the PMs to increase the effectiveness, maintainability, supportability, and cost-effectiveness of their programs while, most important, reducing the burden on our aviation maintenance personnel.

CW5 ART GRIBENSK is the Aviation Maintenance Officer for PEO Aviation and is an AH-64D Apache Longbow Maintenance Test Pilot. He recently served as the Brigade Aviation Maintenance Officer for the 3rd Infantry Division. Gribensk is a member of the U.S. Army Acquisition Corps.

ACQUISITION MEETS LOGISTICS

Bringing the Materiel Enterprise to the operational level

by COL Richard B. Dix and LTC Stephen T. Wall

COORDINATED EFFORT

Acquisition, Logistics, and Technology-Directorates (AL&TDs) coordinate, synchronize, and integrate AL&T planning and execution conducted by Program Executive Officers (PEOs) and Program Managers (PMs) with other acquisition players within Combined Joint Operations Area-Afghanistan (CJOA-A). Pictured are LTC Joyce Stewart, 401st Army Field Support Brigade (AFSB) AL&T Director, and MAJ Christopher M. Byrd, 401st AFSB AL&T-D Systems Acquisitions Officer, with Marine Sgt Jonathan D. Dukette, who is working on a Talon IV robot at the Robotics Systems Joint Program Office facility at Bagram Airfield, Afghanistan in September 2011. (U.S. Army photos by Summer Barkley, 401st AFSB.)





Prompted by the compelling need to devise and deliver rapid solutions to urgent battlefield needs, leaders from the Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) and the U.S. Army Sustainment Command (ASC) entered into an agreement in September 2010, formally embedding ASAALT capability in the Army's battlefield element of the Materiel Enterprise (ME).

Attached to each of seven Army field support brigades (AFSBs), AL&T-Directorates (AL&T-Ds) provide policy, planning, and guidance for acquisition- and technology-related elements operating under the brigade's control. Additionally, the AL&T-D participates in developing operations plans and orders, as well as assisting in contractor accountability. It advises the AFSB commander and staff on acquisition issues and provides reachback technical support and call-forward capabilities from the appropriate Army agency, activity, or command.

Adding AL&T-Ds to ASC's forward-deployed AFSBs can be seen as the result of lessons learned by both the operating and supporting forces. The operating forces' need for direct access to AL&T capabilities was matched by AL&T's desire to be an effective source of rapid

solutions for Soldiers in the fight. Successful application of lessons learned is amply illustrated in Afghanistan, where the 401st AFSB deals with 11 of 13 program executive offices (PEOs) represented in the Combined Joint Operating Area, overseeing 44 product and program managers (PMs) and employing more than 4,000 field service representatives.

Combined, this effort supports more than 30 new system fieldings and sustains more than 70 other systems. This has made a significant difference in combat capability and survivability. The Underbody Improvement Kit modification for the Mine Resistant Ambush Protected (MRAP) All-Terrain Vehicle is a classic example, implemented through the joint effort of the AFSB and the AL&T-D.

Integrating acquisition professionals into a logistics unit is a novel solution to the challenge of providing Soldiers a single face for all AL&T mission support. No longer separated by missions of equipment acquisition vs. sustainment, AL&T and ASC units now merge their expertise to rapidly provide equipment to Soldiers and to keep it operational.

FILLING A GAP

From its headquarters at Rock Island Arsenal, IL, ASC synchronizes distribution and sustainment of materiel to and

from the field for the ME in support of the Soldier. As the ME's executing agent for lead materiel integrator activities, ASC operates a global network of Army field support brigades and battalions, logistics support elements, and brigade logistics support teams that ensure materiel readiness for the Army, including AL&T.

ASC provides integrated battlefield logistics support to overseas contingency operations, including *Operations Enduring Freedom* and *New Dawn*. In addition, the command has participated in humanitarian relief missions at home and abroad in such places as New Orleans, LA; Japan; Pakistan; Tunisia; and Haiti. Support to Army force generation includes field-level reset, left-behind equipment, and pre-deployment training equipment.

The seven AFSBs fill an identified capability gap in centralized command and control for deployed AL&T capabilities. The AFSB combines assets from the U.S. Army Materiel Command (AMC) and ASAALT into a single brigade-level unit that plans for and controls all Army AL&T support of the Army's forces in the operational area.

Additionally, the directorate can provide continuous acquisition-related analysis of deployed force equipment and then share this analysis with the appropriate PEO

THE AL&T-D PROVIDES THE OPERATING FORCE AND ASC AND ASAALT GENERATING FORCES THE CRITICAL INTERFACE AT THE SOLDIER LEVEL TO ASSIST IN OPERATIONAL ACTIVITIES, WHILE ALSO PROVIDING A STRATEGIC RESPONSE.



or PM. Also, the directorate can remedy capability gaps identified by attached science and technology (S&T) teams; assist in planning for and coordinating materiel equipping and fielding, spiral insertions, and associated new equipment training requirements; and provide operational assessments of systems performance to support materiel release and acquisition decisions.

At the operational level, the AFSB is the point where the ME and the Soldier meet. It provides operating force commanders with logistics and sustainment support not typically provided by organic sustainment brigades or expeditionary sustainment commands. Within the AFSB, the AL&T-D provides officers and civilian staff whose skills are technology and engineering development, program management, and systems research. Each AL&T-D's mission is to merge the actions of ASAALT, PEOs, and PMs to conduct fielding, training, maintenance, and support to units.

RESULTS IN THEATER

AL&T-D teams support units in generating requirements through the joint or operational needs statement process and the Rapid Equipping Force (REF). The AL&T-D can help define a materiel solution to a unit's mission if a previous request has been identified or if a commercial option exists. The S&T teams can help find and determine the operational effectiveness of the solution and, should the equipment be suitable, help transition it to a program of record for the Army.

HEADS-UP

Marine Sgt Jonathan D. Dukette explains a heads-up display to MAJ Christopher M. Byrd, 401st AFSB AL&T-D Systems Acquisitions Officer. Byrd is operating an iRobot 110 FirstLook at the Robotics Systems Joint Program Office facility at Bagram Airfield.



UNDERSTANDING CAPABILITIES

AL&T-Ds ensure that AL&T actions within CJOA-A are synchronized with operational plans and priorities for materiel fielding and science and technology insertion. Here, LTC Joyce Stewart, 401st AFSB AL&T Director, and MAJ Christopher M. Byrd, 401st AFSB AL&T-D Systems Acquisitions Officer, hear about the capabilities of a Warrior Alpha unmanned aircraft system fielded by PEO Aviation.

As assets are delivered to units, the AL&T-D can assist with new equipment fielding and training in the United States and abroad, while helping with asset visibility and property accountability. Directorates also have a role in organizing integrated sustainment of equipment, whether in units or as part of a contractor logistics support program.

The AL&T-D provides the operating force and ASC and ASAALT generating forces the critical interface at the Soldier level to assist in operational activities, while also providing a strategic response. The PEO

communities reach out to AL&T-D teams to review critical failures and to request evaluations of operational readiness, equipment supportability, and maintainability. A critical feedback loop to the PEO and logistics community, the AL&T-D greatly shortens the acquisition cycle of new system acquisition or modifications, as well as upgrades of current systems.

CONCLUSION

As fiscal resources become more constrained, time and equipment become relevant decision points for commanders. The AL&T-D teams embedded in AFSBs

have proven their relevance and usefulness by providing mutual support in new equipment fielding. The speed with which the MRAP fleet was procured and fielded to units on the battlefield is evidence of the combined effect of the AFSB and AL&T-D team. The maintenance and support infrastructure the AFSB provides has kept readiness and availability at an all-time high for combat systems.

Through the AFSB and AL&T-D teams' global reach and effective use of REF capabilities, innovative technologies from anti-mine equipment to electronic countermeasures for improvised explosive devices have been fielded simultaneously at home and abroad.

The AL&T-D team has found its place on the battlefield and at home station, adding its specialized capability to ASC and creating a single face to the Soldier for all acquisition, logistics, and technology needs.

COL RICHARD B. DIX is the Army Sustainment Command (ASC) Chief of Staff. He holds a B.S. in marketing from South Carolina State University and an M.A. in procurement and acquisition management from Webster University. Dix is also a graduate of the Industrial College of the Armed Forces.

LTC STEVEN T. WALL is the Product Manager Armored Security Vehicle within Program Executive Office Combat Support and Combat Service Support. He previously served as an ASAALT Liaison Officer to ASC at Rock Island Arsenal, IL. He holds a B.S. in law enforcement from Western Illinois University and an M.S.A. in administration from the University of South Dakota. He is also a graduate of the U.S. Army Command and General Staff College. Wall is Level III certified in program management and is a member of the U.S. Army Acquisition Corps.



THE MATERIALS DIFFERENCE

The S&T community seeks to tap the vast potential of new substances for game-changing capabilities in battery power, Soldier protection, and much more

by Dr. Peter W. Chung

For more than a century, scientists have known that the basic rules of atomic physics determine the form and function of all materials. This axiom is clearly evident in the materials that provide the underpinning for Soldier superiority. For Army scientists and engineers looking to discover new materials and the means to create them, balancing this knowledge with the requirements for material function is a motivating challenge.

Materials are ubiquitous, and the opportunities for leap-ahead innovations abound. Rechargeable batteries, advanced helmets, flexible armor, high-power transistors, multi-frequency sensors, unbreakable encryption, new approaches to

cloaking, supercomputers on HMMWVs, dismounted real-time, horizonless C4ISR, guided small arms, through-wall imaging, remote disarmament, and intelligent dust are but a few items on a long Army wish list.

The potential capabilities, which read like science fiction, are limited only by the imagination of the researchers and innovators. Couple these with emerging sciences in networks, information, and neuroscience, and suddenly the outcomes of second- and third-order effects on technologies become surreal, if not awesome.

The Army stands to benefit.

Soldiers rely on portable devices to remain both connected and aware within

the battlespace. The tens of thousands of batteries that power these devices need recharging, some every day. The power to do so comes from generators that consume fuel. Every ounce of fuel is transported over land and sea at great financial and political cost, often through unfriendly passages, under threat of theft or destruction and protected by Soldiers. New batteries would diminish this logistical burden by offering greater power density, higher efficiency, smaller footprint, and improved reliability.

Present battery materials employ thin internal component interfaces that buffer chemical reactions and pace the release of energy derived from otherwise vigorous atomic events. High-quality interfaces



CAN IT HEAR YOU NOW?

Scientists at the U.S. Army Research Laboratory (ARL) conduct research on a variety of fronts, including auditory research. Here, a mannequin is positioned in one of the lab's auditory research environments to study the effects of various types of headgear on sound detection and the identification and localization of acoustic signatures. (U.S. Army photo by ARL.)



produce better batteries overall. Unfortunately, the thin layers are not placed where they need to be, but rather are “formed in place” during manufacturing. Controlling formation and degradation mechanisms are active areas of research, but new materials can improve these processes and sustain optimal battery performance.

Another example is Soldier protection. Stopping ballistic or blast threats takes more than just run-of-the-mill materials. While the helmet concept is nearly as old as war itself, understanding its dependence on atomic mechanisms has taken time. Today, science and technology improvements are at a threshold. Helmet designs are factoring in early atomic concepts—those that explain material characteristics of metals, foams, textiles, and plastics—to find the right combinations that offer the greatest degree of protection. Knowledge gained through such efforts has yielded updates to the battle-proven Army Combat Helmet.

Refining this knowledge for future updates will be limited, however. Innovative helmet concepts call for lightweight materials that can redirect a bullet or shock wave in a split second (nanoseconds), thus reducing or averting injury. This will not come from merely a better design recipe. Better material ingredients are needed.

New materials lie on the critical path to these and many other game-changing capabilities. Discoveries of materials and the means to make them would enable new paradigms for tactical operations and strategic maneuvers by allowing longer missions, improving situational awareness, and reducing risks in all aspects of Army operations. To these and many other ends, Army scientists and engineers have been in a race to exploit the influence of atomic mechanisms on materials.



LOOKING AHEAD, THROUGH A WALL

Opportunities for leap-ahead innovations abound in a wide range of areas of interest to the Army, including through-wall imaging. Sense Through the Wall is an emerging technology managed by Program Executive Office (PEO) Soldier that detects moving and stationary targets through walls, floors, or ceilings as thick as 8-inch reinforced concrete. (Photo courtesy of PEO Soldier.)

SMALL ATOM, BIG CHALLENGE

To illustrate how materials science works, imagine what happens when marbles are poured into a bin. Do so slowly enough, and ideally they begin to pack the bin in a nicely spaced array or lattice. In a large enough bin with the marbles poured in faster, perfect arrangements become less likely. Large regions of nicely ordered marble lattices may be separated by regions of haphazard packing.

The multiscale materials problem arises from the natural aversion of atoms to organize into orderly lattices, much like the marbles. Nature pours the atoms into their bins faster than they are able to arrange into lattices. At larger scales, this disorganization begins to show hierarchical structure. The structural distinctions impart properties to the material that differ significantly from those of the

homogeneous perfect lattice. Controlling the proportion of disorganized-to-organized spaces can yield exquisite control over the material's properties. Metaphorically, this is dialing a “knob” to get, say, desired effects in electrical or dynamic behavior, such as lower electrical resistivity or higher mechanical failure resistance.

Of course, the technical details are much more complicated, and many more creative “knobs” are in the offing. History shows that discovering and engineering these “knobs” can lead to technological revolutions. Roughly speaking, the steel used to build skyscrapers and the silicon found in modern microprocessors owe their unique properties to controllable features in the material's structure at the atomic scale. Exploited multiscale features in materials have had more recent impacts on diverse products including pharmaceuticals and digital cameras.

A NEW ARMY ENTERPRISE

In 2012, the U.S. Army Research Laboratory (ARL) will institute a new Enterprise for Multiscale Research of Materials (EMRM) to invest in opportunities that will revolutionize Army operations and doctrine through material discoveries and innovations. Its unique calling card is its holistic perspective of materials, from atoms to applications. Focusing the developments on materials for electronics and protection systems positions these investments to reveal fundamental force multipliers that will impact the entire chain—from the tip of the spear on back.

Partnership and collaboration are keys to exploring and developing this technical vision. The funding instrument is a cooperative agreement under which a collaborative research environment will be created to support contributors from academia, industry, and government. The award will be made competitively to a university-led alliance that will collaborate with ARL on computational and experimental research with a keen focus on demonstrating, validating, and improving design capabilities for new materials.

Implicitly, this requires diverse transdisciplinary teams to address the primary challenges and opportunities. Among the many program evaluation factors is the quality of collaboration.

In terms of programmatics, the timing is right. Emergent experimental instruments, high-performance computers, and data analytics can now be used to catalyze new developments. And ARL's historical excellence in research on protection and electronic materials, computational sciences, and information sciences provides the necessary experience and mission focus to ensure discovery and innovation.

The challenges to starting and managing a program like EMRM are formidable. First, some of the most daunting technical problems require entirely new types of materials development tools: predictive physics-based computational codes and software; experimental methodologies for synthesis, processing, characterization, and measurement; and digital data tools for informatics, analytics, database maintenance, and data sharing. Creating the tools for materials development will be as much a part of EMRM as discovering and developing new materials.

Second, success will require a constantly evolving dynamic balance between long- and short-term goals. EMRM may endure for 10 years, and robust validated tools may take that long to emerge, if not longer. Useful tools are materials-agnostic but also materials-specific—general enough to apply to many different materials, but still capable of yielding new insights for each material. Yet the evidence of program success must be apparent early and often to support a sustained program vision. And at every interval, the science needs validation, which requires building confidence and credibility.

NATIONAL NEEDS

ARL is not alone in recognizing the need for tools that enable greater materials development. In June 2011, President Barack Obama announced the Materials Genome Initiative (MGI). At its heart, MGI seeks to double the speed at which the United States discovers, develops, and

manufactures new materials. It describes how solutions to profound materials challenges in national security, human welfare, clean energy, and the next-generation workforce will come from the creation of a Materials Innovation Infrastructure composed of computational, experimental, and digital data tools.

MGI will force discussion about how such tools originate and who should take responsibility to develop and maintain them for a greater good.

Along with ARL, other U.S. government agencies are aligned with the MGI vision. The National Science Foundation, the U.S. Department of Energy, the Air Force Research Laboratory, and the Office of Naval Research have issued program announcements.

ARL's long-term vision for EMRM is to pursue a balanced approach to the discovery and design of new materials that includes the development and use of

BUILDING A BETTER HELMET

The Enhanced Combat Helmet (pictured) and the next generation Future Assault Shell Technology Helmet are made possible by discoveries in materials that were successfully commercialized. (Image courtesy of Drs. Shawn Walsh and Robert J. Dowding, U.S. Army Research Laboratory.)





FOCUS ON SOLDIER PROTECTION

Advanced helmets and flexible armor are two of the many Soldier protection technologies in which the Army is seeking improvements. Here, helmet and body armor belonging to Soldiers of the 100th Brigade Support Battalion from Fort Sill, OK, await the Soldiers' departure for Afghanistan at the passenger terminal at Joint Base Balad, Iraq. (U.S. Army photo by SGT Alex Snyder.)

new and shareable underpinning tools. EMRM recognizes that the tools sit upstream in the actual materials research process, at a point where development speed can truly be influenced systemically.

MISSION-UNIQUE MATERIALS

Thus, no one agency or institution will do this alone. Where shared interests present opportunities, the ARL EMRM will work together with other U.S. agencies with equally significant stakes. Reaching beyond just coordination, there will be significant and meaningful cross-agency collaboration.

However, not all Army materials intersect the interests and missions of other agencies. Soldier capability gaps require consideration of certain materials under

conditions and operating environments that are not present elsewhere. Many Army-unique materials must survive unique performance envelopes and perform unique functions.

The EMRM will comprise both extramural and intramural efforts for this reason. The extramural program will engage universities and other government laboratories, while an accompanying intramural initiative will draw upon ARL's wealth of Army-relevant science and engineering expertise. This will yield a greater impact on the development of new warfighting capabilities.

As the initial structure will foster transition of basic research results from the extramural partners into the laboratory, so, too, will the maturation of the

internal initiative bring ARL-developed tools to the Army material development communities.

DR. PETER W. CHUNG is Team Lead for the Interdisciplinary Computational Sciences Team at the U.S. Army Research Laboratory, Computational & Information Sciences Directorate, Aberdeen Proving Ground, MD. He holds a B.S. in aerospace engineering from the University of Virginia and a Ph.D. in mechanical engineering from the University of Minnesota.

Contributors to this article were Dr. John M. Pellegrino, Senior Executive Service; Dr. Cary F. Chabalowski; Patricia J. Fox; Dr. T. Richard Jow; Dr. John H. Beatty; Dr. David M. Stepp; Dr. Robert J. Dowding; and Dr. William D. Nothwang.

HONORING INNOVATION

Armywide awards program recognizes
the greatest inventions of 2010

by Brittany Ashcroft

LESS WEIGHT, MORE MOBILITY

The M240L 7.62mm Lightweight Medium Machine Gun reduces the weight of the existing M240B without compromising reliability. (U.S. Army photo.)



From new grenade launchers to solar-powered portable power systems, the U.S. Army's research and development (R&D) community has produced myriad top inventions for Soldiers. In some cases, Soldiers have invented solutions for the R&D community to develop. The Army acknowledged new, outstanding technologies invented in 2010 during its annual Army Greatest Inventions awards ceremony, held Oct. 10, 2011, as part of the Association of the United States Army's Annual Meeting and Exposition in Washington, DC.

Heidi Shyu, Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology and Army Acquisition Executive, emphasized that all of these inventions coming out of the Army benefit Soldiers everywhere. "You are innovating and saving the lives of Soldiers. That's what is important. That's why we're all here," she said. "Anything you do to innovate and help our Soldiers is incredibly appreciated by the folks who are deployed."

Commending both the nominees and winners, Army Chief Scientist Dr. Scott Fish said, "They are all driven by a deep desire to make things better. They are not satisfied with the concept of utopia. They go beyond that. They make something real. They make it happen now."

The winners were selected by a group of 10 Soldiers, both NCOs and field-grade officers. The Soldiers evaluated each nomination based on its importance and impact in the field.

The inventions made a strong impression on the judging panel. "It opened my eyes to the fact that there are a lot of people who dedicate many resources to improving the Army by getting better or modified equipment in the hands of Soldiers so we

can be more effective as a fighting force," said SFC Stanley J. Smith, a panel judge and analyst at the Communications-Electronic Research, Development, and Engineering Center (CERDEC).

SFC Lafonte Bennett, another judge, had a similar reaction. "I knew that new tech was being sent to the field on a rapid basis, but I was not aware that we had this kind of influence on what was sent out and when," said Bennett, who is assigned to the U.S. Army Research Laboratory.

This was also the Army's first observance of the Soldier Greatest Invention awards; two awards were added to the program to recognize Soldiers for their individual efforts in enhancing their fellow Soldiers' equipment and performance.

ARMY GREATEST INVENTIONS

The 10 top inventions follow, in alphabetical order.

40mm Infrared Illuminant Cartridge, M992—Developed by the U.S. Army Armament Research, Development, and Engineering Center (ARDEC), this new cartridge, one of six inventions for which ARDEC received awards, produces infrared light that is invisible to the naked eye but is clearly visible to Soldiers using currently fielded night vision devices.

The cartridge enables Soldiers to more effectively engage the enemy at night. It is the first infrared illuminant system created for individual Soldier use, said Gregory Bubniak, Project Officer 40mm Ammunition for Program Executive Office (PEO) Ammunition's Project Manager Maneuver Ammunition Systems.

While the military has used illuminating cartridges and polytechnic flares for many years, the light was only provided in the visible

spectrum, and the enemy could see it as well. The M992 is designed for use with the M203 and M320 40mm grenade launchers, along with the legacy M79 40mm grenade launcher.

5.56mm M855A1 Enhanced Performance Round—First fielded to U.S. troops in Afghanistan in the summer of 2010, ARDEC's 5.56 M855A1 Enhanced Performance Round is an improvement in three areas: soft-target consistency, hard-target penetration, and performance at an extended range.

The M855A1's hardened-steel penetrator, which is in addition to a steel penetrator hidden in the tip of the jacket, is nearly twice as heavy, sharper, and exposed, allowing for better performance. The M855A1 also reflects the Army's priority of improving "green" power and systems; its use of a copper slug instead of a lead slug makes the round more environmentally friendly.

In extensive testing and qualification of the M855A1, the Army fired more than 1 million rounds, making it the most thoroughly tested small caliber round to be fielded in U.S. history. Since June 2011, PEO Ammunition has fielded nearly 30 million M855A1 Enhanced Performance Rounds in Afghanistan. It is designed for use in the M4 weapon system and improves performance of the M16 and the M249 families of weapons. The M855A1 replaces the current M855 cartridge, which has been in use since the early 1980s.

Green Eyes – Escalation of Force Kit Integration with the CROWS System—Supporting PEO Soldier's Project Manager Soldier Weapons, ARDEC's "Green Eyes" kit is designed to temporarily disrupt a person's vision, making driving a vehicle or aiming a weapon nearly impossible.



ENHANCED PERFORMANCE

LTC Ken Lemire of Program Executive Office Ammunition displays an M855A1 Enhanced Performance Round at the 2011 Association of the United States Army's Annual Meeting and Exposition in Washington, DC. (U.S. Army photo by Jacqueline M. Hames.)

Soldiers can use the kit to warn civilians away from checkpoints or other areas where safety is at risk. At closer distances, Green Eyes provides a nonlethal, immediate capability in deterring aggressive actions.

Emitting a wide band of green light, this escalation-of-force kit is compatible with the Common Remotely Operated Weapon Station (CROWS), which allows the Soldier to remain protected inside a vehicle while engaging targets.

The Green Eyes kit mounts to all existing and future CROWS systems and allows users to customize CROWS with white searchlights, ocular disruptors, infrared pointers, and other auxiliary devices, meeting a battlefield demand.

Husky Mark III, 2G 2-Seat Prototype—

To protect Soldiers from improvised explosive devices (IEDs), the U.S. Army Aviation and Missile Research, Development, and Engineering Center improved on the larger MK III Husky to engineer the Husky Mark III, 2G 2-Seat Prototype.

The land-mine detection vehicle is a response to task overload on the Husky operator, increasing the Route Clearance Package's ability to find and neutralize IEDs, while providing direct-fire capability.

The Husky Mark III, 2G 2-Seat Prototype is smaller than the MK III Husky, blast-survivable, overpass-capable, and field-reparable. The kit's smaller size enables transport of the platform with air assets in a roll-on-roll-off configuration and increases readiness, while decreasing the logistical footprint and the cost of maintenance in theater.

Jackal Explosive Hazard Pre-Detonation System—

As the use of IEDs grows and evolves, the Army has examined a number of ways to detect and defeat the threat. ARDEC's Jackal Explosive Hazard Pre-Detonation System removes the IED threat for Soldiers and tactical vehicles.

Keeping Soldiers out of IEDs' area of lethality, Jackal neutralizes the threat and increases the survivability of vehicle platforms. With day/night, multi-terrain, and multi-environmental capability, Jackal supports nearly all ground-based tactical platforms and missions. It also requires minimal interaction from the Soldier.

Jackal was first fielded to Soldiers in Iraq in 2010 to help counter roadside bombs. Its adaptability allows it to detect new and emerging IED devices.

M240L 7.62mm Lightweight Medium Machine Gun—

Reducing the physical load that Soldiers carry is one of the Army's highest priorities. ARDEC supported PEO Soldier in the development of the M240L 7.62mm Lightweight Medium Machine Gun. Weighing 22.3 pounds, the M240L is nearly five pounds lighter than the M240B machine gun. A lighter weapon is more portable, allowing the Soldier increased mobility and room to carry more ammunition.

The M240L has system performance equal to that of the M240B. The combination of performance and lighter weight is the result of a re-profiled barrel, a lightweight grip assembly, and the use of titanium in the receiver.

The titanium M240L represents a leap forward in weapons technology, inspired by Soldier feedback.

The machine gun also features two quick-change barrels, a fixed buttstock, and an integral bipod. A new collapsible buttstock and short barrel have been developed for the M240L as well.

The M240L, the first Army gun to make extensive use of titanium alloys, is compatible with the M192 lightweight tripod and all standard accessories, including optics, aiming lights, and ammunition packs.

mCare Project—With technology advancing and the use of smartphones and mobile applications increasing, the U.S. Army Medical Research and Materiel Command's (USMRMC) Telemedicine and Advanced Technology Research Center developed mCare. Short for

mobile care, mCare is a cell phone-based, bidirectional messaging system that improves the coordination of care for Soldiers in transition.

The platform, which complies with the *Health Insurance Portability and Accountability Act of 1996*, relays messages to the user regarding appointment reminders, health and wellness tips, and unit announcements. Messages can be targeted to all users, specific regions and units, or individual users.

Soldiers and other users can also respond to messages securely via the mCare portal, where the care team reviews patient feedback.

The creation of mCare answers the need for security and privacy, availability across wireless devices used by the public, ease of use for the patient, and easy access for health care team members. It uses modified commercial-off-the-shelf technologies.

USMRMC's Health Force Protection funds are supporting a research study regarding the administrative, clinical, technical, and system outcomes of mCare.

Mortar Fire Control System – Dismounted (MFCS-D)—Supporting PEO Ammunition's Product Manager Guided Precision Munitions and Mortar Systems, ARDEC developed the MFCS-D for the 120mm ground mounted mortar system. The MFCS-D reduces the time to fire the first round to less than two minutes at any time, from eight minutes during the day and 12 minutes at night. This capability helps Soldiers stay ahead of enemy forces.

The MFCS-D system contains ruggedized computers, battery power supplies, displays, navigation and pointing hardware, and associated mounting hardware. It provides rapidly deployable indirect-fire support to High Mobility Multipurpose Wheeled Vehicles. The MFCS-D enhances mortar firing operation command and

control, increases accuracy, and allows faster use of dismounted mortars.

The elimination of voice-over-radio communication for receiving fire mission data also improves interoperability.

RG-31 Robot Deployment System (RDS)—The RG-31 RDS responds to the need for a low-cost, lightweight way to transport and deploy route clearance robots in combat. The Center for Ground Vehicle Development and Integration of the U.S. Army's Tank Automotive Research, Development, and Engineering Center (TARDEC), in conjunction with Product Manager Assured Mobility Systems in PEO Combat Support and Combat Service Support, created the system so that Soldiers could comfortably transport, deploy, and operate road clearance robots while remaining protected in a vehicle.

"This is an innovative, quickly achieved solution to a vital challenge being faced by warfighters," said TARDEC Director Dr. Grace M. Bochenek. "Again this year, the most rewarding part of this recognition is realizing our work made a difference for Soldiers."

POWER AND PROTECTION

Heidi Shyu, Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology, examines the Soldier Wearable Integrated Power Equipment System (SWIPS) during the U.S. Army Greatest Inventions of 2010 awards ceremony. (U.S. Army photo by Conrad Johnson.)



Soldiers can use the RDS kit's full range of capabilities without having to physically unload and deploy the equipment out of the back of the vehicle, which would expose them to enemy threats. Instead, the RDS is a customized hydraulic lift and storage system that Soldiers control from inside the vehicle.

The RG-31 RDS contains an adjustable aluminum storage box and steel frame that bolts onto the rear of the vehicle. The box can be changed to hold a larger or smaller robot as necessary. Using commercial-off-the-shelf components for the box saved time and cost in developing the unit.

Soldier Wearable Integrated Power Equipment System (SWIPES)

—With an increasing awareness of the need for alternate energy and power solutions to reduce the Soldier's physical load and promote the Army's "green" power, CERDEC's Army Power Division developed SWIPES, providing power and protection for extended amounts of time without requiring the Soldier to do power source swaps or power source charging separately.

SWIPES uses a Modular Lightweight Load-carrying Equipment (MOLLE) vest. It combines force protection electronics and communications with an advanced battery power source to keep high-drain applications charged all the time, while also providing the opportunity to customize the system and add new applications.

The longer mission functionality is a result of the use of BA-8180/U and BA-8140/U zinc-air batteries, which directly power equipment. Zinc-air batteries have high energy density—even more than lithium-ion batteries—and are safe for use in military environments. SWIPES also helps reduce the Soldier's battery weight by 30 to 50 percent while still enabling full use of GPS units, shot detection systems, and handheld communication devices.

SOLDIER GREATEST INVENTIONS

Furthering the Army Greatest Inventions as the "Soldiers' Choice Awards" was the addition of the Soldier Greatest Inventions. There were two 2010 winners.

The "Ironman" Ammunition Pack System for Small Dismounted Teams, invented by SSG Vincent Winkowski and other members of 1st Battalion, 133rd Infantry Regiment, Iowa National Guard, enables Soldiers to carry and employ ammunition more easily.



BRIGHT IDEA

The Green Eyes Escalation of Force Kit provides multiple auxiliary devices to the Common Remotely Operated Weapon Station to temporarily disrupt a person's vision, making driving a vehicle or aiming a weapon nearly impossible. (U.S. Army photo.)

"The ammunition sacks that came with [the Mk 48 7.62mm machine gun] made it too cumbersome and heavy to carry over long, dismounted patrols ... Initially, we came up with using 50-round belts and just reloading constantly, which led to lulls of fire and inefficiency," Winkowski said. He used what he had available to him, combining an All-purpose Lightweight Individual Carrying Equipment (ALICE) frame with two ammunition cans welded together and adding a MOLLE pouch to carry other equipment.

The result was a rucksack-like carrier that allows a machine gunner to carry and fire up to 500 rounds of linked ammunition.

The U.S. Army Natick Soldier Research, Development, and Engineering Center is working to insert the Ironman in the formal acquisition process to field it to more units.

Culvert Denial Process—CPL Eric DeHart, 428th Engineer Company, U.S. Army Reserve, was deployed to Afghanistan when his platoon leader asked him to solve the problem of insurgents using culverts to hide bombs.

An engineer by trade, DeHart designed a culvert denial system as a solution. The device, which looks like a screen across the opening, is placed in a culvert. It allows

water and debris to pass through without leaving enough space to emplace IEDs.

CONCLUSION

Created in 2003 by the U.S. Army Materiel Command (AMC), the Army Greatest Inventions awards program is designed to increase communication and esprit de corps between Soldiers and R&D communities. Nominations for the 2010 awards were submitted by various groups, including the U.S. Army Space and Missile Defense Command, U.S. Army Corps of Engineers, USMRMC, U.S. Army Research Institute, U.S. Army Research, Development, and Engineering Command (RDECOM), and AMC.

"The 2010 award winners demonstrated significant impact to Army capabilities, potential benefits outside of the Army, and inventiveness," said MG Nickolas G. Justice, Commanding General, RDECOM. "This program's unique selection process reflects the voice of the warfighter and insight into the future of Army equipment."

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has nearly 10 years' experience in magazine editing and holds a B.A. in English from Elmhurst College.



WORKING TOWARD RECOVERY

MSG David McCurry tosses and catches a ball while standing on a foam board as part of his rehabilitative therapy with U.S. Navy LCDR (Dr.) Scott Mitchell, Physical Therapist and Officer in Charge of the Carl R. Darnall Army Medical Center (CRDAMC) Traumatic Brain (TBI) Injury Clinic at Fort Hood, TX. McCurry, of the Oregon National Guard's 168th Aviation Brigade, suffered moderate TBI after being hit by a 107mm rocket blast during his last deployment. He said he "basically had to learn to walk and talk all over again." (U.S. Army photo by Patricia Deal, CRDAMC.)

MENDING *the* MIND

Multidisciplinary efforts converge to help service members and veterans facing brain injuries

by COL Karl E. Friedl

Traumatic brain injury (TBI) and mental health are significant medical referral issues in the U.S. military. DoD reported more than 150,000 cases of concussion among returning service members from 2000 to 2010, signaling a need for better detection and treatment of such injuries. While promising research continues in several scientific fields, injuries rarely occur in isolation, making a wider view of available treatment technologies and practice a critical need.

The Telemedicine and Advanced Technology Research Center (TATRC) within the U.S. Army Medical Research and Materiel Command (USAMRMC) sponsors workshops of national experts to assess current tools and knowledge for development of rapid solutions to help those injured in combat.

