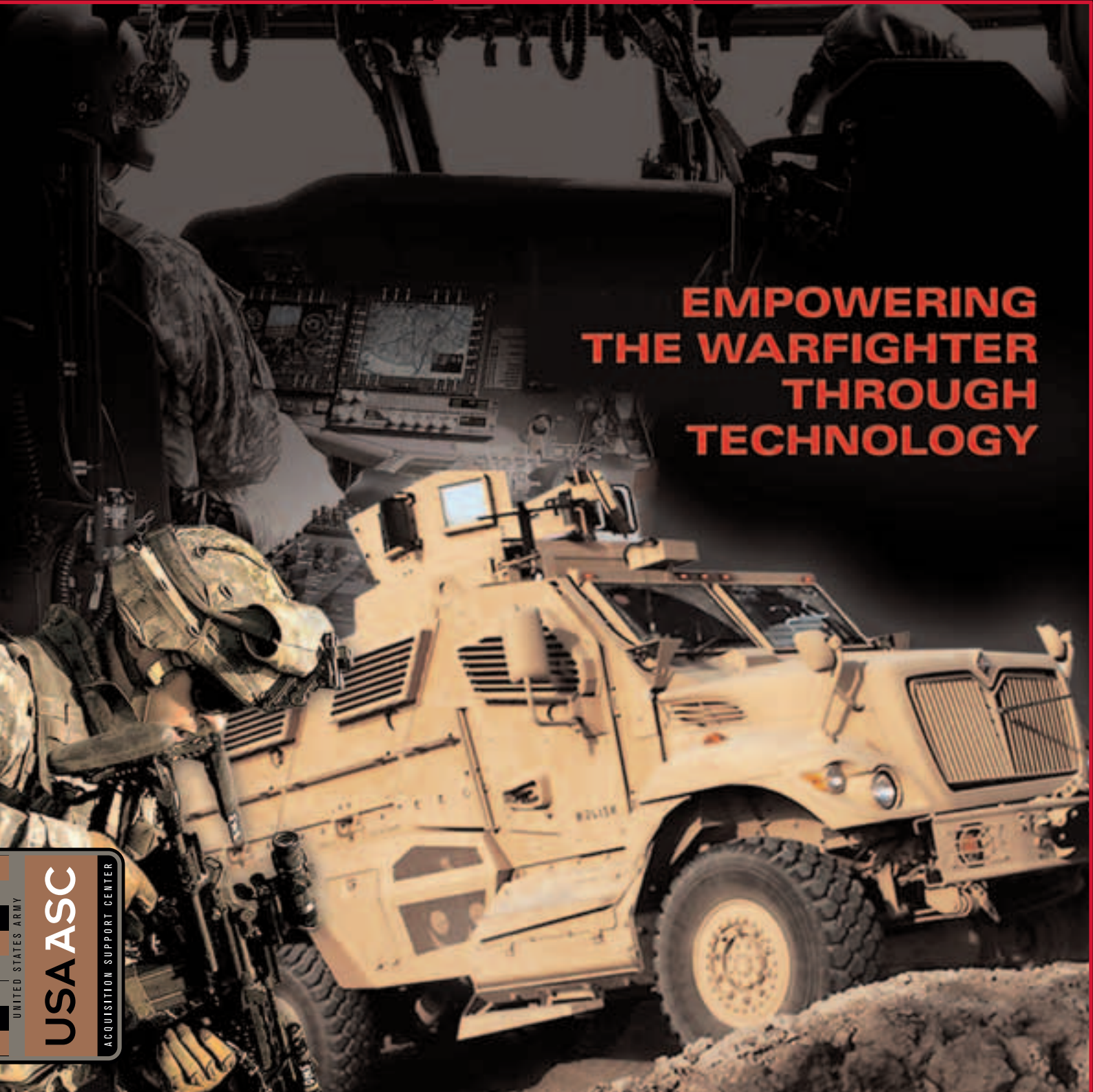


ARMY AL&T

October - December 2008



**EMPOWERING
THE WARFIGHTER
THROUGH
TECHNOLOGY**



UNITED STATES ARMY
USAASC
ACQUISITION SUPPORT CENTER

From the Army Acquisition Executive Empowering the Warfighter Through Technology



This issue showcases the magnificent work being done by our program executive offices to provide warfighters with world-class weapon systems and equipment for increased lethality, situational awareness, and survivability. From the success of our Soldier-as-a-System approach, to the development and fielding of individual equipment, to the Future Combat Systems integrated System-of-Systems Engineering construct for synchronizing multiple weapon systems platforms with networked operations, to the acquisition of conventional ammunition for all military services, to the use of smoke in urban warfare that gives our warfighters critical seconds of virtual invisibility from the enemy, to the outstanding readiness rates of our aviation fleet and more, you will read firsthand about the extraordinary accomplishments and dedication to duty of the Army Acquisition Corps and the greater Army Acquisition, Logistics, and Technology (AL&T) Workforce who directly support our men and women in uniform around the world and around the clock.

We are the Army Acquisition Enterprise with a portfolio of fewer than 43,000 military and civilian workforce members who manage roughly 25 percent of the U.S. Army's budget and more than 650 programs. We are proud of our mission to equip and sustain the world's most capable, powerful, and respected Army. This mission requires a highly skilled workforce capable of developing, acquiring, fielding, and sustaining the equipment our Soldiers depend upon. It also requires working closely with numerous combatant command headquarters, the Army Materiel Command, and our industry partners to leverage critical domestic and foreign technologies, now in existence or development — all with the support of Congress and the American people.

Technological superiority continues to be a cornerstone of our military strategy. Many of the systems in use today were developed long before the war on terror began, but are being upgraded with new technologies to meet emerging requirements. For example, a new variant of the Hellfire missile, known as the K2A, was developed and fielded to meet an urgent operational requirement and there are other examples in this issue. Clearly, our warfighters today are benefiting from past investments in cutting-edge technologies. We must continue to invest wisely in science and technology (S&T) to provide our current and future warfighters with unprecedented capabilities.

Supporting an Army at war is critical, both tactically and strategically. From a tactical standpoint, we are providing the weapon systems and

equipment that our warfighters need to succeed in their current missions. As we meet our ongoing requirements, we are looking to the future to support an Army at war from a strategic standpoint. We are taking the lessons we're learning in *Operations Enduring* and *Iraqi Freedom* and putting in place a plan to meet future requirements better and faster. Our goal is to compress the concept-to-combat cycle significantly to meet the immediate and future needs of our warfighters as rapidly as possible.

Last July, we held a summit attended by our program executive officers and our deputy assistant secretaries within the AL&T community where we examined our many tactical and strategic challenges. It was a 1-day event focused on the expanse of the Army Acquisition Enterprise and the esprit de corps that we share as a team with a common mission and vision. We highlighted achievements in S&T and key acquisition programs; discussed the need for adequate resources, program stability, and business transformation; and reviewed achievements in acquisition policy and logistics, contracting, and acquisition career management. We are on a path forward of continual process improvement where quick acquisition decisions will enable us to meet the urgent needs of our warfighters and create a leaner enterprise, which will require fewer resources spent on overhead and more on the operational needs of our men and women in uniform.

We are changing the way we do business. We are transforming the business processes and functions to better support our forces — improving both effectiveness and efficiencies. Just as the Army is applying the doctrine, organization, training, materiel, leader development, personnel, and facilities construct to determine appropriate adjustments to its operational capabilities, we are applying this same construct to our institutional processes that govern acquisition to enable us to evolve on pace with the warfighters we support. The scope of this effort is immense. Our goal, as stated earlier, is to free human and financial resources for more compelling operational needs. Realizing this goal depends on improving processes, developing tools to enhance enterprise-wide situational awareness and decision making, and reducing organizational redundancy and overhead.

We always remember that we work for our warfighters. Their success is our success. On behalf of the entire Army Acquisition Enterprise, I hope you will enjoy reading about our efforts to ensure their success in all missions.

Dean G. Popps
Army Acquisition Executive

COMPLETE OUR READERSHIP SURVEY!

The U.S. Army Acquisition, Logistics, and Technology Workforce provides tremendous support to our Soldiers by empowering them with the latest technology as they continue to fight the global war on terrorism. At *Army AL&T Magazine*, our goal is to print articles of value to all of our readers. We strive to publish articles that showcase change, best business practices, lessons learned, and success stories from Army leaders, civilians, and Soldiers in the field.

In the interest of improving *Army AL&T Magazine*, we would like to know what you like about the publication and anything that you would like to see changed. We value your feedback, so please take a few moments to complete the survey on the following page. Your responses will be kept confidential. We will share our findings in the January-March 2009 edition. Please return your completed survey by Nov. 14, 2008.

You may also complete the survey online at <http://asc.army.mil/altmag/survey>.

Thanks in advance for your timely participation!

Cynthia D. Hermes
Editor-in-Chief



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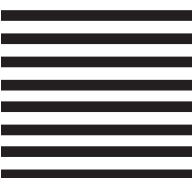
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Thank you for your participation!
Army AL&T Magazine Staff

To complete this survey online, go to <http://asc.army.mil/altmag/survey>.



ARMY AL&T

October - December 2008

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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.

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JPEO CBD's Rapid Obscuration Systems (ROS) — Not Just Smoke and Mirrors

Trish Weiss

Magicians use the art of illusion to distract and deceive their audience, making the impossible appear possible. The Joint Program Executive Office Chemical and Biological Defense's (JPEO CBD's) ROS team at Aberdeen Proving Ground (APG), MD, is putting the illusory "smoke and mirrors" to a very different use in the global war on terrorism — saving lives.

U.S. Army Soldiers from 1st Platoon, Alpha Co., 3rd Battalion, 187th Infantry Regiment, 101st Airborne Division (Air Assault), run toward a Black Hawk helicopter after conducting a search for weapons caches in Albu Issa, Iraq. The new XM106's TiDi fill will minimize the smoke inhalation hazard associated with current smoke materials used by the Army. (U.S. Army photo by SPC Luke Thornberry, Joint Combat Camera Center.)

Part of JPEO CBD's Joint Program Manager Nuclear, Biological, and Chemical Contamination Avoidance (JPM NBCCA), this diverse team of engineers and scientists develops smoke grenades and grenade launchers for the Army's Family of Tactical Obscuration Devices (FOTOD) program. Delivering enhanced capabilities to warfighters is the ROS team's number one priority.

The first increment of the FOTOD program will deliver a new hand-tossed smoke grenade, the XM106. Officially designated "Grenade, Hand; smoke, visual, restricted terrain, XM106," this grenade will provide not only a new capability to the warfighter, but it will also greatly expand the tactical use of smoke in urban warfare, counter-sniper, and close combat operations.

The XM106 grenade will provide not only a new capability to the warfighter, but it will also greatly expand the tactical use of smoke in urban warfare, counter-sniper, and close combat operations.

What makes the XM106 smoke grenade a leap-ahead development in tactical obscurant devices are its titanium dioxide fill material and fiberboard body design. Titanium dioxide, nicknamed "TiDi," is a noncombustible, nonburning, nontoxic powder with numerous household and commercial applications. The XM106 explosively disperses the powdery TiDi fill to form a dense, white obscurant cloud that lasts for several seconds. The TiDi smoke obscures the visual and near-infrared ranges of the electromagnetic spectrum. Because it is a nontoxic particulate smoke, rather than a "burning" smoke, the TiDi fill minimizes the smoke inhalation hazard associated with current smoke materials.

Comparable in size and weight to the current AN-M8 HC grenade, the XM106 grenade's body is constructed

of a mylar-coated fiberboard material with aluminum end caps to securely hold the fuze in place when the grenade is detonated. Long screws complete the "frame" of the body by securing the end caps together.

The XM106 is also designed with safety in mind. When the grenade "functions," the fiberboard body ruptures, dispersing the TiDi fill, while the frame and fuse remain intact. This design minimizes the fragmentation hazard associated with current smoke grenades. In addition, a "pull-safe" device has been incorporated into the fuze design to reduce the risk of the grenade accidentally detonating. The new pull-safe device securely holds the pull ring in place until the Soldier is ready to use the grenade. Similar pull-safe devices are being incorporated into the fuze designs for use on other smoke and lethal grenades.

Together, the new TiDi fill material and fiberboard body design allow the XM106 grenade to be used near friendly forces and in restricted terrain, including inside buildings, caves, and



Emerging smoke technologies and hardware offer new and critical capabilities to protect warfighters. Here, LCPL Timothy Hughes, Combat Engineer Co., Combat Assault Battalion, 3rd Marine Division (Div.), fires an M249 squad automatic weapon under the concealment of a green smoke grenade during platoon-sized simulated combat in Japan on March 8, 2008. (U.S. Marine Corps photo by CPL Eric Arndt, III Marine Expeditionary Force Public Affairs.)

other enclosures. This design also increases survivability during operations by giving warfighters a critical few seconds of virtual invisibility from the enemy.

The Fast Obscurant Grenade (FOG)

The XM106 grenade design originated in 2003, with a requirement for a new smoke grenade to support two Advanced Concept Technology Demonstrations (ACTDs) conducted by the Project Manager Night Vision Cave and Urban Assault. To meet that requirement, an accelerated development effort for the FOG resulted in the now-familiar fiberboard body design with the TiDi fill material.

Based on its successful performance in the ACTDs, PM Direct Support Asymmetric Warfare Group (DS AWG) requested 2,000 FOGs to train and equip warfighters deployed to *Operation Iraqi Freedom*. The FOGs were produced at Pine Bluff Arsenal, AR. The U.S. Army Developmental Command issued a safety confirmation for the FOGs in June 2007 based on successful safety testing. Select units from the 10th Mountain Div. were trained on use of the FOG last summer at Fort Drum, NY, and the remaining FOGs were deployed to theater in September

The XM106 grenade represents a new and vital capability for force protection. (Photo courtesy of JPEO CBD.)



2007. Warfighter feedback on the FOG has been very positive and new tactical uses for the grenade are being proposed. As a result, the PM DS AWG has also incorporated the pull-safe device into the design for production and fielding of additional FOG quantities this year.

The FOG served as the basis of the XM106 grenade design. Other than its official designation, the addition of the pull-safe device on the fuze is the only distinguishing feature of the XM106 grenade from the original FOG design.

The XM106 grenade is nearing completion of its Product Qualification Testing and Initial Operational Test and Evaluation at various sites across the United States. Once the XM106 grenade successfully completes its testing program, a decision to proceed to full-rate production is expected in February 2009, with production beginning in March 2009 at Pine Bluff Arsenal and fielding beginning in summer 2009. Because their designs are identical, the FOG will ultimately merge with the XM106 grenade and no longer be produced.

The Road Ahead

So, what's next for the ROS team? Working in collaboration with the Edgewood Chemical Biological Center's Research and Technology Directorate, the ROS team is pursuing bi-spectral smoke fill materials

that will provide obscurity in the visual and infrared spectral regions. Successful implementation of the bi-spectral material will transition as the next increment of grenades in the FOTOD. Another future increment in the FOTOD program will provide a new articulated grenade launcher and

Emerging smoke technologies and hardware offer new and critical capabilities to protect warfighters conducting their missions.

grenade to project smoke at greater distances. Collaborative efforts are underway to develop this technology for both smoke and nonlethal grenade applications.

Today's Army acquisition environment is fast-paced and challenging, but the members of the ROS team never lose sight of why their work is so important. Emerging smoke technologies and hardware offer new and critical capabilities to protect warfighters conducting their missions. These capabilities are not just smoke and mirrors. They can make a difference in bringing warfighters home safely to their families.

TRISH WEISS is ROS Team Leader under JPM Reconnaissance and Platform Integration, JPM NBCCA, APG. She holds a B.S. in mechanical engineering from North Carolina State University and an M.S. in program management from the Naval Postgraduate School. Weiss has 24 years of hardware acquisition experience within the chemical-biological defense area, including physical protection, chemical demilitarization, and smoke and obscurants. A U.S. Army Acquisition Corps member, Weiss is Level III certified in program management; systems planning, research, development, and engineering; and life-cycle logistics.



PEO Ammunition — We Make the Ammo, You Make the Difference

LTC Karl Borjes, LTC John Lewis, and LTC Joseph S. Minus Jr.

According to BG William N. Phillips, Joint Munitions and Lethality Life Cycle Management Command Commander and Program Executive Officer, Program Executive Office Ammunition (PEO Ammo), the PEO's first priority is the Soldier. "I ask myself every day what we can do to help our Soldiers be successful in their efforts; to give them the best capabilities we can provide so they can return home safely. We see that as our primary mission."

SPARK, shown installed here, is one of the Army's Top 10 Greatest Inventions of 2007. The rollers force the blast from IEDs down and away from the vehicle. (U.S. Army photo.)