In assessing trauma-related injuries, it is crucial to determine whether the brain is functioning properly; it may be more

important to identify dysfunction(s) correctly than to determine whether the condition stems from physical or psychological trauma, stress, or grief. Both physical and psychological events can cause changes in the brain that lead to debilitating conditions and increase the risk of long-term neurobehavioral dysfunction or the development of neurodegenerative conditions, such as Parkinson's disease or Alzheimer's.

Cellular changes and nerve injury can lead to damaging metabolic cascades after concussion. Proteins and other biomarkers in serum and cerebrospinal fluid illuminate this process, and advanced imaging techniques, such as diffusion tensor imaging and functional magnetic resonance imaging (fMRI), enable scientists to visualize the effects and see areas of decreased brain activity.

In searching for biomarkers, however, one must be cautious. Imaging techniques, as well as molecular markers, may be

sensitive but not specific. Some individuals will not show abnormalities but still have impaired functioning. Post-traumatic stress (PTS) and mild brain injury can cause similar brain and behavioral changes. Even more important, individuals' pre-injury conditions vary widely. One cannot assume that abnormalities are caused solely by recent trauma or that visible change in the brain causes a specific symptom.

Thus, there is a need for research to connect the biological changes with clinical signs and symptoms, in order to confirm a biological basis for defining outcomes of concussion and other conditions. A combination of imaging techniques, physiological measures, and clinical assessments is needed to provide the early detection crucial to successful treatment.

ANGLES OF ATTACK

At a TATRC-funded workshop in May 2011 at Georgetown University on issues of combat-related brain dysfunction, key

medical leaders such as Dr. Robert J. Ursano, Chairman of the Department of Psychiatry at the Uniformed Services University of the Health Sciences; U.S. Air Force Col Michael S. Jaffee, M.D., former national director of the Defense and Veterans Brain Injury Center (DVBIC) who is currently on the faculty of the San Antonio Uniformed Services Health Education Consortium; and Dr. Donald Marion, Director of Clinical Affairs at DVBIC, discussed current solutions, ongoing research, and possible new research angles of attack. Highlights from the discussion follow.

Panelists noted that DoD took an important procedural step with a June 2010 directive to identify and treat early concussion in deployed service members

through mandatory medical evaluations and rest for those exposed to certain events. Because this approach does not rely on service members to report symptoms, more are being screened for injury in theater.

Neurologists, as well as information from the field, suggest that the most useful device to identify concussion within one to two hours after injury may be a smartphone application that would enable a medic to measure key physiological parameters such as balance, reaction time, and eye tracking, or a ruggedized, field-portable device, such as the Tempus Pro, optimized for military use by TATRC in collaboration with U.S. Army Special Forces. Tempus Pro, which provides medical data capture, telemonitoring, and

telemetry, recently received recognition by the Secretary of Defense as among the best capabilities in the FY10 Joint Capability Technology Demonstration.

For cognitive assessment, the military currently uses paper-and-pencil tests as well as neuropsychological instruments, including the Army's Automated Neuropsychological Assessment Metrics (ANAM) computerized test. Studies have shown that cognitive tests detect concussion effects in individuals even after they report themselves to be symptom-free. Dr. Robert Kane, Project Manager for the Neurocognitive Assessment Tool program at DVBIC, said that computerized tests seem to give more detail than traditional ones, thus illuminating a variety of cognitive effects stemming from different types of concussion. He and many others are also enthusiastic about the additional information that virtual reality (VR) might offer.

Dr. Thomas D. Parsons, Director of the NeuroSim Laboratory at the University of Southern California's Institute for Creative Technologies, an Army University-Affiliated Research Center, is developing and testing VR assessment tools for return-to-duty decisions after brain or psychological injury. With Soldiers' input, his team has recreated multisensory environments and situations from Iraq and Afghanistan.

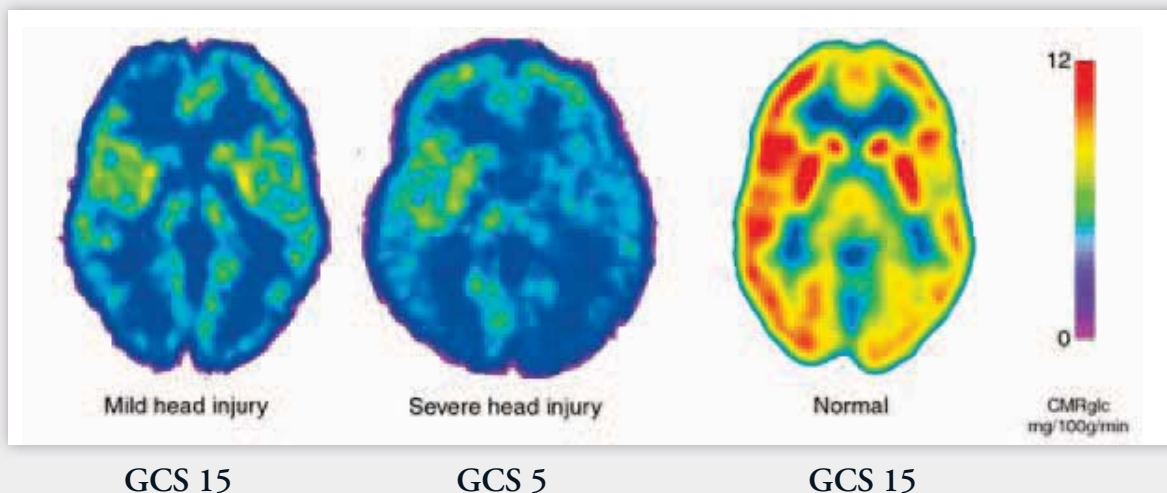
"The beauty of VR is that it allows us to integrate standardized neuropsychological measures into interactive applications that approximate the real world of a military service member," Parsons said. The team has worked with other partners, both military and civilian, to compare results from standardized paper-and-pencil tests as well as ANAM results. "My focus is on validating this technique, working with both clinical and nonclinical populations, so it

THE BENEFITS OF EXERCISE

PFC Jeremiah Mullins, a Military Policeman attached to the 1st Battalion, 26th Infantry Regiment, 3rd Brigade Combat Team, 1st Infantry Division, Task Force (TF) Duke, exercises as part of his rehabilitation from mild traumatic brain injury (mTBI) in March 2011. At right is SGT Jeremy Burch, the Noncommissioned Officer in Charge of the TF Duke mTBI reconditioning center. During this portion of mTBI recovery, Soldiers do simple physical activity in order to raise their heart rate and see if symptoms recur. Research has also shown that exercise benefits memory, learning, mood, and sleep, and may hold promise as a possible protective mechanism or a way to reduce the effects of traumatic exposure and mild brain injury. (Photo by SSG Ben Navratil.)



Human brain injury: Abnormal glucose metabolism (PET scan)



Bergsneider, Hovda, et.al. 2000

THE IMPORTANCE OF EARLY DETECTION

The use of imaging techniques is one key tool, in combination with physiological measures and clinical assessments, to provide the early detection crucial to successful treatment of head trauma. This positron emission tomography (PET) scan compares glucose metabolism in brains with and without brain injury, part of research led by Dr. Marvin Bergsneider, Associate Professor in the Department of Neurosurgery at the University of California, Los Angeles (UCLA). (Image courtesy of UCLA.)

can become standardized and accepted as a way to add further information to the current tests we have,” Parsons said.

In another application of the technology, Dr. Albert “Skip” Rizzo, Associate Director of the medical VR research group at the Institute for Creative Technologies, is using a Virtual Iraq/Afghanistan environment to deliver exposure therapy for combat-related PTSD. Exposure therapy, in which a person is gradually exposed to fear triggers in a safe setting, is shown to be effective in treating PTSD symptoms in many cases. Rizzo’s and others’ initial pilot clinical trials have shown that therapy using this VR tool may achieve better results than traditional therapy, with a lower dropout rate. Three randomized controlled trials are ongoing to validate initial findings.

For the many with physical or experiential brain injuries who have difficulty focusing

on tasks or learning, Dr. Anthony Chen and his team are developing theory-driven cognitive rehabilitation techniques. Chen, who directs the collaborative Program in Rehabilitation Neuroscience of the University of California and Department of Veterans Affairs (VA), is using fMRI along with task performance measures to study the effectiveness of cognitive training to enhance selective attention for real-world goals.

SIMPLE MEASURES

Treatment breakthroughs may also lie in simple measures that have dramatic effects. Over the past decade, several studies have highlighted the beneficial effects of exercise on memory and learning. Some investigators, such as those at the University of California, Los Angeles Brain Injury Research Center, are studying the role of exercise in healing after TBI. While they have found that improvement is highly dependent on the

severity and timing of injury, it appears that exercise holds promise as a possible protective mechanism or a way to reduce the effects of traumatic exposure and mild brain injury.

Until recently, it was thought that no new neurons in the central nervous system could be generated after birth, but new research—much of it from Dr. Fred H. “Rusty” Gage’s laboratory at the Salk Institute for Biological Studies—has shown that neurogenesis occurs in the adult in two areas. One of these, the hippocampus, plays a vital role in learning and memory; neuronal growth there conceivably could improve cognitive abilities damaged by traumatic exposure.

Dr. Henriette van Praag of the National Institute on Aging has tagged and imaged the growth of new cells in the hippocampus and found that exercise is a strong regulator of neurogenesis, tripling neural



VIRTUAL-REALITY EXPERIENCES

Researchers at the University of Southern California's Institute for Creative Technologies are developing and testing virtual-reality assessment tools that mimic combat environments in Afghanistan and Iraq, for return-to-duty decisions after brain or psychological injury. They have also been developing virtual environments for stress resiliency training and for exposure therapy to treat post-traumatic stress. (Image courtesy of Dr. Albert "Skip" Rizzo.)

growth. In her studies, even aged rats learned faster with exercise.

Other benefits of exercise, such as improved mood and sleep, could greatly enhance mental health among deployed service members. In fact, many hypothesize that sleep is a natural protectant that can reduce some of the damage to the brain after trauma. In a study published in 2010, Dr. Thomas C. Neylan, Director of the Posttraumatic Stress Disorders Program at the San Francisco VA Medical Center and part of the Army-funded Neuroscience Center of Excellence, found that poor sleep quality was associated with a smaller hippocampal volume. If sleep disruptions can negatively affect this region where new neurons emerge, then perhaps improving sleep conditions or treating sleep disorders can improve neurogenesis and cognitive functions.

Because sleeplessness is the most common complaint in both mild brain injury and PTSD, Neylan is exploring the possibility of promoting sleep by antagonizing the brain's receptors for corticotrophin-releasing factor (CRF), a type of neurotransmitter involved in anxiety-related arousal control. He hopes that his tests of a CRF antagonist may lead to safer sleep medications.

SHARING DATA

Data sharing and common standards would greatly improve the progress of research toward effective solutions. Separate research efforts on both the civilian and military sides would benefit from a common data repository that all could access. Developing means to share access to the massive amount of data from current research on Soldiers and veterans, as well as completing effective transfer of medical information between the active

services and the VA, could provide valuable insight into what treatments are working and for whom.

Currently there are different systems for defining and noting the severity of concussion, TBI, and PTSD, as well as a lack of longitudinal data to illuminate the differences between those who recover from trauma and those who do not. More work among disciplines is needed so that findings can be built into training, treatment, and decompression procedures.

TATRC continues to support an organized research effort focused on three outcomes:

- Simple, pragmatic tools for brain "first aid" in the field.
- Interventions to prevent a vicious cycle of cellular damage after injury.
- Interventions to prevent and treat development of neurodegenerative conditions, such as Parkinson's disease and Alzheimer's, and to prevent other chronic problems.

TATRC partners with other USAMRMC programs, such as the Combat Casualty Care Research Program and the Military Operational Medicine Research Program, to provide important leadership in military-focused research efforts. For more information on TATRC's research funding and collaborative opportunities, visit www.tatrc.org.

COL KARL E. FRIEDL is Director of the Telemedicine and Advanced Technology Research Center at U.S. Army Medical Research and Materiel Command, Fort Detrick, MD. He holds a B.A. and M.A. in zoology from the University of California at Santa Barbara (UCSB) and a Ph.D. in biology from UCSB's Institute of Environmental Stress. Friedl is also a graduate of the U.S. Army Command and General Staff College.

More Than Just a Cup of Coffee

In the search to improve outcomes after the brain injuries that are a hallmark of recent wars, one answer may be as close as the nearest coffeepot.

Because caffeine is considered the most widely consumed psychoactive drug worldwide, with high use among service members, military researchers have been studying it for several years. A DoD-supported civilian team that has been exploring caffeine's effects on brain injury outcomes recently found that a high dose of caffeine, given immediately after severe brain trauma, reduces the incidence of death.

Dr. Detlev Boison's project at the Legacy Research Institute was funded by the U.S. Army Medical Research and Materiel Command's Telemedicine and Advanced Technology Research Center (TATRC). The goal was to gain a comprehensive understanding of the effects of chronic and acute caffeine consumption before and after the full spectrum of brain injury. "Our most exciting finding is that a single acute dose of 25 milligrams per kilogram of caffeine, given immediately following a severe brain injury in rats, can completely prevent acute lethal outcome under conditions that otherwise result in a mortality rate of 40 percent," Boison said.

According to Boison, the team's data suggest that caffeine is uniquely able to counteract the effects of a deadly surge in the brain chemical adenosine that is triggered by severe brain injury. The adenosine surge causes prolonged apnea (suspension of breathing), the major cause of immediate deaths following such injury.

Caffeine is an adenosine receptor antagonist, which means that it opposes the

action of adenosine by blocking its nervous system receptors. Boison would like to continue his studies of caffeine by exploring its effects on long-term outcomes after brain injury.

Dr. Brenda Bart-Knauer, who manages this project for TATRC, noted that the study is an excellent example of the early "proof of concept" work that TATRC supports to encourage new directions that may translate into better care for service



CAFFEINE AND THE BRAIN

Because caffeine is considered the most widely consumed psychoactive drug worldwide, with high use among service members, a DoD-supported civilian team has been exploring caffeine's effects on brain injury outcomes. Here, PFC James Russell, a cannon crew member with 4th Battalion, 27th Field Artillery, makes coffee in a kettle over a propane fuel can during the Network Integration Exercise in June 2011 at White Sands Missile Range, NM. (Photo by SPC Latoya Wiggins.)

members. According to Bart-Knauer, exploring the role of caffeine and adenosine receptors in brain injury could lead to potential applications not only for physical trauma, but also for epilepsy and post-traumatic stress.

"The team has already made a very exciting discovery. If further studies confirm that we can safely deliver a high dose of caffeine to stabilize the brain after injury, we'll have a relatively easy way to mitigate damaging effects," she said.

Dr. Eugene Golanov, Director of TATRC's neurotrauma research portfolio, said that this finding opens the possibility of exploring drugs that act on adenosine receptors as an acute treatment for brain trauma, even if the exact compound doesn't turn out to be caffeine.

Both Bart-Knauer and Golanov pointed out that further research is needed to determine all of the mechanisms whereby caffeine affects injury outcomes. For instance, there are protective (A1) and damaging (A2A) adenosine receptors, and it is not yet clear exactly which are blocked by caffeine. Studying the interaction of caffeine with sleep restriction would also be important to the military.

Boison is inspired by the possibility of employing a commonly used and safe drug, such as caffeine, to save the life of an injured Soldier. He said that while studies continue, "a caffeine-based rescue approach could immediately be implemented to save the lives of warfighters under conditions when lethal outcome is expected otherwise."

—Courtesy of TATRC



TRAINING WITH SOLDIERS

Soldiers of the 498th Combat Sustainment Support Battalion, 501st Sustainment Brigade, bound forward from their firing position during training with South Korea's 4th Battalion, 126th Infantry Regiment near Busan on Aug. 19, 2011. The units trained together during Combined Joint Chiefs of Staff exercise *Ulchi Freedom Guardian (UFG)* 2011, in which the U.S. Army Research, Development, and Engineering Command (RDECOM) Forward Element Command (RFEC) Pacific's Field Assistance in Science and Technology representatives also participated, a first for RDECOM. Participation in *UFG* extends RDECOM's S&T community into operational centers of the warfighting commanders, to benefit those training for engagement on the battlefield. (U.S. Army photo by SGT Danielle Ferrer.)

S&T CIRCLES THE GLOBE

RDECOM Forward Element Commands find technology solutions, promote theater security cooperation

by Dr. Edward Johnson

Just as America's Soldiers know it takes more than marksmanship and fieldcraft to win a war, leaders of the Army's Science and Technology (S&T) team know it takes more than good work in the laboratory or on the bench to consistently put a decisive technological edge into the hands of U.S. forces operating in danger's path.

The U.S. Army Research, Development, and Engineering Command (RDECOM), under the leadership of MG Nickolas G. Justice, Commanding General, boasts a team of 16,000, mostly civilian scientists and engineers. Less well-known is that RDECOM and its eight research and development centers have a web of partnerships and agreements that reaches into every corner of S&T worldwide. RDECOM has agreements with academia, industry, small business, government agencies, and other nations to integrate unique knowledge and products

that can improve capabilities for Soldiers on the battlefield, potentially reducing the time and cost of our own research and development (R&D).

U.S. partnerships with other nations, their militaries, universities, industry, and individual scientists doing leading-edge research begin with cooperative agreements signed by the President. The partnerships are shaped by U.S. Department of State guidance, in cooperation with the Office of the Secretary of Defense and Army Service Component Commands.

THREE FORWARD COMMANDS

Executing RDECOM's role are three RDECOM Forward Element Commands (RFECs): RFEC Atlantic, RFEC Americas, and RFEC Pacific.

They have a hybrid mission of science and diplomacy. Their primary goals are to promote cooperation between

RDECOM and international researchers in areas relevant to the overall Army mission; to support Combatant Commands' and Component Commands' battlefield-generated requirements; and to advance Army Theater Security Cooperation initiatives with partner nations. This multifaceted mission addresses capability gaps for which no solution is readily available in the United States, taking advantage of global S&T innovation.

The RFEC mission began with Army Standardization Groups, formed after World War II to strengthen defense cooperation and interoperability of the United States and its closest allies. Today the RFECs serve as the Army's eyes and ears in the international S&T community, building on long-term relationships with allies, initiating new cooperative research opportunities, and identifying leading-edge research that might provide a battlefield advantage. The RFECs

use workshops, personnel visits and exchanges, joint projects, and formal bilateral agreements to keep collaborative S&T growing worldwide.

The three RFECs are small commands, with only 70 people collectively in the international arena. Their size and locations mean they can respond quickly to emerging requirements, such as identifying and leveraging groundbreaking scientific research or finding technology to detect and defeat the ultra-light aircraft used by terrorists and narcotics traffickers.

The major challenge that RFECs face as small organizations is difficulty covering the world. The nations within their areas of responsibility have a wide range of S&T potential, but their national priorities and perspectives may not mesh with

those of the United States. Differences in language, etiquette, and customs can pose further challenges to cooperation.

The RDECOM International Technology Integration staff helps the RFECs overcome some of these challenges by serving as a key link in the information chain, connecting the RFECs and Army international program officers with the thousands of subject-matter experts (SMEs) at RDECOM centers and labs.

RFEC military and civilian personnel work in International Technology Centers (ITCs) or as Field Assistance in Science and Technology (FAST) staff. FAST teams extend RDECOM's S&T expertise to combatant commanders in the field, with advisors located at each major command who understand its

unique operational needs. They help the command evaluate capability gaps, codify urgent requirements, and reach back to RDECOM to find and exploit game-changing technologies to address these needs. FAST personnel are proven force multipliers, helping find solutions to critical battlefield requirements, testing new equipment in live training exercises, and contributing to humanitarian and peacekeeping missions in theater.

DISTINCT DIFFERENCES

Although their basic missions are the same, regional RFEC operations vary based on manning and the region's maturity in S&T development, as well as nuances in cultural relationships and business practices.

The U.S. Army Materiel Command established RFEC Atlantic first. From its headquarters in London and offices in France and Germany, staff scientists and engineers interact with international researchers at their home institutions, fostering and maintaining relationships with an S&T community spread over 110 nations in Europe, Africa, and the former Soviet Union.

"Through ITC Atlantic, international researchers have local or regional access to the U.S. Army, and opportunity to present ideas in the form of research proposals to Army labs and centers for consideration and potential collaboration," said Dr. Michael Sennett, Chief Scientist. "The cooperative research projects that ITC Atlantic supports help promote common standards for test and evaluation."

It was this kind of partnering that led to the development of the United Kingdom's radar in World War II. "All the ITC Atlantic-supported basic research efforts have the potential to deliver the same kind of success, as all projects are endorsed and validated by RDECOM

THE S&T OF PEACEKEEPING

Delegates to the Conference of American Armies (CAA) confer at Aberdeen Proving Ground, MD, in June 2010, during a weeklong visit to discuss how to integrate S&T into peacekeeping and disaster relief operations throughout the Western Hemisphere. As the author noted at the time, "peacekeeping operations can change immediately into humanitarian relief-type operations or disaster recovery operations. In our Western Hemisphere and throughout the world, we've faced a lot of problems recently—earthquakes, bad storms, oil spills, huge rainfalls, and resulting floods—that affect just about every nation."



subject-matter experts as addressing bona fide requirements that ultimately underpin the development of next-generation Army technologies,” Sennett said. “More recently, the United States and our allies benefited from developments in mine-resistant vehicle design from South Africa. Research continues in this area of vehicle design for blast survivability.”

Recently RDECOM combined the warrior support mission with the S&T mission. RFEC Atlantic has FAST advisors on the staffs of U.S. European Command, U.S. Africa Command, U.S. Army Europe, and U.S. Army Africa, as well as at the European Readiness and Training Centers.

AMERICAN ALLIANCE

RFEC Americas is the most recently established RFEC. Headquartered in Santiago, Chile, it also maintains offices in Argentina and Canada, with FAST advisors at U.S. Southern Command and U.S. Army South. Focused on North and South America excluding the United States, RFEC Americas has a long history of working with Canada and Chile, and recently initiated an S&T search in Peru. Brazil and Mexico are priorities for further engagement.

The United States and Brazil agreed to increase S&T exchange to foster innovation and improve the economies of both nations, leading to engagements in nanotechnology. The RFEC also funds projects at Brazilian universities and facilitates subject-matter expert exchange visits to Brazilian and U.S. Army R&D facilities.

Mexico has the hemisphere's third most productive economy and R&D production. One niche technology discovered by RFEC Americas in Mexico is the Automatic Text Entity, Location, Time Tagger for Intelligence and Information Fusion.

RFEC Americas worked with RDECOM's Communications-Electronics Research, Development, and Engineering Center to coordinate funding and to adapt the system for Army use, with the goal of delivering better-corroborated and timelier intelligence to the Soldier.

RFEC Americas engages nations in the region through the Conference of American Armies (CAA). U.S. Army South conducts this conference, during which 22 member armies from the Caribbean and Central, North, and South American countries come together to improve interoperability, capacity, and capability in peacekeeping operations, disaster relief, and humanitarian assistance.

The CAA, begun in 1960, conducts a two-year cycle of specialized conferences and exercises hosted by different member armies, culminating in a commander's conference. Specialized conference topics include S&T, peacekeeping, education and training, and environmental issues.

SMEs from RDECOM and other member nations formed international integrated product teams charged with creating plans that they briefed to the leaders of the 29th conference in October 2011 in Lima, Peru.

PACIFIC OUTREACH

RFEC Pacific is headquartered in Tokyo, with offices in Singapore and Australia. From these locations, it reaches out to S&T partners in academia and industry throughout the Pacific Basin, an area rich in basic scientific R&D. Historic partners such as Australia, New Zealand, Korea, and Japan and the emerging economies of India, China, and Malaysia create a diversity of opportunities for S&T partnerships.

RFEC Pacific FAST military and civilian science advisors support U.S. Forces

Korea, U.S. Forces Japan, U.S. Army Pacific, U.S. Army Alaska, and I Corps. Because of unique political and military operational environments in the Pacific Theater, the FAST team can capitalize on the opportunity to develop processes and procedures for optimal S&T support to combatant commanders.

RFEC Pacific is the first to “operationalize” RDECOM regional FAST advisors and the Combatant Command/Army Service Component Command science advisors by actively assuming the S&T Acquisition Corps Advisor and S&T Advisory Team missions during exercises to train for overseas contingency operations. This framework has proven effective in supporting operations in Iraq and Afghanistan by immediately addressing technology gaps and supporting technology insertions for the Soldier.

The RFEC Pacific's FAST representatives participated in the Ulchi Freedom Guardian joint exercise in the Republic of Korea in August 2011. UFG-11 was a first for RDECOM. Participation in this annual exercise extends RDECOM's S&T community into operational centers of the warfighting commanders, to benefit those training for engagement on the battlefield.

DR. EDWARD JOHNSON, a retired U.S. Navy Commander, is Technical Director for RFEC Americas. New to the Army and the Acquisition Corps, he has 35 years of S&T experience as a Naval Officer, Technical Director of the Naval Oceanographic Office and Director Applied Science, NASA. He also has acquisition experience in telecommunications, marine engineering, and health information technology. Johnson holds a B.S. in oceanography from the U.S. Naval Academy and an M.S. in meteorology and oceanography and a Ph.D. in physical oceanography from the Naval Postgraduate School.



SHARE AND SAVE

VA's Deputy Assistant Secretary for Acquisition and Logistics sees cost-cutting opportunities in collaboration with DoD

This Critical Thinking Q&A is with Jan R. Frye, Deputy Assistant Secretary in the U.S. Department of Veterans Affairs (VA) Office of Acquisition and Logistics. Frye is a retired Army Colonel who served in senior acquisition and logistics positions.

Frye was appointed as VA's Deputy Assistant Secretary for Acquisition and Logistics in 2005. In his position, he manages and oversees the development and implementation of policies and procedures supporting the entire VA acquisition and logistics program, one of the largest in the federal government. VA serves 22.2 million veterans through three major organizations: the Veterans Health Administration, with 152 hospitals, 974 outpatient clinics, and 133 community living centers (formerly called nursing homes), among other facilities; the Veterans Benefits Administration, with 57 regional offices; and the National Cemetery Administration, which operates 131 cemeteries.

His responsibilities include management of VA's National Acquisition Center in Hines, IL; the VA Acquisition Academy in Frederick,

MD; and the Denver Acquisition and Logistics Center in Denver, CO. He also serves as VA's Senior Procurement Executive.

Before his appointment as VA Deputy Assistant Secretary, Frye was Chief of Contracting, U.S. Department of Transportation Federal Motor Carrier Safety Administration.

During his 30-year career in the Army, Frye served as Principal Assistant Responsible for Contracting in Eighth U.S. Army/U.S. Forces Korea; Principal Assistant Responsible for Contracting in the U.S. Army Military Surface Deployment and Distribution Command; and Deputy Principal Assistant Responsible for Contracting at the U.S. Army Corps of Engineers. He commanded three DoD contracting commands, in the United Kingdom; Minneapolis, MN; and the Republic of Korea. He also served as the Deputy Commander, Rock Island Arsenal, IL.

Frye holds a B.S. in education from the University of Nebraska, an M.S. in contracting and acquisition management from the Florida Institute of Technology, and an M.S. in

national resource strategy from the National Defense University. He is also a graduate of the U.S. Army Command and General Staff College, the Defense Systems Management College, and the Industrial College of the Armed Forces. He is Level III certified in program management and contracting.

Q. As the chief buyer for VA, you have responsibility for constantly seeking efficiencies across an enormous range of products representing the \$16 billion that VA spends every year on contracts. Are there particular benchmarks of efficiency that you look at across VA procurement operations that might also apply to the U.S. military, as it prepares to absorb at least \$450 billion in cuts over the next decade?

A. We've got a great leadership team here: Secretary [Eric K.] Shinseki, former Army Chief of Staff, knows where he wants to take VA, and he's taking it there. Deputy Secretary [W.] Scott Gould, also the Chief Operating Officer, is just a consummate professional, a great businessman who has served both in government positions and in the private sector; and my boss, Glenn

[D.] Haggstrom [Principal Executive Director, Office of Acquisition, Logistics, and Construction], who's the Acting Chief Acquisition Officer at VA, which is comparable to the Army Acquisition Executive. All three of them have been very, very supportive, and their predecessors as well, for changes that we've made here in VA. Believe me, we've made some, and we need to make a lot more to get us where we need to go.

There have been, and there are, a lot of opportunities for standardization and consolidation, or strategic sourcing, if you will, of products across VA and DoD. VA is a major player in the national health care arena; DoD is as well. We serve the same people, albeit at different times of their careers. Some substantial savings have been achieved, and more could be achieved.

In our hospitals here in CONUS, we probably use about the same things. Obviously overseas in war zones, the forward-deployed medical commands use some different things because of their forward-deployed posture. But things that come to mind are what we call durable medical equipment, or DME, from wheelchairs to hearing aids like I'm wearing. We've agreed on what hearing aids we will provide to our constituents, to our clients, and we combine our spend. We buy most of DoD's hearing aids out of VA's Denver Acquisition and Logistics Center. We average a cost per unit of \$348. That is in comparison to a retail cost for the same units of \$1,200 to \$3,000.

We have captured 20 percent of the U.S. market, between DoD and VA, for hearing aids. Best of all, we're getting the best technology available.

Major medical equipment is another arena where we can do a lot more. If we were to combine the total spend for high-tech or

“I WANT TO LET YOU KNOW THAT EVERYTHING THAT I KNOW ABOUT CONTRACTING, I LEARNED FROM THE ARMY.”

major medical equipment and then use that spending power to negotiate with suppliers, I believe we could drive the prices down for a significant advantage for both DoD and VA. We are doing it to some degree now, but I think there's more progress that we could make. CT [computed tomography] scanners, MRIs [magnetic resonance imaging machines], those are very, very expensive. We buy millions of dollars worth of them across VA every year.

Those are just two examples.

Q. VA has taken significant steps, with your leadership, to build up its contracting workforce. What can the Army learn from VA acquisition to foster professionalism, innovation, and risk-taking through hiring, assignment, and promotion practices?

A. First of all, I want to let you know that everything that I know about contracting, I learned from the Army. The Army allowed me to serve in the contracting arena for 20 of my 30 years, even before the Acquisition Corps was developed.

Here's what I found when I got here in 2005: Our procurement workforce here was not nearly as capable as the Army's. They weren't as well led as the Army's procurement workforce, they weren't as well trained, and there was no acquisition corps. The Army implemented the

Acquisition Corps 22 years ago. We had none here. And there was virtually no program management culture. So I've expended a lot of effort, a lot of resources to improve training, the culture, and professionalism. But we've got a long way to go.

Let me give you an example: We're in the process of implementing the VA Acquisition Corps à la Department of the Army because that's what I learned. And Secretary Shinseki directed us to do that last year. Fortunately, I already had an effort going, so we're about to stand that up.

We have a very professional IT [information technology] contracting organization. Just two years ago, we could barely put an IT contract in place. But there happened to be a BRAC [Base Realignment and Closure move] at a place called Eatontown, NJ, at the Army's Communications-Electronics Command [CECOM]. When I found out about it, I presented the idea to the leadership here, said that what I thought we needed to do was move up there and see what professionals we could retain at Eatontown. We did so, did it very, very quickly. And we eventually will have over 250 people on the ground putting contracts in place, totally dedicated to IT contracting. It's the U.S. Army that set the stage there.

We were way behind the curve in terms of training, and consequently I conceived

“I HOPE VA AND DOD ENDEAVOR TO WORK EVER MORE CLOSELY TOGETHER AS WE MOVE INTO AN EVER MORE CONSTRAINED BUDGET ENVIRONMENT.”

the standing up of the VA Acquisition Academy in Frederick, MD, because none exists outside DoD. DAU was full up. It's a world-class facility, an award-winning facility, by the way. I am very familiar with [DAU's] facilities and their professionalism, so we've emulated that.

But I will tell you that we have, I believe, a decided advantage over the Army in one area—agility. Because we're smaller. We have a much smaller budget; we have a much smaller spend, only \$16 billion vs. the Army's \$140 billion. We have some 300,000 employees. And our leadership is not as thickly layered. It's easier for us to get to our leadership with ideas and get ideas implemented if they agree. For instance, when I recommended that we move the headquarters contracting support out of Washington up to Frederick, MD, it took just a matter of weeks to get that approved. Now, why did we do that? You have a constant rotation of contracting personnel in the Washington area because jobs are available. My idea was to move it out of Washington, just far enough away where it's inconvenient for [employees] to come into Washington, and it works like a charm.

It's refreshing, because as we move into an even more constrained environment than we're in, there will be further competition for good contracting people.

I think it's going to be important that the leadership in the DoD acquisition community do everything they can to attempt to become more agile as we move forward,

even given the numbers of layers that they are required to go through.

Within the last year, we decided to stand up a Strategic Acquisition Center in Fredericksburg, VA, and we're currently doing that. We're looking at hiring people who didn't want to move, perhaps with the Army Materiel Command down to Redstone Arsenal, AL. We'll have about 150 contracting officers down there to do strategic sourcing of durable medical equipment and medical-surgical products.

Q. VA is, and has been, a leader in procurement from small businesses, which many in acquisition view as inherently more agile and innovative. Do you find this to be true? What do small businesses need from the federal government to encourage this agility and innovation?

A. As you probably know, we embrace small businesses here at VA. We've met our bogies, our requirements given to us by the Small Business Administration, every year I've been here—certainly since I started this cycle in 2006, and even before that. Our experiences show that small businesses provide just as much in many ways as large businesses do. Sometimes small businesses can't get the financing to do large construction projects, so those are naturally left to large businesses. But the small businesses we contract with are very, very good, by and large. They are agile. Some of them can literally turn on a dime, and some of the larger companies are not able to do that; they're just not as quick at making

changes. In the last two years [FY10 and FY11], we have awarded about 20 percent of our total procurement spend to small business—specifically veteran-owned and service-disabled veteran-owned—over \$3.5 billion. We have been able to hit the 20 to 22 percent mark for each of those years. So we are by far the leader in awarding contracts to veteran-owned small businesses.

We have every intention of meeting our goals or exceeding goals in the small business arena, even as we move into an era where we know we have to do more strategic sourcing.

Now, what do small businesses need from the federal government? It's real easy: They need a chance. If the rest of the government agencies follow VA's lead and meet their statutory goals and the goals given to them by the Small Business Administration, we will have infused billions of dollars into small businesses and the economy. It's often said that these small businesses are the engine of our economy, creating between two-thirds and three-quarters of all new jobs.

Q. You have been called a “change agent.” Army AL&T professionals (and their colleagues in the other services) are steeped in change. As an experienced public-sector executive, what have you found are the greatest obstacles to change, and the best methods for overcoming them?

A. No doubt about it, change is hard. I see the greatest obstacle as the inability to

execute. There are a lot of people who can develop ideas. I call them idea ducks: They waddle around the barnyard laying idea eggs. But there are very few people that can sit on the clutch of eggs and see the eggs hatch, because it's just a lot of work.

I think it's absolutely essential that you get everyone down at the lowest levels involved in developing the vision for the organization, developing the idea of where you want to go, developing the goals and the objectives. And once it's decided, once you've collaborated, it takes leaders to just press that home on a daily basis. If you don't, change doesn't happen. And it's hard even if you do it that way.

Q. The Army encourages the application of Lean Six Sigma principles to identify opportunities for greater efficiency and effectiveness. What do you see as the greatest value of the Lean Six Sigma and other quality improvement processes?

A. Here in VA, the Veterans Health Administration, for one, is an absolute role model in embracing Lean Six Sigma concepts—identifying and removing causes, defects, and errors in the delivery of their daily health care services. But we're doing the same thing in the procurement arena. We haven't always done it this way, but in the last year, year and a half, we began measuring the health of our procurement organizations across VA.

We do this based on agreed-upon metrics. There are 11 metrics we use.

We've created a pod of systems analysts in my office who develop quantitative businesses cases for changes in the way we procure. It's very difficult to find people with quantitative skills in the government because we haven't emphasized that in the past. So in this instance, the majority of them are suppliers we've hired. What they

do is, they develop hypotheses. These hypotheses say if we do *x*, we can save *y*. And then we require them to prove their hypotheses with a business case, and in doing so they develop a range for return on investment. And once a business case is approved, it might tell us we need to standardize. We did this, for instance, with office supplies.

Then the same analysts are required to bird-dog or monitor that program so they can tell us what we're actually saving. These analysts—I call them my ORSA pod, Operations Research Systems Analysts (sort of like an orca pod)—are doing a great job.

While I promote Lean Six Sigma and its tenets, I've seen many times in my career that my bosses were willing to spend money on total quality initiatives, such as Lean Six Sigma, but in many cases they weren't willing to spend the money on a group of people like we have here in VA who could actually put the business cases together and then bird-dog those decisions down the road. My leadership has allowed me to hire people I need. We think there's going to be a large payoff. We've got a long ways to go before we can declare victory.

We're working with VHA to stand up seven program offices. Each of these program offices will have a portfolio of products. For instance, a portfolio could be surgical. And so, this portfolio manager and others who work for him or her will know everything there is to know about products ranging from staples to scalpels, for instance. They will know what the market is, they will know what new products are being developed by industry, and they will in turn work with the analysis team, this ORSA pod, who will constantly develop new business cases for them. Requirements will then be sent

to the Strategic Acquisition Center in Fredericksburg, VA, which will put these requirements on contract.

So we've got a three-leg stool. We'll have program managers, spend analysts, and contracting officers working in concert. We will make data-driven decisions, and we'll collect data after we make our decisions to determine if we made the right decisions. This has never been done in the past here at VA.

If the Army medical folks are doing [portfolio management], that would be a perfect way for us to collaborate.

Q. Do you have any final words of advice for Army AL&T professionals trying to support a climate of efficient and effective business practices and to succeed amid global change and constant competition for resources?

A. I hope VA and DoD endeavor to work ever more closely together as we move into an ever more constrained budget environment. It's going to take leadership from the top down to make this happen. Leadership, leadership, leadership. Without it, nothing seems to take place. It seems every well-intended move to save the government money has some corollary political or turf issue associated with it. We've got to somehow get over those issues and get over them quickly, because there's gold in those hills to be mined. We owe the American people, I think, our best efforts, and so my advice is we all sit down and work collectively and demonstrate superb leadership in making it happen.

This Critical Thinking column is condensed from a Nov. 28 Army AL&T interview with Jan R. Frye. Read the full interview online at http://asc.army.mil/docs/pubs/alt/Critical_Thinking_Jan_Frye_Access_AL&T.pdf.

?

‘SEPARATE CONTRACTING *from* ACQUISITION’

Q&A with Dr. Jacques S. Gansler



EXPEDITIONARY EFFECTIVENESS

The Gansler Commission report urges the Army to “obtain legislative, regulatory, and policy assistance to enable contracting effectiveness in expeditionary operations.” Here, SFC Class Paul Hoffmann, Brigade Special Troops Battalion, 1st Brigade Combat Team (BCT), discusses a contract with representatives from the firm Aggreko at Camp Arifjan, Kuwait, in November 2011. (Photo by SFC Brittany Thingvold.)

Dr. Jacques S. Gansler chaired the Commission on Army Acquisition and Program Management in Expeditionary Operations, appointed by then-Secretary of the Army Pete Geren in 2007 to review the lessons learned in recent operations and to provide forward-looking recommendations to ensure that future military operations would achieve greater effectiveness, efficiency, and transparency. The Gansler Commission, as it is known, assessed processes and explored legislative solutions to ensure that the Army is properly equipped for future expeditionary operations, and in October 2007 released its pivotal report. This Q&A is reprinted and updated with permission from ACC Today magazine (<http://www.acc.army.mil/today/>).

Q. The Army has had about four years to implement the recommendations made by the Gansler Commission. What is your assessment of the Army's progress toward implementing the recommendations?

A. Our final report lists "Four Key Elements to Future Success" (see sidebar on Page 105). Points 1 and 2 are well on the way to being completely implemented. Point 3, with respect to providing training and tools, still needs further work. Point 4, with respect to obtaining legislative, regulatory, and policy assistance, I believe is moving slowly, and I don't feel there is sufficient push at the Army Secretariat level.

Q. The commission recommended that the Army should "establish a separate, centrally managed Contracting Corps (not Branch) for Army military and civilian contracting personnel." What's your assessment of the Army's efforts regarding this recommendation?

A. The purpose of this recommendation was to separate contracting from



AN ESSENTIAL ROLE

The Gansler Commission report focused heavily on improving the stature and increasing the quantity of contracting personnel, both military and civilian. Here, MAJ Isaac Torres of the 413th Contracting Support Brigade, Contract Officer for Exercise Garuda Shield, meets with a local Indonesian vendor to discuss materials needed to complete the humanitarian civic action project in Situ Gede, during the exercise in June 2011. Sponsored by U.S. Army Pacific and hosted by the Indonesian armed forces, Garuda Shield is an annual, bilateral exercise. (Photo by SPC Elizabeth Cole.)

acquisition. The establishment of the Army Contracting Command was an extremely positive step. However, in terms of promotion boards, career paths, etc., I believe contracting is still part of the acquisition area and is not a "separate" corps. One of the purposes for recommending the establishment of a major-general director of the Army Contracting Corps was to get at this recommendation.

Q. The Commission on Wartime Contracting released its report in August 2011. Your committee released its report four years ago. What have you observed during the past four years that you hoped the CWC would include in its report?

A. The CWC incorporates into its report [*Transforming Wartime Contracting: Controlling Costs, Reducing Risks*, online at <http://www.wartimecontracting.gov/>] recommendations to completely implement "The Four Key Elements to Future Success" listed in our report. Also, as I stated in my recent testimony to the CWC, they should emphasize the importance of the government's contracting workforce, but not (as their report was

titled) focus on "the risk" of contractors, who are an essential element of expeditionary operations.

Q. An outcome of the Gansler Commission was the creation of the Army Contracting Command, which includes the Expeditionary Contracting Command for support in contingency environments. What are your thoughts on how the Army Contracting Command and Expeditionary Contracting Command are doing?

A. In our report, we did not recommend that the Life Cycle Management Command acquisition centers be assigned to the Contracting Command. We recommended that the Contracting Command be given directive authority. The Army Materiel Command has assigned the LCMC acquisition centers to the Contracting Command.

My concerns are that the issues involved with procuring major weapon systems dilute the Contracting Command's focus on contingency and expeditionary contracting. During our deliberations, this was a very contentious point on which



we spent a lot of time before we agreed on the directive authority recommendation. This can be addressed with the current ACC approach, but only if there is equal attention to contingency contracting and weapon systems contracting; and, with the initiatives of former Secretary of Defense Robert M. Gates and former Under Secretary of Defense (Acquisition, Technology, and Logistics) Ashton B. Carter (now Deputy Secretary of Defense) getting so much attention, I am concerned about this.

Additionally, there is a big need to address services contracting (vs. goods), especially in expedition. Finally, in the Corps of Engineers, the contracting staff works for the districts vs. the chief of contracting, which is contrary to our recommendation.

Q. What steps would you recommend be taken to sustain congressional and DoD leadership interest and momentum toward “fixing” Army contracting?

A. I believe the question should also include Army leadership. The Chief needs to also be in the loop and responsible. The then-Vice Chief’s words—“If I would have known about the contracting issue in advance, I would have done something about it”—are still relevant, in my opinion. Additionally, to “sustain” interest and momentum, the Army should report out to both congressional and DoD leadership on the status of the implementation of our study. DoD leadership is already changing, and what we recommended will soon be overlooked or forgotten. When the CSA and the SECAR testify, their

statements for the record should include status of implementation. If we don’t have enough certified contracting professionals and general officers with contracting experience, we should tell them.

Q. Many people believe that most of DoD’s focus is on the acquisition community (the PEOs and PMs) and less so on the contracting community (the “shoppers”). This perception continues, despite the intended allocation of five additional general officer billets dedicated for military contracting professionals. What other steps would you recommend that the Army consider to elevate the stature of its contracting workforce?

A. As previously stated, separate them from the Acquisition Corps and establish a separate Contracting Corps reporting to the CSA. The argument against this has been that contracting and acquisition personnel are interchangeable. Since we now have approval for the general officer billets, career opportunities are much better for contracting personnel, so they don’t have to be a program executive officer to be a general officer or Senior Executive Service. Also, bringing in some “highly qualified experts” from industry (especially regarding services contracting) would be a big help. (The current thrust has been largely interns.)

Q. When we compare the size of the Army’s annual budget at around \$160 billion, vs. the roughly \$120 billion that the Army spends contracting for goods and services, do you have any thoughts on how the Army can better ensure that \$120 billion in contracts receives

FOCUS ON SERVICES

Bringing in “highly qualified experts” from industry would help the Army to better manage its contracting for services, Gansler says. Here, SGT John Cox, a Geospatial Engineer with 2nd BCT, 4th Infantry Division, reads information for an interpreter to translate to Dari in November 2011 at the Operation Coordination Center-Regional (OCC-R) in Herat Province, Afghanistan. (Photo by SGT Ruth Pagan.)

adequate oversight and that the Army maximizes the public's contracting dollars for the benefit of the Soldier?

A. One of the missions of the Contracting Command is to do this oversight in conjunction with the Defense Contract Management Agency, the Defense Contract Audit Agency, the Army Audit Agency, etc. These agencies need to share performance data and lessons learned. I don't think we have a contract performance online information technology system that allows the Contracting Command to manage contracting and contractors. Modern information systems are available to do this, but I don't believe it has begun its implementation in AMC. Additionally, as noted above, there needs to be more focus on services, which are more than 50 percent of all contract dollars.

Q. We all recognize the likelihood that the DoD budget may see reductions as part of the Nation's need to adequately address our deficit and debt problems. Also, the military services may have personnel authorizations reduced as an outcome of the budget reductions and the pull-backs from Iraq and Afghanistan. What do you foresee is the effect of those likely cuts on progress already made in increasing the stature of the Army contracting workforce—both military and civilian—and the Army Contracting Command?

A. With the focus on “doing more with less,” smart contracting becomes even more critical. The Army needs to continually make its case that the Army spends \$120 billion on goods and services, and how many *qualified* people we need to do these procurements correctly. The report shows the seven times' increase in actions and three times in dollars, with *significant reductions* in personnel. For our commission, we never knew if the 1992 baseline was correct.

With all the data we have, the Contracting Command should be able to develop an actions-to-contracting-personnel guide. DCMA should be able to do the same. I think that trying to equate procurement dollars to contracting personnel required is not as powerful as equating contracting actions to contracting personnel required. If we don't have a credible staffing guide, we need to develop it. The cuts will come, and the Contracting Command will first have to convince the Commanding General of AMC that there are more fertile areas to plow for spaces. The emphasis on “affordability” will help justify this action.

The full text of the Oct. 31, 2007, Gansler Commission Report, Urgent Reform Required: Army Expeditionary Contracting—Report of the Commission on Army Acquisition and Program Management in Expeditionary Operations, is online at http://www.army.mil/docs/Gansler_Commission_Report_Final_071031.pdf.

DR. JACQUES S. GANSLER is Director of the Center for Public Policy and Private Enterprise at the University of Maryland's School of Public Policy, where he is a Professor and holds the Roger C. Lipitz Chair. He is also the Glenn L. Martin Institute Fellow of Engineering at the A. James Clarke School of Engineering and an affiliate faculty member at the Robert H. Smith School of Business, both University of Maryland entities. Gansler is a member of the Defense Science Board and the Comptroller General's Advisory Board. He served as the Under Secretary of Defense for Acquisition, Technology, and Logistics from November 1997 until January 2001. He holds a B.E. in electrical engineering from Yale University, an M.S. in electrical engineering from Northeastern University, an M.A. in political economy from the New School for Social Research, and a Ph.D. in economics from American University.



DR. JACQUES S. GANSLER

The Gansler Commission report's 'Four Key Elements to Future Success'

1. Increase stature, quantity, and career development of contracting personnel, military and civilian (especially for expeditionary operations).
2. Restructure organization and restore responsibility to facilitate contracting and contract management in expeditionary and CONUS operations.
3. Provide training and tools for overall contracting activities in expeditionary operations.
4. Obtain legislative, regulatory, and policy assistance to enable contracting effectiveness in expeditionary operations.

ACCOUNTABILITY in ACQUISITION

New Milestone Agreement promises more methodical tracking process, better communication

by Daniel P. Elkins

IN SUPPORT OF SERVICE

At Arlington National Cemetery, VA, the Mission and Installation Contracting Command (MICC) Mission Contracting Center – Fort Sam Houston, TX, manages service contracts for headstone placement and alignment, turf and grounds maintenance, uniform lease, and operation of the visitors center, among a host of support activities. As part of its oversight, MICC conducted an exhaustive review and rewrite of performance work statements for service contracts supporting the cemetery, resulting in the consolidation of many of the service requirements. MICC officials believe implementation of the Acquisition Milestone Agreement (AMA) will forge a stronger partnership between the requirements and acquisition communities to field capabilities on cost and schedule. (Photo courtesy of Arlington National Cemetery.)



Mission and Installation Contracting Command (MICC) officials are shifting their strategic approach to Army acquisitions by incorporating a more meticulous planning process to improve communication, standardize the development of milestones, and increase accountability.

Implementation of the Acquisition Milestone Agreement (AMA) process across the MICC is set for January. It will rely on a cooperative partnership of contracting experts, requiring activities, and Army leaders to ensure that acquisition strategies are executed efficiently and effectively to meet customers' mission-critical-need dates, officials said.

MICC, a subordinate command of U.S. Army Contracting Command, is responsible for planning, integrating, awarding, and administering contracts in support of Army commands, direct reporting units, U.S. Army North, and other organizations to provide the best value for the mission, Soldiers, and their Families. Contracting professionals at the MICC's subordinate units work with installation leadership throughout the generating

force, or institutional Army, to translate their requirements into contracted material and services.

"The AMA process kicks off the teaming arrangement early in the acquisition," said Kimberly Wentrcek, Acting Director of the Fort Meade, MD, Installation Contracting Office, who is leading the integrated process team (IPT) during implementation of the new process. "The process invites our customers to play a more active role earlier in the acquisition process, which results in better working relationships and customer buy-in."

The change is a result of a number of missed milestones that necessitated sole-source contract actions to continue services, which increased costs and placed MICC customers' missions at risk.

ADVANCING TEAMWORK

The agreement marks a significant departure from previous procedures by bringing parties to the table much sooner for a back-to-basics approach in developing and managing procurements. Wentrcek said the IPT found that under the previous methodology, teaming typically did not begin until receipt of

an acquisition package at the contracting office, which led to a disconnect between the acquisition strategy and evaluators' perceptions.

"Our efforts resulted in a strategic shift in how the MICC conducts business, by not waiting for acquisition packages to arrive in contracting, but rather proactively plan and team with our customers to generate better acquisition strategies that meet customer mission need dates and reduce costs," she said.

"The AMA process defines expectations for all parties, provides expert assistance, and identifies and alleviates stumbling blocks to meeting milestones," Wentrcek explained. "It symbolizes a culture shift from reactive to proactive contracting, while leveraging the resources of the MICC and our customers."

The change calls for initiating a communication and tracking measure much earlier in the process. Contracting experts will create and coordinate the agreement as part of a kickoff meeting that documents the customer's understanding of responsibilities in the acquisition process.

“OUR EFFORTS RESULTED IN A STRATEGIC SHIFT IN HOW THE MICC CONDUCTS BUSINESS, BY NOT WAITING FOR ACQUISITION PACKAGES TO ARRIVE IN CONTRACTING, BUT RATHER PROACTIVELY PLAN AND TEAM WITH OUR CUSTOMERS TO GENERATE BETTER ACQUISITION STRATEGIES THAT MEET CUSTOMER MISSION NEED DATES AND REDUCE COSTS.”



SURMOUNTING OBSTACLES

Among its other responsibilities, MICC oversees contract support for the obstacle course and other operations at Fort Benning, GA, through the Mission Contracting Center – Fort Eustis, VA. MICC's new AMA process is designed to ensure that acquisition strategies are executed efficiently and effectively to meet customers' mission-critical-need dates. Here, a Soldier runs the obstacle course during the 2011 Best Ranger Competition at Fort Benning in April 2011. (U.S. Maneuver Center of Excellence photo by John D. Helms.)

The agreement will then serve as a binding document with agreed-to procurement milestones, thus creating shared accountability among mission partners. Any changes in milestones would require concurrence by both the MICC and the requiring activity.

DISCIPLINED PROCESS

The AMA process will help maintain the MICC's commitment to ensuring that requirements are developed and tracked

in a disciplined manner that supports the Soldiers' needs, by including an in-progress review.

"In-progress reviews are a major component of the AMA process," said Jennifer Hastedt, a MICC Procurement Analyst and IPT member. "Contracting officers and specialists will brief both the contracting approval authority at the appropriate level and equivalent manager at the requiring activity. This will ensure that the MICC

and requiring activity management know the procurement status and identify issues that could develop into delays."

The transformation from the milestone tracking report to the AMA process got underway in January 2011. An IPT then set out to identify requirements and develop tools for the new process. A successful beta test was conducted last summer at Fort Eustis, VA; Fort Bragg, NC; Fort Carson, CO; Fort Bliss, TX; and Yuma Proving Ground, AZ.

"The test went very well," Hastedt said. "The MICC test sites provided positive feedback and constructive comments to improve the AMA tools."

Training for the new process at MICC field offices began Oct. 1, 2011. Representatives from the MICC Contracting Support, Plans and Operations directorate will provide training at the requiring activity headquarters level.

In addition to reduced lead times, MICC officials believe implementation of the AMA will help meet the government's fiduciary responsibility by forging a partnership between the requirements and acquisition communities to field capabilities on cost and schedule.

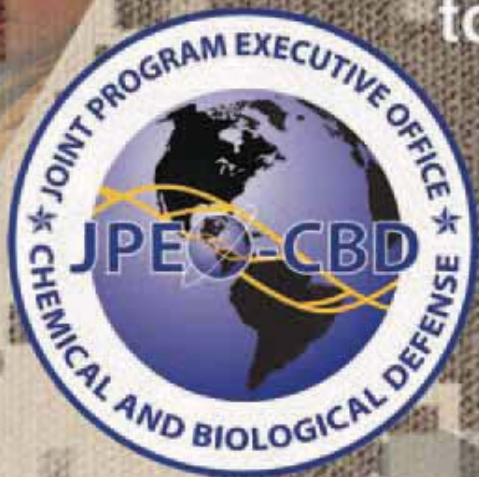
"It shifts the mind-set from simply meeting a date to working as a team to create documents that meet all of the stakeholders' needs," Wentrcek said.

DANIEL P. ELKINS is Deputy Director of Public Affairs for the Mission and Installation Contracting Command. He has served more than 23 years in support of public affairs for the U.S. Air Force and U.S. Army. Elkins holds a B.S. in communications from Louisiana Tech University and an M.A. in communications from St. Mary's University.

JPEO-CBD

One Mission One Team

Joint CBRN solutions
to the Warfighter and
the Nation.



www.jpeocbd.osd.mil



GOING LEAN

How Letterkenny Army Depot built a prize-winning culture of process improvement

by COL Cheri A. Provancha

In late 2002, Letterkenny Army Depot, PA, (LEAD) began a journey in transforming business practices to become a powerful, dynamic, and agile Army industrial facility.

To start the process, LEAD implemented the Lean Six Sigma Manufacturing approach, focusing on principles of operational excellence and embedding them into the organizational culture. The Lean Six Sigma philosophy considers the expenditure of resources for any goal other than creating value to be wasteful for the customer. These expenditures become targets for elimination, thus reducing costs and increasing productivity.

The Shingo Prize for Operational Excellence was established in 1988 to educate,

assess, and recognize world-class organizations for creating a culture of continuous improvement through employee empowerment and effective leadership. LEAD is a seven-time recipient of prestigious Shingo awards, most recently receiving the Shingo Bronze Medallion in August 2011 for the Aviation Ground Power Unit Value Stream.

Previous awards include Bronze Medallions for the Patriot (Phased Array Tracking Radar Intercept of Target) missile system in 2010; the Biological Integrated Detection System manufacturing process in 2008; and Power Generation Equipment repair in 2007. LEAD's Shingo Silver Medallions include High-Mobility Multi-purpose Wheeled Vehicle (HMMWV) Recapitalization in 2006 and 2007; and Patriot Recapitalization in 2005.

The awards confirm LEAD's Lean success, but how did an organization thought to be on the brink of elimination in 2002, before LEAD employees embraced Lean Six Sigma and Base Realignment and Closure (BRAC) brought a larger workload to LEAD in 2005, become an example of efficiency, cost-effectiveness, and worker empowerment?

SURVIVAL STRATEGY

Initially, the Lean vision was based on the reality that LEAD needed to improve productivity and reduce cost to survive the BRAC reviews scheduled for mid-2005. COL William A. Guinn, then Depot Commander, said that leadership needed to maximize the use of the depot's facilities and equipment, as well as the skills of the workforce. The depot also needed to expand, modernize, and improve these

SHOWING THEIR WORK

Letterkenny Army Depot (LEAD) displays two-piece summaries by employees supporting the Aviation Ground Power Unit (AGPU). The two-piece summaries are LEAD's tool to capture employee-driven improvement initiatives. The Power Generation Branch, encompassing AGPU, leads the depot in employee-driven initiatives for improvement in their processes. (Photo courtesy of LEAD.)

same capabilities to position LEAD as the provider of choice for current and future systems and stakeholders.

Ten employees were handpicked to implement Lean principles established in the depot's Strategic Business Plan. The Lean team quickly realized that a change in culture would not be achieved through top-down directives but needed to flourish through camaraderie among employees sharing and pursuing a common goal. The team strived to train the workforce to be proactive in recognizing opportunities for improvement, suggesting changes, and applying the modifications.

"At first it was a battle, because no one understood Lean and everyone was reluctant to embrace it," said Keith Collins, Chief Steward of National Federation of Federal Employees (NFFE) Local 1429. "Veteran employees were set in their ways and saw this program as something that wouldn't last."

Standard work events were established to provide firsthand demonstrations of ways to accomplish a job more efficiently. This training was instrumental in securing Lean buy-in as employees began to realize time- and cost-saving opportunities.

The initial strategy was developed to implement Lean initiatives for the depot's largest maintenance, repair, and overhaul program: Patriot Recapitalization. Value stream analysis activities were the first step. These tools documented the current state, created vision for an ideal state, and displayed the future state over the next year for the Patriot system.

The cost savings quickly became obvious. In September 2003, the Lower Tier Project Office received \$1.2 million in cost savings for LEAD's Patriot Recap. Less than a year later, in August 2004 the depot returned



AWARD-WINNING TEAM

For their workmanship and alignment with the Soldier, the AGPU team received the Shingo Bronze Medallion in August 2011. Here, COL Cheri A. Provancha, LEAD Commander, congratulates the AGPU team. (U.S. Army photo by Don Bitner, LEAD.)

\$1.5 million to U.S. Army Aviation and Missile Command's Integrated Materiel Management Center for Patriot Reset. By returning money to the customer, the depot achieved an unprecedented efficiency.

GETTING RESULTS

Earning a Shingo award is not easy; doing things well on the shop floor is only the first step. An extensive process of documenting the improvements must occur. The assembled documentation must be verified both internally and externally by a Shingo inspection team. Wayne Eichenlaub, Major Item Division Chief, said it was a learning process for everyone involved, with guidance from the Lean team.

The hard work came to fruition in 2005, when LEAD became the Army's first Shingo award winner for Excellence in Manufacturing. The award proved what a team committed to improving could achieve and, perhaps more important, demonstrated to Army leadership that Lean principles could support Army mission requirements. Not long afterward, the Army officially adopted Lean business processes as a servicewide business transformation tool.

In 2006, the Lean team became a formal entity, the Office of Continuous

Improvement (OCI). The team's next focus was a new program at the depot: the HMMWV Recapitalization line. The mechanically inclined HMMWV team required a completely different approach than the electronic and technological focus mastered in the Patriot program.

At the outset of the HMMWV program, five vehicles were produced per day from a static, single bay. Lean thinking indicated that assembly-line production could make LEAD more economical. Moving the product down a line was a new concept. Employee involvement and proper part flow were critical to the success of the assembly line. By 2006, the depot was completing 19 HMMWVs per day. The HMMWV line became LEAD's "model cell," showing how much faster and more efficient LEAD could be by adapting and supporting new ideas.

Success continued to produce success, and in August 2006, the savings from the HMMWV program made it possible for the depot to provide the customer, U.S. Army TACOM Life Cycle Management Command, 27 HMMWVs for free. "The HMMWV program award validated that the depot could run a full production line, and customers could see that Letterkenny could do that type of work," said

Joe Olsen, Industrial Engineer and Chief of the Lean Six Sigma Office in 2006-07. "It was phenomenal from beginning to end, as we were able to meet the constant demand of the Soldiers while driving down costs."

Despite a workforce new to Lean, the feedback from Shingo in 2006 commended their high level of enthusiasm to embrace Lean concepts. Olsen said the young workforce was motivated and had high energy for embracing the new thinking. The feedback also revealed that the depot had not reached its fullest potential and that opportunities existed for improvement. It indicated that the number one need for development was Lean training, as well as establishing a true Lean culture.

OCI concentrated on imparting its knowledge to the workforce through various avenues, such as the Civilian Education System, High Potential Leadership, and other mentorship courses. Employees began submitting two-piece summaries, a LEAD tool to capture employee-driven improvement initiatives. Others participated in traditional Lean Green or Black Belt training, learning the tools used to collect and analyze data to find and eliminate areas of waste.

MAKING MISSILES

Employees work on the guidance section of the Patriot (Phased Array Tracking Radar Intercept of Target) missile in LEAD's Theater Readiness Monitoring Facility. The Patriot missile system program received a Shingo Bronze Medallion in 2010. (U.S. Army photo by Don Bitner, LEAD.)



"We preached a change in culture, and as preparations began for the 2009 Patriot [Shingo award] submission, employees were facilitating their own two-piece summaries and rapid improvements events," Eichenlaub said. "Employee leadership, facilitating events, and managing change have most notably shaped the change at Letterkenny."

CULTURAL SHIFT

Nine years after Lean Six Sigma began at LEAD, the cultural shift of placing responsibility in the hands of the employees is undeniable. The 2011 Shingo Bronze Medallion for the Aviation Ground Power Unit (AGPU) was the first Shingo award in which the cost center unit owned the entire process. Production-line employees briefed the Shingo review team, describing their role in the AGPU's continuous improvement process.

Shingo examiners, during an audit in July, were impressed by LEAD employees' alignment with the Soldier, the flexibility and adaptability of the workforce, and their pride of workmanship. The Shingo auditors walked away with a strong sense of the heart and soul that the AGPU workforce demonstrated.

"What an amazing commitment at all levels. Very impressive," said Paul Terry, Shingo Examiner.

The Power Generation Branch, encompassing AGPU, leads the depot in employee-driven initiatives for improvement in their processes. Employee ownership has proven the secret ingredient to shaping the culture into one of continuous improvement. Employee-driven success stories led the Shingo efforts.

An AGPU assembly-line employee realized that each rubber back shell brushing, which serves as a shield between the

wiring harness and the connector to prevent cutting of the wire, cost \$965.85. With research, a replacement was found at a cost of 78 cents. This resulted in a savings of \$965.07 per AGPU produced and saved LEAD more than \$240,000 by May 2011.

Incorporating employee solutions into process improvements and communicating the results show that leadership values employees' opinions. This mutual trust encourages employees to continue offering solutions.

"We want to put the systems in place in the organization to sustain the principles that drive the culture," said Gerald Chapman Jr., Process Improvement Facilitator.

CONCLUSION

LEAD's seven Shingo awards are the result of a diligent and committed workforce. "Lean has become part of their work ethic," said Jerry Mellot, President of NFFE Local 1429. "Now the employees think Lean instead of just do Lean."

The Shingo awards are a supplement, though, to the ultimate success, in which employees drive change and take pride in providing high-quality equipment to the U.S. military. These prestigious awards confirm that Lean has transformed LEAD into a thriving competitive facility, the provider of choice for DoD in production, repair, or overhaul.

COL CHERI A. PROVANCHA is the Letterkenny Army Depot Commander. She holds a B.S. in psychology from Colorado State University, an M.P.A. in administration and organization from Golden Gate University, and a Master of Strategic Studies from the U.S. Army War College. Provancha is also a graduate of the U.S. Army Command and General Staff College.



FINANCIAL MANAGEMENT MILESTONE

U.S. Army General Fund
Enterprise Business System goes global

by Frank A. Distasio

The most advanced financial management system in Army history, the General Fund Enterprise Business System (GFEBS), is now operational worldwide. "Much more than an accounting system, GFEBS is the Army's new business system. It gives managers a greatly improved capability to manage the cost, schedule, and performance of their programs and, at the same time, is the centerpiece in our progress toward full auditability of our financial statements," Secretary of the Army John McHugh and GEN George W. Casey Jr.

(USA Ret.), then Chief of Staff of the Army, jointly stated in March 2011 in their testimony to Congress on the Army's FY12 budget.

With redefined business process areas, including supply chain management, GFEBS will particularly enhance the capabilities of all Army personnel who acquire, field, and sustain the equipment and services for the Army.

GFEBS will provide the core capability to support an unqualified audit opinion for the Army's

MANAGING MONEY

The General Fund Enterprise Business System (GFEBS) supports the Army's goal of fully auditable financial statements to help manage cost, schedule, and program performance. (U.S. Army photo.)



AUDIT FUNDAMENTALS

Mary Sally Matiella (center), Assistant Secretary of the Army for Financial Management and Comptroller, emphasized that GFEBS' ability to support all financial transactions is fundamental to supporting an audit. Here, Matiella walks alongside a Special Operations Forces team through the streets of Gizab in Daykundi Province, Afghanistan, in July 2011. (Photo by SSG Fritz Butac.)

General Fund in compliance with the *Chief Financial Officers Act of 1990* and other statutory requirements.

AUDIT READINESS

As Mary Sally Matiella, Assistant Secretary of the Army for Financial Management and Comptroller (ASAFM&C), noted, "We know what an audit-ready financial environment looks like, and our audit readiness plan incorporates the necessary steps to get us there. ... Fundamental to supporting an audit is being able to support every financial transaction all the way down to the details and supporting documentation."

GFEBS records financial transactions with supporting documentation, tracks transactions in detail, and will produce an auditable trial balance. The Army Audit Agency's most recent evaluation found that GFEBS complies with 1,054 of 1,113

requirements, or 94.7 percent, arising from the *Federal Financial Management Improvement Act of 1996*. Ongoing development of GFEBS will complete the remaining 5 percent of the requirements, for full compliance in FY12.

GFEBS capitalizes on the financial accounting structure to provide the first Armywide cost accounting system. This allows for allocating or assigning costs, producing full cost data, relating costs to outcomes and performance, cost planning, and cost controlling. In addition, GFEBS provides visibility of transactions in real time as well as historical data, which enables analyses both to leverage available resources and to better inform program and budget decisions.

Kristyn Jones, Director of Financial Information Management within the Office of the ASAFM&C, described

the transformational nature of GFEBS: "What we are talking about is a cultural change that involves moving away from success being measured by obligating 99.9 percent of funds. Instead, the focus must be on effective stewardship and making decisions that use resources wisely." Army success, Jones said, "...requires good data and good analytic skills on the part of our personnel—and again, not just the resource management staffs. Effective cost management is a leader's responsibility."

INCREMENTAL APPROACH

To develop a new system with the scope of GFEBS and to implement the solution worldwide with hundreds of organizations and thousands of users required an incremental approach to both development and deployment. Development focused on a series of releases, while deployment involved a series of "waves." GFEBS began implementation with a

single organization at a single location on Oct. 1, 2008; this was followed by a slightly larger implementation on April 1, 2009. Since then, additional and larger implementation waves have occurred along with continuing development.