The IA on this Husky mine detection vehicle allows for standoff interrogation of suspected IEDs. (U.S. Army photo.)



PEO Ammo is joined in this mission by four program offices:

- Program Manager Close Combat Systems (PM CCS) — responsible for close combat, force protection, and assured mobility capabilities across full spectrum operations.
- PM Combat Ammunition Systems (CAS) — responsible for acquisition and life-cycle management of cannon artillery munitions, mortar weapons, fire control, and munitions.
- PM Maneuver Ammunition Systems (MAS) — responsible for lethality for the current and future small-, medium-, and large-caliber direct-fire ammunition systems as well as the individual Soldier.
- PM Joint Services (JS) — responsible for oversight of the Single Manager for Conventional Ammunition (SMCA) mission, demilitarization of conventional ammunition for all services, and management of the industrial base.

PEO Ammo was established Jan. 1, 2002, to develop and procure conventional and leap-ahead munitions to increase combat power to the Joint warfighter, develop and field

precision-guided munitions, and improve and sustain the conventional stockpile.

“Equally important to our mission, we want to satisfy the customer, achieve excellence while we’re doing so, and grow world-class people and teams,” said Jim Sutton, Deputy PEO Ammo.

The PEO Ammo acquisition workforce is well positioned to achieve that mission. Eighty-one percent of the employees are certified acquisition professionals in the U.S. Army Acquisition Corps, and 76 percent have completed Lean Six Sigma training.

“The result is a high-performance, results-oriented organization where everyone is committed to meeting 100 percent of our warfighter requirements,” noted Phillips. And this commitment can be seen through the organization’s efforts. PEO Ammo is responsible for nearly 350 Army programs; more than 130 materiel release actions, many of which were urgently released in support of the global war on terrorism (GWOT); and acquisition of conventional ammunition for all military services

as Executor of SMCA. The actions resulting from these responsibilities allowed the organizations to be singled out for four of the U.S. Army Top 10 Greatest Inventions of 2007.

Countering the IED Threat

A June 25, 2008, headline in *USA Today* read, “Iraq IED [improvised explosive devices] deaths down 90 percent in a year.” The drop was attributed to a number of factors including new vehicles and improved surveillance, both areas where PM CCS, Product Manager Countermine and Explosive Ordnance Disposal (PdM CM&EOD), and PdM IED Defeat/Protect Force (IEDD/PF) have had a significant impact.

The IED Interrogation Arm (IA) is a good example of a current initiative. Developed and fielded in cooperation with the Research, Development, and Engineering Command, Night Vision Electronic Sensor Directorate (NVESD) at Fort Belvoir, VA, the IA provides standoff detection of IEDs for the RG-31 and Husky mine detection vehicles. This innovation proved so effective that urgent operational need statements were approved for 150 of

them. The IA was recognized by the Secretary of the Army as one of the Top 10 Greatest Inventions of 2007.

In collaboration with the Joint IED Defeat Organization, PM CM&EOD procured and fielded the Vehicle Optics Sensor System (VOSS) for EOD and route clearance vehicles. This system provides greater standoff detection and interrogation capabilities from within a blast-protected vehicle than was previously achievable. The VOSS is a gyro-stabilized triple sensor camera system mounted on a telescoping mast integrated onto the vehicles. According to COL Ray Nulk, PM CCS, more than 200 VOSS' have been fielded so far with 338 more planned. Total VOSS program funding approaches \$400 million. This system was also recognized as an Army Top 10 Greatest Invention of 2007.

PM CM&EOD has also worked with NVESD's Countermine Division to develop Ground Penetrating Radar (GPR) for use on the Husky mine detection vehicle. The GPR is a downward looking sensor that detects low metal content antitank mines and IEDs. Future procurement of vehicle-mounted GPRs will be determined after a field assessment.

MRAP Started Here

The procurement of blast-protected vehicles formed the cornerstone of the number one program in DOD, the Mine Resistant Ambush Protected (MRAP) Vehicle program. "What some people don't realize is that the MRAP program actually started as a countermine initiative," LTC Peter Lozis, PdM CM&EOD said. "The first Interim Vehicle Mounted Mine Detection System (IVMMD) was fielded in 2003 to detect roadside

bombs in Afghanistan and Iraq. That same year, we also fielded the Buffalo Mine Protected Clearance Vehicle and the RG-31 Medium Mine Protected Vehicle. Even though these vehicles have been transitioned to the U.S. Army Tank-automotive and Armaments Command and Project Manager Assured Mobility Systems, the survivability they offer has changed the doctrine, tactics, techniques, and procedures, as well as the way we train in an asymmetrical war."

The PEO Ammo workforce consistently leaves a footprint across DOD and in the fight against the GWOT.

Listening to Soldiers — Our Most Important Tool

One of the real success stories from PM CCS' newly chartered IEDD/PF office is the Self-Protection Adaptive Roller Kit (SPARK). Since the

Left: Gyro-stabilized cameras and a 25' telescoping mast allow detection of IEDs on the move in day and night conditions. Right: A cyclone blower is mounted on an RG-31. (U.S. Army photo.)



SPARK rollers force the blast from IEDs down and away from the vehicle, providing better protection to Soldiers inside. SPARK has been a real success story for the PdM IEDD/PF office. (U.S. Army photo courtesy of the Tank Automotive Research, Development, and Engineering Center.)



beginning of the Iraq war, U.S. troops have been looking for ways to protect themselves against IEDs. That was the intent when a group of Soldiers from the U.S. Army 3rd Infantry Division created a roller system for their High-Mobility Multipurpose Wheeled Vehicle. This system eventually became the SPARK. The rollers, installed on the front of vehicles, can initiate an IED by rolling over it. The roller causes the device to detonate in front of the vehicle instead of underneath it, greatly reducing the risk of injury to the crew and battle damage to a vehicle.

SPARK, which is also on the Army's Top 10 Greatest Inventions of 2007 list, has already successfully resolved 72 events in theater and is a real standout.

"I'm proud of the product and of how we got there," Phillips said. "This started as a Soldier initiative and has continued in that vein. Not long ago, LTC Karl Borjes, PdM IEDD/PF, was in Iraq talking to Soldiers who used the SPARK. The Soldiers said they could really use lights for night ops. Borjes replied, 'We'll make it happen.' And that's exactly what they did. It's that can-do attitude that permeates this PEO and makes it possible for us to get the warfighters what they need quickly."

According to Robin Gullifer, Deputy PM IEDD/PF, the Rhino is also a Soldier-developed item. "The Rhino features a pre-detonation capability that acts as an early detonation device," she said. "Mounted to a vehicle via a universal bracket, it has

become standard equipment in theater." The Rhino can be integrated with SPARK or Cyclone, a super powerful blower that removes debris and other objects while en route.

Another new system of note is the Ground Torch — a flame thrower that burns vegetation along the side of the road. It is currently being used by the U.S. Marine Corps (USMC) and is being adopted by the Army. The plan is to deliver and field systems to theater later this year through a partnership with the Rapid Equipping Force and USMC.

Simple Solution Enhances Grenade Safety

Grenades have played a part in warfare for hundreds of years. And, for many of those years, Soldiers have been

“taping” their grenades for perceived safety or to reduce noise. However, this is a safety hazard since removing the tape can inadvertently pull the pin, resulting in serious injury. In addition, it can also obscure vital markings, such as lot numbers, so otherwise functional grenades have to be demilitarized.

According to Kevin T. Wong, Force Application Division Chief, the Confidence Clip solves this problem. The clip is a simple device that fits between the grenade fuze and body, securely fastening the pull ring in place to prevent accidental removal or rattling. It will be incorporated into newly produced grenades as well as the existing inventory of lethal hand grenades to mitigate the unsafe, wasteful practice.

Technology Advancements Focus on Green Ammo, New Munitions, and Plant Modernization

The Green Ammo program is a joint effort between PM MAS; the U.S. Army Research Laboratory; U.S. Army Armament Research, Development, and Engineering Center; Joint Munitions Command; and the Lake City Army Ammunition Plant (LCAAP), Independence, MO, system contractor, Alliant Techsystems. The goal — to

produce a technologically advanced, environmentally friendly M855 Lead-Free Slug (LFS) 5.56mm cartridge — will greatly enhance shot-to-shot consistency, while eliminating approximately 2,000 metric tons of lead currently left in theater and on training ranges each year. Other improvements include an improved propellant and aerodynamics, reduced flash, and higher velocity. The M855 LFS, which will be in theater in 2009, is compatible with the M4, M16, and M249 weapons systems. PM MAS is also investigating incorporation of this technology into larger small-arms calibers.

Another advancement is the development of the M100 Grenade Rifle Entry Munition. This lightweight, muzzle-launched, standoff-breaching munition is fired from the M16/M4 series weapon using current 5.56mm service ammunition (either M855 ball or M856 tracer). The munition’s main charge detonates upon reaching its



The Confidence Clip, which fits between the grenade fuze and body, securely fastening the pull ring in place to prevent accidental removal or rattling, greatly enhances grenade safety. (U.S. Army photo.)

target, breaching an opening through secured doors and windows. The munition also provides friendly forces the necessary capability to gain access into sealed buildings in urban threat areas. “Most importantly,” said Rob Zienowicz,

PM Soldier Weapons
Ammunition Team Lead,

“it provides enhanced protection for Soldiers by allowing them to breach doors at a safe range.”

The LCAAP modernization effort is a 7-year, \$242 million endeavor targeted at improving production facilities to better support the war-fighter. LCAAP is the only remaining DOD-owned small caliber ammunition plant in the U.S. and produces more than 80 percent of the ammunition used by U.S. military services. Built in the early 1940s, many of the production lines have had little or no upgrades in more than 60 years — yet the demand for ammunition in support of GWOT has increased from approximately 400 million rounds per year in FY02 to more than 1.5 billion rounds in FY08.

This increased demand exposed vulnerabilities in the aged facilities. The modernization plan, which includes modern control systems and the addition of Occupational Safety and Health Administration safety



The LCAAP modernization effort will include new and refurbished equipment to improve production of ammunition to better support the warfighter. (U.S. Army photo.)

features, will ensure an annualized production capability of 1.6 billion cartridges for 5.56mm, 7.62mm, and .50-caliber weapons and greatly improve production reliability, availability, maintainability, improved safety, and environmental emissions.

“A key focus of the modernization is to implement Lean Manufacturing initiatives,” said Chris Grassano, PM MAS. “The effort baselines Lean metrics using value stream maps and simulations, and then develops projects to reduce waste, better utilize floor space, increase flexibility, and incorporate process improvements.”

Precision Munitions Give Soldiers New Capabilities

One of PM CAS’ main focus areas is fielding precision munitions like Excalibur and the Precision Guidance Kit (PGK). With the successful introduction and use of Excalibur in



The technologically advanced, environmentally friendly M855 LFS 5.56mm cartridge will enhance shot consistency and eliminate approximately 2,000 metric tons of lead currently left in theater or on training ranges each year. (U.S. Army photo.)

theater and successful PGK demonstration, the future of cannon-fired precision munitions has arrived. Excalibur provides precision fires capability and PGK has demonstrated a near-precision capability to fill the gap between conventional artillery and precision fires. For

more than a year now, U.S. forces in *Operations Enduring* and *Iraqi Freedom* have been using Excalibur — a 155mm precision-guided, long-range artillery system — to provide deployed forces with cannon-fired precision effects.

Also selected as a Top 10 Army Greatest Invention of 2007, Excalibur’s Global Positioning System (GPS)/ Inertial Navigation System delivers a near-vertical terminal angle attack and less than a 10-meter Circular Error Probable (CEP) accuracy. Its high-explosive (HE) warhead has three fuzing modes (point detonating, proximity, and delay) that make Excalibur effective against a wide variety of target types including personnel, structures, and light armored vehicles. The weapon system’s precision accuracy and small warhead ensures lower collateral damage enabling brigade combat teams to provide indirect fire support in complex and urban terrain.

“All of these Top 10 inventions have an impact every day on the lives of the men and women in harm’s way,” said GEN Benjamin S. Griffin, U.S. Army Materiel Command Commanding General. “When you talk to units in the field, they know about them — they use them.”

PGK Increases Cannon Artillery Accuracy

The PGK — a GPS guidance kit that includes fuzing functions that will improve the accuracy of 155mm and 105mm conventional artillery munitions — tracks the projectile position location and determines trajectory navigation solutions. The result is improved accuracy, quicker target kills, less collateral damage, and reduced logistics burden. Increment 1 focuses on integrating PGK with the M107, M795, and M549/A-1 HE 155mm artillery projectiles. Follow-on increments will add the 105mm HE artillery projectiles, 105mm and 155mm Cargo and Bulk Filled Projectiles, improved accuracy, and Future Combat Systems Non-Line-of-Sight Cannon compatibility. The Increment 1 accuracy requirement



The PGK increases cannon artillery accuracy by tracking the projectile position location and determining trajectory navigation solutions. This results in improved accuracy, quicker target kills, less collateral damage, and reduced logistics burden. (U.S. Army photo.)



3rd Battalion, 321st Field Artillery Regiment Soldiers inspect the Army's new GPS-guided Excalibur round before firing it for the first time at Camp Blessing, Afghanistan. (U.S. Army photo by SGT Henry Selzer, 173rd Brigade Combat Team Public Affairs.)

is less than 50-meter CEP threshold and less than 30-meter CEP objective. Increment 1 Systems Development and Demonstration was competitively awarded to Alliant Techsystems in May 2007 following a competitive phase that included a shoot-off.

The program is on track to achieve Initial Operational Capability in

2010. These efforts are just a few examples of how PEO Ammo and its subordinate commands are achieving their goals of supporting the Soldier, winning the GWOT, preserving an agile workforce, and enhancing both organic and commercial strategic capabilities.

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Authors' Note: Also contributing to this article were Gregory DeRosa, Brian M. Green, Robert Muth, LTC Jeffrey Woods, and Robert Zienowicz.



PEO Aviation — Warfighter Support Is Our Number One Mission

Paul Bogosian

As demand for Army aviation platforms and systems continues to increase, Program Executive Office (PEO) Aviation strives daily to balance the current support needs while maintaining a focus on future modernization requirements. In support of *Operations Enduring and Iraqi Freedom*, Army aviation platforms have already flown more than 2.5 million flight hours from February 2003 to July 2008. These numbers reflect a staggering 200- to 300-percent increase over the peacetime operational tempo (OPTEMPO). Without question, this pace, coupled with the evolutionary threat of today's fluid, nonlinear battlefield, drives the need for continued modernization.

Army aviation modernization initiatives include the procurement of CH-47F Chinooks with new DAFCS. Here, a CH-47 Chinook flies in Northern Iraq in support of Task Force Iron, 1st Armored Division. (U.S. Army photo by MAJ Enrique Vasquez, Combat Aviation Brigade (CAB), 1st Infantry Division (1ID)).



The Army initiated an aviation transformation plan in concert with the Comanche termination decision in 2004. The plan focused on modernizing the current fleet of aircraft along with procuring new, state-of-the-art aircraft to more effectively operate in current and future combat environments. PEO Aviation's challenge remains: continue to maintain the existing level of support to warfighters while simultaneously remaining committed to making the necessary investments to modernize the fleet. Success in both of these areas is essential.

Supporting the Current Fight

Despite the demanding OPTEMPO, the fleet continues to reflect outstanding readiness rates. This is due principally to the proactive and aggressive maintenance accomplished by PEO Aviation personnel deployed worldwide. Without question, supporting warfighters remains the top priority for the aviation acquisition workforce. To that end, preset, reset, and condition-based maintenance (CBM) are current focus areas as PEO Aviation project managers (PMs) do everything they can to maintain the fleet's

mission capability and ensure Army aviators have the latest technologies available. To assist the warfighter, PEO Aviation is integrating targeting modifications and aircraft survivability enhancements, and conducting critical inspections on aviation systems prior to deployment to improve their mission effectiveness, survivability, and safety. CBM, performance-based logistics, and Soldier-focused logistics are examples of current initiatives that seek to enhance the ability to keep aircraft in the fight. This ensures appropriate, timely maintenance actions,



SFC Darren Atterbery, 4th Battalion (Bn), 42nd Field Artillery Regiment, 1st Brigade Combat Team, 4ID, launches an RQ-11 Raven UAS in the early morning hours at Taji, Iraq, for a flight to search for insurgents placing improvised explosive devices. (U.S. Navy photo by PH1 Michael Larson.)

and that PEO Aviation has the parts it needs when it needs them by providing continual process improvement.

Unmanned Aircraft Systems (UAS) are providing even further support to Soldiers in the field by performing surveillance and reconnaissance operations without putting Soldiers' lives at risk. UAS are already in theater and have flown more than 480,000 hours in support of both theaters of operation. Of note, the initial experimentation of directly teaming manned systems with the UAS was conducted. The effects of this still-developing capability are numerous including such anticipated benefits as reduced sensor-shooter timelines, enhanced situational awareness, and increased survivability.