On April 1, 2011, the Army added more than 7,600 new users in locations in the United States, Europe, and Korea. Then on July 1, the Army added another 10,800 users from the Army National Guard (ARNG), the single largest addition of new users, to complete deployment in all 50 states and four territories. On Oct. 1, 2011, the Army added another 2,500 users.

GFEBS now has nearly 40,000 users from the active Army, ARNG, and U.S. Army Reserve. GFEBS is the most widely implemented of the Army's Enterprise Resource Planning (ERP) systems. When fully deployed, GFEBS will engage close

to 60,000 users at some 200 locations worldwide and will affect almost every Army organization and function.

GFEBS involves fully or partially replacing 106 information systems, interfacing with other systems (45 at present), and reengineering business processes and data structures. With its latest release, GFEBS added functionality to include an interface with the Army's Deployable Disbursing System, which enables GFEBS to support financial operations overseas. In addition, the second phase of the Army's federated concept for integrating ERP systems was completed for GFEBS and the Global Combat Support System-Army, which involved synchronizing funds management and cost management master data between the two systems, consolidating cost management and execution reporting, and funds management and financial reporting in GFEBS.

GFEBS LEARNING

Tammy Knight, an accountant with U.S. Army Forces Command (FORSCOM), works on an online lesson covering aspects of GFEBS. (U.S. Army photo by Jim Hinnant, FORSCOM.)



BACKING GFEBS

Secretary of the Army John McHugh testified to Congress that "... GFEBS is the Army's new business system. It gives managers a greatly improved capability to manage the cost, schedule, and performance of their programs and, at the same time, is the centerpiece in our progress toward full auditability of our financial statements." (Photo by SPC Walter Reeves.)

On June 24, 2011, GFEBS received a Full Deployment Decision from Elizabeth A. McGrath, DoD's Deputy Chief Management Officer and the program's Milestone Decision Authority, which affirmed the deployment readiness of the GFEBS solution and authorized implementation Armywide. GFEBS deployment will conclude this year, providing a core system for managing a significant portion of the Army's General Fund and ushering in a new era in Army financial management.

For more information on GFEBS, visit the milWiki page: <https://www.milsuite.mil/wiki/Portal:GFEBS> (MilSuite registration required).

FRANK A. DISTASIO, a retired Army civilian, is President of the management consulting firm Distasio Associates Ltd. and the Communications Lead on the GFEBS project. Distasio is the author of the Association of the United States Army's annual federal, DoD, and Army budget analysis book. He holds a B.A. in political science from St. Francis College, and a J.D. from Catholic University of America. Distasio is also a graduate of the U.S. Army War College and the Defense Management Program at Harvard University.



PROTECTING THE FUTURE

In the ever-intensifying competition for federal funding, DoD needs to protect its investment accounts, which will determine the military's future capabilities and where it can achieve superiority, said Frank Kendall, Acting Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)). The recently developed M-240L 7.62mm Lightweight Medium Machine Gun, which, at 22.3 pounds, is nearly five pounds lighter than the M240B machine gun, is one new capability whereby the Army has succeeded in reducing the physical load that Soldiers carry, one of its highest priorities. Here, PFC Tom Ruohonen, serving with Task Force Black Knight, pulls security with an M-240L at the patrol base in Spinah, Paktika Province, Afghanistan, Sept. 27, 2011. (Photo by SPC Jacob Kohrs.)

CONSTRAINTS AND CONTROLS

PEO/SYSCOM Commanders' Conference takes an in-depth look at current cost-management challenges and solutions

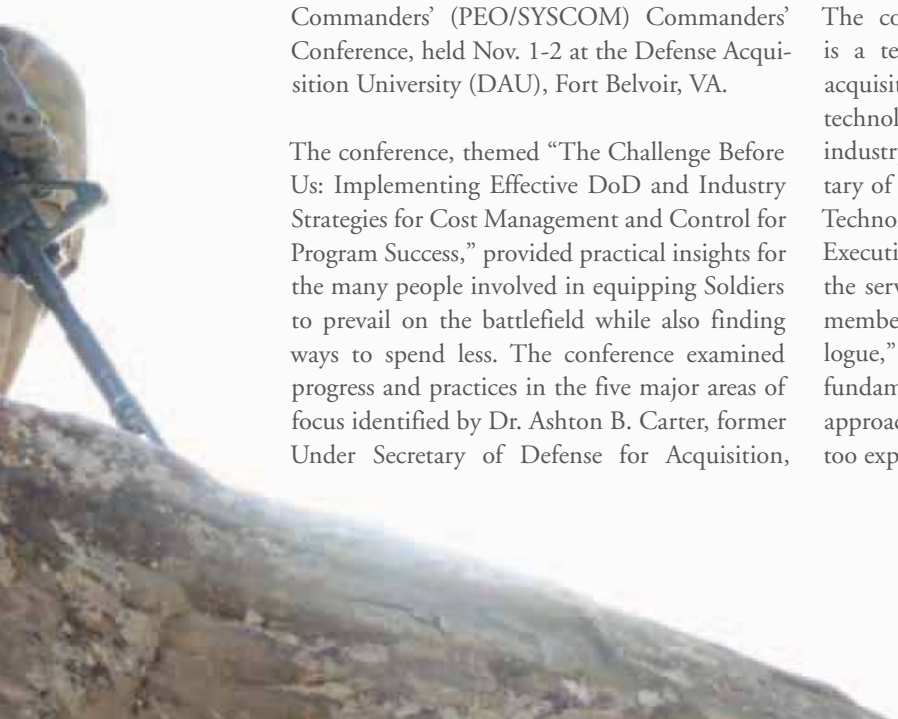
by Margaret C. Roth

The threat is clear. The need to maintain a capable, well-equipped Army is clear. The need for efficiency and economy is also clear. Addressing these topics and many of the not-so-clear issues of the day—such as “will cost/should cost,” contract types, and the outlook for industry—was the mission of the 2011 Program Executive Officers'/Systems Commanders' (PEO/SYSCOM) Commanders' Conference, held Nov. 1-2 at the Defense Acquisition University (DAU), Fort Belvoir, VA.

The conference, themed “The Challenge Before Us: Implementing Effective DoD and Industry Strategies for Cost Management and Control for Program Success,” provided practical insights for the many people involved in equipping Soldiers to prevail on the battlefield while also finding ways to spend less. The conference examined progress and practices in the five major areas of focus identified by Dr. Ashton B. Carter, former Under Secretary of Defense for Acquisition,

Technology, and Logistics (USD(AT&L)) and now Deputy Secretary of Defense, in his Sept. 14, 2010, memorandum, *Better Buying Power: Guidance for Obtaining Greater Efficiency and Productivity in Defense Spending* (online at http://www.acq.osd.mil/docs/USD_ATL_Guidance_Memo_September_14_2010_final.pdf).

The conference made clear that “acquisition is a team sport” involving the requirements, acquisition, testing, resource, and science and technology (S&T) communities working with industry, as Heidi Shyu, Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) and Army Acquisition Executive, put it during a panel discussion of the service acquisition executives. Among team members, “we are looking for discipline and dialogue,” she said. Better buying power requires a fundamental culture shift, Shyu said, from an approach that she called “too little, too late, and too expensive.”



PROGRESS AND PRIORITIES

Overall, “I think we’re making progress, but we have a ways to go” in institutionalizing Carter’s *Better Buying Power* memo, said Frank Kendall, Acting USD(AT&L), in his keynote address.

“I’m getting a lot back from PEOs, PMs, and others on what they’re doing to drive down costs.” At the same time, Kendall said it is proving difficult to get away from old “use it or lose it” spending habits, “but I think I’m making progress.”

“Punishing people for not spending the money ... is debilitating in the extreme,” Kendall said. “That attitude has got to go away, but it pervades our system.”

The imperatives that should pervade acquisition, he said, are supporting the warfighter and protecting the future. Kendall cited China’s military modernization as a potential long-term threat: “Not that I expect a conflict with China anytime

soon, but they will try to expand their influence. We have been a force for peace and security for a long, long time, and we should continue in that role. That leaves us with the very difficult job of trying to equip our force and sustain it in a very tight environment.”

Kendall had been at Dover Air Force Base, DE, the day before his address to receive the bodies and the families of 13 troops and civilian employees of the NATO-led force in Kabul, Afghanistan, who were killed by a suicide bomb on Oct. 29. “Those are the people we’re working for, to prevent more of those bodies from coming home,” he said.

The work of acquisition has its own harsh realities. Across program, portfolio, and commodity areas, “essentially everything is on the table right now,” Kendall said. “We’ve got to look at force structure. We’ve got to look at lots of costs ... even compensation.

“We’re not going to do anything dramatic on compensation,” he noted. “Secretary [of Defense Leon E.] Panetta has made very clear that we’re going to keep faith with our people.” At the same time, Kendall said, “I’m trying to protect our investment accounts, because our investment accounts drive our capability in the future—whether we’re going to have technological superiority or not and which areas we’re going to have it in.” Achieving superiority will require tough choices in S&T, modernization, and recapitalization, he said. “We won’t be able to do it everywhere. We probably could never be able to afford to do it everywhere.”

But the fact remains, “about every 40 years, we have to replace everything. It wears out, and if you don’t buy enough stuff, you can’t do that. It’s a pretty simple equation, and it’s the heart of that

affordability equation.” Protecting the industrial base is another big part of the equation, Kendall said. “So there’s a lot of work to be done.”

Ensuring that the military maintains the contingency contracting capability established over 10 years of conflict is another high priority, Kendall said. “We have built up a system that simply did not exist before Iraq. ... [We] have to institutionalize that capability. This is not the last time that we’ll be engaged in operations somewhere where we will rely on contractors. Kendall said the Commission on Wartime Contracting, in its Aug. 31, 2011, report (online at <http://www.wartimecontracting.gov>), “didn’t do justice to all the great work that’s been done building up that capacity. There is waste there. There’s more work to be done. ... But I think their failure to give credit where credit is due is unfortunate.”

A CULTURE OF EFFICIENCIES

Better buying power is a powerful motivator in and of itself, Kendall said. “I’m a firm believer in a culture that is very conscious of ... controlling costs. ... It’s a fundamental part of our job to do that, controlling costs. We need a strong sense of stewardship of the taxpayers’ dollars.”

Whereas the acquisition community traditionally has been motivated by getting contracts awarded and obligating funds, trying to get the best deal for the government should be driving the profession, Kendall said—“staying with a negotiation long enough to get a better deal, as opposed to moving ahead just to get something on contract.”

“It is a difficult job, but you do that upfront planning, you identify the places where you can hopefully reduce cost, you target them, [and] you set a goal for yourself. And then your performance is measured

FOCUSING ON EFFICIENCIES

Kendall shares his views on DoD’s efficiency initiatives, the path forward, and professional standards Nov. 1 during the PEO/SYSCOM Commanders’ Conference at the Defense Acquisition University, Fort Belvoir, VA. (DoD photo by Erica Kobren.)



“I’M A FIRM BELIEVER IN A CULTURE THAT IS VERY CONSCIOUS OF ... CONTROLLING COSTS. ... IT’S A FUNDAMENTAL PART OF OUR JOB TO DO THAT, CONTROLLING COSTS. WE NEED A STRONG SENSE OF STEWARDSHIP OF THE TAXPAYERS’ DOLLARS.”

against that as a program manager, chief engineer, or whatever.”

ACHIEVING AFFORDABILITY

Affordability is more than just a smart acquisition cost, Kendall noted. It relates both to starting programs and to sustaining them through the life cycle—in other words, “not starting down a path that isn’t going to have a future.” Along that path lie numerous programs that ended up being canceled, he said, programs “that we shouldn’t have started, that weren’t affordable when we started them.”

The next step is “to discipline ourselves to control programs. It means we have to trade away requirements. ... We’ve got to make sure we’ve got a cost cap on our programs that we’re going to enforce.”

As someone involved in reviewing the minute details of major acquisition programs, Darlene J. Costello agreed. In this fiscal environment, “we can’t afford to birth programs that aren’t ready to be executed as planned and don’t have funding in place and budgeted across their life cycle. So we are looking at programs from birth to when they retire,” said Costello, Principal Director, Strategic and Tactical Systems and Director, Acquisition and Program Management in the Office of the USD(AT&L).

Costello was part of a panel on Overarching Integrated Product Teams (OIPTs), which provide oversight and review of major acquisition programs as they proceed through the acquisition life cycle. OIPTs include the program manager (PM), the PEO, Component Staff, Joint Staff, USD(AT&L) Staff, and Office of the Secretary of Defense staff principals or their representatives.

WILL COST/SHOULD COST

The will cost/should cost acquisition management strategy championed by Carter has raised many questions, as the PEO/SYSCOM conference made clear.

“That’s been the biggest challenge for most programs as they’ve come through the process over the last year,” noted Costello, who explained the will-cost and should-cost concepts this way: Will-cost represents what a program would cost “if you didn’t do anything more. ... We have historically trended in that direction, without aggressive action being taken on a regular basis” to contain costs. Should-cost, by contrast, “is what it could cost—and hopefully should cost, in this budget environment—if we take some positive action,” such as changing a contract type or using a different technology, production-line philosophy, or build rate.

Costello acknowledged that PMs should not expect the money saved to come back to their programs. “I know program managers like to have that money and use it in the future... but as you’re able to save money, we can give it back to the defense enterprise. Hopefully it stays within your service ... but depending on how much you save, it might have to go elsewhere. ... I do think it is unfortunately just a reality,” she said.

From Kendall’s perspective, should-cost is still a work in progress. “Essentially it’s the idea that you set yourself a target that’s below the independent cost estimate and drive your cost down—look consciously, look consistently, and look continuously for ways to reduce cost. I don’t think should-cost has quite gotten where it needs to be yet. ... I think there’s a reluctance to set targets that we need to meet.”

EMPLOYING INCENTIVES

The smart use of incentives is central to getting a better product for the warfighter, Kendall said. “I think incentives are about the only thing we can do to get industry to perform better, which is really one of our fundamental jobs in the government. ... Industry’s trying to do as good a job as it can up to a point, but if we apply incentives well, we can get a little bit more out of that equation.”

The key to doing so, Kendall said, “is to balance very carefully between what you’re asking for, what’s actually achievable, and what’s in the range of something industry can do, if they’re motivated, to give you a better product.” With a fixed-price production contract, he noted, “industry has all the incentive in the world, because the more they reduce the cost ... the more profit they’ll make. It’s a very straightforward equation. So there isn’t much point, in that kind of situation, providing an incentive beyond what’s already there.”

The overarching question, Kendall said, is, “What does the government care about? What does the government want? And if this is something the government wants, how do we put something in the contract that will get industry to be more motivated to give it to us? ... That requires judgment; it requires a careful thought process to go through, and not just apply a school solution to every contract.”

INDUSTRY OUTLOOK

With the economy on everyone’s mind and the high value placed on competition to get the best deal for the government, the future of the defense industry was a prominent topic at the PEO/SYSCOM conference.

Kendall expects the industrial base to “remain healthy through the drawdown,” albeit without the growth seen over the past 10 years. “It is a different environment; it’s a different environment for us, too,” he said. “It’s going to be a stressful time for industry. Industry will react, and we need to be aware of that. We also need to protect our industrial base. We rely on a competitive industrial base as much as possible.”

Competition “is not just driving the price down. It also drives innovation,” Shyu said. Because small businesses often can be more agile and innovative than large companies, “one of the things we’re

thinking about is [using] more small businesses as prime,” Shyu said. The ASAALT is also looking at the real value added of layers of subcontractors, she said. “We’re trying to bring some agility.”

Kendall said it’s unlikely there will be much more consolidation at the top echelons of the defense industry. The federal government “is not going to support that, because we’ve seen about as much of that as we think makes sense in order for us to maintain competition at that level.”

At the lower tiers, however, “there probably will be some movement,” Kendall said. “People will move around strategically, trying to position themselves for future business, and we’ll have to look at that on a case-by-case basis. We do want to protect competition there. We also want to protect some niche capabilities that may go away if we’re not careful. ... We will intervene, but it will be rare for us to intervene.”

Michael T. Strianese, Chairman and CEO of L-3 Communications, said the near future may bring changes to business structures, such as spinoffs and divestitures.

“Back in the ’90s, it was all about consolidation,” Strianese said in the industry keynote address. “What you’re seeing now is not about consolidation. It’s about fragmentation; it’s about portfolio shaping; it’s about restructurings. I can promise you, from our side, we will never excuse ourselves from the mission because it’s too difficult. We will be changed by these economic realities ... but the commitment to your mission will not be compromised,” he said.

PROFESSIONALISM IN AL&T

Throughout his keynote address, Kendall placed a heavy emphasis on the professionalism of the acquisition, logistics, and technology (AL&T) Workforce, which



CONTRACTOR CAPABILITY

Kendall lauded the contingency contracting capability established over 10 years of conflict in Iraq and Afghanistan and said that DoD needs to “institutionalize that capability” in anticipation of using it again in operations that will rely heavily on contractors. Here, MSG Joe Mancias, 36th Infantry Division Garrison Command Noncommissioned Officer in Charge, directs Iraqi contractors at Contingency Operating Base Basra, Iraq, June 29, 2011. The contractors cleared debris left over from the move of Army and Air Force Exchange Service facilities. (Photo by PV2 Andrew Slovensky.)

he said is key to achieving better buying power in all of its many aspects.

“We have an incredible workforce, but I believe we can have a much more capable workforce than we do. Our task is enormous, and it requires real professionals to do it well. I’m going to be focused a lot on that over the next year.”

The need for well-trained, well-educated, experienced, and dedicated AL&T professionals is widely underappreciated, Kendall said. “They have a strong sense of integrity; they bring that to the job that they’re doing. And it is not something you get instantaneously.” Whereas industry can rely on buying the talent it needs, “In the government, we have to grow our talent all through their careers, with few exceptions,” Kendall said.

DAU provides great training, Kendall said, but even Level III certification is

just part of being an AL&T professional. "There's more to it than that," he said. "We need to elevate the stature of our key leaders and make sure they really have the qualifications they need to do those jobs. And by key leaders, I mean program managers, PEOs, chief engineers, contracting officers, [and] product support managers—the people who really have, through their job, direct control over the things that we buy. And that covers service contracting and service program management as well as product management.

"There should be visible evidence that you are an elite group, that you are at the pinnacle of your profession."

More training with industry would help the AL&T Workforce, Kendall said. So would rotational assignments to "get people out of their offices and out into the

field more," whether to program offices, industry, or Federally Funded Research and Development Centers.

"I think we have a tendency to look inward at our own bureaucratic processes too much, instead of outward at the job we're trying to accomplish and what it takes to really do it."

In addition to making tough choices, AL&T professionals need to be prepared to answer tough questions, he said. "My view is that opinion is good. Opinion informed by strong arguments is better. Opinion informed by strong arguments backed up by data is best."

CONCLUSION

Ultimately, Kendall told the audience at the PEO/SYSCOM conference, "It's not about the rules that I write or Dr. Carter wrote,

or legislation from the Hill. It's about your judgment. It's about what you do every day out there. And if you're not good at that, we're not going to be successful. Period.

"I think my job, more than anything else, is to support you and to help you be better at what you do. ... I hope to be around for a few more years and see this through. It's going to take a while to get the institution to respond, but I think we're making progress. We're going to keep on this path. We really have no choice."

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



JOIN THE SOCIAL MEDIA MOVEMENT!

Follow USAASC on the following social media platforms:



<http://facebook.com/USAASC>



<http://twitter.com/USAASC>



<http://flickr.com/USAASC>

Army AL&T Magazine also has an updated web presence. The magazine can now be read using our new and improved online viewing tool. This tool is versatile, easy to use, and will hopefully enhance your reading experience.

<http://asc.army.mil/altmag>

Joint Requirements Oversight Council Adopts More Decisive Process

by Margaret C. Roth

Smaller meetings, more-focused information, and a stronger focus on priorities: These are steps that the Joint Requirements Oversight Council (JROC) has taken to establish a more efficient, decisive, and ultimately effective way of validating major program requirements.

Speaking Nov. 2 at the PEO/SYSCOM Commanders' Conference on "Improving Requirements Definition and Management," Air Force Brig Gen Richard S. Stapp, Deputy Director for Requirements, Joint Staff (J-8), said, "We've made some very major changes" in the JROC process since the summer to fulfill JROC's mandate—to make cost, schedule, and performance trades when looking at requirements.

"More than any other body in the Department [of Defense], they're really charged with shaping the force—what do we need to fight the next fight [and] how do you balance it against the budget you have" within the desired schedule. That said, "What the JROC has not done a good job of in the past is making those trades," Stapp said.

He noted that "90 percent of ACAT [Acquisition Category] 1 programs are over cost and over schedule, and they have been for the last decade. It's not a good track record." The result is "all sorts of disruption and chaos" when funds have to be pulled from other programs to cover cost overruns, and budgets must be rewritten. "What we want to do with the



UPGRADING PORTFOLIOS

The Joint Requirements Oversight Council is considering each weapon system that comes before it to ensure that the system fits into the entire portfolio of solutions to fill a capability gap. Here, the new Apache Block III (AB3) helicopter lifts off the runway at the Boeing complex in Mesa, AZ, during a rollout ceremony in November 2011. The AB3 features key upgrades to previous Apache helicopters, including Level 4 interoperability with an unmanned aircraft system. (U.S. Army photo by Program Executive Office Aviation.)

requirements process is try to settle that down to some extent." More-executable programs will mean more stable expenditures for DoD at a time when competition is intensifying for funding from base budgets, Stapp said.

"Right now there is no appetite and no budget for 100 percent solutions. You have to be willing to assume risk," he said.

Setting clear priorities based on rigorous analysis is key, he added. "Not everything should have equal importance." The JROC wants to be able to "debate the really difficult issues," to look at each weapon system and its mission scenario and see how it fits into the total portfolio to fill a capability gap. "This is going to be much more deliberative than it's going to be consensus-driven," Stapp said.

To make candid, incisive debate possible, the JROC has refocused its meetings to be more like those of the Joint Chiefs of Staff (JCS) in their secure conference room known as “the tank.”

Whereas JROC meetings used to comprise “five four-stars who are trying to have a discussion with a cast of thousands behind them,” Stapp said, now only the principals are invited: the five voting members—the Vice Chairman of the JCS, who chairs the JROC, and the four service Vice Chiefs of Staff—and one guest each, as well as the statutory advisors to the committee—the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)); USD for Policy; USD (Comptroller); Director, Operational Test and Evaluation; and Director, Cost Assessment and Program Evaluation.

The purpose is to allow for as much trade space as possible, Stapp said. “Anything that touches [a particular] mission, the JROC’s going to look at, every single capability,” to determine the appropriate levels of risk and investment in program requirements, he said. Similarly, the Vice Chairman reserves the right at any time to reevaluate a requirement if a program is over budget and behind schedule, Stapp said. While the JROC does not control acquisition funds, it can decertify requirements, in consultation with USD(AT&L).

The JROC wants to look at all possible alternatives when reviewing capabilities, as well as nonmaterial solutions, such as changes in doctrine or tactics, techniques, and procedures, Stapp said. Across the board, the JROC will ask, “Is there an opportunity for us to harvest money? The key in the Department right now is harvesting money.”

In addition to Urgent Operational Needs and Joint Urgent Operational Needs

“WE’RE SAYING, TEE UP YOUR ISSUE. IF YOU THINK THIS IS IMPORTANT, IF YOU THINK THIS FILLS A WARFIGHTING GAP, TEE UP, BECAUSE OUR JOB IS TO FIGURE OUT HOW IMPORTANT IT IS.”

Statements, the JROC has opened a third avenue of requirements determination, Stapp said: Joint Emerging Operational Needs, with a horizon of up to five years, to be validated by the Vice Chairman.

All documentation for requirements will be subject to limits on length, Stapp said. The Joint Capabilities Integration and Development System (JCIDS) already has these, he noted. “We just don’t bother to follow our own rules. We are no longer looking for 100 percent fidelity on every problem set” in documents, he said. “We’re going to handle it like an RFP. You exceed the page count, and it gets kicked.”

While Stapp acknowledged that “within the requirements community, it’s going to be chaos for a while” as people get used to changes in the JROC process, an overarching message of the changes is that “we own the process. *It* should be a slave to *us*. We reserve the right to change the process however we want” to ensure valid requirements based on good information regarding cost, schedule, and performance, he said.

“JROCs are going to be like snowflakes. There are not going to be any two that are the same,” Stapp said.

Asked what program managers need to do to prepare for this more fluid JROC process, Stapp said, “go through their program very thoroughly. ... determine are you on cost, are you on schedule. We’re saying, tee up your issue. If you think this is important, if you think this fills a warfighting gap, tee up, because our job is to figure out how important it is.”

The JROC is also looking for proposed ways to scale back requirements if possible with a reasonable degree of risk, and for possible joint solutions, Stapp said. “We want everybody looking at these,” especially in the area of information technology. “We want to start forcing more joint solutions. If you’re facing the same threat, you’re going to go to the same system. We are not going to do unique systems for each service anymore. It is way, way too expensive.”

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



Industry Works to Manage Spending in Line With Government Initiatives

by *Brittany Ashcroft*

As the U.S. government and DoD face the financial realities before them, industry is attempting to do its part to effectively manage costs and control spending.

Four industry representatives addressed this issue during the PEO/SYSCOM Commanders' Conference. In a Nov. 1 session titled "Effective Industry Strategies for Obtaining Cost Management and Control in Defense Spending," representatives from Lockheed Martin Corp., Northrop Grumman Corp., DRS Technologies Inc., and MicroTech described how their companies are reacting to the financial challenges of a tight federal budget and a sluggish economy, as well as how they are working together to achieve success while cutting costs and improving efficiency.

Improving communication between government and industry was a common theme. "Effective communication, probably the most critical avenue of improving

process efficiencies, is often overlooked," said Mark Newman, DRS Technologies Chairman and CEO. "I believe one straightforward initiative we can take that will provide measurable and significant results is to reinvigorate communication between the government customer and the industry provider."

Newman highlighted the Army's Network Integration Evaluations as a "great example of open communication prior to contract award;" the government can evaluate equipment and technology, request adjustments, and reevaluate a product before awarding a contract, he said. "This is an example of good, upfront communication that leads to better products and more efficiency in the acquisition system," Newman said.

A related concern is the challenge of requirements definition, said Tony Jimenez, President and CEO, MicroTech. "Many times, what we find is folks don't really know what they want; they just know they

want something," Jimenez said. "And a lot of times we find that we desperately need to sit down with the end user and figure out what is it that you're trying to solve. One of the challenges to that is not being able to reach out to the right person."

Ensuring that industry and the acquisition community can deliver capability to theater is another aspect of improving cost control and assessing value.

"My concern is that we get too much [of] a gap between mission capability we've created and mission capability that we've deployed," said Michael Joyce, Senior Vice President of Operations and Program Management, Lockheed Martin. "So while we have all this great new invention we've done, we have to now go field it if we're going to see the true value of it in the world. ... as budgets get more tight, we do have to constrain our capability appetite so that we can field real missions out there in service, actually delivering the goods."

WORKING WITH INDUSTRY

Industry representatives visit the 4th Battalion, 27th Field Artillery Regiment motor pool at Fort Bliss, TX, to discuss the unit's role in the Army's Network Integration Evaluations (NIEs). During the PEO/SYSCOM industry panel discussion, the NIEs were cited as a good example of constructive communication between the Army and industry to clarify needs. (U.S. Army photo by Katie Cain.)

With regard to assessing a capability's "true value," Jimenez cautioned against "procurements that are going out with the lowest price technically acceptable." He warned that people get what they pay for, and while that is not always the case in government contracting, "... you need to ... understand value because value's critically important. Technically acceptable lowest cost might not necessarily provide you the value you're looking for."

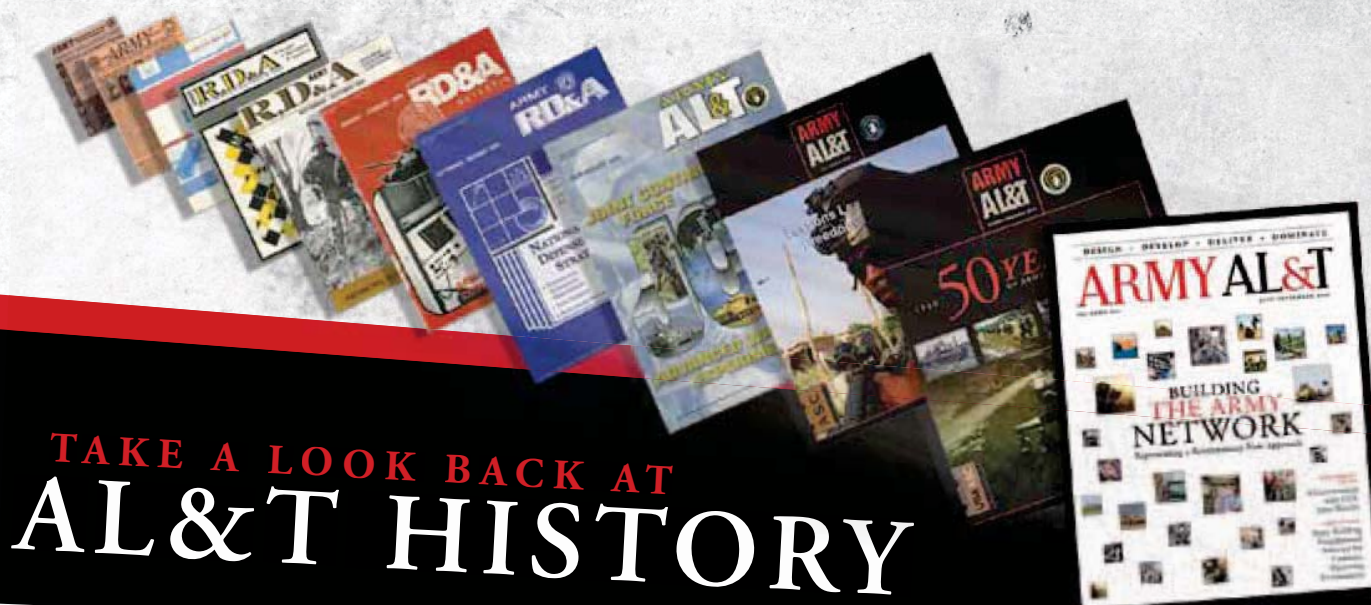
Combining communication, high-quality products, and affordability is key to "creating a culture of performance," said

Susan Cote, Vice President of Corporate Contracts and Supply Chain, Northrop Grumman. Program and financial performance are intertwined, and, as a result, government and the public are seeing positive industry changes, Cote said. Northrop Grumman is "embracing affordability and the imperative to make it a cultural shift in the way in which we both lead and manage, and perform on our work."

Cote added that the Better Buying Power affordability initiative also "creates structured thinking" and has opened up communication. "We recognize in

industry ... the fiscal realities; the challenges that lie ahead in the coming years are going to be tough. Keep the communication lines open. Keep exploring and pushing and making sure that you're focused on what's important to the customer with respect to the broader set of requirements, including affordability."

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has nearly 10 years' experience in magazine editing and holds a B.A. in English from Elmhurst College.



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

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

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

FISCAL FIXES

DoD Comptroller emphasizes acquisition community's involvement in managing the defense budget

by Brittany Ashcroft

FUTURE OF MODERNIZATION

An OH-58 Kiowa Warrior helicopter test-fires over the Red Desert in Afghanistan. Under the Army's Modernization Plan 2012, Kiowa Warrior helicopters are to be upgraded from D to F models to include enhanced cockpit sensor upgrades. Cuts to the DoD budget may slow or stop some as yet-unspecified modernization programs, said Robert F. Hale, Under Secretary of Defense (Comptroller). (U.S. Army photo by Sadie Bleistein.)



In the current daunting budget environment of uncertain and legally mandated spending reductions, Robert F. Hale, Under Secretary of Defense (Comptroller), outlined some of DoD's plans—including necessary cuts, how fiscal constraints will affect acquisition, and the importance of auditing financial statements—Nov. 1, 2011 at the PEO/SYSCOM Commanders' Conference, hosted by the Defense Acquisition University at Fort Belvoir, VA.

"We're living in a Nation that's in economic crisis, and Secretary [Leon E.] Panetta has said we need to do our part to reduce what is a huge federal deficit. At the same time, we've got to meet national security needs in an environment where there are substantial threats to our national security," Hale said.

BUDGET CUT CONCERNS

Holding down the deficit and cutting the budget involve several areas of DoD. Congress' passage of the *Budget Control Act of 2011* in August 2011, raising the debt ceiling, sets specific caps on national security funding.

Hale explained that the law did not "actually control defense, but it will be interpreted to, and will end up resulting in more than \$450 billion out of the defense budget over the next 10 years and about \$250 billion over the five-year planning period from FY13 to FY17." Those cuts are roughly 8 percent more than the FY12 budget plan calls for, Hale noted.

"You may say, well, for a Nation in economic crisis, 8 percent doesn't sound like that much," he said. "And it would be a lot easier to do if we didn't also face substantial threats to national security that, in our view at least, make it difficult to make deep cuts in force structure, modernization, and other aspects of what we are doing."

To make the necessary cuts, DoD is focusing on additional efficiencies in areas including support activities and military compensation, Hale said.

In addition, DoD will have to look for ways to cut force structure and slow modernization, Hale said. "We will try to do that with a strategy—not through mindless across-the-board cuts, [but] a strategy that looks at whether we can slow [modernization] or accept some risk," he explained. This will call for decisions on areas to emphasize, he said.

Hale said DoD's budgetary outlook is complicated by Congress' creation of the Joint Select Committee on Deficit Reduction, a 12-member group tasked to find \$1.5 trillion in deficit reduction over the next 10 years.

PROTECTING NATIONAL SECURITY

Hale cautioned against "mindless" automatic DoD budget cuts that could put national security at risk by preventing DoD from having a well-trained, well-equipped force that is ready to win on the battlefield. Here, SPC Seth A. Ankrom, PFC Matthew J. Barrie, and PFC Sebastian E. Ampiah, personal security detail Soldiers assigned to the 37th Infantry Brigade Combat Team, demonstrate clearing rooms for their instructor before entering the Shoot House during training at Camp Shelby Joint Forces Training Center, MS, in November 2011. (Photo by SGT Kimberly Lamb.)