Because of the increased demand on the capabilities that the UAS provide, the Army is continuing to develop and procure new unmanned aircraft. For example, 157 Raven B Small Unmanned Aerial Vehicles have been delivered to the Army and are headed to theater, and a second production contract is being finalized to purchase additional Ravens. The Sky

Warrior Extended Range/Multipurpose Unmanned Aircraft is progressing through the Development and Demonstration Phase after completing Critical Design Review and Design Readiness Review. Prototype aircraft are currently being delivered for use in various tests, and a low-rate initial production (LRIP) contract is expected to be signed soon.

The Future

PEO Aviation must balance its current support and future modernization initiatives. It cannot, however, afford to focus on the current fleet at the expense of modernization. Continued investment in research and development is critical to success.

Near Term. Planned modernization activities for next year include:

- PM Apache is providing the Modernized Target Acquisition and Designation Sight to seven more battalions and performing further user testing with the Block III aircraft.
- PM Armed Reconnaissance

Helicopter continues to progress through the System Development and Demonstration (SDD) phase of the program with its four test vehicles while closely monitoring the build process for SDD aircraft five and six.

- PM Cargo Helicopter plans to award a multiyear contract to procure additional CH-47F Chinook aircraft that include the new Digital Advanced Flight Control System (DAFCS). The DAFCS provides near Level I flight handling qualities, making the CH-47F the best handling rotary-wing aircraft in the Army inventory.
- The UH-60 Black Hawk fleet, managed by PM Utility, continues as the workhorse for current operations. The UH-60 and UH-60L fleets are executing missions around the globe in support of the global war on terrorism. The new UH-60M will join ongoing operations this year. Thirty UH-60Ms were fielded to the First Unit Equipped in June 2008 and more fieldings continue. The aircraft features a fully digitized cockpit with four multifunction displays; 4-axis, fully coupled flight director; digital map; dual-embedded global positioning/inertial navigation system; integrated vehicle health management system; wide chord composite blades; and increase in



U.S. Army Soldiers from the 703rd Brigade Support Bn, 4th Brigade, 3ID, hook up supplies to a CH-47 Chinook helicopter at Forward Operating Base Kalsu, Iraq, during a resupply mission for Combat Outpost Summers on March 22, 2008. (U.S. Army photo by SPC Tiffany Dusterhoft.)



An AH-64D Apache Longbow helicopter gunship from the 1st Attack Reconnaissance Battalion (ARB), 1st Aviation Regiment, prepares for a night mission on May 31, 2008. The 1-1 ARB gunfighter air and ground crews work around the clock sustaining air operations and are part of the CAB, 11D, Fort Riley, KS, flying in support of Task Force Iron, 1st Armored Division, in Northern Iraq. (U.S. Army photo by MAJ Enrique Vasquez, CAB, 11D.)

engine horsepower. Additionally, an upgraded UH-60M is now approaching first flight and will bring an integrated Common Aviation Architecture System cockpit and fly-by-wire system to the Black Hawk fleet.

- PM Utility is also fielding the UH-72A Lakota, with initial fielding to Table of Distribution and Allowances units complete, and shifting execution of first deliveries to the U.S. Army National Guard (ARNG) to replace their aging UH-1 Huey and OH-58A/C Kiowa fleets.
- PM Aviation Systems manages multiple fleet sustainment and system programs and is also managing the new Joint Cargo Aircraft (JCA) program. The C-27J Spartan was chosen as the JCA platform, and the first six aircraft are on order. JCA is a multifunctional, twin engine, fixed-wing aircraft that will replace the C-23 Cessna and select C-12 Huron aircraft for the Army and supplement the U.S. Air Force fleet. The first flight for JCA number one occurred June 16, 2008, and delivery was anticipated for September 2008 to support the LRIP test program.

Fielding to the ARNG and Initial Operational Capability is scheduled for the fourth quarter 2010.

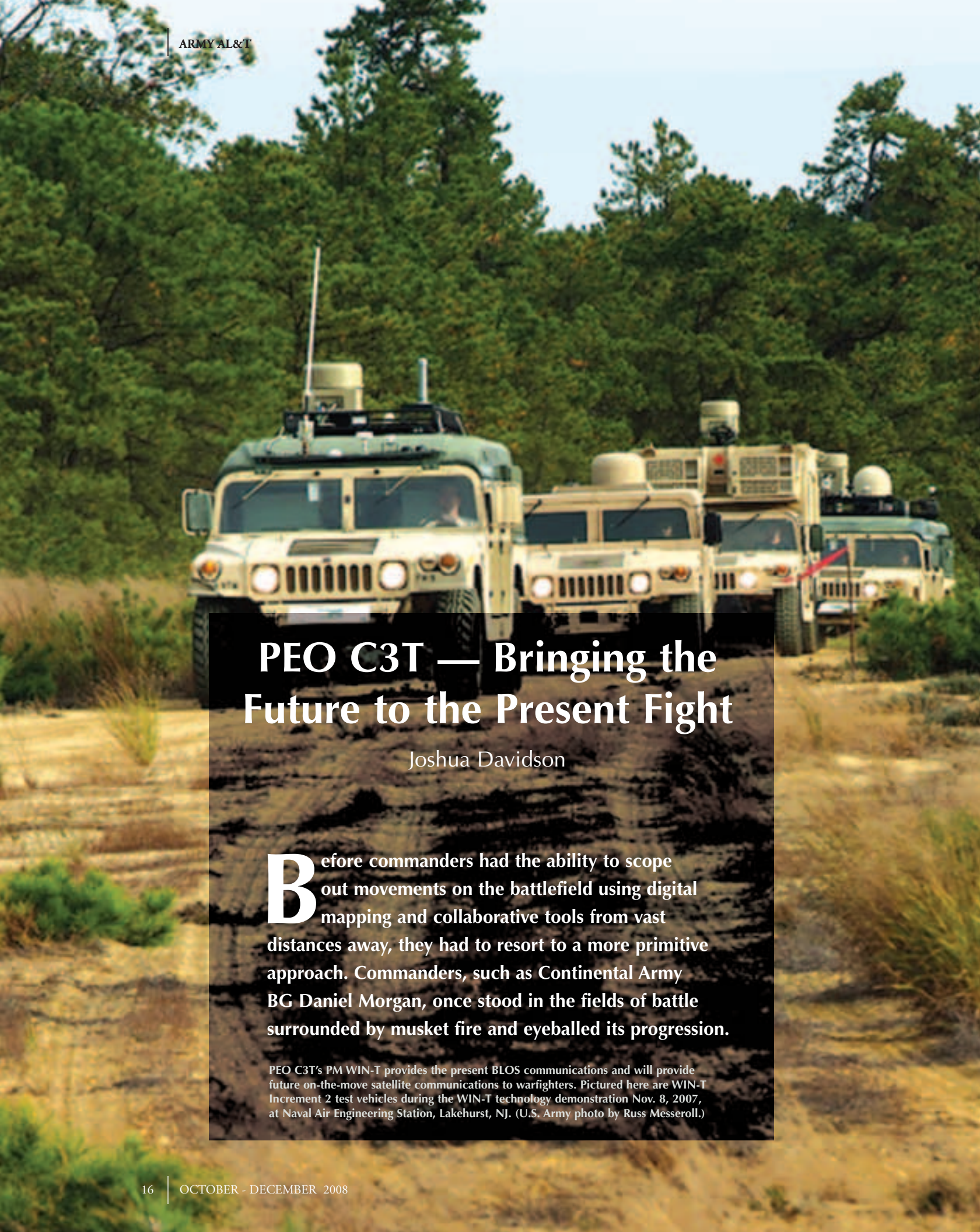
Far Term. With most of PEO Aviation's modernization programs either currently in or nearing production, Army aviation enters an era with no major upgrades or new aircraft on the books. Despite the great improvements achieved through the investment in current modernization, PEO Aviation has simply brought the aviation fleet up to the current state-of-the-art. PEO Aviation must look to the future and invest in science and technology projects that will provide the basis for aircraft operating in the 2040 timeframe. Areas of focus include flight performance, reconfigurable designs, lethality, man/machine integration, cargo handling, modeling and simulation, and ever greater levels of manned/unmanned teaming, to name a few.

PEO Aviation is confident that its proven capability to execute programs reflects actions its PMs have taken, and continue to take, to support the Soldier in the field. Further, PEO

Aviation is poised to face future fiscal and technical challenges as it aggressively seeks to forever maintain that critical balance between meeting the immediate needs while properly forecasting the future requirements and developing the necessary plans/programs to meet them.

PEO Aviation will continue to plan, develop, and field state-of-the-art components for aircraft that will allow Soldiers on the ground to have confidence that PEO Aviation will be there when needed — to look ahead of them, bring them into the fight, support them in close combat, and bring them out when it is over.

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PEO C3T — Bringing the Future to the Present Fight

Joshua Davidson

Before commanders had the ability to scope out movements on the battlefield using digital mapping and collaborative tools from vast distances away, they had to resort to a more primitive approach. Commanders, such as Continental Army BG Daniel Morgan, once stood in the fields of battle surrounded by musket fire and eyeballed its progression.

PEO C3T's PM WIN-T provides the present BLOS communications and will provide future on-the-move satellite communications to warfighters. Pictured here are WIN-T Increment 2 test vehicles during the WIN-T technology demonstration Nov. 8, 2007, at Naval Air Engineering Station, Lakehurst, NJ. (U.S. Army photo by Russ Messeroll.)

“Morgan got a chance to actually see the battlefield,” said Dr. Ricardo Herrera, a historian of the Combat Studies Institute at the Combined Arms Center, Fort Leavenworth, KS. “But if the battlefield was larger, generals had to rely on their aides galloping out and reports coming in from their brigade or division commanders. They also had to rely on themselves, frequently riding the line, getting an idea of what was going on, and sensing the battlefield, much as commanders do today.”

Command Post of the Future (CPOF)

The CPOF is one tool that has relegated into the Army’s history, for many, the practice of mapping one’s whereabouts using a grease pencil and acetate map overlay. The former Defense Advanced Research Projects Agency project is a digital collaboration tool that provides commanders with a real-time battlefield picture showing data embedded onto a map. That information can be quickly moved into a 3-D view, or sorted and analyzed in tabs. It also allows for real-time collaboration among

separate systems and voice-over-Internet protocol communications.

“CPOF provides real-time access across long distances for battle update briefings, battle update assessments, and commanders’ operations order briefs,” said COL Carlos Costa, S6 of the 5th Brigade/75th Division. “It puts the commanders in the fight without them having to be there. They can manage more because they are remote, but virtually engaged.”

Mission and Systems

The Army’s Program Executive Office Command, Control, and Communications Tactical (PEO C3T), headquartered at Fort Monmouth, NJ, is responsible for bringing these mission-enhancing tools into today’s fight. The organization, whose total annual budget exceeds \$6 billion, has more than 2,300 employees including core military, core civilian, U.S. Army Communications-Electronics Command (CECOM) Life Cycle Management Command (LCMC) matrix, and support contractors.

System support efforts in PEO C3T are led by its Battle Command Network and Support Directorate (BCN&SD), which provides the digital systems engineers (DSEs) and field support representatives who provide close assistance and troubleshooting to system users. During a unit’s training exercise, DSEs help resolve issues, set priorities, repair boxes, and provide over-the-shoulder training and system explanations. Many deploy to *Operations Enduring or Iraqi Freedom (OIF)* to support the same unit with which they trained. Civilians provide technical and training support, along with expedient resolutions to system issues. “Everyone is in the fight,” Costa said. Serving as the communications officer of a unit charged with providing system training to Soldiers before they deploy to Iraq, Afghanistan, and Guantanamo Bay, Cuba, Costa has interfaced with a large contingent of the PEO C3T civilian support staff.

The BCN&SD is assigned to Project Manager Command Posts (PM CP), which, aside from garnering an esteemed reputation for leading the Army’s fielding of tactical radios, was recently assigned to lead the PEO C3T’s system integration initiative. Efforts to consolidate disparate systems have provided commanders with actionable data at an increasingly more expedient rate. “Commanders have more data than ever before. The integration of these systems is imperative to enhance their effectiveness,” Costa said.



PEO C3T’s CPOF is a digital collaboration tool that provides commanders with a real-time battlefield picture showing data embedded onto a map. The information can be quickly moved into a 3-D view, or sorted and analyzed in tabs. (U.S. Army photo.)



The Net Zero Plus Joint Capabilities Technology Demonstration on May 27, 2008, at the National Training Center, Fort Irwin, CA, showcased PM MEP's vast technologies across DOD, from small generators to solar power. (U.S. Army photo by Richard Mattox, PEO C3T.)

Training System Users

The unit in which Costa serves uses PEO C3T systems, such as Maneuver Control System (MCS), CPOF, and Force XXI Battle Command Brigade-and-Below-Blue Force Tracking (FBCB2-BFT), during virtual, closed training environments at installations, such as McGregor Base Camp, NM, and Fort Lewis, WA. There, Soldiers use those types of systems to build and manage their battlefield common operational picture, which provides separate users with a view of various aspects of the battlefield. Tactical Operations Centers are replicated, battle drills are emulated, and Soldiers are conditioned to "train as they fight." Before they deploy to theater, Soldiers are given an introduction to numerous systems. System experience is obtained during their mission readiness exercises.

The virtual and accurate depiction of the battlefield the Army and its 5th Brigade/75th Division provides serves to combat any apprehension toward using the capabilities. "Realistic training like ours helps them get in the

fight and experience the strength and value of these systems," Costa said. "Time and usage helps them get there sooner rather than later."

Battle drills, standard operating procedures, and after action reviews are just some of the methods used to train system users to stay focused on the task at hand in the heat of battle. Repeated drills are performed "until it is the way they think and act without [consciously] thinking of it," Costa said. The units drill and

train extensively to identify improvised explosive devices (IEDs) and resolve such attacks. Intelligence capabilities are used to track IEDs and investigate patterns and methods of prevention.

PMs and Product Directors (PDs)

PEO C3T's project and product management offices play a key role in the design, acquisition, fielding, and support of fully integrated and cost-effective command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR). Assigned to the organization are PM Battle Command (BC); PD Counter-Rocket, Artillery, and Mortar (C-RAM); PM Mobile Electric Power (MEP); PM CP; PM Warfighter Information Network-Tactical (WIN-T); and PM FBCB2. PD Network Operations-Current Force (NetOps-CF) was

recently assigned to PM WIN-T. Also included in the PEO are the Special Projects Office (SPO)/Northeast Regional Response Center (NRRC), Systems Engineering and Integration (SE&I) Directorate, Operations and Business Management Office, Human Resources Office, and Chief Knowledge Office.

PM BC's products allow warfighters to plan and execute fires, disseminate intelligence, plan logistics, and collaborate and share battlefield information in a whiteboard-like environment. The C-RAM system senses RAM, launches, and warns surrounding troops. It then intercepts and destroys the RAM threat in flight.

PM MEP's role is to modernize a standard family of MEP generator sets for each service within DOD. Its mission is to be coordinated through an inter-service effort to develop, acquire, and support MEP generator sets from small, 0.5-kilowatt (kW) manportable generator sets to large, 920-kW prime power generating systems.

PM WIN-T provides the present beyond-line-of-sight (BLOS) communications and will provide future on-the-move satellite communications to warfighters. PD NetOps-CF products are used to maintain and troubleshoot the Army's network.



PEO C3T's FBCB2-BFT, shown here, provides a graphical representation of friendly vehicles and aircraft on a topographical map or satellite image of the ground. (U.S. Army photo.)

FBCB2-BFT provides a graphical representation of friendly vehicles and aircraft on a topographical map or satellite image of the ground. Since the Army's preparation for *OIF*, the SPO/NRRC has been a premier Army organization in supporting the digitization efforts of the global war on terrorism and homeland security efforts.

PEO C3T Processes

PEO C3T has originated processes such as Single Interface to the Field (SIF) and Unit Set Fielding (USF) to streamline Army approaches toward fielding and reporting system-related issues respectively. The SIF concept and portal provide the warfighter with a single entry point for support of any system managed by the CECOM LCMC. Accessing the SIF portal guides warfighters to the assistance they need and links them to mission-essential information pertaining to areas such as fielding and training, which is also shared by organizations throughout the Army.

USF is a 5-phase process that manages the planning and implementation of fielding and reset for all major tactical Army C4ISR capabilities. The U.S. Army and, specifically, the CECOM LCMC organizations, simultaneously provide warfighters with everything they need to perform their combat mission. This means providing Army BC Systems, communications systems, power, network, and enablers, all at the same time.

The BC as a Weapons System (BCAWS) process will serve to synchronize the fielding of capabilities

across the Army community. "The focus of the BCAWS initiative is on managing the readiness of battle staff, their BC systems, and associated trainings for CPs and command groups by reporting the status of each as weapons systems," said BG Nickolas Justice, Program Executive Officer C3T, in a recent article. "Through monthly reports submitted by unit commanders to the Headquarters, Department of the Army, the Army can conduct a full examination of equipment status and training levels related to its fielded equipment. The goal is for a standardized solution for BC systems to be fielded across the force."

A key SE&I initiative was the establishment of a Technology Gap Panel to realign the PEO C3T technology transition priorities and to subsequently help guide the U.S. Army Communications-

Electronics Research, Development, and Engineering Center and science and technology communities to align their investment strategies.

Sometimes, Costa will run across a Soldier or two with the talent to think out-of-the-box and create new ways of

using these systems as their training progresses. "These young Soldiers come to the fight with knowledge of computers and video games and passion," he said. "These Soldiers drive change through their passion and excitement."

GEN David H. Petraeus, Commander of Multi-National Force-Iraq, once



Shown here is PEO C3T's Single Channel Ground and Airborne Radio System advanced system improvement program radio, the primary voice control radio for Soldiers at battalion level and below. (U.S. Army photo by Jason Bock.)

echoed a similar sentiment when asked about CPOF and the Army's communications pipe, WIN-T Increment 1. "WIN-T Increment 1 will clearly give better transport and bigger pipes, which will enable CPOF to do more than it already can," said Petraeus, when he was interviewed during the PEO C3T Army Battle Command and Enable System-of-Systems test held in May 2006. "That will enable innovative commanders and Soldiers with initiative to continue to find new ways to use this very powerful application to exploit the capabilities that it represents."

Despite the digital capabilities organizations like PEO C3T provide, many close to the organization still recognize the need for commanders to stay physically close to the fight, just as BG Morgan did. "Commanders can't do it all from the rear, or electronically," Herrera said. "They've got to get out there and get a feel for what's happening."

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PEO C3T has originated processes such as SIF and USF to streamline Army approaches toward fielding and reporting system-related issues respectively.

PEO C3T — Engineers Learn About the Users' Experience

Joshua Davidson

During *Operation TOCFEST*, what normally would be warfighter tasks in theater — fueling generators, maintaining the network, and keeping the Battle Command (BC) systems humming — often fell on *TOCFEST*'s engineer participants. “We tried to make *TOCFEST* as similar to what the units do out in the field as possible, so that they [engineers] understand how this stuff is being used in the field and what it's like for Soldiers in a command post [CP],” said Mark Mitcham, who served as the *TOCFEST* Executive Officer.

TOCFEST established the need for better organization of TOC contents for more effective storage and shipping to assist in short- and long-haul moves. Here, CPT Don Jamoles, Commander of Co. D, 4th Battalion, 31st Infantry Regiment, 2nd BCT, 10th Mountain Division (Mtn. Div.) (Light), gives a situational report to the 4-31 TOC after establishing a battle position in Qarghulli Village, Iraq. (U.S. Army photo by SSG Angela McKinzie, 2nd BCT Public Affairs, 10th Mtn. Div.)

As they converged for 6 weeks earlier this year at Fort Indiantown Gap, PA, to standardize the CP and validate the setup of the equipment that resides inside, many engineers didn't just gain an enhanced perspective of the warfighter's experience as system users; they learned more about the other engineers and systems with which they share the Army's network. "We wanted to use *TOCFEST* as an event where we could bring people together, because the power of having people interact with each other across their domains of

We wanted to use *TOCFEST* as an event where we could bring people together, because the power of having people interact with each other across their domains of expertise is just powerful.

expertise is just powerful," said BG Nickolas Justice, Program Executive Officer Command, Control, and Communications Tactical (PEO C3T).

"In general, most of these engineers don't intermingle across product lines on a normal basis," said MAJ Todd Curtis, S3 plans lead for the *Operation TOCFEST* task force. "This is a great opportunity for them to work through problems together and live the dream to actually do what they propose."

"The engineers didn't experience live-fire combat, full body armor, or meals, ready-to-eat. However, they were exposed, firsthand, to what it takes to use the systems they produce. It gave them the experience of what it's like to use their equipment in the field under rainy conditions, under the sun, and out in the wind and the rain," Justice said.

TOCFEST Mission

TOCFEST provided a different perspective from the separate, frequently held integrated process team (IPT) meetings where engineers discuss processes and improvements for the systems they support. "When you have the hardware on the ground and you're trying to perform a mission, such as a complete sweep engineering analysis across the whole CP, it provides a different flavor," said Steve Levy, who served as the *TOCFEST* engineering IPT lead. The exercise let Levy prepare for future training exercises and experiences in

theater. "I think helping set up and knowing exactly how these capabilities come together will definitely help us in our current jobs that we're doing with respect to reset and synch conferences," Levy said.

"Presently, more than 600 CPs exist across Army echelons," said LTC Terry Wilson, the task force's chief of operations and product manager (PdM) CP Systems and Integration

(CPS&I). "*TOCFEST* was our laboratory not only to determine the gaps in terms of compatibility, but also to understand the complexity that we have placed on the warfighter," Wilson said. "It was also our laboratory to work our engineers and for them to experience what they have built."

What the engineers have created could be either a capability or a liability for the warfighter. "This gives our engineers, as we go back to the four corners of program development, a foundation to stand on as they direct the evolution of our BC systems and answer the challenges associated with BC mobility, especially when considering brigade combat teams [BCTs] and battalions," Wilson added. *TOCFEST* planners injected Solider-like activities into the scenario they used. The management of equipment, decision-making processes, planning, and after action reviews purposely mirrored the warfighter's experience in theater.

A thorough daily battle rhythm consisting of Battle Update Briefings, white cell meetings, and multiple engineering working group meetings allowed the engineers to stay synchronized. During the white cell meetings,



A WIN-T Increment 1 KU trailer is shown during *Operation TOCFEST*. (U.S. Army photo by Richard Mattox, PEO C3T.)



MAJ Marguerite Irvine and SFC Anthony Elliot, both of the U.S. Army Operational Test Command, receive a demonstration from Mike Sendzia of PM WIN-T during *Operation TOCFEST*, which began on March 9, 2008, at Fort Indiantown Gap. (U.S. Army photo by Richard Mattox, PEO C3T.)

engineers representing each system simultaneously reviewed each trouble ticket, integration challenges, change recommendations, doctrine analysis, new technology, prototype integration, and much more. Together, they examined interoperability issues that existed within the CP. They scanned the entire collection of *TOCFEST* data and documentation and collaborated to determine a solution to issues that arose. Data analyses will continue in upcoming months.

“Fueling the generators on their own gave the engineers a firsthand idea of what it is like to fuel numerous combustion engine-type power generation systems in a crowded CP area,” Curtis said. The engineers also participated in the same type of war games and rehearsals that Soldiers partake in during their training exercises.

CP Standardization Lessons

Scenarios, which included on-the-move and at-the-quick-halt setup of systems, allowed for a thorough examination of the sequences, steps,

and processes used during a CP setup. The set up and tear down of Tactical Operations Centers (TOCs) took place repeatedly throughout, with step-by-step documentation, video, and photographs gathered on each occasion. One battle drill involved a mass grave demonstration. Soldiers and civilian role players were not involved in any of the exercises.

Separate systems, such as those that allow warfighters to digitally locate one another’s position over a topographical map, plan logistics and fires, track airspace corridors, share intelligence, and collaborate in a white-board environment, were set up in both stationary CPs and mobile CPs, such as Mounted Battle Command on the Move and CP Platform Light. “*TOCFEST* served as an engineering effort to validate the baseline of how a present CP is set up,” said Dave Mock, the Task Force’s S3

Current Operations Lead. The setup of the 56th Brigade, Stryker BCT-6 was validated. Its Soldiers, however, did not participate in the exercise.

“The standardization brought about by *TOCFEST* will provide a starting point to commanders, even those who wish to tailor the CP to their needs,” said many of the engineers who participated. “They don’t have to start from scratch,” said Kenneth Broom, a Joint Automated Deep Operations Coordination System (JADOCS) field support representative. JADOCS processes, stores, and manipulates information shared by commanders across the battlefield. It provides users with an integrated set of tools for data management and analysis and mission planning.

“The standardization of the CP is a combat multiplier and a capability that is expected under a modular expeditionary force executing combat operations under an Army Force Generation model,” Justice said. Modularity is a major restructuring of the entire Army, involving the creation of BCTs that will have a

TOCFEST served as an engineering effort to validate the baseline of how a present CP is set up.

common design and will increase the pool of available units for deployment. With CP standardization, one combat formation can be relieved by another combat formation by replacing a unit’s

Soldiers rather than equipment. “Because the CPs are standard, the equipment in the brigades are modular and standard,” Justice said. “So, I can fly in a formation and I can relieve a combat formation that’s ready to come off the line and use their equipment.”

Standardization allows the Army to fleet equipment and thus deploy forces

more rapidly. “I can pre-position equipment in different critical places around the world, knowing full well that the unit is trained and ready to fight with that equipment set because the equipment is not tailored just to that one formation in the Army, but to all formations,” Justice said.

TOCFEST also allowed PEO C3T System Engineering (SE) IPT members who collaborate regularly on SE-related issues, to move from a conference room to field environment. The SE IPTs are now playing an essential role in analyzing the *TOCFEST* data and partaking in a cross-organization effort to integrate capabilities as the CP is developed further.

“The whole system-of-system engineering process has matured quite a bit over the last couple of years, where it’s now the standard for engineers to go talk to each other and collaborate on issues across a much broader spectrum than they did before,” Justice said. *TOCFEST* actually lets them go out into the field and learn whether there are better engineered solutions more applicable to what the unit needs in the field. It gives them another access in which they’re beginning to consider integration efforts.

Lessons Learned

Based on lessons learned from *TOCFEST*, a need was identified for better organization of TOC contents for more effective storage and shipping to assist in short- and long-haul moves. PdM CPS&I will play a role in providing a palletized loading system that will consolidate and organize storage containers that Soldiers use. This will decrease the amount of small cases and boxes with which Soldiers travel. Executing this concept will involve container packing and load plans that will facilitate TOC setup, order, and rhythm, and a plan for logistics labeling and inventory.

The *TOCFEST* effort was organized and orchestrated by PdM CPS&I, formerly known as PdM TOC, led by Wilson. PdM CPS&I is part of Project Manager (PM) CP, which was formerly known as PM Tactical Radio Communications Systems, and assigned to PEO C3T. The event included all of Army Team Command,

Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance and U.S. Army Training and Doctrine Command (TRADOC)

Capabilities Managers. TRADOC writes the requirements for fielded capabilities.

TOCFEST gave those who write system requirements the opportunity to meet face-to-face with the engineers who develop solutions and explain the end state they wish to achieve.

“Because you’ll find that words are often not descriptive enough to provide a full understanding of what your end state is,” Justice said. “That’s why we have conversations; so you get that back-and-forth trade.”

The next iteration of the event is expected to be held in the 2009-2010 timeframe and will possibly include participation by the 101st Airborne Division (Air Assault). The test will focus on BC virtualization, further integration of sensor connectivity, integration into the current CP, and integration of Warfighter Information Network-Tactical (WIN-T) Increment 2 into the Current Force.

TOCFEST gave those who write system requirements the opportunity to meet face-to-face with the engineers who develop solutions and explain the end state they wish to achieve.

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Brian Stone, a JADOC System Engineer, explains a fire support system to John Willison and COL David Moore, PM BC, during *Operation TOCFEST*. (U.S. Army photo by Jason Bock.)

PEO CS&CSS — Providing Warfighters With the Best Capability

Michael E. Loos

The Program Executive Office Combat Support and Combat Service Support (PEO CS&CSS) is committed to providing Joint warfighters with the world's best capability — today and tomorrow. We are constantly seeking bold and innovative solutions to ever-evolving threats to U.S. Forces across the globe, while breaking new ground in the rapid expansion of our systems through modularity and transformation. Our focus is to be prepared for changes in threat, technology, and mission.

PM TV handles the life-cycle management of LTVs, MTVs, and HTVs, enabling the Modular, Joint, and Expeditionary Ground Force to perform its transportation missions. Here, U.S. Army Special Operations Soldiers assigned to the Combined Joint Special Operations Task Force-Afghanistan, arrive in an MTV at a staging area on an undisclosed forward operating base in Helmand Province, Afghanistan. (U.S. Army photo by SPC Daniel Love, Combined Joint Task Force-82 Public Affairs Office.)



While facing the hurdles of a Joint environment, lengthy acquisition processes, and a mixed fleet of aging and new equipment, our three project management offices strive to provide the right product at the right time from the right source at the right price.

Project Manager Force Projection (PM FP)

PM FP's mission is to develop, acquire, field, and support materiel solutions that optimize the system-of-systems approach to project and sustain Joint forces worldwide. From fort to foxhole, PM FP rapidly moves and sustains the force. The PM supports more than 127 programs within 6 product offices:

- Assured Mobility Systems (AMS).
- Bridging.
- Combat Engineer/Material Handling Equipment.
- Force Sustainment Systems.
- Petroleum and Water Systems.
- Army Watercraft Systems.

Our system acquisition managers, engineers, logisticians, program and procurement analysts, and support staff take pride in providing

materiel development solutions to meet the strategic objectives of the Army vision. Strategic responsiveness is the surest sign of America's commitment to accomplish any mission. PM FP is resolute in its unwavering support, professional excellence, and dedication to providing this deterrent capability.

PM Joint Combat Support Systems (JCSS)

PM JCSS' mission is to develop and acquire JCSS for expeditionary forces. PM JCSS supports more than 91 programs within 3 product offices:

- Joint Light Tactical Vehicles (JLTVs).
- Sets, Kits, Outfits, and Tools (SKOT).
- Test, Measurement, and Diagnostic Equipment.

While facing the hurdles of a Joint environment, lengthy acquisition processes, and a mixed fleet of aging and new equipment, our three project management offices strive to provide the right product at the right time from the right source at the right price.

In 2007, PM JCSS fielded 4,341 Maintenance Support Devices (Version 2). PM JCSS also established two tool stores in Southwest Asia and began coordination to field a third store in support of *Operation Enduring Freedom*. PM JCSS focuses on persistent combat and provides capabilities necessary for expeditionary forces. JCSS is the focal point for identifying mature and near-term technologies required to leverage and integrate industry's investments to meet warfighters' demands on tomorrow's battlefields.

PM Tactical Vehicles (TV)

PM TV's mission is the life-cycle management of light, medium, and heavy tactical vehicles, enabling the Modular, Joint, and Expeditionary Ground Force to perform its transportation missions. PM TV supports more than 81 programs within 4 product offices:

- LTVs.
- Medium Tactical Vehicles (MTVs).
- Heavy Tactical Vehicles (HTVs).
- Armored Security Vehicles (ASVs).

In 2007, PM TV produced 615 armored HTV and MTV systems in support of the add-on-armor surge plan. PM TV also produced and installed more than 20,000 LTV and ASV system enhancements. PM TV is committed to the goals and performance of a Joint Expeditionary Force, focusing on increasing the relevance and readiness of our



PM FP develops, acquires, fields, and supports materiel solutions that optimize the system-of-systems approach to project and sustain Joint forces worldwide. Here, an RG-31 is on night operations in the area of responsibility (AOR). (Photo courtesy of PEO CS&CSS.)



PM JCSS focuses on persistent combat and provides capabilities necessary for Expeditionary Forces. Here, a Soldier uses the Forward Repair System in the AOR to remove a power pack. (Photo courtesy of PEO CS&CSS.)

tactical wheeled vehicle fleet, and ensuring that the best possible product is available to support the Current Force and beyond.

Industrial-based partners are vital components to the day-to-day success of PEO CS&CSS. By collaborating with more than 200 industry partners, PEO CS&CSS can reach higher and achieve more by focusing resources, core competencies, and extended capabilities. Together,

JCSS is the focal point for identifying mature and near-term technologies required to leverage and integrate industry's investments to meet warfighters' demands on tomorrow's battlefields.

we can better prepare for an ever-changing threat by giving the commander in the field the ability to adapt to these changes as needed — quickly and efficiently. Ideas such as A and B kits, plug-and-play capability, modularity, and flexibility allow for rapid changes and upgrades of large numbers of systems in future acquisitions. This can best be described as putting the basic foundation into either recapitalization vehicles or new production vehicles and having the ability to add technology and capability over time as

technological advancements occur or as the mission changes.