The committee failed to identify cuts and called it quits Nov. 21, triggering a process whereby DoD will get automatic budget cuts, or sequestrations. Sequestration "would take that \$450 billion in budget cuts I talked about earlier and roughly double it. We'd be looking at a trillion dollars in reductions, compared to our current plan over the next 10 years. And in FY13 at least, they have to be applied in a manner I think best described as mindless," Hale said.

EFFECTS ON ACQUISITION

The budget cuts, no matter what the final number, will force DoD to review all of its acquisition programs and either slow or terminate some of those programs.

"We'll do this recognizing that we've got to modernize this force if we're going to maintain readiness, especially 'big R'



TOUGH TRUTHS

Under Secretary of Defense (Comptroller) Robert F. Hale addressed DoD's financial outlook during the PEO/SYSCOM Commanders' Conference. "We face large cuts in the defense budget over the next few years, and they're mandated in law. I know we're going to need to slow modernization, but we've got to do it in a way that is strategic and modernize in the areas of highest priority," Hale said. (DoD photo by Erica Kobren.)

readiness," Hale said. "You need more than just trained people. You also have to give them the equipment that they need to win on the battlefield."

Hale cited examples in DoD history—the 10 percent real reduction in the total defense budget from 1985 to 1989, which included a 29 percent reduction in procurement; and the 23 percent cut in the defense budget from 1989 to 1994, representing a 51 percent real cut in procurement—to show that "cuts in modernization will be disproportionately large early in the reduction."

He sees these large procurement cuts as the result of the services' reluctance to reduce force structure. "Holding on to force structure means we keep up our operating costs, our fixed top line that tends to cause the focus to be on modernization."

Acquisition also is affected in the development of major weapons and the necessary decisions to restrain requirements to keep

costs down. "If you look back over the long period of our budgetary history, it seems like new generations of weapons cost about two to three times as much in terms of real unit costs," Hale said. "You have to get at this early in the life cycle of a weapon in order to really control its cost. We need to break this rule of constant growth."

IMPORTANCE OF AUDITING

Hale discussed the role that audits can play in reducing costs, particularly in acquisition programs. He encouraged the use of the Defense Contract Audit Agency (DCAA) to help develop auditable financial statements.

Hale acknowledged that DCAA is dealing with problems that have hindered audits in the past, and he requested assistance from program executive officers and program managers to improve the audit process while also helping to ensure that audits are requested on time and with relevant information.

"Leave enough time in your acquisition plans for an audit if you're going to have one. There may be areas where you say, 'I know these costs are within reason. I don't need an audit.' ... But if you're going to do it, you need enough lead time," he said. "... Most of all, we need your help in leaning on contractors to give us good pricing proposals. That's the single biggest cause of delay. We get into these things and find out the information is not reasonable, particularly with regard to subcontractors."

Auditing also is an important process for Panetta, who has requested that the process be sped up and given more emphasis, Hale added. DoD is one of only two federal agencies, the other being the Department of Homeland Security, that have never had a "clean opinion" on financial statements, he said.

In addition to complying with the *Government Management and Reform Act of 1994*, which requires auditable statements at all federal agencies, Hale said the biggest reason that auditable statements are vital is "... to reassure the public that we're good stewards of their money. Although we do a lot of things right in financial management and we do know where we are spending money, I think it is really tough to convince the public that we are reasonable stewards when we keep flunking these audits."

CONCLUSION

Hale stressed the need for involvement and cooperation from all areas of DoD, particularly the acquisition community. "You have some of the toughest problems, as usual, in the financial management area," he said.

Finding realistic ways to cut the defense budget and protect national security is a huge task, especially when coupled with the uncertainty of sequestration.

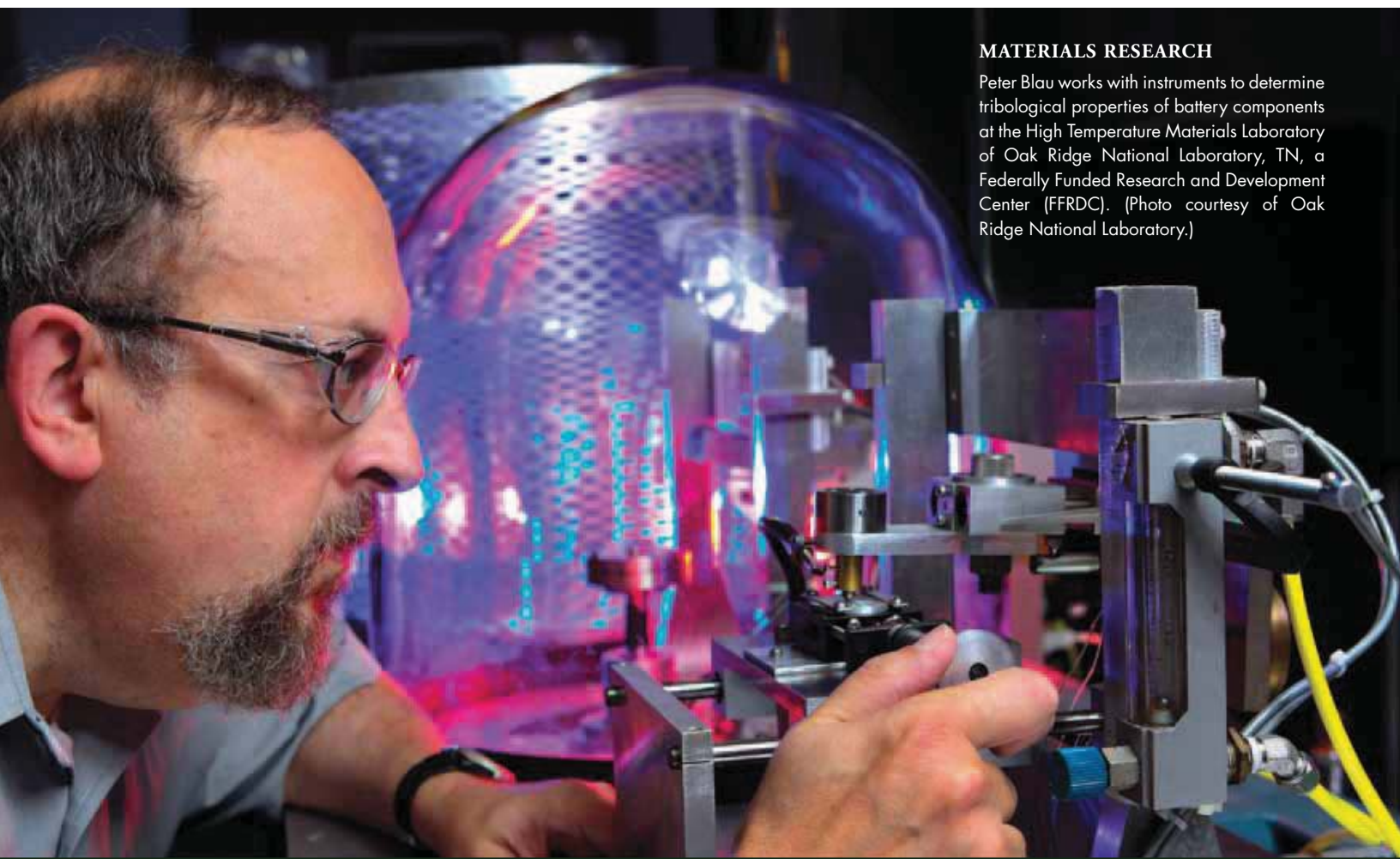
"We face large cuts in the defense budget over the next few years, and they're mandated in law. I know we're going to need to slow modernization, but we've got to do it in a way that is strategic and modernize in the areas of highest priority," Hale said. "And most of all, we've got to look for ways to hold down costs, and I know you hear that all the time, but it's important. I hope that you'll work with me to make good use of organizations like DCAA and ... on things like auditable financial statements, to reassure the public that we're good stewards of their funds."

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has nearly 10 years' experience in magazine editing and holds a B.A. in English from Elmhurst College.

EFFICIENCIES IN EXPERTISE

USAASC-sponsored Excellence in Government Fellows explore
Army use of Federally Funded Research and Development
Centers and University-Affiliated Research Centers

by Bob Domitrovich, Kerry Henry, Dana Lymon, and Ryan McCauley



MATERIALS RESEARCH

Peter Blau works with instruments to determine tribological properties of battery components at the High Temperature Materials Laboratory of Oak Ridge National Laboratory, TN, a Federally Funded Research and Development Center (FFRDC). (Photo courtesy of Oak Ridge National Laboratory.)



COUNTER-IED SOLUTIONS

U.S. Air Force A1C Patrick Connolly demonstrates the placement of a water disruptor developed at Sandia National Laboratories, an FFRDC, near its target in a simulated village used to train Soldiers heading overseas. The device was sent to U.S. troops in Afghanistan to help disable improvised explosive devices. (Photo by Randy Montoya.)

With federal budget cuts and constant bickering in Washington, many Americans see no connection between government operations and efficiency. While no one can blame them, there are many unsung examples of what government is truly capable of even in the face of extraordinary challenges, given the right people, the right direction, the right motivation, and the right support. A group of Army civilian acquisition leaders set out to study some of these examples.

Dr. Robert M. Gates, former Secretary of Defense, directed DoD to pursue a wide-ranging Efficiencies Initiative with the goal of “doing more without more.” Dr. Ashton B. Carter, Deputy Secretary of Defense and previously the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), issued a memorandum on June 28, 2010, titled *Better Buying Power: Mandate for Restoring Affordability and Productivity in Defense Spending*, highlighting 23 principal actions to improve efficiency across five major areas.

The U.S. Army Acquisition Support Center (USAASC) sponsored a cadre of Army civilian acquisition leaders in the 2010-11 Excellence in Government Fellows (EIGF) Program for leadership development. The EIGF curriculum required a results project, and one group of Army acquisition fellows focused on where efficiencies could be realized. One area that stood out for evaluation was the leveraging of Federally Funded Research and Development Centers (FFRDCs) and University-Affiliated Research Centers (UARCs), which can provide acquisition programs with a nonstandard way to secure acquisition expertise without increasing permanent staffing and at potentially less cost than contracting with private industry.

Use of these organizations could result in efficiencies that touch multiple areas in the guidance from USD(AT&L), but only if the workforce is aware of their existence and understands their role. The Army results project sought to measure current awareness of FFRDCs and UARCs in the acquisition community and customer satisfaction with them. The goal was to provide USAASC with findings and recommendations to support decisions on how to increase the Army Acquisition Workforce's awareness and use of FFRDCs and UARCs.

THE FFRDC'S ROLE

FFRDCs are unique nonprofit entities sponsored and funded by the U.S. government to meet special long-term research or development needs that cannot be met effectively with existing in-house or contractor resources. The FFRDCs operate in the industries of defense, homeland security, energy, aviation, space, health and human services, and tax administration. They are grouped into three categories focusing on different types of activities:

1. Systems Engineering and Integration Centers.
2. Study and Analysis Centers.
3. Research and Development Centers (including national laboratories).

First established during World War II, FFRDCs—previously called Federal Contract Research Centers—were semi-academic laboratories and research groups created by the federal government for defense research. FFRDCs grew out of the need to obtain objective assessments of military problems or programs of increasing technical complexity.

FFRDCs can be not-for-profit or nonprofit organizations, or managed by an industrial firm as an autonomous organization that does not have shareholders

or partners. FFRDCs do not have a prescribed organizational structure. They can be built around traditional contractor-owned, contractor-operated entities; government-sponsored private organizations; or government-owned, contractor-operated entities. Or they can reflect blended relationships.

The benefit of FFRDCs is that there is no profit motive or conflict of interest, allowing them to function as independent, trusted advisors and honest brokers. The FFRDCs are answerable to the government customer and have no vested interest in particular technologies or solutions.

It is important that FFRDCs do not compete for federal contracts against non-FFRDC entities, but they may compete against other FFRDCs for government contracts and work. FFRDCs are required to work within the purpose, mission, general scope, or competency assigned by their sponsor. FFRDCs must not perform work that is otherwise performed by a for-profit corporation.

THE UARC'S ROLE

UARCs are strategic DoD research centers associated with a university. They were formally established in May 1996 by the Director of Defense Research and Engineering to ensure that essential engineering and technology capabilities of particular importance to DoD are maintained.

Although UARCs receive sole-source funding under the authority of *10 U.S.C. Section 2304(c)(3)(B)*, they also may compete for science and technology work unless precluded from doing so by their contracts with DoD.

These not-for-profit organizations preserve essential research, development, and engineering “core” capabilities; maintain long-term strategic relationships with

their DoD sponsors; and operate in the public interest, free from real or perceived conflicts of interest. Collaboration with the educational and research resources available to them enhances the UARCs' ability to meet the needs of their sponsors.

EIGF RESULTS PROJECT

In Phase I, the pilot program survey, the project team set out to establish a baseline measurement of U.S. Army Acquisition Corps (AAC) knowledge and expertise on the use of FFRDC and UARC support. The base survey of a select, small (fewer than 1,500) acquisition population would then be refined for a final survey and data collection.

The pilot survey of 16 questions was designed to measure awareness and satisfaction related to the use of FFRDCs and UARCs. The survey allowed for write-in answers, multiple-choice selections, and comments. It was given to a small pool of participants within Program Executive Office (PEO) Missiles and Space and PEO Aviation, resulting in 598 total responses for an approximate response rate of 39.9 percent. Before releasing the pilot survey, fellows briefed each Deputy PEO on the process and desired results to gain command endorsement. Because the pilot survey had this endorsement, better participation occurred than in the final survey.

The feedback and data collected from the pilot survey resulted in changes to questions and an improved final survey. Write-in responses were removed to allow for faster compilation of results and data. The pilot survey also resulted in a question tree analysis and logic diagramming for use on the final survey, providing better clarity and a better survey product.

In Phase II, the final survey was sent to the greater Army acquisition community.

The proposed final survey was submitted to USAASC for comment, concurrence, and release to a random selection of AAC members at large. The final survey was released on June 12, 2011, and closed on June 28. The population size was 5,174 with 638 total responses received, for an approximate response rate of 12.3 percent.

In Phase III, analysis of results from the final survey made it possible to provide USAASC with findings and recommendations on how to increase the Army workforce's awareness and utilization of FFRDCs and UARCs.

The survey results showed a need to educate the workforce on FFRDCs and UARCs. Approximately 53 percent of the workforce had never heard of these facilities, and 57 percent had never contracted with them. The need for education was especially apparent given that 90 percent of those who had used FFRDCs and UARCs would recommend them to others.

Two of the top three FFRDCs used by survey respondents are not sponsored by DoD and require additional documents and steps to approve their use. The requirements of some projects may also preclude the use of FFRDCs and UARCs.

Survey participants recommended three ways to disseminate information to the workforce about FFRDCs and UARCs:

1. An email broadcast.
2. Creation of an informational website.
3. An article published in a recognized periodical for the community at large.

CONCLUSION

Use of FFRDCs and UARCs provides opportunities for efficiencies in the acquisition process, bringing expertise to programs that does not increase permanent

staffing and providing alternate paths to technology requirements and options. In addition, the use of FFRDCs and UARCs helps to maintain the industrial base and intellectual knowledge that the acquisition community requires.

BOB DOMITROVICH is a Senior Excellence in Government Fellow (EIGF) and Operations Division Deputy for the Close Combat Weapon Systems Project Office of Program Executive Office (PEO) Missiles and Space, Redstone Arsenal, AL. He holds a B.S. in engineering from the United States Military Academy and an M.S. in business administration and management from the Chaminade University. Domitrovich is a retired Army Infantry Lieutenant Colonel. He is Level III certified in program management and is a U.S. Army Acquisition Corps (AAC) member.

KERRY HENRY is a Senior EIGF and Chief of the Technology and Prototyping Division for Project Director Joint Services Office within PEO Ammunition, Picatinny Arsenal, NJ. She holds a B.S. in mechanical engineering from Pennsylvania State University, an M.S. in metallurgical engineering from the University of Tennessee-Knoxville, and an M.B.A from the Florida Institute of Technology. She is Level III certified in systems planning, research, development, and engineering – systems engineering; Level II certified in systems planning, research, development, and engineering – program systems engineer; and Level I certified in program management. Henry is an AAC member.

DANA LYMON is a Senior EIGF and a Program Analyst in the Apache Helicopter Project Management Office of PEO Aviation, Redstone Arsenal. He holds a B.S. in business administration from Mississippi Valley State University and an M.S. in program management from the Naval Postgraduate School's Graduate School of Business and



DIGITAL RESEARCH

A subject's face is digitally cloned at the University of Southern California's Institute for Creative Technologies, a University-Affiliated Research Center. The digital image will represent a Soldier's face in the Virtual Officer Leadership Trainer. (U.S. Army photo courtesy of the Institute for Creative Technologies.)

Public Policy. He is Level III certified in business cost estimating and financial management, and Level III certified in program management. Lymon is an AAC member.

RYAN MCCAULEY is a Senior EIGF and a Mission Contracting Office Division Chief at Mission and Installation Contracting Command, Fort Eustis, VA. He holds a B.S. in governmental administration from Christopher Newport University and an M.S. in management from the Florida Institute of Technology. He is Level III certified in contracting and is an AAC member.

LEAPS AHEAD

ASAALT recognized for 'best in the Army'
Lean Six Sigma business transformation results

by Kris Osborn

BUSINESS TRANSFORMATION LEADERS

ASAALT team members received three Lean Six Sigma (LSS) Excellence Award Program awards at a Nov. 29, 2011, Pentagon ceremony. Front row from left: COL William Boruff, Project Manager Joint Combat Support Systems, Program Executive Office (PEO) Combat Support and Combat Service Support; Heidi Shyu, Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology; Dr. Nancy A. Moulton, Director of Business Transformation; Barbara Gabbard, LSS Practitioner with PEO Ammunition; and Ben Samimy, Program Manager CPI/LSS; Second row from left: BG Jonathan A. Maddux, Program Executive Officer Ammunition; Chanda Brown, Program Management Assistant; John Gualtieri, Resource Manager; and Brian Stetson, Master Black Belt for the National Capital Region; Third row from left: Wava Johnson, ASAALT's LSS Training and Certification Program Manager; Paul Chiodo, LSS Practitioner with PEO Ammunition; and Nhu Nga Do, Deployment Director for Joint PEO Joint Tactical Radio System. (Photo by Tricia May, Office of the ASAALT (OASAALT).)



Business transformation initiatives within the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT), aimed at increasing process efficiencies, improving quality, and achieving significant cost savings and cost avoidance, gained service- and DoD-wide distinction Nov. 29, 2011, at a Pentagon Lean Six Sigma Excellence Award Program (LEAP) ceremony.

The ASAALT team received an HQDA Level Organizational Deployment Award for outstanding achievement of exceptional process improvement; Program Executive Office Ammunition (PEO Ammo) won the AR10-87 Level Organizational Deployment Award; and PEO

FASTER FIELDING

PEO Aviation's effort to quickly field Raven unmanned aircraft systems (UAS) was an LSS project that contributed to the Army's cost savings and cost avoidance. Here, SPC Randall C. Stone, Raven operator with the 1-148th Infantry Regiment, 37th Infantry Brigade Combat Team, launches a Raven UAS during training at the National Training Center at Fort Irwin, CA, Dec. 9, 2011. (Photo by SGT Kimberly Lamb.)



Combat Support and Combat Service Support's Project Manager Joint Combat Support Systems won an Enterprise Level Project Team Award for Special Tools Accountability, recognizing the team's achievement of \$92 million in financial benefits and significant operational benefits for maintainers.

"These awards recognize the work that has resulted in real savings and getting business processes to produce much better. The challenges we face over the next few years are pretty significant, so we need to get our business processes better aligned to gain greater efficiencies, employ best practices, and gain lessons learned. Future managers will benefit from their success," said Under Secretary of the Army Dr. Joseph W. Westphal.

SAVINGS AND AVOIDANCE

Overall, ASAALT has been able to document \$19.4 billion in cost savings and cost avoidance for FY11, broken down as \$9 billion in savings and \$10.4 billion in cost avoidance, said Dr. Nancy A. Moulton, Director for Business Transformation in the Office of the ASAALT (OASAALT).

"We've been able to transform our process and achieve high-level results. We've doubled our quality in terms of process output, and we have improved the speed of our processes by a range of 30 to 90 percent. We've significantly improved quality, increased speed, and reduced cost," said Moulton.

The bulk of the savings and cost avoidance achieved in FY11 can be directly attributed to the Better Buying Power program spearheaded by the Office of the Secretary of Defense (OSD). Better Buying Power is a DoD-wide effort to increase efficiency throughout the acquisition process by building affordability measures into the structure of programs,

increasing competition, improving productivity, and lowering costs wherever possible, Moulton explained.

"You can't improve and have savings without fully understanding the processes involved. You have to understand who influences which parts of the process and see what part you play in the process," said Lee Thompson, Deputy Assistant Secretary of the Army for Strategy and Performance Planning.

In total, \$18.5 of the \$19.4 billion in savings and cost avoidance was achieved as a result of the implementation of Better Buying Power practices.

"Better Buying Power is definitely generating unprecedented results. Leadership is driving specific actions that are getting done. There is emphasis from OSD, the Army, OASAALT, and Ms. [Heidi] Shyu, Acting ASAALT. Leaders have provided specific targets, which were set—such as the goal of achieving 3 percent efficiency each year. This focus on results and leadership engagement, combined with workforce proficiency in continuous improvement, united the whole organization," Moulton said.

Army business transformation efforts have been improved through use of a single, central repository designed to document all Army efficiencies, business initiatives, and other quality improvements. It is an information system known as PowerSteering.

EXEMPLARY EFFORTS

Individual PEOs contributed substantially to ASAALT's overall achievements by implementing Better Buying Power measures to improve the business management of acquisition programs, eliminate redundancies where possible, and maximize efficiency throughout groups of



ENTERPRISE LEVEL PROJECT TEAM AWARD FOR SPECIAL TOOLS ACCOUNTABILITY

COL William Boruff, Project Manager Joint Combat Support Systems, PEO Combat Support and Combat Service Support, and Heidi Shyu, Acting ASAALT. Boruff and his team received an Enterprise Level Project Team Award for Special Tools Accountability. (Photo by Tricia May, OASAALT.)

systems through a process called Capability Portfolio Reviews (CPRs).

CPRs examine groups of programs holistically, with a mind to their impacts on one another and the Army's capability needs as a whole.

For example, in a byproduct of the CPR process, PEO Missiles and Space saved \$961 million through cancellation of the Surface-Launched Advanced Medium-Range Air-to-Air Missile program, Moulton said.

In addition, various Lean Six Sigma projects contributed measurably to cost savings and cost avoidance: PEO Aviation's effort to reduce cycle time and allow for faster fielding of Raven unmanned aircraft systems; PEO Command, Control, and Communications-Tactical's move to document routing and improve

communications; PEO Ammo's success in saving \$157 million through quality improvements; and PEO Ground Combat Systems' ability to decrease the cycle time needed to recover equipment left behind.

Employing competent and committed change agents who are proficient in Continuous Performance Improvement and Lean Six Sigma (CPI/LSS) is vital to achieving superior results, said Moulton, who added that policy requires every PEO and Deputy Assistant Secretary of the Army to have a full-time CPI Director and Master Black Belt on staff.

"We have about 55 percent of the required positions filled. And we have about 50 percent of the organizations exceeding their targets. If the other 50 percent of the organizations got more fully engaged, we could double our output. You have to have someone to work it every day, and you have to have the leadership engaged," said Moulton.

LOOKING FORWARD

In an effort to build upon its success and transition to a sustained CPI culture, ASAALT is implementing a new effort to decentralize execution of its CPI/LSS program, as part of a broad strategic plan articulated in August 2011, Moulton said. Each organizational leader is responsible to define, measure, assess, improve, and manage key processes and value stream to customers. A new policy is being staffed to reinforce these management best practices.

Other upcoming initiatives include the Army's mapping of its end-to-end business processes and updating its business enterprise architecture.

"OSD has come up with a business enterprise architecture, and they are flowing

it down to the Army. The Army is now defining its business architecture. Within the Army, there are five Army domains (acquisition; financial management; human capital management; installations, energy, and environment; and logistics), and the acquisition domain is the one that ASAALT has the lead for," Moulton said.

Moving forward, it will be important for domains to successfully interact with one another in order to generate an efficient work flow, Moulton added. For example, the Army is moving to deploy a new, servicewide financial Enterprise Resource Planning system, the General Fund Enterprise Business System (GFEBS), in FY12 (see related article, Page 114). All end-to-end processes will interface with GFEBS in some way, Moulton explained.

"We are currently defining and mapping the ASAALT end-to-end processes. The biggest one is 'Acquire-to-Retire,' which encompasses the entire life-cycle process. We are identifying process owners and asking them to lead their process innovation and performance improvement efforts into the future, in order to sustain a culture of continuous improvement that generates significant improvements every year," Moulton said.

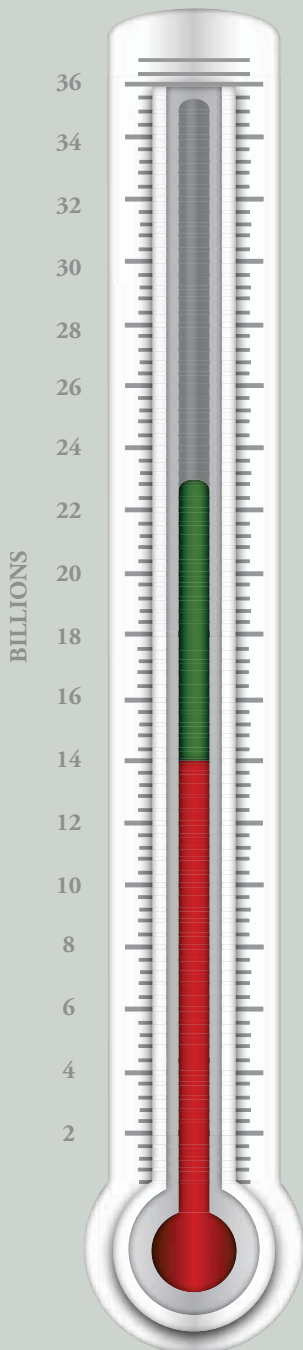
Everyone should be involved in generating improvements every day to meet the challenges of our future Army—every person, every day—she said.

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

COST SAVINGS
\$9
BILLION

COST AVOIDANCE
\$14
BILLION

CURRENT
TOTAL
\$23
BILLION



DOLLARS & SENSE

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

As of Oct. 31, 2011, ASAALT organizations had completed 723 Continuous Performance Improvement (CPI) projects and identified a cumulative \$9 billion in cost savings and \$14 billion in cost avoidance, to be realized over FY07 to FY17. Some examples of successful CPI projects follow:

- **Optimize Overhead (Program Executive Office (PEO) Enterprise Information Systems)**—The project optimized overhead rates by streamlining and/or standardizing program management operations while ensuring that established mechanisms were in place to communicate consistent human capital and organizational planning at all levels of the organization. The project is set to realize a validated net cost avoidance of \$113 million over seven years.
- **Special Tools Accountability Project (Project Manager Joint Combat Support Systems, PEO Combat Support and Combat Service Support)**—Solutions were developed to systemic challenges associated with the accountability of special sets, kits, outfits, and tools. Using Lean Six Sigma tools and techniques, the team identified cost avoidance and savings of \$92 million through reducing inventory management requirements and improving fill rates, inventory control, and accountability with Item Unique Identification requirements.
- **Streamlined Proposal Evaluation Process (Project Office Close Combat Weapon Systems, PEO Missiles and Space)**—The project improved the Javelin missile system technical evaluation process. The team worked with the contractor to reduce both risk and cost by developing a cost model for the command launch unit, training devices, and spares used by the Army, U.S. Marine Corps, and/or Foreign Military Sales customers. The improvement resulted in validated cost savings of more than \$21 million over six years.

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



QUICK THINKING

New facility in Afghanistan aims to develop battlefield solutions faster, with Soldiers' help

by Margaret C. Roth



HANDS ON

The U.S. Army Research, Development, and Engineering Command Field Assistance in Science and Technology Center (RFAST-C) at Bagram Airfield, Afghanistan, has a water jet machining center, a vertical milling center, a lathe, a press brake and shear, two saws, a welding station, and a wealth of ancillary tools, raw materials, and equipment, bringing an unprecedented engineering design, fabrication, and integration capacity to theater. Here, Engineer Technician George Van Why uses the hand grinder at the RFAST-C shop in September 2011. (Photos by PFC Zackary Root.)

The Army has established a new research, development, and engineering center in Afghanistan to address Soldiers' capability needs more quickly by getting potential solutions for Soldiers in theater into the lab and out into the field to help defeat the enemy.

With the standup of the Field Assistance in Science and Technology Center (RFAST-C) at Bagram Airfield, the U.S. Army Research, Development, and Engineering Command (RDECOM) is developing a collaboration cell in which the various capability providers, such as the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT), U.S. Special Operations Command (USSOCOM), RDECOM, the Defense Advanced Research Projects Agency (DARPA), the Joint IED Defeat Organization, and the Rapid Equipping Force (REF) can pool their expertise with direct input from Soldiers, said RFAST-C Director LTC Alan Samuels.

This Tech Village concept dates to May 2010, when USSOCOM Science Advisor Bill Shepherd presented it to MG Nickolas G. Justice, RDECOM Commanding General (CG). Justice pursued the establishment of a Prototype Integration Facility in theater, receiving the approval that fall of U.S. Army Materiel Command (AMC) CG GEN Ann E. Dunwoody and Dr. Malcolm Ross O'Neill, the ASAALT at that time. On Jan. 20, 2011, AMC established the RFAST-C in the 401st Army Field Support Brigade area of operations at Bagram Airfield. Three engineers from three Research, Development, and Engineering Centers—Tank-Automotive, Communications-Electronics, and Armaments—deployed into theater to bring the RFAST-C to initial operational capability on April 1.

PORTAL TO INNOVATION

Soldiers who present novel solutions to technical challenges that they face on the battlefield are nominated for the Soldier Greatest Invention Awards by RDECOM (see related story, Page 83). Last year, the command identified a Soldier who cleverly constructed a culvert grate out of common materials to mitigate insurgents' use of culverts to emplace IEDs.

The RFAST-C has worked with RDECOM Headquarters to develop a Soldier Technology Suggestion Portal as a forum for Soldiers to post their feedback on equipment and capability challenges that they encounter in executing their missions. Due to the sensitive nature of battlefield technologies, the portal is a controlled-access classified information system. For instructions on how to access the Soldier Technology Suggestion Portal, go to <http://www.rdecom.army.mil/STSP/index.html>.

The RFAST-C has established a Soldier-Engineer interface that fosters the exchange of information between Soldiers and materiel developers to better and more quickly understand and address the shortfalls in capability that Soldiers identify, Samuels said. It also has established the intellectual capital on the front end to design and implement solutions to these gaps. The result will be a clearer understanding of the situation, equipment, and circumstances in which the solutions are used, Samuels said.

ACCELERATING SOLUTIONS

Faster response to capability needs is the principal line of effort (LOE) for the RFAST-C. "When a problem is identified that justifies an urgent operational need, the RFAST-C engineers can start designing and integrating solutions while the operational needs statement, joint urgent operational needs statement [JUONS], or 10-liner documentation is submitted and vetted for approval and resourcing," Samuels said. "When the formal requirements process has run its course, an engineered solution is available for fabrication and delivery to the unit in need."

The deployed engineers have a host of specialized machining tools at their disposal, Samuels said. The RFAST-C has a water jet machining center, a vertical milling center, a lathe, a press brake and shear, two saws, a welding station, and a wealth of ancillary tools, raw materials, and equipment. "These deliver an unprecedented engineering design, fabrication, and integration capacity to theater," Samuels said. "They empower the RFAST-C engineers and technicians to design and fabricate just about any piece of hardware that Soldiers can dream up."

Based on the Soldiers' feedback, the RFAST-C specialists can troubleshoot problems, implement suggestions for improvement, and manufacture new parts for the equipment. "The advantage of this is speed," said Jim Granitski, a Mechanical Engineer for RDECOM. "We are here to support the Soldier. Any part, whether it's big or small, whether it's a tank part or gun part, anything—if it comes in the door, we will help find a solution to the problem," he said.

"Soldiers go out with units and find out the good, bad, and indifferent about those items," said SGM Matthew DeLay, the Noncommissioned Officer in Charge

of RFAST-C. “Soldier ingenuity and innovation are the driving force for RFAST-C projects.”

DeLay continuously combs the Combined Joint Operations Area (CJOA) for ingenious and innovative approaches that Soldiers apply to problems that they encounter. He then brings these innovations back to the laboratory. Soldiers also volunteer ideas directly.

Many Soldier requirements that are vetted through the REF are being acted upon by RFAST-C engineers, including the fabrication of specialty tools that will enable Soldiers to interrogate suspicious items at or near the surface of the ground from a standoff distance, Samuels said. Whereas the REF typically must find commercial-off-the-shelf items to address Soldier-identified requirements, the RFAST-C specialty fabrication capability allows for items to be tailored to the mission, he said.

ADDITIONAL LINES OF EFFORT

Other LOEs for the RFAST-C include enhanced definition of Soldier requirements, Materiel Enterprise synchronization, counterinsurgency support and capacity enhancement for Afghan institutions, and development of technologies to counter improvised explosive device (IEDs).

RFAST-C engineers are working with Task Force Paladin to define the language and requirements for a JUONS statement that defines a theater-wide concern about certain insurgent tactics, techniques, and procedures that threaten Coalition forces. In parallel with this engineering contribution, the RFAST-C Director and engineers, in collaboration with Paladin, DARPA, and other involved organizations, are working toward materiel solutions to the threat, to accelerate the availability and readiness of technology.