We are living in demanding times. Overcoming the challenges of today's rapidly changing requirements requires strong partnership between government and industry, as well as a strong dedication to mission and the ultimate customer — our warfighter.

MICHAEL E. LOOS is the Chief of Staff/Executive Officer for PEO CS&CSS. He holds a B.S. in public law from Eastern Michigan University. Loos is a retired U.S. Marine Corps officer and has worked for the Army since 2001. He is Level III certified in program management and is a U.S. Army Acquisition Corps member.

PEO EIS Provides Capabilities Across the Enterprise

Nancy J. Self

Enterprise systems are the wave of the future and the Army is looking to the Program Executive Office Enterprise Information Systems (PEO EIS) to develop, deploy, and integrate systems across the Army. With a mission to provide information systems and communications infrastructure to enable the Army to succeed on the battlefield, PEO EIS is dedicated to delivering the most technologically advanced, integrated systems available to warfighters.

PEO EIS is developing solutions to integrate Soldiers' finance, personnel, and logistics systems so they will not worry about such matters while performing their mission. Here, Soldiers from 1st Platoon, 4th Squadron, 2nd Stryker Cavalry Regiment, provide security during a patrol in Sa'ada, Iraq, July 7, 2008. (Photo by PO2 Paul Seeber, U.S. Navy.)

“We are the Army’s information technology [IT] enabler,” said Program Executive Officer Gary L. Winkler. “If there is a way to provide increased capabilities to support our Soldiers, we will figure it out and get it to them.”

Delivering that capability to the Soldier is no small job. PEO EIS employs 1,625 military, civilian, and contractor personnel worldwide to develop and field more than 120 warfighting, business, and communications infrastructure products and systems. With an annual budget of \$3 billion, PEO EIS executes about 40 percent of the Army’s IT budget. “Most people are not aware of the diversity of the systems and products we develop,” Winkler explained. “Soldiers use systems in their functional areas but do not associate PEO EIS with having provided that capability.”

The EIS portfolio of systems span the full gamut of functional domains, providing capabilities in the personnel, education, installation management, finance, logistics, warfighting, medical, and infrastructure mission areas.

PEO EIS relies on its many industry partners to deliver new capabilities on time and on budget, and to develop effective strategies to manage change and handle technology transitions. “We want to do that quickly and cost-effectively, and to ensure that systems are usable,” Winkler explained. Systems are definitely “useable” as millions of Army, and even DOD, service members, civilians, contractors, and families access the myriad of PEO EIS systems on a daily basis.

Collaboration Through Army AKO/DKO

Army Knowledge Online (AKO) is one of many examples of widely used and accepted EIS systems. Having



The BAT is deployed worldwide to collect and compare fingerprints, iris images, and other identity data. Here, Marine SSG Sean O’Leary uses a BAT retinal scanner to create identification cards for Iraqis with Region 2 Border Enforcement Team in Tikrit, Iraq, Jan. 16, 2008. (U.S. Army photo by SGT Eric Rutherford, 115th Mobile Public Affairs Detachment.)

begun as a general officer e-mail system in 1998, the benefits and utility of AKO were quickly realized. After Sept. 11, 2001, the Army Vice Chief of Staff decreed all Army Soldiers and civilians would be assigned an AKO account as the single system for sending emergency and status messages.

In 10 years, AKO has grown and expanded its capabilities to become the Army’s enterprise-level portal for collaboration efforts, enabling users to organize and share information worldwide. Expanded capabilities provide

service members, retirees, families, and sponsored Army guests Web mail, Web conferencing/collaboration tools, and instant messaging (IM)/chat among Army and Joint users.

Recognizing the advantages of AKO, the Defense Information Systems Agency adopted the system for Joint services —

establishing Defense Knowledge Online (DKO). Leveraging the AKO portal, DKO will serve as the primary single entry point for all DOD components.

With the addition of DOD users, Project Manager (PM) AKO/DKO

We are the Army’s IT enabler. If there is a way to provide increased capabilities to support our Soldiers, we will figure it out and get it to them.

anticipates 3.5 million account holders by 2010 with an ultimate goal of 8 million users. Planned enhancements to AKO/DKO include the addition of Wiki, mobile messaging, upgraded IM chat, Business Process Management, and Web mail with drag-and-drop capabilities.

Support to the Medical Community

U.S. Army Surgeon General LTG Eric B. Schoemaker announced expansion of the Medical Communications for Combat Casualty Care (MC4) earlier this year, highlighting the program's resounding success. MC4 is PEO EIS's medical IT system used in the combat zone to digitally document patient care.

MC4 provides tools to record and transfer data from the front lines to brick-and-mortar medical facilities worldwide. The system provides quick, accurate access to patient histories at the point of injury or the battlefield hospital and forwards critical medical information to a centralized database for worldwide patient record viewing and medical surveillance reporting.

MC4's benefits to Soldiers are substantial. Medics in the field can access

Soldiers' medical records to respond to battlefield casualties and document all resuscitative care. By the time a Soldier is transferred to the hospital, the attending physician has a record of the injury, vital signs, medication, and treatment administered on the battlefield. Precious time is saved in administering further medical care.

With electronic medical records on hand, providers have up-to-date information to avoid repeat procedures, commanders have improved medical situational awareness, and Soldiers have improved continuity of care via a lifelong electronic medical record. To date, more than 26,000 laptops, handhelds, and servers have been fielded to 250 deployed medical forces throughout Southwest Asia (SWA), generating more than 8 million electronic medical records. Because of its success, the Army has expanded MC4 use to U.S. Air Force units in SWA and Joint units in 13 countries, including South Korea and Egypt.

Identification Verified Through Biometric Technology

Biometrics is another example of systems that meet the needs of user communities. Its systems are widely

used to fight the global war on terrorism. PM DOD Biometrics provides systems and capabilities not imagined 20 years ago. The PM has acquisition responsibility for several biometric collection devices including the Biometric Identification System for Access, Biometric Automated Toolkit (BAT), and Handheld Interagency Identity Detection Equipment. These collection devices allow Joint service members to collect biometric data for Iraqi security force screening, base access control, detainee operations, and intelligence operations. DOD personnel have enrolled more than 1 million persons of interest in SWA using Army-developed biometric collection devices.

PM DOD Biometrics is also overseeing development of the Next Generation-Automated Biometric Identification System (NG-ABIS). With an initial operating capability scheduled for January 2009, NG-ABIS will be the central repository for defense biometric records and serve as the authoritative source for identities through that biometric data. NG-ABIS will expand storage and matching capabilities, allowing for fingerprint, iris, face, and palm records.

Biometric technology is not restricted to use in theater. This spring, the U.S. Military Entrance Processing Command (MEPCOM) signed the first military enlistment contract using a PEO EIS-developed biometric signature system. The technology protects the integrity and heightens security of the enlistment process. MEPCOM will obtain each applicant's fingerprint upon first contact and use that record to verify an applicant's identity throughout the qualification process, and during testing, medical screening, and background checks.



MC4 is PEO EIS's medical IT system used in the combat zone to digitally document patient care. Here, an Army medic inputs patient information to the MC4 hand-held device while another medic provides care. (U.S. Army photo courtesy of PEO EIS.)



PEO EIS acquires, develops, and fields satellite communications systems in the U.S, Iraq, Afghanistan, Kuwait, Germany, Korea, and Japan. (U.S. Army photo courtesy of PEO EIS.)

Integrating With Enterprise Resource Planning

The Army is moving toward integrating its supply chain, financial, and business processes and is relying on PEO EIS to find a solution. “We cannot continue to maintain the hundreds of stovepipe logistics, financial, and personnel systems/applications running on different platforms,” explained Winkler. “These systems cannot share data within the same functional domain, much less across domains.”

Drawing upon industry expertise and experience, PEO EIS is leveraging the power of Enterprise Resource Planning (ERP) to integrate finance, personnel, and logistics systems. ERPs will enable the Army to integrate the functionality of stovepipe systems within a domain into a single system. Following that, the functional ERP systems will be

integrated into an overarching business enterprise that spans functional domains. “We are working to ensure multiple systems work together seamlessly to optimize processes and provide an accurate, enterprise view of business information,” explained Taylor Chasteen, PEO EIS’s Director of Army ERP Systems Integration Task Force.

The Task Force is focusing on the General Fund Enterprise Business System (GFEBs) and Global Combat Support System-Army (GCSS-Army) for its initial implementation. GFEBs will replace

87 overlapping and redundant systems sharing financial, asset, and account data across the service. GCSS-A will replace 13 Army logistics systems and interface or integrate with command and control systems and Joint systems.

PEO EIS’s Army Enterprise Systems Integration Program will serve as the primary enterprise enabler and is charged with providing a single source for enterprise hub services, business intelligence and analytics, and centralized master data management for the ERPs. Following completion of GFEBs and GCSS-A, the Task Force will incorporate the Logistics Modernization Program and the Defense Information Management Human Resources System into the overarching business enterprise, allowing data to be shared among ERPs.

NSCs Enable Global Enterprise Technology

“ERPs address enterprise applications,” explained Winkler. “Now we need to be sure that the Army has a global network that can support those applications. The Network Service Center [NSC] global construct will provide that service. NSCs will function as the communications architecture for the entire Army, from fixed locations to the field — the next LandWarNet.”

The NSC construct will provide a seamless worldwide communications architecture, enabling connectivity from the global backbone to regional networks to posts/camps/stations, and, lastly, to tactical users in the battlefield. Users, regardless of where they are in the world, will have access to the Army’s enterprise network services including the same e-mail, telephone number, and mission applications — essentially a global plug-and-play environment.

NSCs will be comprised of a fixed regional hub, an area processing center, and a theater network operations and security center. Benefits derived from the NSC concept include standardized access, improved network performance, increased bandwidth, and a more secure network. “Going to a global communications network is key to our future enterprise plans,” said Winkler. “We have got to become more efficient and effective in the way we communicate, and the NSC is the way to do that.”

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PEO GCS's Digitized Towed Howitzer Supports the GWOT

Keith Gooding and David Kratzer

The Joint Program Manager Lightweight 155mm (JPM LW155) howitzer, in partnership with industry and the U.S. Army Armament Research, Development, and Engineering Center (ARDEC), has delivered a digital fire control system (DFCS) for the M777A2 155mm howitzer to support the towed artillery mission across the Army and U.S. Marine Corps (USMC). The M777A2 is a Joint program between the Army and the USMC that upgrades the basic M777 (conventional glass and iron sights) to the M777A2. The M777A2 incorporates the advanced DFCS — a first for U.S. towed artillery — and is currently being used by the Army, USMC, and Canadian forces in *Operations Enduring and Iraqi Freedom (OEF/OIF)*. Army and USMC procurements total nearly 800 howitzers. The USMC is the lead service for the program, but JPM LW155 was established at ARDEC to leverage the artillery domain expertise that resides there. As a Joint program office, JPM LW155 reports directly to the U.S. Army Program Executive Office Ground Combat Systems (PEO GCS) and the USMC PEO Land Systems, and takes a Joint Army and Marine perspective in managing system development, acquisition, testing, integration, product improvement, fielding, and sustainment of the system. This article discusses the key role digitization plays every day in the global war on terrorism (GWOT), the acquisition process for developing DFCS, and future JPM LW155 efforts in digitization.

During a calibration exercise in Camp Taji, Iraq, in January 2008, Soldiers from Battery B, 2nd Battalion (Bn), 11th Field Artillery Regiment (FAR), cleared a target area and fired their M777A2 LW howitzer several miles downrange as quickly and accurately as possible. (U.S. Army photo by SPC Aaron L. Rosencrans, 2nd Stryker Brigade Combat Team.)

Why Digitize?

DFCS provides each M777A2 howitzer with onboard navigation, digital communication with the Fire Direction Center (FDC), and automatic weapon-pointing capability. As compared with conventional surveying and sighting of artillery, DFCS provides each DFCS-equipped gun with much greater autonomy through significantly reduced time for gun emplacement and increased speed and efficiency in mission execution.

The system uses information from an inertial navigation system, together with the Global Positioning System (GPS) and vehicle motion sensor, to accurately locate the weapon and orient it in space for precision aiming (<1 mil) and firing. The system embeds a radio for digital transmission of data between the FDC and the howitzer, and has graphical and text screens for displaying mission data to the crew. The system also has redundancy to continue digital operations in the absence of a GPS signal. These improvements increase crew survivability through greater speed into and out of action. DFCS also provides the ability to program and fire the M982 Excalibur Precision-Guided Munition, which delivers leap-ahead precision strike capability in support of maneuver units.

The Scope of the Digitization Effort

JPM LW155, with its prime contractor, BAE Systems, manages the production and fielding of M777A2 howitzers. As a major subcontractor to BAE Systems, General Dynamics Armament Technical Products produces and integrates the DFCS while General Dynamics Canada (GDC) supplies the computer and displays. GDC also developed the initial version of M777A1 software referred to as Towed



Here, a 3rd Bn, 321st FAR, LW155 M777A2 howitzer is being airlifted by a USMC V-22 Osprey during air assault operations. (U.S. Army photo courtesy of PM LW155 howitzer.)

Artillery Digitization (TAD) Block 1. ARDEC provided matrix-engineering support to the JPM LW155 during the design and development of the Block 1 software effort and performed formal qualification testing of that software.

Taking an evolutionary approach to building objective capability, JPM LW155 tasked ARDEC to upgrade the Block 1 software to incorporate upgrades emerging from complementary systems, and to expand the howitzer's capabilities. This software, also referred to as TAD Block 1A software, was provided to BAE Systems as a government

furnished item for installation onto the M777A2 howitzers being delivered.

To develop this Block 1A software, ARDEC's software development team

had to work closely with the teams developing the Enhanced Portable Inductive Artillery Fuze Setter (EPIAFS), the Advanced Field Artillery Tactical Data System (AFATDS), and GDC to acquire production representative hardware to support Block

1A software development activities. ARDEC's fuze division worked closely with PM Excalibur and Raytheon to

The M777A2 incorporates the advanced DFCS — a first for U.S. towed artillery — and is currently being used by the Army, USMC, and Canadian forces in *OEF/OIF*.

develop the means to inductively set a precision-guided round. The software had to support a new digital interface with the EPIAFS and incorporate a new variable message format interface as well as a new fire mission thread of control to interface with the FDC. In parallel with the M777A2 activities, PM Battle Command needed to insert this capability into AFATDS.

The technical baseline focused on providing essential capability to fire Excalibur projectiles using soon-to-be-fielded digitized M777A1 howitzers. No additional electrical or mechanical interfaces were required since the EPIAFS was already anticipated and planned for when finalizing the Block 1 system architecture. Key milestones that were incorporated into the program's

As compared with conventional surveying and sighting of artillery, DFCS provides each DFCS-equipped gun with much greater autonomy through significantly reduced time for gun emplacement and increased speed and efficiency in mission execution.

Integrated Master Schedule included support of a March 2006 Excalibur Limited User Test and a Materiel Release date in June 2006. To support these key events, the delivery of production representative hardware items and the availability of AFATDS, EPIAFS, and the Excalibur projectile (some of which were still under development) all had to be intensively managed by their respective organizations and the software Integrated Product Team had to stay on track. These dependencies represented the majority

of items registered in the project's risk database.

The Digitization Process

ARDEC employed processes conforming to the Software Engineering Institute's Capability Maturity Model

Integration (CMMI)-based processes to develop the software. The project was planned using an incremental approach that focused on providing core capabilities needed for Excalibur in the first software drop, with the remaining functionality to be provided in a second drop. Several hundred tasks entered in Microsoft® Project were logically grouped into 63 different cost accounts for earned value measurement. The project used Telelogic's DOORS for requirements management. Monthly measures of volatility, number of change requests, and timeliness of processing these requests were collected. Likewise, defect data resulting from user design reviews, code reviews, and testing was collected and analyzed. The results of internal process audits drove actions to assure process compliance. Quantitative project management and predictive measures included a control chart of the monthly cost/performance index for cost containment and a Rayleigh curve of the number of defects found per week during testing to predict the remaining weeks until the software was of sufficient maturity for release. The measures collection provided JPM LW155 and ARDEC management with the necessary insight to make informed decisions throughout the development cycle.

ARDEC performed extensive user design reviews covering all aspects of display screens. To the maximum extent practical, the team defined all entry and exit conditions causing intra- as well as inter-screen transitions. User and JPM LW155 representatives were able to review and approve screen designs prior to implementing them in code. User design reviews were conducted after developers had an opportunity to analyze the requirements and were given the mission to begin representing



Breakdown of Towed Artillery Digitization



PVT Corey Rodriguez pulls the lanyard on the M777A2 during the first firing of the Army's GPS-guided Excalibur round on Feb. 25, 2008, at Camp Blessing, Afghanistan. (U.S. Army photo by SGT Henry Selzer, 173rd BCT Public Affairs.)

the screens in code. These reviews provided the necessary forum for both developers and testers to suggest changes and provide value-added comments on feasibility. The team operated under a “no surprises” philosophy to ensure that both the user community and JPM LW155 were in lockstep with all refinements to the human computer interface, irrespective of the magnitude of change. User design reviews served as an effective means to illuminate potential problems early in the development cycle. They also improved design synthesis by providing developers a vehicle for vetting potential improvements without

having to adopt the “build it and they will come (to accept it)” attitude.

As a result of the above process, only the first unit equipped with a M777A1 digitized howitzer in January 2007 needed to be retrained. All subsequent fieldings of M777A2 howitzers were accomplished with Block 1A software. The M777A2 with TAD Block 1A software was approved for full materiel release in July 2007. In 2006, ARDEC's Armament Software Engineering Center, in large part because of their efforts in developing and fielding the M777A2 software, was the first DOD organization to attain a CMMI maturity level 5 rating

in the disciplines of Systems Engineering, Software Engineering, and Supplier. In 2007, ARDEC was also a recipient of the Malcolm Baldrige National Quality Award.

Future Digitization Efforts

ARDEC currently supports and maintains the M777A2 software. The next release will include support for new munitions, including the Precision Guidance Kit fuze that improves the accuracy of existing projectiles using GPS guidance. Subsequent releases of the software will include additional capabilities of TAD Block 2. These capabilities include muzzle velocity management, ammunition selection, and onboard ballistic computations with registration corrections.

Digitization is also going to be brought to the M119A2. In January 2008, JPM LW155 was directed by the Army to proceed with the digitization of the M119A2, employing an evolutionary acquisition strategy that maximizes commonality of hardware and software across the brigade combat team (BCT). Soon the crews of all towed howitzers will reap the benefits that are afforded by digitization.

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PEO GCS — Retrofit, Reset, and Battle Damage Repair (BDR) of Stryker Vehicles

Project Management Office Stryker Brigade
Combat Team (PMO SBCT) Logistics Division

The mission of Program Executive Office Ground Combat Support's (PEO GCS's) PMO SBCT is to develop, produce, field, and sustain the full range of safe, reliable, supportable, and effective systems while developing the acquisition and program management framework to transform the Army to the Future Force. Strategic responsiveness, holistic survivability, force protection, superior situational awareness, full-spectrum capability, platform commonality and efficiencies, reduced footprint, and anticipatory logistics are just some of the capabilities that the SBCTs bring to the battlefield. Reset, retrofit, and BDR are key to maintaining these capabilities. These enablers ensure that Stryker vehicles are properly restored, equipped, and ready for combat. Together, these activities allow the SBCTs to maintain highly operational, current configuration combat vehicles with the latest technology and safety engineering efforts available.

Strykers with retrofits applied await loading to a ship in San Diego in November 2007. (Photo by Al Madrona, GDLS.)

PMO SBCT has established a process to complement the SBCT Army Force Generation (ARFORGEN) Model cycle while not interfering with units' training schedules. This process takes a considerable amount of planning, synchronization, and, most importantly, flexibility to accommodate the ever-changing timelines.

Retrofit

Prior to a unit deploying to *Operation Iraqi Freedom (OIF)*, PMO SBCT retrofits its Stryker vehicles, ensuring that they are at current production configuration, and installs Stryker *OIF* kits. Production configuration retrofits ensure that Strykers have the latest technology and safety engineering efforts available. These consist of software upgrades, human factor improvements, and communication improvements that are relevant to send the Stryker to war. The *OIF* kit is equipment developed specifically for the *OIF* mission, and continues to transform with the changing threats in *OIF*, as well as from new requirements derived from lessons learned. Many of these new requirements come through Operational Needs Statements from the SBCTs that are approved by Army Headquarters/G-3/G-8, and some are identified through quarterly program manager (PM)/U.S. Army Training and Doctrine Command Capabilities Manager SBCT visits to *OIF*.

The retrofit operation is a partnership between PMO SBCT and General Dynamics Land Systems (GDLS). A typical retrofit operation takes place at the port of debarkation after the unit has completed a Mission Readiness Exercise. The team is only afforded 30 days on average to retrofit an entire SBCT (approximately 320 Stryker vehicles). Since the above timeframe is marginal, PMO SBCT identifies other times within the ARFORGEN cycle to

apply needed retrofits. Major challenges include coordinating unit schedules, deliveries, parts availability, and labor.

To date, there have been seven SBCT deployments to *OIF* with two more scheduled for the near future. The first SBCT deployed in December 2003 and looked much different than the Strykers in *OIF* today. Over the past 7 years, PMO SBCT has applied multiple retrofits to the Stryker, including:

- Slat Armor.
- Exhaust Deflector.
- Swing-Arm Mounts.
- Common Ballistic Shield.
- Fire Support Vehicle and Reconnaissance Vehicle Cupola Shields.
- Driver Enhancement Kit.
- Air Warrior Micro-Cooling Kit.
- Hull Protection Kit.
- Blue Force Tracker.
- Tacticomp™ wireless and Global Positioning System(GPS)-enabled hand-held computer.
- One Station Remote Video Terminal.
- Counter Remote Control
Improvised Explosive Device (IED)
Electronic Warfare Devices.

Furthermore, throughout the years many of the existing Stryker components have been retrofitted to provide improved capabilities. Upgrades have been provided to the software, remote weapon station installment, driver vision enhancement tools, and GPS capabilities. Also, PMO SBCT has developed the Tire Fire Suppression Kit, which was to be applied this summer, and the Mine Protection Kit, to be applied in 2009.

Battle Damage

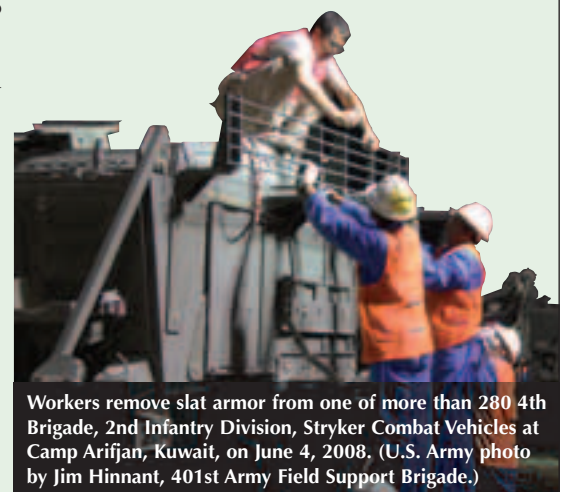
In the event a Stryker is damaged during combat operations, it enters the Stryker BDR (SBDR) Program, which consists of above-field-level repair conducted at BDR Facilities

(BDRFs) at Camp As Sayliyah, Doha, Qatar, or Anniston Army Depot (ANAD), Anniston, AL.

The Qatar BDRF repair capability is six Strykers per month, while the ANAD BDRF is capable of repairing up to 12 Strykers per month. GDLS completes all repair work and manages the parts at the Qatar BDRF through contract with PM Stryker in Warren, MI. The ANAD BDRF is also managed by contract with PM Stryker and is a cooperative effort between GDLS and ANAD. Through this cooperative partnership agreement, ANAD provides touch labor while GDLS manages the parts.

Repair Process

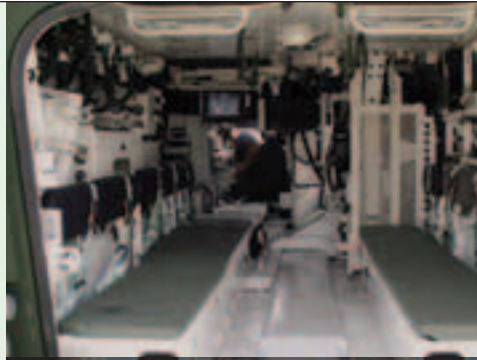
The repair process starts with a Limited Technical Inspection at the Forward Repair Area (FRA) in Balad, Iraq. Damaged and missing parts, as well as mandatory replacement parts, are ordered and outstanding retrofits are identified. At the FRA, a preliminary structural assessment on vehicle damage is completed and the results are transmitted to the GDLS structural engineers who, in turn, develop repair procedures based on the type and level of damage. The repair location selection is based on a number of factors including the status of the Ready-to-Fight (RTF) fleet, unit needs, and BDRF capacities.



Workers remove slat armor from one of more than 280 4th Brigade, 2nd Infantry Division, Stryker Combat Vehicles at Camp Arifjan, Kuwait, on June 4, 2008. (U.S. Army photo by Jim Hinnant, 401st Army Field Support Brigade.)



Before BDR: Stryker damaged by an IED. (Photos by Tim Armstrong, GDLS Qatar.)



After: Repaired Stryker is now able to return to securing troops moving into battle.

At home station, the prime contractor for the vehicle reset, GDLS, temporarily signs for the vehicles from the unit and conducts a 1-month Low-Rate Initial Production (LRIP) period to train the newly hired workforce required for each Stryker reset. The LRIP period's purpose is to verify the layout of site equipment and to optimize the quality of work from the new workforce members prior to the start of the 4-month Full-Rate Production period.

Once the repair location is determined, the vehicle is transported by truck to Kuwait to be placed on a boat for ANAD or Qatar. Some vehicles are sent directly from Balad Air Base to ANAD by U.S. Air Force TP-4 (space-available aircraft) depending on mission needs.

The actual repair of a Stryker is a 7-step process that consists of induction, disassembly, fabrication and welding, re-assembly, quality inspections, road test, and Defense Contract Management Agency acceptance. Strykers repaired at Qatar are sent to the RTF in Balad, whereas Strykers repaired at ANAD are sent to support fielding commitments.

The SBDR Program has been crucial in supporting the global war on terrorism (GWOT), and, to date, more than 225 Strykers have been repaired and returned to warfighters on the battlefield.

Reset

The ARFORGEN Model outlines the process and timelines for the deployment and redeployment of units. While it is most closely associated with unit redeployment, equipment reset is actually the first step in the ARFORGEN Model for the unit's next deployment.

The Stryker Reset Program is unique within the overarching U.S. Army

Materiel Command Reset Program. The reason for this is that unlike most vehicle programs, Stryker lacks a non-combat replacement fleet from which to issue fresh vehicles to a redeploying unit. This dictates that Stryker reset be conducted at the unit's home station to provide vehicles in time for the unit's next deployment training window.

To meet the ARFORGEN timeline, Stryker reset activities begin when the unit redeploys from Iraq into Kuwait. All reset actions in Kuwait are designed to mitigate risk to the 4-month reset at home station.

Upon arrival in Kuwait, various add-on armor components are removed from the vehicles. Removal allows a full validation inspection of the vehicle for parts requiring replacement during reset. This inspection is a preemptive action to ensure that a parts shortage does not delay the reset at home station. A structural assessment is also done on selected vehicles in Kuwait to determine if higher level structural repair is required at ANAD. Additionally, the 120mm Recoil Mortar Systems from the SBCT's 36 Mortar Carrier Vehicles are shipped to home station from Kuwait to ensure their reset is complete at the same time as their chassis' reset.

As the threat matures and the insurgent's weapons become more advanced, so too do the Stryker's.

Stryker vehicle reset includes repair and servicing to the Full-Up Power Pack, installation of mandatory replacement parts, and an inspection/replacement of the lower suspension components. PMO SBCT works closely with other program offices to ensure that all electronic components that have been reset are installed and validated in the vehicles prior to handoff to the unit.

At the conclusion of reset, the unit's Stryker vehicles have been updated to the latest configuration and are ready for their next deployment. With the future availability of noncombat replacement vehicles from a Stryker Equipping Force Pool, PMO SBCT is exploring the cost-savings and feasibility of conducting all Stryker resets at a centralized facility.

PMO SBCT continues to plan for a fluid and adaptable environment to serve the warfighter in the GWOT. As the threat matures and the insurgent's weapons become more advanced, so too do the Stryker's. PMO SBCT, along with its GDLS partner, will remain ready to repair Strykers and continue to reset the SBCTs in the future to ensure that units are well prepared for their next engagement.

Article provided by PMO SBCT Logistics Division.

PEO IEW&S — Providing Capabilities to Enhance Warfighter Survivability

Brandon Pollachek

Fostering an environment where needs of the Soldier are met in both the present and the future is the challenge the Program Executive Office Intelligence, Electronics Warfare, and Sensors (PEO IEW&S) excels at meeting. Headquartered at Fort Monmouth, NJ, Program Executive Officer BG Thomas Cole and seven project/product managers lead a team of Soldiers, DOD civilians, and contractors in the development and sustainment of systems that cover the gamut of military needs.

PD ASE's mission is to equip all Army aircraft with self-protection systems that will ensure survivability across the range of operations. CH-47 ASE includes CMWS and APR-39. With the entire aviation force equipped with CMWS, the enemy quickly learned that their missiles were no longer effective. (U.S. Army photo courtesy of PEO IEW&S.)

“Having the opportunity to lead the IEW&S team is extremely special because of the amazing impact we have on Soldiers, Sailors, Marines, and Airmen,” said Cole. “You’d be hard-pressed to find a Soldier in Iraq or Afghanistan who is fighting in the global war on terrorism [GWOT] without directly using or benefiting from a system we are responsible for fielding and sustaining.”

PEO IEW&S’ success is achieved through the ability to rapidly transform requirements and requests from the field into reality. The PEO budget is equally divided between programs of record such as Distributed Common Ground Systems-Army (DCGS-A), Aerial Common Sensor (ACS) and Common Sensor Payload, and Quick Reaction Capabilities (QRC) — including Rapid Aerostat Initial Deployment (RAID), Base Expeditionary Targeting and Surveillance Systems-Combined, and Task Force (TF)

Observe, Detect, Identify, and Neutralize (ODIN) systems.

The following are the teams that contribute to the overall continual success of PEO IEW&S.

Product Director Aircraft Survivability Equipment (PD ASE)

PD ASE’s mission is to equip all Army aircraft with self-protection systems that are modular, integrated, and optimized to ensure survivability across the range of operations.

You’d be hard-pressed to find a Soldier in Iraq or Afghanistan who is fighting in the GWOT without directly using or benefiting from a system we are responsible for fielding and sustaining.

The most sophisticated ground-to-air threat systems in the world today use radar detection and radio frequency guidance systems. The objective of the PD ASE Radio Frequency (RF) Countermeasures Office is to provide and improve RF survivability for

Army aviation. The accurate detection, identification, prioritization, and

reporting of RF emitters in the operational environment provide Army aircrews one of many facets of the situational awareness (SA) required for mission success.

Many modern aviation threat systems are either laser-guided or laser-aided (e.g., laser range finders). Laser warning increases aircrew SA and is designed to enable the aircrew to take appropriate actions. The latest Army laser warning device is the AN/AVR-2B(V) Laser Detecting Set (LDS). The LDS is vital to force protection and provides warnings to aircraft pilots of laser threats and laser-aided air defense networks such as surface-to-air missiles, air-to-air missiles, and anti-aircraft artillery.

Following the loss of a CH-47 Chinook helicopter to an enemy missile in November 2003, then-Acting Secretary of the Army R.L. Brownlee called for a plan, “... to equip all our helicopters in Iraq and Afghanistan with the most effective systems we have in development or procurement.” In response to this challenge, Common Missile Warning System/Improved Countermeasure Dispenser (CMWS/ICMD) production was immediately accelerated. Today, more than 500 aircraft are deployed in Southwest Asia with fully operational CMWS/ICMD systems that have flown more than 551,000 hours in combat theater.

Project Manager (PM) ACS

Modernizing existing programs has been the mission of PM ACS since January 2006, when it assumed responsibility for modernization programs for the Guardrail Signals Intelligence (SIGINT) system and Aerial Reconnaissance Low Multi-INT system, and the System Development and Demonstration Program for the unmanned Tactical SIGINT Payload.



Here, a Soldier uses the DAGR during a combat patrol in Baghdad. The DAGR was designed for hand-held operation and quick-mount installation to provide military GPS to a wide variety of weapon system platforms. (U.S. Army photo courtesy of PEO IEW&S.)

With the growing urgent need for aerial reconnaissance, surveillance, and target acquisition (RSTA) in support of ongoing operations, PM ACS assumed responsibility for integration of multiple aerial RSTA QRC systems into TF ODIN ground equipment. This further led to PM ACS assuming management of the Constant Hawk and Highlighter aerial sensor platforms and development of the Aerial Reconnaissance Multi-Sensor System.