DIGITAL DIMENSION

Jim Granitzki, a Mechanical Engineer at RFAST-C, uses the digital laser scanner to place a 3-D image of an item in the computer system, allowing him to manipulate and modify the item for production in September 2011.

Also, as a direct result of the intellectual capital it has brought to theater, the RFAST-C has been supporting the Office of the Secretary of Defense Operational Energy Plans and Programs Office in the deployment and operation of a smart micro-grid at a camp within Bagram Airfield.

The RFAST-C published a report, in cooperation with RDECOM experts in power and energy, that describes several initiatives to be layered onto the camp to demonstrate energy-efficient technologies, such as improved air-conditioning units and tent shades and quilts. The RFAST-C report came to the attention of the REF, which has an initiative for energy

efficiency called “Energy to the Edge” (E2E). A critical component of the E2E initiative involves a survey of operational energy consumption at small, remote combat outposts and forward operating bases throughout the CJOA, and the RFAST-C is contributing to that effort through battlefield circulation missions.

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



COMMENTARY

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

CHANGING THE ACQUISITION PARADIGM

We place the highest possible premium on delivering the best available equipment and technology quickly to Soldiers in combat—that's the essence of our mission. In recognition of the budget constraints in today's increasingly pressured fiscal environment and the need for a more agile acquisition process, the Army is vigorously immersed in a series of acquisition improvements designed to work more closely with industry and to best expedite the development of new capability for Soldiers. Simultaneously,

we are emphasizing clearly defined cost and schedule parameters, and we are willingly looking in-depth at requirements.

Strategically, our Army is changing its paradigm for executing acquisition and is working diligently to build on its successes. We are harnessing lessons learned and are codifying important enhancements to processes and procedures.

The thrust of this effort hinges on a new methodology for acquiring and developing technologies, an approach grounded

in efforts to work with industry to better synchronize requirements, resources, and acquisition practices at the front end of the process. This helps to minimize developmental risk and to reduce cost and schedule overruns, and allows us to better harness the most promising emerging technologies for the benefit of our Soldiers in combat on the Front Lines of Freedom!

REFINING REQUIREMENTS

A key part of this approach is squarely centered on the need to work closely with our industry partners to at times refine or adjust requirements early in the process, in some cases "trading off" capability in order to lower costs; this also hinges on an ability to remove unnecessary requirements in some instances and to fully align requirements with available, technologically mature solutions.

This effort involves a shift in the acquisition culture, encouraging program managers, program executive officers, the Army Staff, and the U.S. Army Training and Doctrine Command community to challenge and refine requirements, appropriately align resources, and seek an acquisition strategy that quickly delivers capability at an acceptable risk. Collectively we must place strong emphasis on what is achievable and affordable.

SPIDERS IN THE NETWORK

The XM-7 Spider Networked Munition with attached claymores was tested at White Sands Missile Range, NM, in June 2011 as part of the first Network Integration Evaluation (NIE). The concept was to allow dismounted units evaluating the Spider to share key information across the force in real time. (Photo by SPC Sinthia Rosario.)



Perhaps of greatest importance, the success of this effort rests on the ability to solicit valuable feedback from our industry partners and to draw from their expertise regarding how best to analyze requirements, make trade-offs, and therefore reduce costs. If there is a requirement that does not make sense for a given platform, we want our expert industry partners to weigh in and let us know their thoughts on how to improve the system. The Army's ongoing efforts to work closely with industry partners are also aimed at improving the acquisition process so as to emphasize technological maturity and focus on achievable, cost-informed goals.

As we have experienced numerous times, this process may include the need to make certain requirements trade-offs to reduce cost and maintain program schedule parameters. To be successful, we must change our previous assumptions on how we execute key events like Industry Days, in order to seek greater senior leader participation and more effective dialogue.

In fact, this collaborative effort is already underway in some of our large-scale programs, such as the Joint Light Tactical Vehicle (in full partnership with the Marines) and the Joint Tactical Radio System Ground Mobile Radio programs, ensuring that we are developing important new capability for Soldiers and are using taxpayer dollars wisely through an examination of unnecessary requirements.

BUILDING ON SUCCESSES

Changing the paradigm along these lines implicitly encourages us to build upon and institutionalize our many acquisition successes. The Army has learned to be adaptive over the last 10 years of war and has often adjusted its acquisition practices to meet urgent wartime demands in the face of a rapidly changing threat. We can

take advantage of these processes and seek to improve. In short, we do both rapid and deliberate acquisition very well, and we can learn from both!

The notion or claim that the Army has not successfully developed or acquired major systems since the big five in the 1980s is, simply stated, an inaccurate "myth." We've rapidly delivered thousands of systems and currently have more than 600 programs in either development or production.

The best example of rapid acquisition might be MRAPs and M-ATVs that were delivered in 12 and 15 months,

respectively; both were engineered to improve Soldier protection. In addition, there are now hundreds of unmanned aerial systems in the fight. We have upgraded our body armor nine times, and it remains the very best in the world today. We've made more than 60 improvements to the M4 Carbine, which is simply a world-class weapon.

In January 2010, the combat-proven, blast-deflecting Stryker Double-V Hull was a drawing that LTG Robert P. Lennox, Deputy Chief of Staff, G-8, and I first saw on a PowerPoint chart. Today we have nearly 200 systems in the fight saving Soldiers' lives—an enormous improvement!

REDUCING REQUIREMENTS

Collaboration between the Army and industry has identified opportunities to reduce requirements and cost for the Joint Tactical Radio System (JTRS). Here, LTC Mark Stiner (left), Product Manager JTRS Handheld, Manpack and Small Form Fit, shows GEN Peter W. Chiarelli, Army Vice Chief of Staff, how to operate part of the JTRS during a training event with paratroopers from 1st Battalion, 505th Parachute Infantry Regiment, 3rd Brigade Combat Team (BCT), 82nd Airborne Division, at Fort Bragg, NC, in March 2011. (U.S. Army photo by SSG Joshua Ford, 3rd BCT Public Affairs.)



The precision-guided munitions today give combatant commanders more options in battle; the M855A1 continues to garner tremendous feedback from Soldiers in combat.

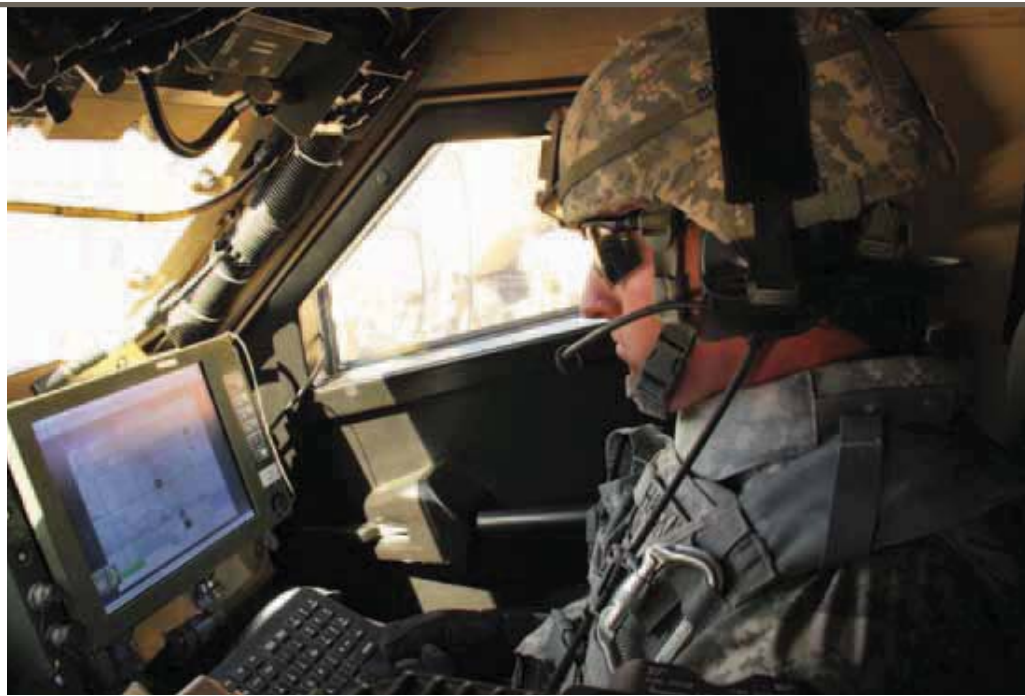
Most important, we have worked with our industry partners to design, build, and deliver these products and systems. Industry feedback remains very important.

Further, we are developing critically important new communication technologies, such as the software-programmable JTRS, Warfighter Information Network-Tactical, a mobile SATCOM network, and Joint Battle Command-Platform, an improved force-tracking technology. The Army's network is our most important program, and the reason that we're focusing tremendous energy and resources into perfecting the network at White Sands Missile Range, NM.

Other acquisition successes include the Army's fielding of a new MultiCam combat uniform for Soldiers to help them blend into the surrounding Afghan terrain when they stop moving. Also, the Army has implemented major modernization of its aircraft, including the Apache Block III next-generation attack helicopter, Chinook "F" model cargo helicopter, and the Black Hawk "M" utility chopper. More than 500 aircraft are flying downrange at historically high readiness rates.

AGILITY MEETS INNOVATION

At the same time, the Army is conducting an ongoing series of Network Integration Evaluations, a strategy that seeks to create a more agile acquisition process and to capitalize upon innovative talents within the Army and its industry partners, and so blend formal programs of record with promising commercially available technologies that can bring new capability to the force.



TESTING TECHNOLOGIES

The NIE is designed to ensure that the Army's network employs the most advanced technologies available and that they are tested in realistic scenarios before being issued to Soldiers downrange. Here, a 2nd Brigade, 1st Armored Division Soldier demonstrates Warfighter Information Network-Tactical Increment 2 and Mission Command on-the-move applications during NIE 12.1 at White Sands Missile Range, in November 2011. (Photo by Katie Cain, System of Systems Integration Directorate Public Affairs.)

The NIE is designed to connect a host of technologies, systems, and sensors to one another through a tactical battlefield network. For instance, during the first NIE in June and July 2011, technologies such as the anti-personnel Spider munitions system were networked across the force using radio technology.

Future increments of the system will incorporate anti-vehicle and anti-tank munitions capability. With this next step, the plan is to leverage software-programmable radio technology called Handheld Manpack Small Form Factor JTRS. The idea is to allow dismounted units evaluating the Spider to share key information across the force in real time and to ensure that there is always a "man in the loop" when it comes to activating or deactivating the munitions capability that is central to the system. In this scenario, the information from the munition field where a Spider is

emplaced can be transmitted seamlessly to the Army's Battle Command System.

The NIE is key to ensuring that the Army keeps up with technology and can leverage the latest in commercial technological innovation where appropriate. PEOs and PMs are critical to the NIE success!

CONCLUSION

Overall, through initiatives like the ongoing NIE process and numerous planned Industry Days for many of our major programs, we hope to work hand in hand with our industry partners, challenging them at times to help us refine requirements and lower costs—all the while working as a unified team to provide our Soldiers with the best technologies available.

Thank you for what you do every day for our Soldiers, our Army, and our Nation—you are making a difference!

MODERNIZATION: WHERE THE ARMY WENT WRONG

by Dr. Loren B. Thompson

Armies at war are not noted for frugality or vision on the home front. When Soldiers' lives are on the line, their needs are met first and military leaders worry about other matters later.

But the fact that America's Army has been at war for 10 straight years—much of that time on multiple fronts—doesn't fully explain what went wrong with the modernization of Cold War weapons inventories during the first decade of the new millennium.

The service proved it could meet the needs of Soldiers under fire fast as long as it had access to endless amounts of money. Efforts to respond to urgent challenges, such as improvised explosive devices, unfolded with impressive rapidity, and the force proved it was capable of adapting despite being chronically overextended.

But meanwhile, plans to equip the "Army After Next"—the force of the future—made little progress, exhibiting about as much rigor as the Ottoman military, circa 1913. What went wrong?

UNSTABLE REQUIREMENTS

The problem wasn't lack of money. Under the Bush administration, the Army's base budget increased steadily despite the fact that the cost of overseas contingencies was covered separately by emergency supplemental appropriations. The real problem, it seems, lay in a failure to anticipate how threats were changing and to identify a stable set of requirements to guide long-term modernization plans.

This is the precise opposite of what happened in the early post-Vietnam era, when

AVIATION MOVES FORWARD

The Army's aviation assets have weathered past modernization mistakes well, Thompson believes, with "a lot of life" left in the Apache, Black Hawk, Chinook, and Kiowa helicopters and the Army dedicated to continuing incremental improvements to the fleet. Here, an AH-64D Apache Longbow lands after demonstrating its capabilities in the Manned Unmanned Systems Integration Capability Exercise conducted at Dugway Proving Ground, UT, in September 2011. (Photo by SPC Latoya Wiggins.)



the Army decided its main focus should be fighting the Red Army in Europe. The service organized its modernization plans around five new systems—Abrams, Bradley, Apache, Black Hawk, and Patriot—and then stuck with them across multiple administrations despite the constant attacks of critics.

It helped that there was no big war going on to distract planners and that the Reagan administration threw money at the Pentagon the same way that George W. Bush's White House one day would, but the Army could easily have given in to changing fashions as the Cold War waned. It didn't, though; it stuck with the "Big Five," which still constitute the core of its conventional warfighting capability.

But that was the last time the Army successfully implemented a broadly based modernization agenda. After the 1990s, service plans were repeatedly confounded by changing threats and requirements.

The first big setbacks came during the early years of George W. Bush's presidential tenure, when a future self-propelled howitzer called Crusader and then a next-generation armed reconnaissance helicopter called Comanche were both killed. Crusader was laid low by a \$25 million unit cost and the feeling that it was too heavy to deploy quickly—a big issue in the aftermath of the latest Balkan war. Comanche was terminated because, although it was much more futuristic, it was way off schedule and over budget.

By the time Comanche—sometimes described in Army circles as the "quarterback of the digital battlefield"—was killed in 2004, the service had moved on to an unrestrained embrace of the information revolution. The centerpiece of the new modernization agenda was called the Future Combat System, a family of 18 air



PROMISING DEVELOPMENTS

Thompson sees the Army learning from past lessons in modernization planning, as witnessed in the ongoing series of Network Integration Evaluations (NIEs). Pictured are Soldiers from the 2nd Brigade, 1st Armored Division at a company outpost Nov. 2, 2011, during the Army's second Network Integration Evaluation, NIE 12.1, at White Sands Missile Range, NM, and Fort Bliss, TX. The NIEs are helping bring greater network connectivity to the company level so that Soldiers can communicate through voice, data, images, and video, even in challenging terrain. (Photo by Claire Schwerin, Program Executive Office Command, Control, and Communications-Tactical.)

and ground vehicles (both manned and unmanned) supported by a wireless battlefield network of unprecedented capacity.

The Future Combat System was supposed to address a slew of operational challenges the Army faced, such as the need for greater agility and survivability, by collecting and disseminating vital information around the battlefield at the speed of light. Unfortunately, it reflected the same hubris that infected other Bush-era networking initiatives such as the Transformational Communications Satellite and the Joint Tactical Radio System. Secretary of Defense Robert M. Gates canceled it in 2009, mainly over concerns that it failed to provide adequate force protection in its bid to develop more agile vehicles.

There were so many things wrong with the Future Combat System in retrospect that it's amazing the program stayed on track as long as it did. First, its concept of operations was being falsified on a daily basis by the wars in Iraq and Afghanistan.

Second, its success depended on pulling off the grandest network integration project in human history. Third, the price tag was correspondingly imposing, requiring hundreds of billions of dollars over a period far exceeding the attention span of the political system.

But that was only the biggest acquisition failure of the new millennium. The Army also managed to cancel both of its next-generation air defense weapons when threats failed to evolve as expected; its planned successor to Crusader; its planned successor to Comanche; and a replacement of Cold War signals intelligence planes. Regrettably, each program expended substantial funds before being killed.

SIGNS OF LEARNING

Since there is no cash award associated with being the millionth person to remind Army leaders of how much money they wasted over the past 10 years on programs that were subsequently canceled, I will simply observe that the service finally

seems to be learning the lessons of past failures in its restructuring of new vehicle programs and its novel approach to the Network Integration Evaluation.

In the case of the vehicles, requirements have been scaled back to promote affordability, and in the case of the network evaluation, the service is allowing testing results rather than fashionable ideas to drive its decisions. Acquisition personnel need to pay closer attention to whether the terms they are offering industry provide adequate incentives to sign on, but the way the service is approaching recent modernization initiatives suggests that a learning process has occurred.

Fortunately, the aviation part of the modernization agenda has not been severely

impacted by past mistakes, since Apache, Black Hawk, Chinook, and Kiowa still have a lot of life in them. Incremental improvements look like the wave of the future when it comes to the helicopter fleet. But the ground vehicle and tactical communications components of the modernization plan will be in recovery mode for a long, long time.

With the availability of weapons funds likely to plummet in the years ahead, it is crucial that Army planners settle on a handful of core requirements and programs for the future force and stick with them, the same way the service did with the Big Five after Vietnam. The time for big ideas is over in Army acquisition, and the key values going forward should be discipline and rigor. Hopefully the

winding down of overseas wars will make it easier for the service to focus on what's left of its long-term modernization program in the years ahead.

Thompson's first article on this topic, "How The Army Missed Its Chance To Modernize," appeared in Forbes Magazine in September 2011. Read the article here: <http://www.forbes.com/sites/beltway/2011/09/27/how-the-army-missed-its-chance-to-modernize>.

DR. LOREN B. THOMPSON is Chief Operating Officer of the nonprofit Lexington Institute and CEO of Source Associates, a for-profit consultancy. Thompson holds a B.S. in political science from Northeastern University, and master's and doctoral degrees in government from Georgetown University.



{ AWARD-WINNING SUPPORT }

The U.S. Army Acquisition Center (USAASC) won three awards in the 2011 MarCom Awards program, including one platinum award, the competition's highest honor.

- The Platinum Award went to *Army AL&T Magazine* in the Magazine/Government category.
- The Gold Award went to *Army AL&T Magazine* in the Design (Print)/Magazine Cover category.
- An Honorable Mention went to the Access AL&T online news service in the External Newsletter/Government category.

The MarCom Awards are an international competition, judged by the Association of Marketing and Communications Professionals, to recognize outstanding creative achievement by marketing and communication professionals. More than 6,000 entries from across the world were submitted this year, with winners selected from more than 200 categories in seven forms of media.

USAASC's publications are available online at <http://asc.army.mil>.



CONFERENCE CALL

AUSA 2011 ANNUAL MEETING AND EXPOSITION

From doing more with less to doing less with less, the challenges facing the U.S. Army and its stakeholders have evolved significantly over the past year with the end of operations in Iraq, continued conflict in Afghanistan, diverse threats on the horizon, and severe fiscal constraints at home. The Army, including its Acquisition, Logistics, and Technology Workforce, is well poised to meet these challenges.

That was the prognosis that emerged from the Association of the United States Army 2011 Annual Meeting and Exposition, held Oct. 10-12 in Washington, DC.

This changing environment “is more challenging now than ever before,” said Heidi Shyu, Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) and Army Acquisition Executive. “It’s very important that we collaborate and work together as a team, because acquisition is not a solo sport. It is a team sport; you cannot do it alone.”

“Today’s Army is far more experienced, far more adaptable, better equipped, and more lethal than it was 10 years ago,” said Secretary of Defense Leon E. Panetta. Now “we must set about the difficult but critical task of building the military this country will need now and in the future.

We cannot afford to render null and void the hard-learned lessons of the last 10 years of war, we cannot afford to ignore the essential capabilities that we have let lapse in the past, and we absolutely cannot allow budget pressures to force the services into parochialism and program survival mode.”

The Joint Select Committee on Deficit Reduction, a 12-member group tasked to find \$1.5 trillion in deficit reduction over the next 10 years, failed to identify cuts, triggering a process whereby DoD would get automatic budget cuts, or sequesters. Panetta called sequestration “this goofy meat-axe approach, [which] would force across-the-board salami-slicing cuts of the worst kind. It would hollow out the force; it would leave our military deficient in people, in training, and equipment, and unable to adapt when that next security challenge comes along.”

That next challenge could call for a wide variety of responses, including counter-insurgency operations, security force assistance, counterterrorism, or combined arms maneuver. The Nation needs an expeditionary Army “that can deter any potential aggressor,” Panetta said.

“In the past, during periods of austerity, we’ve said, ‘We will have to do more with

less.’ As we move ahead under significant budget restrictions, we’ll have to do less with less,” said GEN Raymond T. Odierno, Army Chief of Staff. At the same time, “The Army must develop a versatile mix of capabilities, formations, and equipment that allows us to be a flexible force in the future that provides agility, adaptability, deployability, and depth to the Joint Force.”

The Army, which represents half of the Nation’s entire force, provides 50 to 70 percent of deployable forces, yet consumes only about 25 to 30 percent of the entire defense budget, noted Secretary of the Army John McHugh. “What’s critically important is, no matter what the force ultimately looks like, we have sufficient time to ramp down, to ensure that we do it in a balanced way, that we have what is necessary for training, equipment, and reset,” McHugh said. Most important, “We continue to stand by [our] troops.”

For links to webcasts of more than a dozen forums, go to <http://www.army.mil/article/66955>. Videos of select speeches are available at <http://www.ausa.org/meetings/2011/annual/Pages/Videos.aspx>.

—Margaret C. Roth





SEEKING A LIGHTER LOAD

One of the top five near-term priorities for Army science and technology spending is to reduce the weight that Soldiers must carry, particularly in already difficult terrain. Here, members of 3rd Battalion, 66th Armor Regiment, Task Force 2-28, 172nd Infantry Brigade begin their descent off of "Big Nasty," a mountain near Forward Operating Base Tillman, Sept. 7, 2011. (Photo by SPC Ken Scar.)

ACQUISITION PLAYBOOK

Key players in 'team sport' discuss positions and priorities

by Margaret C. Roth

With the growing recognition that acquisition is a "team sport," senior leaders from participating Army organizations shared their perspectives on how to prevail in these challenging times, during the Association of the United States Army (AUSA) 2011 Annual Meeting and Exposition in Washington, DC.

"One of the key things that we have found works well for us is early and continuous coordination" among the requirements, acquisition, budgeting, logistics, sustainment, and science and technology (S&T) communities, said Heidi Shyu, Acting Assistant Secretary of the Army

for Acquisition, Logistics, and Technology (ASAALT) and Army Acquisition Executive, during a forum Oct. 11 titled "Responsible and Agile Modernization for the Force of Decisive Action."

In another important step toward success, the Army has institutionalized better buying power initiatives. ASAALT conducts monthly program reviews with program executive officers (PEOs), Shyu said. The reviews look at immediate issues, such as types of contract, cost, schedule, and performance, as well as long-term planning. Each PEO now reports cost savings and avoidance on a regular basis (see related articles on Pages 135 and 138.)

"We are changing a culture. We're focusing on teamwork and collaboration as never before," Shyu said. "We're focusing on affordability, efficiency, not just within one organization but across multiple organizations. ... Instead of looking at one program at a time ... we're looking across the portfolio: Do we have a balanced portfolio? Do we have the right capabilities at the right cost? If it's not at the right cost, perhaps we can't afford it."

"We're focusing on S&T, on solving Army-unique problems. ... We're focusing on increasing efficiencies in depots and arsenals. ... We're focusing on streamlining logistics. We're building tools to help us track all of our items."

Industry plays a key role in this climate of collaboration, Shyu said. “We’re trying to communicate more—be a lot more transparent and open with industry—to understand what we can do better.”

During the modernization and other AUSA forums, senior leaders looked at where the Army will be focusing its acquisition efforts, as budgets are cut across the board.

ESTABLISHING PRIORITIES

For the Army, the \$450 billion in anticipated DoD-wide spending reductions over 10 years mean cuts of \$12 to 14 billion per year, said LTG Robert P. Lennox, Deputy Chief of Staff, G-8. “You can’t draw down your end strength fast enough to offset those cuts. So the brunt of those cuts will come in modernization and training accounts,” he said.

“It’s just math. It’s not scientific. It’s not something we want to do. It’s something, given the numbers, that will likely happen,” Lennox said. At the same time, “We can’t forget that we have Soldiers in combat today. ... We have to equip them for the current fight, and we have to make sure they have the best equipment in the world. And as a team, I think we have done a magnificent job of that. We can’t stop.”

The service will be guided in its spending by the *Army Modernization Plan 2012* (online at <https://www.g8.army.mil>), and by what Lennox called his “seven commandments of a budget-constrained environment” for the Army:

1. Set priorities and stick to them, applying funding cuts first to lower priorities.
2. Revalidate and adjust requirements as needed, and avoid requirements creep.
3. Ensure that affordable requirements are examined at the portfolio level and prioritize within portfolios, a

team effort of U.S. Training and Doctrine Command (TRADOC) and ASAALT.

4. Use affordability as an independent variable; understand how a program fits in the overall portfolio of Army programs, and make sure costs are constrained.
5. Eliminate redundancies and inefficiencies.
6. Leverage mature technologies and commercial-off-the-shelf products.
7. Manage procurement quantities to the pace of modernization; field the latest technology and capability sets that can be modernized and built while fielding the systems over time.

The Army has intensified its efforts to make S&T investments responsive to the current fight with a new, collaborative process of identifying high-priority problems on which S&T needs to focus. “Where we really need to apply that is at the small-unit Soldiers, the boots-on-the-ground level,” said Dr. Marilyn M. Freeman, Deputy Assistant Secretary of the Army for Research and Technology. Freeman said that in her 32 years in the S&T arena, “every time I’ve seen money go down, the first billpayer has always tended to be S&T. And we know that that’s probably not the right answer in this environment.”

Army S&T, with the support of senior leadership, has established a set of seven “Big Army” problems, with 24 specific challenges they pose (online at <https://www.alt.army.mil/portal/page/portal/oasaalt/SAAL-ZT>.) “We know we can’t solve these problems all by ourselves in S&T,” Freeman said, but rather in partnership with TRADOC and the G-8, among other organizations.

Freeman has committed to identifying funding to address the biggest challenges. The Army laboratories and centers “have

to make decisions within their existing budgets,” she said. “Now that we have S&T priorities, we can go back and we can have a standard to ask ourselves, ‘Is this investment really important?’ ... This is a process that we will do every year.”

RESPONSIVE REQUIREMENTS

The requirements community, similarly, has adjusted its priorities to make product development more flexible and responsive to Soldiers’ needs, and continues to do so.

“We’ve been changing as we go,” said LTG Keith C. Walker, Deputy Commanding General, Futures and Director, Army Capabilities Integration Center in TRADOC. “We now write concepts every two years to try to adjust for the changing environment that we face. ... We’ve started the effort of not being so over-prescriptive, not boxing ourselves in the corner—to establish requirements that have open architectures, so that you can purchase a first increment of a particular capability and have room to improve that over time.

“If it’s robotics or it’s something that’s high-tech, a network item, if you tried to buy for the whole Army, by the time you did, it would be obsolete before you got 10 brigades fielded,” Walker said. So, in concert with U.S. Army Test and Evaluation Command and the System of Systems Integration Directorate, TRADOC takes an incremental approach, “to purchase those most essential capabilities in the priority of those units that need it, and then, for the next brigades that deploy in ARFORGEN [the Army Force Generation process], to get them the next best solution.”

“The most important lesson I think I’ve learned is, the faster you get a capability in the hands of a Soldier in the field, in an operational environment—along with the engineer that developed that capability,



“YOU CAN’T DRAW DOWN YOUR END STRENGTH FAST ENOUGH TO OFFSET THOSE CUTS. SO THE BRUNT OF THOSE CUTS WILL COME IN MODERNIZATION AND TRAINING ACCOUNTS.”

a training developer, a materiel developer, a combat developer—the better you stop doing things that are stupid, or you advance things with real potential.”

THE AGILE PROCESS

At the epicenter of the Army’s adoption of a faster, more adaptive and responsive capability acquisition process is the semiannual Network Integration Evaluation (NIE) at Fort Bliss and the adjacent White Sands Missile Range, NM.

In a realistic training ground larger than Fort Bragg, NC, Fort Hood, TX, and the National Training Center at Fort Irwin, CA, combined, the Army can evaluate materiel capabilities, organizational capabilities, and possibly training capabilities, Walker said, by putting them in the hands of Soldiers in a brigade operational context and in both wide-area security and combined arms maneuver environments.

The NIE’s potential for agility goes beyond formal tests for programs of record, Walker said. “What if you just want to look at something? ... We call that a system under evaluation and determine whether or not we want to continue with it. You save a lot of time, money, and effort that way.”

The Nett Warrior system, an integrated situational awareness tool being developed by PEO Soldier for dismounted leaders’ use in combat, is a prime example of the NIE’s benefits, said COL(P) John B. Morrison Jr., Coordinator, LandWarNet/Battle Command in the Office of the Deputy Chief of Staff, G-3/-5/-7, during

a forum Oct. 11 titled “LandWarNet: Powering America’s Army.”

Soldier feedback on Nett Warrior during the first NIE said that it was based on the wrong requirements, Morrison said. Within two months, the Army formally revised the requirements. Two years ago, the Army would have fielded the uncorrected version without benefit of that early Soldier feedback, Morrison said. “That’s what the NIE’s all about,” he said.

Nett Warrior is also an example of how requirements, fiscal realities, the commercial industry, and operational changes can converge for the betterment of Soldier equipment, said BG(P) Camille M. Nichols, Program Executive Officer Soldier. Speaking during a forum Oct. 11 titled “The Squad: Foundation of the Decisive Force,” Nichols said, “We’re going to continue to analyze what we’ve fielded right now and continue to shape that into the best situational awareness tool that we can get to the squad leader and above.”

“... Dialogue with industry is important throughout the process. We can’t just wait until we are looking for a particular solution to begin to engage with industry,” said Donald Sando, Director, Capabilities Development and Integration Directorate, U.S. Army Maneuver Center of Excellence, during the same forum.

Annual or semiannual engagements, such as the typical Industry Days, are not enough, Sando said. “There has to be continuous dialogue. ... Industry can not

only help us find the solution set that’s out there, but help us also understand ...the challenges we face.

“We may not be able to precisely tell [industry] where we are going in the future, but if we can describe the axis of modernization that we want to move to, then that allows everybody who is interested in it to spend some time and resources toward a solution,” he said.

CONCLUSION

Success in the current climate is about collaboration, said LTG William N. Phillips, Military Deputy to the ASAALT and Director, Acquisition Career Management. “We have to take advantage of every tax dollar that we get from the American public,” he said during the modernization forum. “That requires PEOs and PMs to work with the TCMs [TRADOC capability managers] and the TRADOC community, and to make sure that we get it right for our Soldiers.

“We must go into programs knowing the maturity of our systems and fill some capabilities Soldiers can use quickly, and then ... incrementally build. This is about doing the right thing for Soldiers.”

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

ENERGY ALTERNATIVES

Army focuses on Soldier, basing,
and vehicle power improvements

by Brittany Ashcroft

“There is a momentum in the Army to recognize and change our approach around power and energy,” said Richard G. Kidd IV, Deputy Assistant Secretary of the Army for Energy and Sustainability, Oct. 11, 2011, at the Association of the United States Army Annual Meeting and Exposition in Washington, DC. “[There] is a commitment from the Army’s seniormost leadership to make energy security a priority. It’s fiscally responsible, operationally necessary, and mission-critical.”

GOING FOR NET ZERO

This 2-megawatt solar panel array at Fort Carson, CO, produces enough power for 540 homes. The Army chose Fort Carson and Fort Bliss, TX, from among many volunteers to pilot its Net Zero project, whereby renewable technologies supply an installation’s energy needs. The two installations aim to be Net Zero in three major areas of focus by 2020, with other installations working to be Net Zero in only one or two categories by 2020. (U.S. Army photo.)

When the Army examines power and energy, there are three components: Soldier power, basing power, and vehicle power, said Katherine Hammack, Assistant Secretary of the Army for Installations, Energy, and Environment.

From working toward Net Zero on Army installations—whereby renewable technologies supply the installation’s energy needs—to lightening the Soldier’s battery load and improving vehicle fuel efficiency, the Army’s efforts to improve its use of power and energy are widespread.

POWERING SOLDIERS

One of the Army’s main concerns is providing Soldier power.

Capturing energy is an important aspect of this, said MG Nickolas G. Justice, Commanding General (CG), U.S. Army Research, Development, and Engineering Command (RDECOM). “If you want to speed your maneuver, deliver more accurate fires, and be able to communicate, you have got to unburden units and Soldiers from having to spend most of their time maintaining and sustaining themselves on the battlefield,” he said. “Everything is a conversion of energy, and so we are interested in everything that can capture a conversion of some kind of energy stored to some kind of energy in motion.”

Renewable energy sources are a key component of ensuring that U.S. Soldiers remain lethal and capable, Hammack said. “They’re [Soldiers] well-equipped, but with that equipping comes a heavy power load,” she added. “Our Soldiers right now, when they deploy, carry as many as 74 different kinds of batteries, ranging from the size of an eraser all the way up to the size of a brick.”

Justice added that energy is wasted when Soldiers carry heavy batteries because

their value to the Soldier is in power, not weight, which requires more human energy to carry.

RDECOM is also looking into the development of high-density and conformal batteries, Justice said. Rather than a brick-like battery carried on a Soldier’s side, conformal batteries are incorporated into a Soldier’s body armor so that the batteries become part of the equipment rather than an additional piece.

NET ZERO ENERGY

“The cornerstone of basing power is Net Zero,” Hammack said. Net Zero focuses on reducing the amount of energy and water used on installations, as well as how waste is handled, so that the installation produces only as much energy as it uses; limits the consumption of fresh water and returns it to the same watershed; and reduces, reuses, or recycles waste streams.

The Army asked for volunteers to pilot the Net Zero project and received an overwhelming response, Hammack said.

Officials selected Fort Carson, CO, and Fort Bliss, TX, to be Net Zero in all three focus areas by 2020, with other installations working to be Net Zero in only one or two categories by 2020.

Fort Bliss is hoping to beat the 2020 goal, setting a goal of Net Zero in energy by 2015 and Net Zero in water and waste by 2018, said MG Dana J.H. Pittard, CG, 1st Armored Division, Fort Bliss. “Many people thought [that] was way too aggressive,” he said. “But after we looked at everything we could possibly do, we think it’s more than doable.”

Pittard explained that Fort Bliss is examining the implementation of a 20-megawatt solar facility, a 20-megawatt gas turbine, micro-grids, and a waste-to-energy facility to move toward Net Zero. Fort Bliss is working with local utilities to aid in that effort.

One of the more difficult aspects of Fort Bliss becoming Net Zero in all three areas has been the immense growth the post has

A LOOK INTO THE FUTURE

The Army had several examples of energy-saving technologies on display, including a tent with solar cells and a solar-powered water purifier, during the Association of the United States Army’s Annual Meeting and Exposition in Washington, DC in October 2011. (U.S. Army photo by C. Todd Lopez.)



experienced—the largest expansion of any military post in CONUS since World War II, Pittard said. The growth has made setting a baseline for usage difficult but not impossible, he said. “We’ve got momentum, and we’re going to keep going.”

The methods and lessons learned on permanent installations are helping to improve energy usage in contingency operations as well. “When we focus on energy conservation, energy reduction, and alternative energy, the efforts that we make in our permanent installations have application in theater as well,” Hammack said. “[Those efforts] act directly as a force multiplier, enabling people to spend their time engaged in the conflict versus fueling generators.”

POWER ON THE MOVE

Vehicle power focuses on all Army vehicles—air, ground, tactical, and nontactical—with an eye toward better fuel consumption, thermal systems management, and materials, Hammack said.

“The challenge we’ve had over the last 10 years is really balancing between vehicle protection and offering safer vehicles, and what that does to the performance of the vehicles in terms of mobility,” said Dr. Grace M. Bochenek, Director, U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC). “And then that trickles down to what does that mean in terms of fuel efficiency.”

To address the fuel issue, all new Army vehicle programs have key performance parameters regarding energy expended on the platform in terms of fuel economy, whether in miles per gallon when mobile, or gallons per hour when stationary.

In addition, the creation of the Advanced Vehicle Power and Technology Alliance brings together the Army, the U.S.

Department of Energy (DoE), and industry to combine knowledge, accelerate technology, and commercialize the technology, Bochenek said.

She added that the Army is tackling vehicle efficiency with the use of DoE’s composite fiber program, making the Army the first to use the process of developing a commercial vehicle using carbon fiber material, in addition to heavily examining the use of alternative and synthetic fuels and the impact those fuels have on tactical and combat systems.

Another important program from TARDEC is the Fuel Efficient Ground Vehicle Demonstrator. “[It is] a real key program for us, and it was all about how do we drive and understand energy and energy efficiency on a platform,” Bochenek explained. “Our goal was to improve the M11-14 Humvee by 30 percent.”

That estimation is holding true, Bochenek said, based on a prediction of a 70 percent

increase in fuel economy during vehicle testing at Aberdeen Proving Ground, MD.

In nontactical vehicles, hybrids are a growing trend, said MG Al T. Aycock, Director of Operations, Office of the Assistant Chief of Staff for Installation Management, and formerly Deputy CG and Chief of Staff, U.S. Army Installation Management Command. The Army has “the largest fleet period, but the third-largest hybrid fleet” in the federal government, he said.

Aycock noted that 75 percent of the Army’s medium tactical vehicles are using alternative fuels, and that the Army uses more E85 fuels—an ethanol blend commonly used by flex-fuel vehicles that produces less pollutant emissions such as carbon dioxide—than other federal agencies.

OPERATIONAL ENERGY

Operational energy bridges all three areas—Soldier power, basing power, and vehicle power.

THINKING ELECTRIC

SPC Dean Kalogris, with Headquarters and Headquarters Company, Fort Bliss, TX, charges an electric car. Electric cars are just one of the initiatives that Fort Bliss is taking to achieve Net Zero status. (U.S. Army photo by MAJ Deanna Bague, Fort Bliss Public Affairs.)



“We’ve got the installation side of it; we’ve also got contingency basing, which is an important part of this,” said LTG Raymond V. Mason, Deputy Chief of Staff of the Army, G-4 (Logistics). “It’s kind of like everything is related to everything else.”

Operational energy involves training, moving, and sustaining forces and systems, Mason said. “One of the issues is, does operational energy just include the battlespace and what’s deployed? Or does it include things back in the generating space, the institutional Army?” he said. The latter is true, he said. “For example, actions that occur at the National Training Center or the Joint Readiness Training Center [that] prepare units to deploy [are] part of operational energy.”

Mason said his goal is to “optimize the footprint, not necessarily reduce it,” and to mitigate risk.

Operational energy is being explored by the Brigade Modernization Command with the 2nd Brigade, 1st Armored Division at Fort Bliss, through the testing of vehicles and radios as part of the Network Integration Evaluation. “We are also going to put operational energy into that side and figure out with Soldiers in a real brigade—no longer in a laboratory, but a test battlefield—what makes sense for operational energy,” Mason said.

FINANCING THE CHANGE

“After people, the biggest cost to our installations for senior commanders is energy,” Aycock said. “We’ve got to be a lot more conscious of that particular piece.”

The Army needs to do two things with its investment in energy: produce a return and change people’s thinking that energy is “abundant and redundant,” Aycock said. He added that the Army is working to make energy more visible, more relevant,



VEHICLE POWER

Kansas National Guard Soldiers adjust the batteries for a solar shade provided by U.S. Army Africa for working assessment at Camp Lemonnier, Djibouti. Four Hawker High Mobility Multipurpose Wheeled Vehicle batteries serve as the core of the solar shade’s electrical storage system. (U.S. Army photo.)

and more of a combat multiplier, as well as to put all of the Army’s energy investments through an extensive cost-benefit analysis.

To make power and energy efficiency more affordable, the Army tracks tax credits and other state- and local-level opportunities, encouraging their use where appropriate, Kidd said.

Hammack pointed out that federal renewable energy tax credits have helped reduce the cost of renewable energy overall by about 15 to 20 percent per year for the past several years. “What it has meant is that even without some of these incentives, renewable energy is becoming much more cost-effective and has a decent return on investment if you structure it right,” she said.

CONCLUSION

While the Army’s smarter use of energy is a complex challenge, Hammack stressed that it is a high priority for the Army. “It

is a force enabler. It enables us to conduct our primary mission in a more efficient and effective manner,” she said.

Hammack added that energy and power improvements are operationally necessary and need to be made in a fiscally responsible manner, particularly in light of declining budgets. She said, “We have to increase the resiliency of our operations, just like we are working to increase the resiliency of our Soldiers and their families.”

“We’re looking at intelligent power in every form,” Justice said. “We’re looking at green energy, and there’s nothing more green than Army green.”

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has nearly 10 years’ experience in magazine editing and holds a B.A. in English from Elmhurst College.

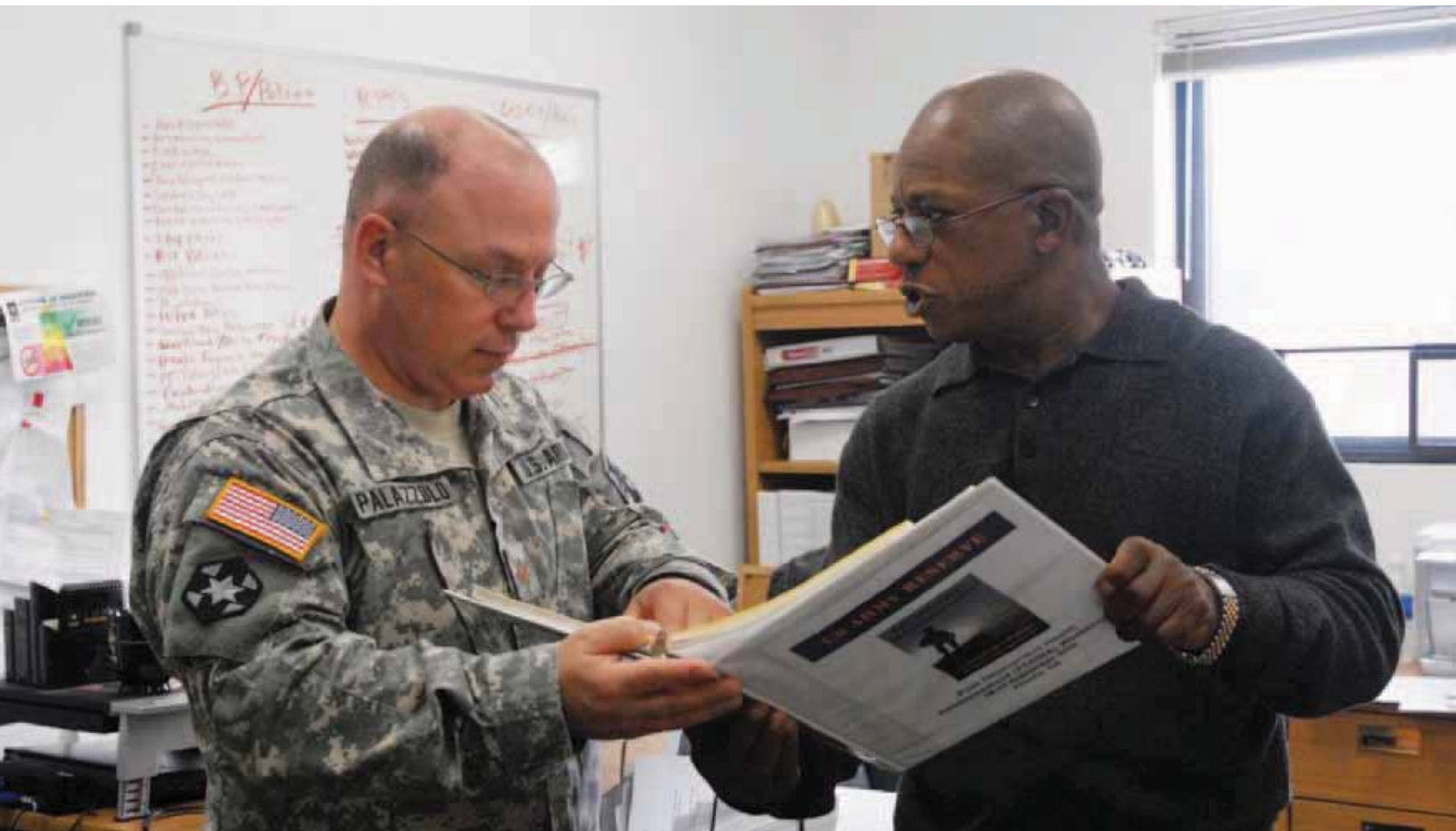
CIVILIAN TRANSFORMATION

New career management programs, Web tools promise support for employee advancement in uncertain times

by Brittany Ashcroft

WORKING TOGETHER

MAJ John C. Palazzolo, 412 Theater Engineer Command (TEC) Medical Readiness Division Officer in Charge, reviews safety compliance requirements for his section with Charlie Foreman, 412 TEC Safety Manager, at the George A. Morris Army Reserve Center in Vicksburg, MS, in December 2011. (U.S. Army photo by CPT Maryjane Porter, 412th TEC.)





Today the Army has we do have the most talented, experienced, and professional Civilian Corps in our Army's history," said GEN Ann E. Dunwoody, Commanding General, U.S. Army Materiel Command. "We need you to be the adapters; we need you to be the innovators, to help make the institutional Army as adaptable and flexible as our operational Army."

The Army needs to maintain faith in the civilian workforce, particularly during this time of change, and ensure that the Army is doing everything it can for the workforce as its members experience stresses similar to those confronting uniformed personnel, Dunwoody said Oct. 12 at the Association of the United States Army Annual Meeting and Exposition in Washington, DC.

"I can assure you we've got work to do to make sure our Army keeps faith with the great men and women of our Civilian Corps," she said. "Now, despite all the challenges that we confront, I truly believe there's never been a more exciting time to be a civilian in our Army. And I can tell you, Army leaders are absolutely committed to this cause."

Addressing the topic of civilian workforce transformation, Dunwoody also emphasized the Army's need to ensure that training programs and professional development opportunities are as robust for Army civilians as they are for uniformed Soldiers.

ESTABLISHING COMPETENCIES

One of the goals in civilian workforce transformation is the demonstration of a competency management system, said Anthony J. Stamilio, Deputy Assistant Secretary of the Army for Manpower and Reserve Affairs (Civilian Personnel/Quality of Life).

The competency management system pilot program will yield a set of competencies that employees and their supervisors can use to discuss how each employee can achieve success in his or her job and career program.

"When this is fully fleshed out, this will be the language around which we speak to our employees in terms of the bases for their development," Stamilio said. "And this will be part of how we manage the entire force."

MANAGING CAREERS

Part of the civilian workforce transformation process is incorporating all aspects of career development into one tool—Army Career Tracker (ACT).

Launched in June 2011 for NCOs, in August for Army civilians, and in September for officers, ACT is a leader development tool that integrates training and education into a personalized,

Web-based system, said Vicki A. Brown, Chief, Civilian Training and Leader Development Division, Army G-3/5/7.

"Army Career Tracker provides an integrated approach to support your personal as well as your professional development," she said.

As an individual user's tool designed to manage a person's lifelong learning objectives, ACT has several features, including the ability to monitor progress toward career requirements from a personal dashboard, manage professional and personal goals, and create a standardized Individual Development Plan and a career map. In addition, ACT will provide access to career maps for all 31 career programs once it reaches full operational capability, which is scheduled to take place by October.

Career program managers also have a separate landing page in ACT, which

CIVILIAN ASSISTANCE

Cynthia Basham, a Registered Nurse Case Manager with the Fort Hood (TX) Warrior Transition Brigade (WTB), speaks with SSG Christina Einig-Blackwell, a WTB squad leader in November 2011. The nurse case managers serve as advocates and liaisons with Soldiers of the WTB, helping to keep lines of communication open about their care and treatment. (U.S. Army photo by Rachel Parks, III Corps and Fort Hood Public Affairs.)



allows them to communicate with their careerists and facilitates information sharing across the workforce, Brown said.

Another benefit of ACT is the ability to send out information to the entire workforce, particularly regarding training announcements. This will help solve the problem of people receiving announcements after the application deadline, Brown said.

Most important, she said, “Army Career Tracker will put you, the Army civilian, in the driver’s seat to help you more effectively take ownership of your own development.”

ACT was deployed to the first spiral of six career programs, with the next spiral deployment scheduled for December 2011. Nearly 10,000 Army civilians—among 80,000 people total, including NCOs and officers—have logged into the system, Brown said. When ACT is fully operational, a total of 1.2 million users are expected to be in the system.

“A successful career always requires active career management. And the best person to manage your career is you,” Brown said. “No one has as much at stake in the outcome of your career decision, and no one else will work as hard to ensure success. ACT is a start.”

NEED FOR CHANGE

A constant theme in the current environment of fiscal constraints has been the need for a culture of change, and that is no different for the Army’s civilian workforce.

“The Army has invested a lot, and I think this is our revolution,” said Ellen M. Helmerston, Deputy Chief of Staff, G-1/4 (Personnel and Logistics), U.S. Army Training and Doctrine Command. “This is our time for change.”



TRACKING DEVELOPMENT

The Army Career Tracker website allows both Soldiers and civilians to plan their career maps, monitor progress, and take advantage of leadership and development opportunities. (U.S. Army photo.)

Helmerson emphasized that as the Army looks at U.S. Army 2020 and the Future Force, civilians need to be part of that discussion and those decisions. “We have to be part of those deliberations, because we play a key role in that Future Force.”

As the environment changes, the civilian workforce must change as well. Facing some of the same issues the Army has faced in past decades, including hiring freezes and downsizing, Army civilians need to be “part of the voice,” Helmerston said.

Lifelong learning and attitudes toward training and education are also vital to this cultural shift. “We have the sources; we have training; we have education; we have experiential opportunities,” Helmerston said. “Be willing to seek those challenges and to reflect honestly on your abilities, what you’re ready for and what you’re not, and what will get you to that next step.”

CONCLUSION

Using the existing talent and experience of the civilian workforce, in addition to allowing employees to take advantage of

learning and training opportunities, is essential to maintaining a highly skilled workforce that supports an institutional Army to support the operational Army.

“The real contribution of civilians ... [is] about the incredible range of skills, talent, and leadership that our Army Civilian Corps brings to the fight,” Dunwoody said.

Stamilio summed up the goal of civilian workforce transformation in line with the views of senior Army leaders: “Civilian workforce transformation is about building an agile, adaptable workforce that takes advantage of all of the things that make the civilian cohort great,” he said, “and incorporates many of the management processes that provide for the machinery, the policies, and the processes that make up solid workforce management, be it military or civilian.”

BRITTANY ASHCROFT provides contract support to the U.S. Army Acquisition Support Center through BRTRC Technology Marketing Group. She has nearly 10 years’ experience in magazine editing and holds a B.A. in English from Elmhurst College.

USAASC PERSPECTIVE

FROM THE DIRECTOR,
U.S. ARMY ACQUISITION SUPPORT CENTER

MAKING THE MOST OF OPPORTUNITIES

In FY11, there was an increase in Defense Acquisition University (DAU) resident course no-shows and attritions, both of which are unacceptable toward achieving a successful acquisition career.

Whether it's a course cancellation because of low fill or a loss of seats because of no-shows or attrition, every Army seat that is not filled is an avoidably missed training opportunity that could affect every acquisition workforce member's certification requirements.

Although most of our workforce are highly motivated professionals who continually work at nurturing a successful acquisition career, it takes only a few to adversely affect the training opportunities afforded us through DAU.

However, before I address these issues, I would like to explain how DAU decides what classes to offer to the DoD Acquisition Workforce—it's quite an intricate process.

CLASS OFFERINGS

Each of the DoD acquisition career fields (ACFs) has a functional leader (FL) who ensures that the training competencies for the ACF are current and aligned with the certification requirements.

The FLs integrated product team (IPT), comprising representatives from all the services, assesses the competencies of those working in a particular ACF. The IPT conducts a gap assessment of course learning objectives vs. what the team thinks is necessary to keep the content current. Sometimes the IPT may devise new coursework.

DAU balances and manages all of the DoD FLs' input to determine what classes and continuous learning courses are needed



Craig A. Spisak
*Director, U.S. Army
Acquisition Support Center*

for acquisition certification. DAU studies the entire complex system to estimate the training that should be offered, and then asks its primary customers, including the Army, what classes they need for their workforce to achieve certification requirements.

STUDENT LOAD PROJECTION

By early February each year, we give DAU our student load projection for every Army ACF. It is a combination of distance learning, resident seats, and site-specific courses needed at a particular post, camp, or station.

DAU balances the projection against its available resources and then publishes the course list for the following academic year, which includes online courses, resident courses, and DAU instructor availability to travel to site-specific course locations.

The process is very similar to what a major university with multiple regional campuses does to track its classes and to ensure that they are at the required capacity.

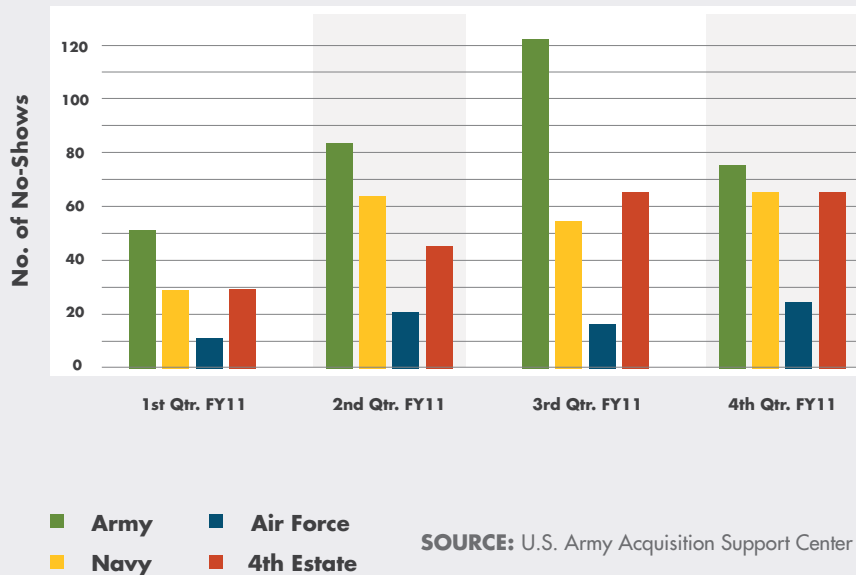
MILESTONES TO MEET

A DAU class has various milestones to determine if the class is still a "go."

Ninety days out, DAU checks on each class to determine if it has reached the minimum and if any seats are available. At a certain point, seats are reserved for the service that requested the class.

At 65 days out, for most courses, DAU opens up any remaining seats to all the services' waiting lists. If the class has not reached its minimum because of the ever-changing nature of the services' wants

DAU Resident Training No-Shows by Service



vs. what can be offered, sometimes it's more economical for DAU to cancel the class or merge it with another low-fill offering and assign instructors to another requirement.

The Army works hard to ensure that our high-usage classes are not canceled. For instance, if we request a site-specific class at Fort Huachuca, AZ, for 12 business professionals but the DAU minimum capacity is 20, we diligently search for eight more students to attend to avoid cancellation.

I would rather find four more people who need the class and four who can take that class as diversity training than to cancel. If the class is canceled, there are still 12 people who are untrained and cannot participate in the class. Smart decisions must be made, and that is where our Acquisition Career Management Advocates (ACMAs) and Organizational Acquisition Points of Contact (OAPs) can help us.

MAXIMIZING FILL RATES

When the ACMAs or OAPs request a site-specific class for their location, we expect them to canvass the local acquisition workforce to find people so that the class is completely filled with Priority 1 students.

This requires a team effort. We do our part by screening individual records to see who needs the course. Supervisors can help by recognizing that it's a unique opportunity for their people to attend a class in the local area and to plan their section or department's workload to accommodate their employees' attendance.

Fill rate is important because, as an entire workforce, we always have room for improvement. There is a continuous backlog of people who need training and development opportunities. When a seat goes unfilled, it is a wasted opportunity for us to dig into the backlog and find someone who needs that class for

certification. Typically, fill rate is not a problem. No-shows and attrition are the bigger challenge.


ZERO TOLERANCE

Our goal for no-shows and attrition is zero. When you say you are going to attend a class, we expect you to attend, but more important, to be prepared to succeed.

If you have a confirmed reservation for a class and then do not attend, you are a no-show and have wasted an Army seat.

Or you attend the class for a couple of weeks and fail, or "something happens" and you just decide to leave. This is worse than being a no-show because you were not doing your job, which is to complete the class successfully. Furthermore, you have to retake the class at a later date, which creates ramifications for Army course quotas and requirements to DAU for the following academic year.

DAU has a complex method for determining our aggregate quotas based on performance in the previous academic year. Any no-shows or low-fill cancellations can adversely affect those quotas. Every percentage counts toward determining the training opportunities for the Army Acquisition Workforce for the following DAU academic year.

As the Deputy Director for Acquisition Career Management, I strongly urge that all Army Acquisition Workforce members work closely with their supervisors, ACMAs, and OAPs to ensure that no training opportunity afforded is wasted or lost because of low fill, no-shows, or attrition in FY12 and future years. In 2012, let's renew our commitment to our Soldiers to remain a well-trained, efficient, and educated workforce ready to support them in any challenges and contingencies that they may meet in an uncertain world. 



EDUCATION *and* TRAINING UPDATE

DAU SENIOR SERVICE COLLEGE FELLOWSHIP

The 2012-13 Defense Acquisition University – Senior Service College Fellowship (DAU-SSCF) announcement will be open through March 15 to all eligible GS-14s and 15s who have met their current position certification requirements. The 2012-13 DAU-SSCF will be offered at Huntsville, AL; Warren, MI; and Aberdeen Proving Ground, MD. For more information, visit <http://live.usaasc.info/career-development/programs/defense-acquisition-university-senior-service-college/announcement>.

FEDERAL EXECUTIVE INSTITUTE ANNOUNCEMENT

The FY12 Federal Executive Institute (FEI) Leadership for a Democratic Society announcement will be open through June 13. Any interested GS-15s who have met their position certification requirement should read the announcement at <http://live.usaasc.info/career-development/programs/federal-executive-institute-leadership-for-a-democratic-society> for additional information and details on specific offerings and submission requirements. Starting this fiscal year, any applicant for FEI must have either completed the Civilian Education System (CES) Advanced Course or received equivalency or constructive

credit before submitting an FEI application. Interested applicants should visit the website on CES course credit at https://www.atrrs.army.mil/channels/chrtas/help/CES_Course_Credit.asp.

ACQUISITION LEADERSHIP CHALLENGE PROGRAM

A pilot is underway of the new Acquisition Leadership Challenge Program (ALCP), a 2 1/2-day course focusing on developing better civilian leadership. FY12 offerings will be available for courses running from January through July. An announcement has been sent out to command Acquisition Career Management Advocates to nominate appropriate personnel for participation. For more information, visit <http://live.usaasc.info/career-development/programs/acquisition-leadership-challenge-program>. The two levels of ALCP, with areas of focus, are:

ALCP I (GS-12/13, O-3/O-4)

- Personal leadership strengths and weaknesses.
- Preferred leadership styles.
- Modeling leadership challenges.
- Using power to increase productivity.
- Cultural traits that affect organizational performance.
- Practical solutions to personnel issues.
- Setting and achieving goals.

ALCP II (GS-14/15, O-5/O-6)

- Comprehensive look at personal leadership strengths, weaknesses, preferences, styles, and behaviors.
- Leadership styles and their effects on individual and team performance.
- Dynamics of conflict: sources, nature, and techniques to influence outcomes.
- Improving group communication.
- Collaborative teamwork.
- Effective enterprise leadership.
- Supports and barriers to success in the acquisition environment.
- Setting goals and developing practical strategies to reach them.

TRAINING WITH INDUSTRY

This is a 10-to-12-month rotational opportunity for acquisition captains and majors to work side by side with industry. Current participating companies for Army acquisition in FY12 are: Google Inc., Microsoft Corp., Coca-Cola Co., Cisco Systems Inc., EADS North America Inc., Lockheed Martin Corp., Computer Sciences Corp., Intel Corp., General Dynamics Corp., and Boeing Co. For more information, please contact your assignment officer. Contact information is at https://www.hrc.army.mil/site/project/branches/officer/FS/Acquisition/Acquisition_Contact__Information.htm (AKO login required).



ON THE MOVE

LEADERSHIP CHANGES IN ARMY G-4

LTG Raymond V. Mason has assumed the duties of Deputy Chief of Staff (DCS) of the Army, G-4 (Logistics), succeeding **LTG Mitchell H. Stevenson**, who was appointed to the job in January 2008.

Previously Mason served as Assistant DCS, G-4. Before his assignments at the Pentagon, Mason served as the G-4 for U.S. Army Forces Command, responsible for the readiness of more than 80 percent of the Army's operational forces. Mason also served in the Pentagon as Deputy Director for the Joint Chiefs of Staff, J-4.

Mason is a distinguished military graduate of James Madison University (JMU), from which he was commissioned as a second lieutenant in 1978.

He holds a B.A. in commercial marketing and merchandising from JMU, an M.S. in procurement and contract management from the Florida Institute of Technology, and an M.S. in national resource strategy from National Defense University. He also attended the U.S. Army Command and General Staff College and the Industrial College of the Armed Forces.

Stevenson retired from his Army career of more than 37 years.

NEW DEPUTY ASSISTANT SECRETARY NAMED FOR ASAALT

COL(P) Paul A. Ostrowski has been assigned as the Deputy Assistant Secretary of the Army for Acquisition and Systems Management in the Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (OASAALT). Ostrowski has been serving as the Assistant Deputy. Previously he served as Executive Officer to the Commander, U.S. Special Operations Command (USSOCOM).

He replaces **MG R. Mark Brown**, who has been assigned as Commander, Joint Theater Support Contracting Command, U.S. Central Command, Qatar.

Ostrowski has held a variety of acquisition positions since he was commissioned into the Army in 1985, including Director, Operational Test and Evaluation and later Program Executive Officer for Special Programs, USSOCOM; and Systems Acquisition Manager, USSOCOM.

He holds a B.S. in geography from the United States Military Academy, an M.S. in systems acquisition management from the Naval Postgraduate School, and an M.S. in national resource strategy from National Defense University. He also attended the Industrial College of the

Armed Forces and the Joint and Combined Warfighting School of the Joint Forces Staff College.

ACC CHANGE OF RESPONSIBILITY

Dr. Carol E. Lowman became the second Executive Director, U.S. Army Contracting Command (ACC), a major subordinate command of U.S. Army Materiel Command (AMC), during a ceremony Sept. 27, 2011 at Redstone Arsenal, AL. She succeeds **Jeffrey P. Parsons**, ACC's Executive Director since 2008, when the command was activated.

GEN Ann E. Dunwoody, AMC Commanding General, said during the ceremony that the command "couldn't have asked for a better successor" than Lowman, who "knows what it takes to run a global enterprise."

Lowman previously served as ACC's Deputy Director. She also has held the post of Acting Director, Mission and Installation Contracting Command – Fort Sam Houston, TX.

Appointed to the Senior Executive Service in 2005, Lowman holds a bachelor's degree from Canisius College, a master's degree from Troy State University, and a Ph.D. in public administration from the University of Georgia.

ASC CHANGE OF COMMAND

MG Patricia E. McQuiston became Commanding General (CG), U.S. Army Sustainment Command (ASC) in a ceremony Oct. 28, 2011 at Rock Island Arsenal, IL.

McQuiston, who received her commission in 1980, previously served as CG, 21st Theater Sustainment Command, U.S. Army Europe and Seventh Army, as well as Deputy CG, U.S. Army Field Support Command, which became ASC.

She holds a B.S. in biology from the University of Akron, an M.B.A. in acquisition management from Babson College, and an M.S. in national resource strategy from National Defense University. McQuiston also attended the U.S. Army Command and General Staff College and the Industrial College of the Armed Forces.

McQuiston succeeds **MG Yves J. Fontaine**, who retired after more than 35 years of service and was honored in a ceremony following the change of command.

LTC MCCARTHY RETIRES

LTC Dan McCarthy, Deputy Product Manager for Foreign Military Sales in the Utility Helicopters Project Office of Program Executive Office Aviation, retired after 30 years of service, in a ceremony Oct. 6, 2011 at Redstone Arsenal, AL. McCarthy has received the Legion of Merit, along with other recognitions throughout his career.

FIRST CONTRACTING CSM APPOINTED

SGM Bentura Fernandez, Senior Enlisted Advisor, 409th Contracting Support Brigade (CSB), was appointed as the first command sergeant major (CSM) from the ranks of the Army acquisition, logistics, and technology contracting career management field, during



ASC CHANGE OF COMMAND

MG Yves J. Fontaine (now retired), outgoing Commanding General (CG), U.S. Army Sustainment Command (ASC), U.S. Army Materiel Command CG **GEN Ann E. Dunwoody**, and incoming ASC CG **MG Patricia E. McQuiston** salute the flag at the ASC change of command and retirement ceremony Oct. 28 at Rock Island Arsenal, IL. (U.S. Army photo.)

a ceremony Oct. 6, 2011 in Kaiserslautern, Germany.

“It has amazed me to watch the changes in contracting over the years, and how the evolution has reflected on NCOs,” said Fernandez, who is the first CSM of the 409th CSB. “Today’s NCOs are more educated, and as it stands today, most NCOs make a conscious decision to join the contracting profession. I think contracting has come a long way.”

The creation of CSM positions at brigade and battalion levels in contracting organizations, and the placement of acquisition NCOs in senior enlisted advisor positions, allow contracting NCOs to serve at higher levels in the Army.

CSM CHANGE OF RESPONSIBILITY

CSM John L. Murray accepted the post of U.S. Army Contracting Command (ACC) Command Sergeant Major during a change of responsibility ceremony Sept. 20, 2011 at Redstone Arsenal, AL. Murray, who joined the Army 32 years ago, previously served as CSM, U.S. Army

Expeditionary Contracting Command, a subordinate command to ACC.

He succeeds **CSM Tony L. Baker**, who is assigned as CSM with the NATO International Security Assistance Force in Afghanistan.

AUSA NAMES CIVILIAN OF THE YEAR

Jeanne Brooks was named the Northeast Region Department of the Army Civilian of the Year by the Association of the United States Army (AUSA) during its Annual Meeting and Exposition in October 2011 in Washington, DC. Brooks, a Mechanical Engineer with U.S. Army Benét Laboratories, Watervliet Arsenal, NY, was instrumental in capturing a \$14 million Army contract for the arsenal to improve breechblocks for the 105mm howitzer.

COLONEL SELECTION BOARD RESULTS

LTC(P) Darrell J. Bennie and **LTC(P) Joyce B. Junior** from the U.S. Army Acquisition Support Center, and **LTC(P) Shawn P. Osborne** from Program Executive Office Enterprise Information Systems were selected for promotion to colonel in the U.S. Army Human Resources’ FY11 Colonel Reserve Component/Acquisition Position list Selection Board.

NEW ASSIGNMENTS AT DLA

Secretary of Defense Leon E. Panetta announced the following DoD Senior Executive Service assignments to the Defense Logistics Agency (DLA), Fort Belvoir, VA, on Oct. 4, 2011:

- **Mae E. Devincintis** as Vice Director, DLA.
- **Edward J. Case** as Director, DLA Information Operations.
- **Robert T. Foster** as Deputy Director, DLA Information Operations.
- **Clyde R. Hobby** as Deputy Director, DLA Operations.

CHANGING CERTIFICATION

*Defense Acquisition University
implements new standards*

by Robert E. Coultas

On Oct. 1, 2011, the Defense Acquisition University (DAU) implemented new certification standards for FY12 that affect Army acquisition civilian and military professionals at all three certification levels. While most of the changes are in the contracting career field, there are also changes in four other fields: logistics; test and evaluation; business, cost estimating, and financial management; and systems planning, research, development, and engineering. The standards bring major training changes to many *Defense Acquisition Workforce Improvement Act* acquisition career field certifications.