Recent developments within the PM office include Army Requirements Oversight Council approval of the ACS Capability Development Document, officially establishing Army requirements for the revised ACS program. ACS will provide SIGINT payloads to the U.S. Army Special Operations Command for integration on its air vehicle. PM ACS also completed successful fielding of the Guardrail Ground Baseline (GGB) equipment to four Aerial Exploitation Battalions while supporting ongoing operations. The GGB equipment significantly reduces logistics footprint and has allowed the U.S. Army Intelligence and Security Command to facilitate capability-based rotations tailoring Guard-rail capability to operational needs.

PM Navigation Systems (NS)

PM NS' contribution to the warfighter is centered on its Meteorological Measuring Set-Profiler (MMS-P), Joint Combat Identification Marking System (JCIMS), and Global Positioning System (GPS).

The AN/TMQ-52A MMS-P uses a suite of meteorological (MET) sensors and MET data from communications satellites along with advanced weather modeling to provide highly accurate MET data. By providing accurate MET data through the Advanced Field Artillery Tactical Data System to the guns, MMS-P enables the artillery to have a greater probability of first round fire for effect with indirect fire.

With all the perils the fog of war could cause, the JCIMS assists in the prevention of friendly fire casualties. JCIMS provides Soldiers with a low-cost combat identification (ID) capability. JCIMS consists

The accurate detection, identification, prioritization, and reporting of RF emitters in the operational environment provide Army aircrews one of many facets of the SA required for mission success.

of Combat ID Panels (CIPs), Thermal ID Panels (TIPs), and Phoenix Infrared (IR) Lights. CIPs provide ground-to-ground and limited air-to-ground target ID. The TIPs provide air-to-ground and a limited ground-to-ground target ID capability. Phoenix Lights are IR blinking strobes visible through night vision goggles, which

provide ground-to-ground and air-to-ground target ID.

With Soldiers constituting the majority of military GPS users, PM GPS manages most military GPS'. The PM is responsible for various receivers, including the state-of-the-art hand-held receiver, AN/PSN-13A Defense



Here, a Prophet vehicle stands with its mast extended in the streets of Baghdad. (U.S. Army photo courtesy of PEO IEW&S.)

Advanced GPS Receiver (DAGR), an embeddable state-of-the-art GPS receiver, the Ground-Based GPS Receiver Applications Module, and the legacy hand-held receiver — the AN/PSN-11(V)1 Precision Lightweight GPS Receiver. Since initial fielding of DAGR in FY04, more than 116,500 have been delivered to Army users. DAGR was designed for hand-held operation and quick-mount installation to provide military GPS to a wide variety of weapon system platforms.

PM Night Vision (NV)/RSTA

PM NV/RSTA has the distinction of being responsible for the greatest number of systems within PEO IEW&S. The program is comprised of PM Forward Looking Infrared (FLIR), PM Robotics and Unmanned Sensors, PM Radars, and the RAID Office. All are dedicated to developing, providing, and supporting world-class tactical

sensor systems and sensor solutions that produce actionable information for U.S. and coalition forces to enable warfighter supremacy.

PM FLIR provides Soldiers with the Fire Support Sensor System, Driver's Vision Enhancer, AN/VAS-5, Multi-Platform Replacement Sight, Long-Range Advanced Scout Surveillance System, Close Surveillance Support System, and the Horizontal Technology Integration Second Generation FLIR.

PM Robotics and Unmanned Sensors develops, produces, fields, and sustains Army and DOD multipurpose RSTA sensors and sensor systems for unmanned and unattended air and ground applications in support of the 21st century warfighter. Supported systems include:

- Persistent Surveillance and Dissemination System-of-Systems.
- Persistent Threat Detection System.
- NS Microwave Tactical Surveillance System.
- Unattended Transient Acoustic Measurement and Signature Intelligence System.
- Rapid Deployment Integrated Surveillance System.
- Unmanned aerial vehicle Synthetic Aperture Radar/Ground Moving Target Indicator.
- Future Combat Systems Unattended Ground Sensors.

PM Radars provides centralized management of Weapon Locating Radar Systems developed to meet Army fire support requirements. The array of radars this PM supports includes the Firefinder Radars AN/TPQ-36(V)8 and AN/TPQ-37(V)8, Fire Support Digitization AN/TPQ-37, Lightweight Counter-Mortar Radar, and Firefinder Radar Enhanced AN/TPQ-36.

The RAID Product Office rapidly develops, tests, fields, and manages a low-cost, elevated sensor system that improves coalition force protection and enhances tactical decision making. Featured systems include the RAID, 17M Aerostat System, 107' Tower System, and Mobile Eagle Eye.

PD Signals Warfare (SW)

While focusing on warfighter needs, FY07 proved to be a very productive year for PD SW. With a combined \$677 million executed, PM Counter Remote Controlled Improvised Explosive Device (IED) Electronic Warfare (CREW) and PM Prophet, were able to contribute vital resources to the GWOT with PD SW.

PM CREW is responsible for developing and fielding ground-based electronic countermeasure devices that neutralize the pervasive IED threat encountered in *Operations Enduring* and *Iraqi Freedom (OEF/OIF)*.

PM CREW fielded more than 10,000 Duke systems to theater, bringing the total to more than 22,000 systems fielded to *OEF/OIF*.

The CREW team's Integrated Logistics and Supportability team won the 2007 Assistant Secretary of the Army for Acquisition, Logistics, and Technology Acquisition Excellence Award as the best team in the Equipping and Sustaining Soldier Systems category.

The Prophet serves as a 24-hour, day or night, all-weather, near-real-time, interoperable asset for the Army that

provides electronic order of battle and combat information to the warfighter. PM Prophet fielded 15 Prophet Block I Sensors and six Prophet Block I Controls in 2007.

PM DCGS-A

Allowing commanders and other decision makers to leverage multiple sources of information to synchronize the elements of Joint and combined arms combat power is PM DCGS-A's mission. DCGS-A enables and supports situational understanding to execute maneuver and effects, visualizing the threat and environment (terrain and weather), targeting and information operations, and integrating intelligence, surveillance, and reconnaissance (ISR) assets.

DCGS-A is the net-centric ISR component of the Army's Future Force Battle Command System and

DCGS-A provides access to theater and national intelligence collection, analysis, and early warning and targeting capabilities, and emphasizes the use of reach and split-based operations to improve accessibility to data and reduce the forward footprint.

the primary system for ISR tasking, posting, processing, and using information about the threat, weather, and terrain at the Joint Task Force level and below. It provides access to theater and national intelligence collection, analysis, and early warning and targeting capabilities. DCGS-A also emphasizes the use of reach and split-based operations to improve accessibility to

data and reduce the forward footprint.

DCGS-A consolidates the capabilities found in the following Current Force systems and will integrate select capabilities of the Digital Topographic Support System, Integrated Meteorological System, and Enhanced Trackwolf.

- All Source Analysis System (all versions).
- Counter-Intelligence/Human Intelligence (CI/HUMINT) Work Station and Human Domain.
- Tactical Exploitation System (all versions).
- Guardrail Common Sensor ground processors (all versions) (e.g., Intelligence Processing Facility, Guardrail Information Node, Prophet Control, Joint Surveillance Target Attack Radar System Common Ground Station).

PD Army Space Program Office/Tactical Exploitation of National Capabilities (ASPO/TENCAP)

Allowing Soldiers to identify and track the high volume of potential threats they face in Iraq and Afghanistan is possible due, in part, to two PD ASPO/TENCAP systems.

The Handheld Interagency Identity Detection Equipment (HIIDE) is a hand-held, tactical, multimodal (iris, fingerprint, and face photo), biometric enrollment, and ID device. HIIDE provides users the ability to enroll 1,000 individuals and store up to 10,000 full biometric portfolios (2 iris templates, 10 fingerprints, and a facial image) to identify a subject.

HIIDE proved to be exceptionally well-suited for decentralized use across both special operations and conventional force operations in support of rapid target site exploitation, population enrollment (virtual local census), chokepoint



A Soldier acquires information using HIIDE equipment in Iraq. (U.S. Army photo courtesy of PEO IEW&S.)

identity establishment, and detainee screening. HIIDE device use at the squad level enables Soldiers and Marines to “enroll their neighborhood,” reduce insurgent ability to operate anonymously, and rapidly identify outsiders as a critical component of providing operational security.

The CI/HUMINT Automated Reporting and Collection System (CHARCS) provides collection and reporting automation support for CI/HUMINT information operations, investigations, interrogations, document exploitation, biometrics, and force protection mission requirements. It is

designed to support the commander’s ability to anticipate and react to a wide range of HUMINT and force protection threats and situations.


The Future of PEO IEW&S

PEO IEW&S stands poised to continue thinking outside the box to provide Soldiers in the field the tools and equipment necessary to fight today’s war as well as those to come. “The Joint warfighter, along with our coalition partners, will continue to benefit from the outstanding ingenuity and forward thinking across departments, agencies, and industry,” Cole said. “Our ability to address the needs of Soldiers and provide them with the capabilities to enhance survivability and lethality in the most effective and financially responsible manner is paramount to our success,” he concluded.

BRANDON POLLACHEK is the PEO IEW&S Public Affairs Officer at Fort Monmouth. He holds a B.S. in political science from Cazenovia College and has more than 9 years’ experience in writing about military systems.

PEO MS Upgrades Missile Technologies to Meet Emerging Requirements

BG Genaro J. Dellarocco and LTC Richard E. Hayes (USA, Ret.)



Program Executive Office Missiles and Space (PEO MS) provides centralized management for all Army tactical and air defense missile programs as well as selected Army space programs. The PEO is responsible for the full life-cycle management of assigned programs. PEO personnel are dedicated to accomplishing the mission of providing an unprecedented level of service and support for PEO MS weapon systems and to moving forward with our vision — “be the trusted provider of missile systems with uncompromising service in development, procurement, and sustainment to our warfighters.” Accomplishing these goals will ensure that we support warfighters in current operations and continue to develop the systems our Joint and coalition warfighters will need in future conflicts.

A GMLRS rocket is fired from an M270A1 launcher near Tikrit, Iraq. (U.S. Army photo by SPC Alisan Gul.)

To better facilitate accomplishing the PEO's mission, the organization is evolving to a new structure, and further changes are expected for FY10.

Upgrading Current Systems

PEO MS systems are being used every day in *Operations Enduring* and *Iraqi Freedom*. Many of these systems were developed long before the current conflicts, but are being upgraded with new technologies to meet emerging requirements. These

include the Javelin; Tube-launched, Optically-tracked, Wire-guided (TOW) missile; Hellfire; 2.7" Hydra 70 Rockets; Multiple Launch Rocket System (MLRS); and Army Tactical Missile System (ATACMS).

An example of the extent of these upgrades is the Guided MLRS (GMLRS) rocket with a unitary warhead. The GMLRS rocket has an extended range of approximately 70 kilometers (km) and a guidance system that allows our warfighters to deploy it against point targets with such great accuracy that it is often referred to as the "70-km sniper rifle." This unprecedented accuracy not only enhances our warfighters' effectiveness, but it also greatly reduces collateral damage when used in urban operations.

In response to an urgent operational requirement, a new Hellfire missile variant, known as the K2A, was developed and fielded. This variant incorporates a fragmentation sleeve

that dramatically increases the Hellfire's effectiveness against soft and lightly armored targets. The K2A has become the preferred weapon for employment in the counter-improvised explosive device, light armor, and nontraditional target engagement roles because of its lethality, precision, reliability, and ability to engage the full spectrum of targets at maximum standoff ranges.

While nothing is more important than supporting the current operations, PEO MS is looking to the future. Older systems will be upgraded with new capabilities, existing systems will be replaced, and new systems with capabilities that do not exist today will be fielded.

The Viper Strike, a semiactive laser-guided munition based on a submunition from the ATACMS program, is a recently developed and deployed unmanned aerial vehicle (UAV)-delivered weapon that is bringing a new capability to the fight. Dropped from a UAV, the Viper Strike can destroy moving and stationary targets ranging from armored vehicles to thin-skinned targets, with minimal collateral damage.

Delivery systems, as well as missiles and rockets, are being improved. The High Mobility Artillery Rocket System is a new delivery system for MLRS rockets and ATACMS missiles. It is a truck-mounted system that provides the same accurate delivery as the tracked MLRS M270A1 launcher, but with improved mobility for maneuver forces.

Future System Capabilities

While nothing is more important than supporting the current operations, PEO MS is looking to the future. Older systems will be upgraded with new capabilities,

existing systems will be replaced, and new systems with capabilities that do not exist today will be fielded.

We are continuing to improve on Patriot, the only combat-proven hit-to-kill air defense system in the world. PEO MS is working to "pure fleet" all Patriot battalions to Configuration-3, capable of firing all Patriot missile versions. The Patriot Advance Capability-3 (PAC-3) missile is also being improved through the Missile Segment Enhancement (MSE) program. The MSE provides greater range and increased maneuverability. The U.S., Germany, and Italy are partners in jointly developing the Medium-Range Extended Air Defense System (MEADS) that ultimately will replace Patriot. The PAC-3 MSE missile now being developed for Patriot will be the primary missile for MEADS.

In the area of cruise missile defense, both sensor platforms and weapon systems are in development. The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) will provide elevated, persistent, over-the-horizon surveillance and fire control quality data to protect critical geopolitical assets from attack from a large number of threats, including cruise missiles. JLENS will extend the engagement ranges of our air and missile defense weapon systems by providing high quality track data on targets that may be terrain masked from surface-based sensor systems.

The Surface Launched Medium-Range Air-to-Air Missile (SLAMRAAM) System, to be fielded in FY11, is one of the systems that will take advantage of the capabilities JLENS adds to the Joint forces. SLAMRAAM is a mobile beyond-line-of-sight (BLOS) system that employs the U.S. Air Force/U.S.



JLENS, a tethered aerostat, can stay aloft up to 30 days providing 24-hour radar coverage for long-range surveillance and fire control sensor capabilities. Here, JLENS is attached to the ground station. (Artist rendering courtesy of PEO MS.)

Navy active seeker AIM-120C Advanced Medium-Range Air-to-Air missile. SLAMRAAM provides a critical BLOS overmatch capability against rapidly evolving threats.

The Integrated Air and Missile Defense (IAMD) program will enhance the effectiveness of all of our current and future air and missile defense systems. Unlike traditional acquisition programs that focus primarily on the development of a single system or platform, the IAMD program is structured to enable the development of an overarching system-of-systems capability with all participating air and missile defense components functioning interdependently to provide total operational capabilities not achievable by the individual systems. The IAMD program achieves this objective by establishing the incremental IAMD architecture and providing the

common IAMD Battle Management Command, Control, Communications, Computers, and Intelligence capability and the Integrated Fire Control network capability to provide fire control connectivity and enable distributed operations among the interdependent, networked elements.

Maneuver and Aviation Systems

We also have great systems under development in our maneuver and aviation mission areas. One of these is the Non-Line-of-Sight Launch System (NLOS-LS). NLOS-LS, a core Future Combat Systems system, consists of a family of platform-independent guided munitions that are vertically launched directly from a container that is optimized for network-centric operations, logistics, deployability, and lethality. The NLOS-LS is capable of unattended/unmanned operations under all weather conditions. The

initial configuration is armed with 15 Precision Attack Missiles and is capable of engaging a variety of target types on the current and future battlefields. Additional missile types with enhanced capabilities will be developed and fielded in the future. The NLOS-LS is one of the premier lethality systems for network-centric operations and warfare in the Future Force including deployment on the U.S. Navy's Littoral Combat Ship. It will bring revolutionary capabilities to the warfighters while reducing their exposure to enemy actions.

The newest major program in PEO MS is the Joint Air-to-Ground Missile (JAGM). The JAGM will be a common air-to-ground precision-guided missile for use by Joint service manned and unmanned aircraft to destroy high-value stationary, moving, and relocatable land and naval targets. JAGM will be a common, multimode



Soldiers set up the Container Launch Units for the NLOS-LS demonstration held at Fort Bliss this past January. (U.S. Army photo courtesy of Future Combat Systems (Brigade Combat Team).)

weapon capable of providing both current and future aviation platforms with reactive targeting capabilities satisfying the sum of needs across the Joint platforms. It will eliminate the requirement for separate upgrades to multiple existing missile systems. JAGM will replace Hellfire, air-launched TOW, and the Maverick families of missiles. The JAGM is a Joint program with the U.S. Navy and U.S. Marine Corps. It will employ a multimode seeker to acquire and destroy high-value threats from standoff ranges in day, night, adverse weather, and obscured battlefield conditions. The multipurpose warhead and Health Monitoring Unit will enable JAGM to engage multiple target sets while ensuring enhanced supportability and increased reliability.

Among the services, the Army is the largest user of space products. We have a major interest in what systems are being developed for deployment in space, what information these systems

will collect, and how that information will get to the user. The Responsive Space Operations Project Office (provisional) has been established within PEO MS to ensure the Army's requirements are known to the developers and that the Army's interests are addressed. The goal is to provide timely space-derived information to the warfighter in a usable format.