In response to the new DAU training standards, Craig A. Spisak, Deputy Director, Acquisition Career Management, has directed changes to Army training to prevent issues that Army acquisition professionals might have in achieving the new certification requirements:

- Those who met their FY11 certification level requirements, except for the online training requirements, before Oct. 1, 2011, must complete the online training and request certification under the FY11 standards through the Certification Management System by Jan. 31, 2012. After that date, individuals will be required to meet the new FY12 certification requirements.
- Current Level I-certified contracting professionals are eligible to waive CON 170, a prerequisite for CON 270 and

CON 200 under the FY12 contracting certification standards. Eligibility for this waiver requires completing the online continuous learning modules CLC 056 and CLC 024. This waiver is only for classes starting between Oct. 1, 2011, and Sept. 30, 2012, inclusive.

- Those who assumed their contracting positions on or before Sept. 30, 2011, who have not met current certification standards have 40 months, instead of 24 months, from their initial start date to achieve their certification level in accordance with the FY12 standards.

A list of Frequently Asked Questions regarding Spisak's Oct. 5, 2011 memo on the Army's plan to implement the new

New DAU Certification Changes Effective in FY12

Contracting – Level I

- Additions: CON 115, CON 170, CLC 033, and CLC 058
- Eliminations: CON 110, CON 111, CON 112, and CON 120 (replaced with CON 115)

Contracting – Level II

- Additions: CON 200, 270, 280, and 290; CLCs 051, 056, and 057; and HBS 428
- Eliminations: CON 214, 215, 217, and 218

Contracting – Level III

- Additions: CON 360 and 1 of 7 elective courses
- Elimination: CON 353

Life Cycle Logistics – Level I

- Addition: SYS 101

Life Cycle Logistics – Level II

- Elimination: LOG 236

Life Cycle Logistics – Level III

- Addition: LOG 340
- Select one of four courses:
 - ACQ 265 Mission-Focused Services Acquisition
 - BCF 215 Operating and Support Cost Analysis
 - RQM 110 Core Concepts for Requirements Management
 - LOG 204 Configuration Management

Program Management –

Level III Additions (*all online courses*)

- BCF 102 – Earned Value Management Fundamentals
- BCF 103 – Business Financial Management Fundamentals
- LOG 103 – Reliability, Availability, and Maintainability

Science & Technology Manager – Level I

- Addition: CLE 068

DAU certification standards is online at http://asc.army.mil/docs/programs/dau/FAQ_FY12_Cert_Implementation_memo.pdf. For more information on the FY12 certification training requirements, contact your acquisition career manager; contact information is at <http://live.usaasc.info/contact/poc>.

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



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103

SFAE-CDD

OCT 5 2011

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Fiscal Year 2012 (FY12) Defense Acquisition University (DAU)
Certification Standards – Army Implementation Plan

1. References.

a. Under Secretary of Defense for Acquisition, Technology and Logistics memorandum, Subject: Time Extension to Complete Certification Requirements, 2 September 2011.

b. Office of the Under Secretary of Defense, Acquisition, Technology and Logistics memorandum, Subject: Implementing the Fiscal Year 2012 Changes to the Contracting Career Field Certification Standards, 7 September 2011.

2. Effective 1 October 2011, DAU will implement new certification standards for Fiscal Year 2012 (FY12) that apply to Army acquisition civilian and military professionals, at all three certification levels. The new standards will include significant revisions and changes to the training associated with Defense Acquisition Workforce Improvement Act (DAWIA) acquisition career field (ACF) certification. The FY12 changes apply to specific ACFs and are outlined in the enclosure.

3. In order to mitigate potential Army issues with achieving these certification standards and in accordance with referenced documents, I am directing the following changes:

4. The Army will allow completion of on line training under FY11 certification requirements as follows:

a. Individuals who meet their current FY11 certification level requirements (education, experience, and training) prior to 1 October 2011 (except for the on-line training requirements), must complete the online training and request certification under FY11 certification standards no later than 31 January 2012. Individual will request this exception by checking the block during the application process within the Certification Management System. After 31 January 2012, individuals will be required to meet any new FY12 certification requirements.

SFAE-CDD

SUBJECT: FY12 DAU Certification Standards – Army Implementation Plan

b. Current Level I certified contracting professionals will be eligible to waive CON 170, a prerequisite for CON 270 under the new FY12 contracting ACF certification requirement standards. To be eligible to waive the prerequisite course requires the successful completion of online continuous learning (modules) CLC 056 and CLC 024, prior to applying for CON 270. This extension is effective for classes starting 1 October 2011 through 30 September 2012.

c. Army acquisition professionals encumbering contracting coded acquisition positions on 30 September 2011, who have not met current certification standards have a 40-month grace period from their initial start date (vice 24-months) in which to achieve the contracting certification level required of their position in accordance with the FY12 standards.

5. This memorandum is posted on the U.S. Army Acquisition Support Center website at <http://live.usaasc.info/career-development/programs/defense-acquisition-university-training/documents/>, along with FAQs. My point of contact is Ms. Rhonda LaBron, Commercial (703) 805-2700, DSN (703) 855-2700 or email: rhonda.labron@us.army.mil.

Enclosure


CRAIG A. SPISAK
Deputy Director
Acquisition Career Management

U.S. ARMY ACQUISITION CORPS ANNUAL AWARDS CEREMONY HONORS OUTSTANDING PROFESSIONALS



NCO AWARD FOR CONTRACTING EXCELLENCE

MSG Sandra Williams, of the 409th Contracting Support Brigade, receives the 2011 ASAALT Contracting Noncommissioned Officer Award for Contracting Excellence at the annual U.S. Army Acquisition Corps Awards Ceremony from Heidi Shyu, Army Acquisition Executive and Acting Assistant Secretary of the Army for Acquisition, Logistics, and Technology; LTG William N. Phillips, Director, Acquisition Career Management; and Kim D. Denver, Deputy Assistant Secretary of the Army for Procurement. (Photo by McArthur Newell, BRTRC/U.S. Army Acquisition Support Center.)

The acquisition community paid tribute to uniformed and civilian Acquisition, Logistics, and Technology Workforce professionals at the 2011 U.S. Army Acquisition Corps (AAC) Annual Awards Ceremony on Oct. 9, 2011. The AAC awards recognize those who work tirelessly behind the scenes to provide combatant commanders and their Soldiers the weapons and equipment they need to execute decisive, full-spectrum operations in support of global contingency operations.

The categories and winners of the 2011 AAC awards are:

- Army Life Cycle Logistician of the Year Award—Jeffrey Forgach, Readiness Management Chief for Project Manager Force Twenty-One Battle Command Brigade and Below, Program Executive Office (PEO) Command, Control, and Communications-Tactical.
- ASAALT Contracting Noncommissioned Officer Award for Contracting Excellence—MSG Sandra Williams, Operations NCO in Charge, Support and Requirements Directorate, 409th Contracting Support Brigade.
- Acquisition, Logistics, and Technology Continuous Performance Improvement Award—Special Tools Accountability Lean Six Sigma Project Team, Project Manager Joint Combat Support Systems,

PEO Combat Support and Combat Service Support.

- Department of the Army Research and Development Laboratory of the Year Award—U.S. Army Armament Research, Development, and Engineering Center, U.S. Army Research, Development, and Engineering Command.
- Department of the Army Research and Development Laboratory Management Award—U.S. Army Engineer Research and Development Center, U.S. Army Corps of Engineers.
- Director, Acquisition Career Management Award—Constance Tucker, Project Manager Stryker Brigade Combat Team, PEO Ground Combat Systems.

SECRETARY OF THE ARMY AWARDS

- Acquisition Director of the Year at the Lieutenant Colonel Level—LTC Carol Tschida, 900th Contingency Contracting Battalion, U.S. Army Contracting Command.
- Acquisition Director of the Year at the Colonel Level—COL Jeffrey Gabbert, Operations Directorate, Defense

Contract Management Agency.

- Product Manager of the Year—LTC Courtney Cote, Product Manager Armed Reconnaissance Helicopter, PEO Aviation.
- Project Manager of the Year—COL Linda Herbert, Project Manager Night Vision/Reconnaissance, Surveillance, and Target Acquisition, PEO Intelligence, Electronic Warfare, and Sensors.

ARMY ACQUISITION EXCELLENCE AWARDS

- Individual Sustained Achievement—Dorothy Bell, Operational Contracting Division, Mission and Installation Contracting Command.
- Equipping and Sustaining Our Soldier's Systems—M855A1 Team, PEO Ammunition.
- Information Enabled Army—Secure Go Mobile, PEO Enterprise Information Systems.
- Transforming the Way We Do Business—Logistics Management Directorate, Project Manager Soldier Sensors and Lasers, PEO Soldier.

DOD AWARDS RECOGNIZE EXEMPLARY ACQUISITION ACHIEVEMENTS

by Robert E. Coultas

An Army contracting civilian and three Army organizations were among winners of the David Packard Excellence in Acquisition Award and the 2011 Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) Workforce Achievement and Workforce Development Awards, presented Nov. 1, 2011 at the Program Executive Officers'/ Systems Command Commanders' Conference at Fort Belvoir, VA.

PACKARD AWARDS

The 5.56mm M855A1 Enhanced Performance Round (EPR) Integrated Product Team (IPT), within Program Executive Office (PEO) Ammunition's Project Manager (PM) Maneuver Ammunition Systems, received one of four Packard Awards for its innovative redesign of the Cold War-era General Purpose 5.56mm M855 ammunition round, which was ineffective against hard target barriers at extended ranges and lacked stopping power against soft targets.

"The team maintained a robust engineering approach in their product improvement program by following many of the same milestone or 'gate' reviews and checkpoints that a Full Materiel Release program would have used," the award citation states. "By adopting this hybrid approach, the team was able to field the M855A1 EPR as an Engineering Change

Proposal, saving months of time from the schedule, at reduced cost, without jeopardizing quality." The result is "vastly improved capability" for Soldiers using the M4, M16, or M249 weapon system, the citation states.

The PEO Ground Combat Systems PM Stryker Brigade Combat Team's Double V-Hull (DVH) Team was honored with a Packard Award for its rapid response in addressing the ever-changing threats for Stryker vehicles in theater. The DVH emerged from the Stryker modernization vehicle concept program as a design that could provide more robust survivability with greater potential to mitigate blast effects from improvised explosive devices, compared with shorter-term survivability enhancement kits for the 10 Stryker variants.

"Using a proactive approach, the team leveraged prenegotiated vehicle pricing

on the current requirements contract to allow the necessary flexibility to adjust to the unique needs of the DVH in the Afghanistan theater of operations, which include enhanced armor, wider tires, and blast-attenuating seats," the award citation states. "In addition, by leveraging current production of vehicles already on order, the number of new vehicles that had to be ordered was reduced and longer lead times on much of the mission-essential packages were avoided, netting a cost avoidance of almost \$900 million. As a result, the PM Stryker DVH team was able to proceed from concept to production of 150 vehicles in less than 12 months."

WORKFORCE ACHIEVEMENT AWARD

Cindy Wagoner, a Contracting Officer for the U.S. Army Joint Munitions Command's Safety/Radiation Waste

USD(AT&L) WORKFORCE ACHIEVEMENT AWARD

Cindy Wagoner (center), a Contracting Officer for the U.S. Army Joint Munitions Command's Safety/Radiation Waste Directorate, receives the USD(AT&L) Workforce Achievement Award for Contract Auditing from Frank Kendall, Acting USD(AT&L), and DAU President Katrina McFarland. (DoD photos by Erica Kobren.)





DAVID PACKARD EXCELLENCE IN ACQUISITION AWARD

Members of the 5.56mm M855A1 Enhanced Performance Round Integrated Product Team accept the 2011 David Packard Excellence in Acquisition Award on behalf of the team. From left: COL Paul Hill, Project Manager Maneuver Ammunition Systems (PM MAS); Frank Hanzl, PM MAS Small Caliber Team Leader; Joseph South, U.S. Army Research Laboratory Research Scientist; Frank Kendall, Acting USD(AT&L); Katrina McFarland, DAU President; Jennifer Paul, U.S. Army Contracting Command; Matt Volkmann, Armament Research, Development, and Engineering Center Project Engineer; and BG Jonathan A. Maddux, Program Executive Officer Ammunition and Commanding General Picatinny Arsenal, NJ.

Directorate, received the USD(AT&L) Workforce Achievement Award for Contract Auditing. Wagoner was cited for her contract execution, management, and oversight of contractor performance for a high volume of contracts supporting the disposal of 846,406 cubic feet of radioactive and mixed waste—a “unique and complex” mission, the award citation states—as well as 167 unique projects. Wagoner and her team also provided contract support on three emergency response actions in Japan and Hawaii.

WORKFORCE DEVELOPMENT AWARD

The U.S. Army Communications-Electronics Command (CECOM) Communications Security Logistics Activity (CSLA), within the CECOM Logistics and Readiness Center, was a USD(AT&L) Workforce Development Award Bronze Winner for a Small Organization.

The CSLA provides procurement, training, logistics, and operations support for communications security equipment, information security products, cryptographic keys, and related emerging technologies.

The award recognizes CSLA best practices including the Student Career Employment Program, which provides mentorship and practical job experience leading to full-time employment for students pursuing postsecondary degrees in business management and logistics; and Total Employee Development, a consolidated training planning and tracking portal. The award citation states that, among other results, 82 percent of CSLA's Acquisition, Logistics, and Technology Workforce members achieved required certifications; all members achieved 80 continuous learning points during the last cycle; and all CSLA personnel have updated Individual Development Plans.

Congratulations to the Army's recipients of the David Packard Excellence in Acquisition Award and USD(AT&L) Workforce Achievement and Workforce Development Awards. Their outstanding efforts in supporting the acquisition process help protect and better serve our Soldiers.

For the full list of awards and citations, go to <http://www.dau.mil/acqawards/Shared%20Documents/2011%20ATL-Award%20Brochure.pdf>.

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



SPOTLIGHT

EMMITT RODRIGUEZ

by Robert E. Coultas



“WHEN I GOT THERE, THE R2TF WAS FULLY FUNCTIONAL. THEY WERE IN A MIDDLE OF A RAPID RESPONSE DIRECTIVE FROM THE PRESIDENT TO HAVE ALL THE FORCES OUT [OF IRAQ] BY DECEMBER 2011. I EXPECTED THAT MY INVOLVEMENT AND CHALLENGE WOULD REVOLVE AROUND SUSTAINING AND IMPROVING THE OPERATION, AND IT DID.”

When Emmitt Rodriguez arrived at Camp Arifjan, Kuwait, from Redstone Arsenal, AL, in December 2010, he immediately recognized the daunting task of bridging the gap between the tactical operations of U.S. Army Materiel Command (AMC) and its strategic mission of resetting and reposturing the Army. As then-Deputy G-3 (Operations) for Program Executive Office (PEO) Aviation, Rodriguez tackled this challenge head-on during his six-month tour as Chief of Staff of the Responsible Reset Task Force (R2TF).

Rodriguez was anxious to step up to the task after being asked by then-AMC Deputy Commanding General, LTG James H. Pillsbury, now retired, to support the R2TF effort.

“From a personal aspect, I have always been self-motivated to support the warfighter. I come from a military family and have a son serving in the U.S. Coast Guard. I consider it my patriotic duty to ensure that our national treasure is fully supported,” Rodriguez said.

Rodriguez is no stranger to deployments, having served in *Operation Provide Comfort* in Iraq in 1991, and in operations in Bosnia and Kosovo in the late 1990s. He

found that this effort was consistent with other obstacles he had dealt with in previous missions overseas: There was a high operational tempo and an intense sense of urgency.

“When I got there, the R2TF was fully functional. They were in a middle of a rapid response directive from the President to have all the forces out [of Iraq] by December 2011. I expected that my involvement and challenge would revolve around sustaining and improving the operation, and it did,” he said.

Rodriguez, along with a staff of field-grade officers, senior Army civilians, and contractors, continued the complex R2TF mission. The moving equipment under Rodriguez’s supervision included 60,000 to 80,000 containers, 50,000 vehicles, and upward of 3 million different pieces of equipment.

“We were a 7-day-a-week operation, working about 14 hours a day and 10 hours on Sundays—a typical deployed operation, where you do whatever it takes to accomplish the mission,” Rodriguez said.

Rodriguez found that the task force was focusing only on the AMC element of resetting the force and needed help from the Materiel Enterprise to supplement

AMC’s efforts. He quickly reorganized the task force by incorporating elements of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, while establishing and maintaining the R2TF Theater Battle Rhythm, which expedited the communication of commanders’ critical information requirements to the appropriate Materiel Enterprise leaders for resolution.

In addition, Rodriguez identified and corrected a major contractual oversight: The metric that the contractors used for being paid was the number of containers they were able to process, not the number of items that needed to be processed. As the items flowed out of Iraq and into different lanes for removal, some items in the containers were missed. Some parts that were serviceable were thrown away or demilitarized.

“We found discrepancies on how the contractor was executing that mission. We adjusted the process and accountability requirements and were able to ensure that Army equipment slated for reutilization did not fall through the cracks. We were able to retrograde that equipment into reset programs or back into the supply system, and redistribute it to other requirements in Iraq and Afghanistan or to Foreign Military Sales customers,” Rodriguez said.

Another challenge he faced, which he had not anticipated, was personnel management.

“Deployment to Kuwait does not come with the same monetary compensation as Iraq or Afghanistan. Maintaining the interest of highly qualified personnel to deploy to Kuwait is a challenge,” he said. Nevertheless, Rodriguez succeeded in finding them by working with AMC to identify people interested in expanding their base and taking on new challenges.

“I was fortunate that the experienced R2TF workforce members were eager to work and develop the lesser experienced for the good of the organization and the Army. We were truly a Materiel Enterprise Family.”

Rodriguez said his team was the motivating factor for his successful tour as the R2TF Chief of Staff.

“All of the credit goes to the team of dedicated people who made up the R2TF during my tenure. They were a group of patriotic professionals with a true desire to do right for our country and warfighters.



If you can't be motivated by that, I don't know what would motivate you.”

Not a seeker of accolades, Rodriguez said he took great satisfaction from employees' appreciation of the opportunity to work with him. “I'm a hands-off type of operator,” he said. “As I did during R2TF, as I do now, I employ experts. ... I'm

kind of the head cheerleader and coach to keep everything in line and engage where I need to engage. I try to keep my involvement at a strategic level, providing guidance, and allow those who are the true experts to do their jobs.

“As a team, we were very successful and set the groundwork for a successful transition of the drawdown of military operations in Iraq, while sustaining operations in Afghanistan.” (For more on the R2TF, see article on Page 44.)

Rodriguez is now the Logistics Chief in PEO Aviation's Non-Standard Rotary Wing Aircraft Program Management Office.

“I'M A HANDS-OFF TYPE OF OPERATOR. AS I DID DURING R2TF, AS I DO NOW, I EMPLOY EXPERTS. ... I'M KIND OF THE HEAD CHEERLEADER AND COACH TO KEEP EVERYTHING IN LINE AND ENGAGE WHERE I NEED TO ENGAGE.”

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 nearly 40 years of combined experience in public affairs, journalism, broadcasting, and advertising. Coultas has won numerous Army Keith L. Ware Public Affairs Awards and is a DoD Thomas Jefferson Award recipient.



ARMY RESEARCH AND DEVELOPMENT

R&D Functional Realignment Progressing

Theme of the Month

By the Department of the Army

Report of the Month

U.S. Science Mission to Uruguay Results in Building a Bridge

**Skin Talk, Night Vision Tubes, TV Control
Of Tanks Discussed in Papers at HFE Meet**

[illegible]

172 | Army AL&T Magazine



FOR THE RECORD



CONGRESSIONAL UPDATE

“SUPERCOMMITTEE” FAILS TO PREVENT SEQUESTRATION

After three months of behind-the-scenes meetings and a handful of public hearings, the Joint Select Committee on Deficit Reduction (JSCDR) failed to approve legislation to cut the federal deficit by at least \$1.2 trillion over the next decade.

On Nov. 21, 2011, the “supercommittee” co-chairs, Sen. Patty Murray (D-WA) and Rep. Jeb Hensarling (R-TX), issued a press release to announce the JSCDR’s inability to fulfill its mandate by the Nov. 23 deadline. The statement opened with the bottom line: “After months of hard work and intense deliberations, we have come to the conclusion today that it will not be possible to make any bipartisan agreement ... before the committee’s deadline.”

President Barack Obama quickly held a press conference at the White House and warned that he would veto any congressional attempt to repeal sequestration, the automatic cut of \$600 billion from national security programs and \$600 billion from non-security discretionary spending programs from FY13 to FY23. “My message to them [Congress] is simple,” said Obama: “No.”

The President urged Congress to pick up where the JSCDR left off and approve a deficit reduction package of spending cuts, revenue increases, and entitlement reform. “The only way these spending cuts won’t take place is if Congress gets back to work,” he said.

The \$600 billion in cuts to security programs are a current hot-button issue on Capitol Hill, and a significant bloc of Pentagon supporters in Congress is pushing hard to repeal that half of sequestration. House Armed Services Committee (HASC) Chairman Buck McKeon (R-CA) quickly vowed to introduce legislation to undo the security cuts despite the President’s veto threat. “I will not be the Armed Services chairman who presides over crippling our military,” McKeon said. “I will not let these sequestration cuts stand.”

On the Senate side, Senate Armed Services Committee (SASC) members John McCain (R-AZ) and Lindsey Graham (R-SC) issued a joint statement to reiterate their support for repealing sequestration. “We are now working on a plan to minimize the impact of the sequester on the Department of Defense and to



“The only way these spending cuts won’t take place is if Congress gets back to work.”

—President Obama

ensure that any cuts do not leave us with a hollow military,” they said. “The first responsibility of any government is to provide for the common defense; we will pursue all options to make certain that we continue to fulfill that solemn commitment.”

SASC Chairman Carl Levin (D-MI) came out in opposition to McCain and Graham’s efforts and seconded the President’s call for a broader deficit reduction bill. “The idea of sequestration was to increase the pressure on all sides to compromise,” Levin said. “We must now deal with the sequester as a whole, by doing what the Joint Select Committee has been unable to do: Create a balanced deficit reduction package that includes revenue as well as spending reductions and avoids unacceptable cuts to education, health care, defense, and other vital programs.”

It is unclear exactly how DoD will administer the sequestration cuts. A HASC fact sheet titled “What Sequestration Really Means” claims that “over 95 percent of the budget authority” identified as “security spending” falls under DoD control, therefore making the Pentagon responsible for absorbing 95 percent of the \$600 billion cut to security spending. This would result in a \$570 billion cut to the DoD budget over the next decade. Others have argued that the “security spending” category includes the entire \$57 billion U.S. Department of Homeland Security budget, as well as a number of programs under the purview of the U.S. Department of State.

On Nov. 14, Secretary of Defense Leon E. Panetta sent a letter to JSCDR members outlining some of the budgetary consequences of sequestration. Panetta identified programs to build new long-range bomber airplanes, submarines, and ballistic missiles as likely victims of the budget cuts, and called on Congress to amend the *Budget Control Act of 2011* to give DoD greater control over making budget cuts. “Current law does not provide flexibility,” Panetta claimed in the letter. “It dictates that

sequester cuts must be applied in equal percentages to each program, project and activity.” The Secretary identified that figure as 23 percent, cutting all DoD programs by nearly one-fourth from FY13 to FY23.

SENATE APPROVES REVISED FY12 DEFENSE AUTHORIZATION ACT

On Dec. 1, 2011, the Senate approved S. 1867, the FY12 *National Defense Authorization Act (NDAA)*. Six days of debate resulted in a compromise on language regarding the military’s role in apprehending, detaining, and trying terrorism suspects. The bill then moved to conference with the House of Representatives, which passed its version of the FY12 *NDAA* (HR 1540) on May 26, 2011. Conferees from the SASC and HASC will meet in private to negotiate a compromise bill and conference report for final House and Senate passage. Both the House and Senate versions of the bill prompted veto threats from the President, for different reasons.

After the SASC marked up the FY12 *NDAA* in June, the Obama administration expressed its opposition to certain provisions in the bill (then-numbered S. 1253) that gave DoD authority to detain terrorism suspects within the United States, potentially including American citizens. The SASC-passed bill also mandated military custody and trials for al-Qaida members, a result of Senate opposition to the White House’s decision to try Somali terror suspect Ahmed Abdulkadir Warsame in federal court in New York rather than in a military tribunal.

The FY12 *NDAA* provisions on detainees were opposed in the Senate by a unique combination of liberal Democrats and

libertarian Republicans, led by Sens. Dianne Feinstein (D-CA), Patrick Leahy (D-VT), and Rand Paul (R-KY). On Dec 1, SASC Chairman Levin worked out a compromise amendment with Feinstein to make clear that none of the detainee language in the bill would alter current law. “I have argued on this floor that there’s nothing in our bill, nothing, which changes the rights of United States citizens,” said Levin. “There was no intent to do [that].”

Senators filed 381 amendments to S. 1867, many of which were dropped, ruled out of order, or adopted by unanimous consent. One amendment, co-sponsored by 11 SASC members, would “bolster the detection and avoidance of counterfeit electronic parts.” The amendment was the direct result of a Nov. 8 SASC hearing on counterfeit electronics within the DoD supply chain. The language requires contractors to replace counterfeit electronic parts in systems they produce and to notify DoD whenever counterfeit parts are discovered.

FY12 NDAA RESOURCES

Senate Armed Services Committee-approved revised bill text (S. 1867):

<http://www.gpo.gov/fdsys/pkg/BILLS-112s1867pcs/pdf/BILLS-112s1867pcs.pdf>

Senate Armed Services Committee report on the previous version of the bill (S. 1253):

<http://www.gpo.gov/fdsys/pkg/CRPT-112srpt26/pdf/CRPT-112srpt26.pdf>

Veto threat on S. 1867:

http://www.whitehouse.gov/sites/default/files/omb/legislative/sap/112/saps1867s_20111117.pdf

House-approved bill text (HR 1540):

<http://www.gpo.gov/fdsys/pkg/BILLS-112hr1540eh/pdf/BILLS-112hr1540eh.pdf>

House Armed Services Committee report:

<http://www.gpo.gov/fdsys/pkg/CRPT-112hrpt78/pdf/CRPT-112hrpt78.pdf>

Veto threat on HR 1540:

http://www.whitehouse.gov/sites/default/files/omb/legislative/sap/112/saphr1540r_20110524.pdf

Content provided by

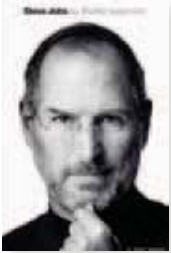
Dynetics

RECOMMENDED READING LIST

Numerous Army leaders over the years, officers and enlisted alike, have commended the practice of reading to their Soldiers. Even—especially—in this age of information overload, the pursuit of knowledge through books is essential to gain a fuller understanding of acquisition, logistics, and technology. In the words of GEN Gordon R. Sullivan (USA Ret.), 32nd Chief of Staff of the Army, “At no time in history has the volume of information available to the human race been as accessible as it is today, nor as essential. ...

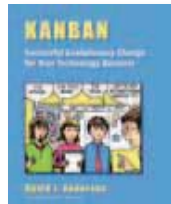
Reading teaches conceptual analysis, offers insights to ponder, and expands both the imagination and the potential of the mind.” On that note, *Army AL&T* Magazine publishes Off the Shelf as a regular feature to bring you recommendations for reading from Army AL&T professionals.

Is there a book you'd like to recommend for this column? Send us an email at usarmy.belvoir.usaasc.list.usaascweb-army-alt-magazine@mail.mil. Please include your name and daytime contact information.

**STEVE JOBS**

by Walter Isaacson
(New York, NY;
Simon and Schuster,
2011, 656 pages)

Released just weeks after the death of the founder of Apple Inc., Jobs' biography, written with his full cooperation, is the culmination of Isaacson's more than 40 interviews with him over two years, in addition to interviews with hundreds of Jobs' family members, friends, colleagues, competitors, and adversaries. Jobs had no control over the book's content, nor did he read the final product before it was published. Isaacson, former chairman of CNN and former editor of *Time* magazine, relates Jobs' candid assessment of his life and work, including his opinions of former colleagues and foes, and his former love interests. *Steve Jobs* chronicles the life of a man who became an icon of imagination and creativity, following his path of entrepreneurship in six industries: personal computers, animated movies, music, phones, tablet computing, and digital publishing. Jobs' biography showcases his talent to combine engineering with creativity to introduce products that the public never knew they wanted.

**KANBAN: SUCCESSFUL EVOLUTIONARY CHANGE FOR YOUR TECHNOLOGY BUSINESS**

by David J. Anderson; preface by Donald G. Reinertsen
(Sequim, WA; Blue Hole Press, 2010, 278 pages)

Anderson, who is credited with the first implementation of a Kanban process for software development in 2005, uses this book to explain how and why a technology or software development business should implement Kanban, an increasingly popular way to visualize and limit work-in-progress in the information technology and software development fields. Anderson also explores how companies can recognize and capitalize on opportunities to improve. For Anderson, the addition of Kanban to current processes can deliver better business agility and serve as a catalyst for culture change.

**LEADERSHIP IN DANGEROUS SITUATIONS: A HANDBOOK FOR THE ARMED FORCES, EMERGENCY SERVICES AND FIRST RESPONDERS**

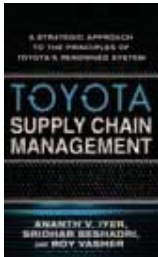
Edited by COL Patrick J. Sweeney, Michael D. Matthews,
and CPT Paul B. Lester
(Annapolis, MD; Naval Institute Press, 2011, 416 pages)

Published in cooperation with the Association of the United States Army, *Leadership in Dangerous Situations* combines the experiences of military, law enforcement, and fire and rescue personnel with the knowledge of prominent scholars to help prepare the reader for the unique psychological, social, and physical challenges of leading in dangerous environments. Integrating research and theory with practical experience, the authors—a former battalion commander in the 101st Airborne Division who directs the Eisenhower Leader Development Program at the United States Military Academy (USMA), a former law enforcement officer who is Professor of Engineering Psychology at USMA, and a research psychologist in the Army's Comprehensive Soldier Fitness Directorate who is a veteran of the conflicts in Iraq and Afghanistan—set out to help first responders develop and enhance their skills to function effectively.

RECOMMENDED READING LIST

TOYOTA SUPPLY CHAIN MANAGEMENT: A STRATEGIC APPROACH TO TOYOTA'S RENOWNED SYSTEM

by Ananth V. Iyer, Sridhar Seshadri, and Roy Vasher
(New York, NY; McGraw-Hill, 2009, 240 pages)



Referenced worldwide as a benchmark for “lean” concepts, the Toyota Production System is a corporate success study in manufacturing and supply chain management. The authors of *Toyota Supply Chain Management*—two experts in the subject and a former Toyota senior executive—explain Toyota’s system in detail as the basis for guidance on improving production and operations across a variety of industries, including health care, insurance, banking, credit processing, and retailing. Combining insider tips with “lean” strategies, the book focuses on how to use variety, velocity, variability, and visibility to achieve efficiency and balance within an organization or company.

UNITED STATES ARMY LOGISTICS: FROM THE AMERICAN REVOLUTION TO 9/11

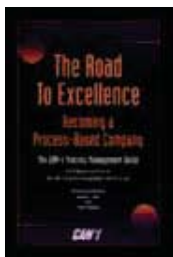
by Steve R. Waddell
(Santa Barbara, CA; Praeger, 2009, 232 pages)



Recommended by the U.S. Army Logistics University Library, *United States Army Logistics* explores the challenges, outcomes, successes, and failures of more than 200 years of the Army’s logistical systems. Waddell, a Professor of history at the United States Military Academy, follows the course of Army logistics through war and peace to illustrate how it grew into a first-rate supply system that can support current global military requirements. The book is divided into two parts, one explaining the history of Army logistics and the other identifying key elements in the system’s development. Waddell focuses on the ability of Army logistics to meet both short- and long-term demand, considering funding, new technology, the geographical scope of operations, and the availability of resources.

THE ROAD TO EXCELLENCE: BECOMING A PROCESS-BASED COMPANY

Revised and edited by Dennis C. Daly and Tom Freeman
(Austin, TX; Consortium for Advanced Manufacturing – International, 1997, 177 pages)



Recommended by Lee Thompson, Deputy Assistant Secretary of the Army for Strategy and Performance Planning, *The Road to Excellence* conveys the importance of process management in planning and achieving corporate objectives. Authored by process strategists, implementers, and practitioners from manufacturing and service companies, consulting firms, and universities, the contributors’ experiences combine to create a four-section book that offers insights on the advantages of becoming process-centered, constantly considering the needs of the customer, and lessons learned in the shift from a function-centered organization. From creating a strategic vision to sustaining process management concepts, *The Road to Excellence* is useful for businesses of all sizes in a variety of fields, from services to manufacturing.



The Association of the United States Army's Institute of Land Warfare

AUSA Winter Symposium and Exposition

A Professional Development Forum

AMERICA'S ARMY- DECISIVE FORCE

Register online at www.ausa.org

22-24 FEBRUARY 2012

Greater Fort Lauderdale/
Broward County Convention Center
Fort Lauderdale, FL



FOR MORE INFORMATION CONTACT: AUSA, Industry Affairs, 800-336-4570, ext. 365

ARMY ACQUISITION, LOGISTICS & TECHNOLOGY
ISSN 0892-8657

DEPARTMENT OF THE ARMY
ARMY AL&T
9900 BELVOIR RD
FT BELVOIR, VA 22060-5567

ASC.ARMY.MIL

HEADQUARTERS DEPARTMENT OF THE ARMY | PB-70-12-01 | APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED

“In the past 25 years, a political landscape that was dominated by two global superpowers has evolved into an arguably more delicate arrangement that is as unpredictable as it is complex. ... Military logistics similarly has transformed, adapting to the new way we fight while incorporating the new way we do business and the technology that drives it all.”

COL Stanley Wolosz
Deputy Chief of Staff for Logistics
U.S. Army Pacific Command