PEO MS has also recently established a Missile Defense Strategic Capabilities (MDSC) Project Office (provisional). The MDSC's mission is to transition elements of designated programs or capabilities from the Missile Defense Agency to the Army. These elements include the Terminal High-Altitude Area Defense, the AN/TPY-2 radar, and Ground-Based Midcourse Defense system components. Execution of the transitions and future capabilities in this mission area will become a major new effort within PEO MS.

The value of PEO MS weapon systems is reflected in the growing interest that other nations were expressing in acquiring these systems. Our Foreign Military Sales (FMS) were expected to grow from about \$1 billion in FY07 to an estimated \$8 billion in FY08. This growth in FMS will help the U.S. military by increasing production quantities, which will reduce the cost of each unit we buy. It will also address another issue — our industrial base. The increased production will keep our production lines open and allow us to retain the special skills of our production base that would otherwise be lost.

PEO MS is continuing to support the Joint and coalition warfighter in today's battle while fielding new systems, upgrading older systems with new capabilities, and developing the systems for the future.

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LTC RICHARD E. HAYES (USA, Ret.) is a Division Manager with ITT working in support of PEO MS. He has a B.A. in accounting from the University of Georgia and an M.A. in management from Weber University. When on active duty, Hayes was an AAC member.

PEO Soldier Gives U.S. Troops Everything They Need

Debi Dawson

For the past 6 years, Program Executive Office (PEO) Soldier has equipped U.S. Soldiers with everything they need to accomplish their missions safely, effectively, and efficiently. BG R. Mark Brown, Program Executive Officer Soldier, credits much of PEO Soldier's success to its Soldier-as-a-system approach to developing and fielding equipment. "Before PEO Soldier, everything was managed as an individual product or program," said Brown. "However, with the advent of PEO Soldier, we started managing the Soldier as a system. Inherent in that concept is that every kit item must work and interface with every other kit item."

A Soldier uses the AN/PEQ-15 ATPIAL mounted on an M-4 carbine. (U.S. Army photo courtesy of PEO Soldier.)



Soldiers at Fort Bragg, NC, test fire the XM320 Grenade Launcher Module. (U.S. Army photo courtesy of PEO Soldier.)

Soldiers of the 4th Brigade, 9th Infantry Regiment (4-9), used Land Warrior during their 15-month tour in Iraq, which ended in June 2008. They are effusive in their praise for the system. "It's hard to quantify the time saved," explained CSM Phil Pich, formerly of the 4-9. "I have seen a conventional unit as it runs into an obstacle going to its target — palm groves or a mountain range — when unit members have to do a map check. I have been on missions where map checks have taken well over an hour. With the Land Warrior system, as an obstacle is encountered, the leader is able to change his planning on the move. You are able to literally shave hours off of getting to a target, actions on the objective, and withdrawing from an objective."

Land Warrior is evolving into the Ground Soldier Ensemble, which will provide the same capabilities but will be lighter. Mounted Soldier provides the same communication and situational awareness capabilities to combat vehicle crews.

PEO Soldier's mission is to improve Soldiers' combat effectiveness, ensure their survival, and increase their physical comfort. Through its three project managers (PMs) — PM Soldier Warrior, PM Soldier Equipment (SEQ), and PM Soldier Weapons (SW) — and the Rapid Fielding Initiative, PEO Soldier designs, develops, procures, fields, and sustains virtually everything the Soldier wears or carries, including clothing and individual equipment, protective gear, weaponry, and systems to improve communication and situational awareness. By employing innovative concepts and technologies, PEO Soldier, which is headquartered at Fort Belvoir, VA, has made great strides in quickly getting improved equipment into the hands of Soldiers when and where they need it.

The Modern Warrior

PM Soldier Warrior manages the Land Warrior, Ground Soldier, Mounted Soldier, and Air Warrior programs, all

of which provide improvements in tactical awareness, lethality, survivability, mobility, and sustainment. Land Warrior is one of PM Soldier Warrior's biggest success stories. Land Warrior is a Soldier-worn, modular fighting system that uses state-of-the-art computer, communications, and global positioning technology to digitally link Soldiers on the battlefield. The system is integrated with body armor and includes a helmet-mounted display on which Soldiers can quickly view detailed maps. They can also see the locations of enemy and friendly forces in the area of operations, greatly reducing the risk of fratricide.

PEO Soldier designs, develops, procures, fields, and sustains virtually everything the Soldier wears or carries, including clothing and individual equipment, protective gear, weaponry, and systems to improve communication and situational awareness.

Air Warrior is a modular, integrated, rapidly reconfigurable combat ensemble that merges aviation life support and mission equipment. The system includes mission-planning, navigation, and communications equipment; a lightweight flight helmet and integrated laser eye protection; the Microclimate Cooling System, which

helps lower core body temperature while in the aircraft, thus reducing heat stress and increasing mission

endurance by as much as 350 percent; and equipment that increases the odds for evasion and survival for downed aircrew members. More than 16,500 Air Warrior systems have been fielded to date.

The Best in Protection

PM SEQ develops, fields, and sustains state-of-the-art sensors, lasers, clothing, and protective gear as well as a plethora of individual equipment, such as flashlights, sleeping systems, and parachutes.

Soldiers trust their survivability gear for one simple reason — it works. SGT Curtis Pittman, Alpha Co., 4-9, knows firsthand that Interceptor Body Armor (IBA) does what it is designed to do. “It saved my life,” he said. “I was hit by a suicide bomber, and the plates in the body armor stopped the shrapnel from going into my chest, which would have killed me.” Pittman bears no visible wounds. “IBA is the best body armor available, and the number of Soldiers saved proves that,” Brown said.

PEO Soldier continues to look for ways to improve body armor, including reducing its weight. The most recent change to body armor, the Improved Outer Tactical Vest, decreased the armor weight by as much as 3.8 pounds. The side-opening vest increases soft ballistic coverage, adjusts for better comfort, and includes a quick-release that allows Soldiers to instantly remove the vest in emergency situations, such as to escape a burning vehicle. “This vest epitomizes our continuous efforts to seek the next improvement and to provide our Soldiers the best body armor available — bar none,” explained Brown.

In addition to providing ballistic protection, PM SEQ is responsible for flame-resistant uniforms and accessories. As of Jan. 1, 2008, all deploying ground Soldiers receive four Flame-Resistant Army Combat Uniforms (FR ACUs). Aviation and combat vehicle crews are issued mission-specific FR uniforms.

Reports from theater demonstrate that the uniforms are doing exactly what they are designed to do. 1SGT Gordon Sather, 4-9, experienced the benefits of FR ACUs firsthand when his vehicle hit a series of improvised explosive devices late last summer. “While the truck was on fire, the oil from the engine got all over us and the flame was on us, but it never burned through the material,” Sather said. “We got small burn marks on our legs, but it was like very minor sunburn.”

PEO Soldier is also improving target-identification technology that helps U.S. Soldiers “own the night.” Next-generation aiming lights provide capabilities that improve on their predecessors, while offering a reduction in weight and required power supply. The AN/PEQ-15 Advanced Target Pointer/Illuminator/Aiming Light (ATPIAL) and the AN/PEQ-15A Dual Beam Aiming Laser Advanced 2nd Generation Infrared (IR) laser emit highly collimated beams of IR light for



The CROWS demonstrates its firing-on-the-move capability. (U.S. Army photo courtesy of PEO Soldier.)


precise weapon aiming, as well as separate, IR-illuminating lasers with adjustable focus. A visible, red-dot aiming laser can also be selected to provide accurate aiming of a weapon during daylight or night operations. The AN/PEQ-16A Mini-IR Pointer Illuminator Module also features a white light flashlight.

Increased Lethality

PM SW supports the development, production, and procurement of current and future weapons systems, ammunition, and associated target acquisition and fire control products. One of the most technologically advanced systems in recent years is the Common Remotely Operated Weapon Station (CROWS), which allows a gunner, using a computer screen and joystick, to operate a weapon mounted on top of a vehicle from safely inside the vehicle. “The CROWS is working really well in Iraq,” said CPT Darren B. Fowler, 2nd Battalion, 12th Cavalry Regiment. “Our tanks are rolling multiple missions daily, and the tanks with CROWS are seeing a lot of action. This system has added more eyes on the battlefield ... without putting Soldiers’ lives in danger.”

The CROWS can be mounted on a variety of vehicles including the M1114/M1151, M93 Fox, RG-33 Buffalo, Stryker, and others. It is capable of mounting small- to medium-caliber crew-served weapons including the MK19 grenade machine gun, the M2 .50-caliber machine gun, the M240B machine gun, and the M249 squad automatic weapon. It gives gunners the ability to identify, engage, and defeat targets out to the maximum effective range of the weapon.

PEO Soldier is modernizing at mach speed. We are always on the lookout to see if we can develop something better.



PEO Soldier’s mission is to improve Soldiers’ combat effectiveness, ensure their survival, and increase their physical comfort. Here, U.S. Army Soldier CPT Alhaji Bangura observes the area town of Al-Mushahde, north of Baghdad. (U.S. Army photo courtesy of PEO Soldier.)

Another crew-served weapon that is enhancing lethality, and ultimately survivability, is the M110 Semi-Automatic Sniper System (SASS), which dramatically improves sniper operations with a higher rate of fire than the M24 Sniper Weapon System. The SASS can also better address the target-rich urban environments in Iraq and Afghanistan. The M110 is comparable in weight to the M24 and fires the same 7.62 round, but it uses

quick-change 10- and 20-round box magazines, as opposed to the 5-round internal magazine for the M24. This allows the Soldier to configure reload much faster based on mission requirements.

The M110 is the first weapon issued by the Army with its own sound and flash suppressor. The suppressor, which has a quick-detach mechanism, substantially reduces weapon signature, minimizing the likelihood of detection by the enemy.

PM SW recently increased the capability of the M4 carbine, which remains the weapon of choice for most Soldiers. The M26 Modular Accessory Shotgun System and the XM320 grenade launcher module are undergoing operational testing and, when issued, will give additional capability to the M4. Both systems can be used as stand-alone weapons or mounted underneath the M4.

Never at Rest

PEO Soldier is always working to improve the gear Soldiers carry. “We are modernizing at mach speed,” said Brown. “Just because we know we have something good doesn’t mean that we are satisfied. We are always on the lookout to see if we can develop something better.”

For more information on all PEO Soldier equipment, visit www.peosoldier.army.mil.

DEBI DAWSON is the PEO Soldier Public Affairs Officer. She is responsible for providing information on PEO Soldier activities and accomplishments to the public and the media.



PEO STRI — Ensuring U.S. Warfighters Maintain Their Prominence

Kristen A. Dooley

The U.S. Army Program Executive Office Simulation, Training, and Instrumentation (PEO STRI) provides responsive interoperable simulation, training, and testing solutions for warfighters and the Nation. PEO STRI offers life-cycle support for the Army's most advanced training systems around the world.

PEO STRI oversees the production, fielding, and sustainment of the EST 2000. The EST 2000 enables Soldiers to go through initial and sustainment marksmanship training, along with collective gunnery and tactical instruction. (U.S. Army photo by Doug Schaub, PEO STRI.)

“The strength of the Nation resides in our Soldiers, Sailors, Airmen, and Marines,” said Dr. Jim Blake, PEO STRI’s Program Executive Officer. “It is our duty to ensure these warfighters maintain their prominence as the strongest force in the world by equipping them with unsurpassed modeling, simulation, testing, and training devices.”

The organization executes programs valued at \$3.2 billion with a workforce of nearly 950 military, civilian, and contractor personnel. PEO STRI’s Acquisition Center manages more than 850 contracts valued at almost \$9.3 billion. The Army acquisition agency sustains 335,000 training systems at 472 sites worldwide, including 19 foreign countries. In addition, PEO STRI’s Foreign Military Sales program supports 63 countries. Headquartered in Central Florida’s Research Park, the organization also has offices in Redstone Arsenal, AL; Fort Bliss, TX; and Fort Huachuca, AZ.

Nearly all Soldiers deployed to a theater of combat operations have trained on a PEO STRI-derived device. Some of these training aids and simulations include the Training Improvised Explosive Device, Engagement Skills Trainer (EST) 2000, Laser Marksmanship Training System, Mobile Military Operations on Urban Terrain, Aviation Combined Arms Tactical Trainer, Call for Fire Trainer, and Medical Simulation Training Centers (MSTCs).

HEAT — A 2007 Army Greatest Invention

Among many recent achievements, PEO STRI proudly worked in close collaboration with other Army components to rapidly produce and field the High-Mobility Multipurpose Wheeled Vehicle (HMMWV) Egress Assistance Trainer (HEAT) in response

to the dangers warfighters were facing in the contemporary operating environment. The device represents the U.S. Army’s first standardized trainer of this kind.

The HEAT, which properly trains Soldiers to egress from a rolled-over vehicle, proves to be an Army solution for an Army problem. Recently, the trainer was named one of the Top 10 Greatest Army Inventions of 2007 by the U.S. Army Materiel Command.

It provides Soldiers with the familiarity of how it feels when a vehicle is on the verge of rolling over and what precautions to take to brace their bodies. Furthermore, it instructs them on what to do once the HMMWV has rolled — how to properly egress and help other Soldiers, especially the injured, get out as well.

If a gunner is in the hatch, Soldiers are responsible for pulling him or her back into the HMMWV when the rollover is about to occur. Since the gunner is in the most vulnerable position in the vehicle, the gunner’s cage on the HEAT trains Soldiers to react safely and effectively. The device is capable of rotating and stopping in various positions, making

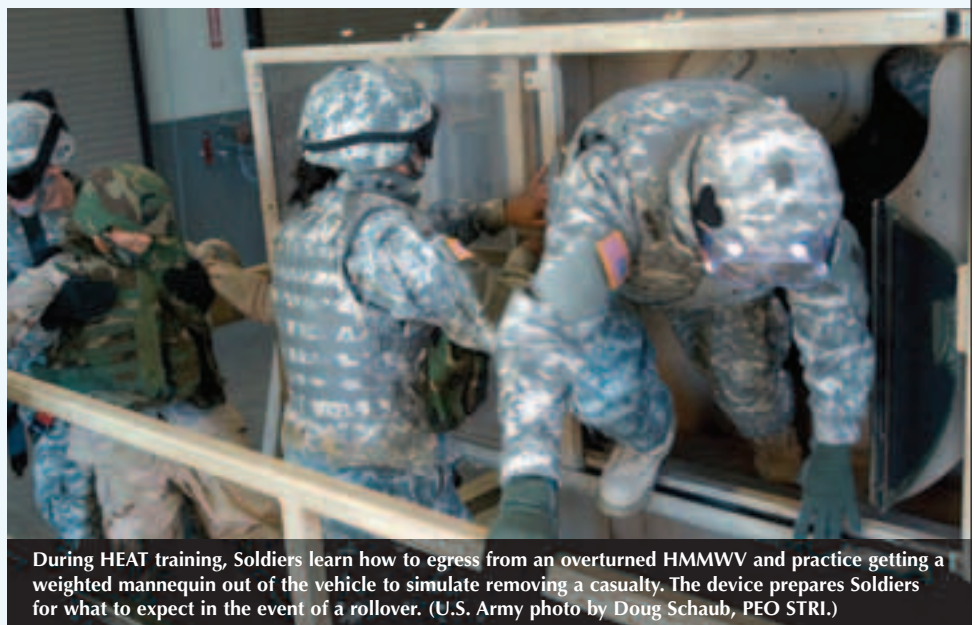
it the only Army trainer that allows Soldiers to practice a variety of egress techniques at different angles.

External door locks allow the instructor to simulate obstructed doors so that trainees can think about actions to take if they face a blocked door in an actual rollover. As soon as an exit is identified, the Soldiers are instructed to yell, “Right rear door open!” Each Soldier exits the HMMWV, establishes security, and administers first aid if needed.

HEAT is produced and fielded by PEO STRI, which worked in cooperation with the U.S. Army Tank Automotive Research, Development, and Engineering Center, Warren, MI, and Red River Army Depot, TX, for their engineering and manufacturing capabilities respectively. To date, 53 systems have been fielded to stateside and worldwide locations, where thousands of Soldiers have trained on the system.

MSTCs

Real-world operational needs also prompted the rapid fielding of the MSTCs, state-of-the-art trainers where Soldiers learn basic combat casualty care in a classroom and simulated battlefield environment.



During HEAT training, Soldiers learn how to egress from an overturned HMMWV and practice getting a weighted mannequin out of the vehicle to simulate removing a casualty. The device prepares Soldiers for what to expect in the event of a rollover. (U.S. Army photo by Doug Schaub, PEO STRI.)

This combat casualty care instruction represents the U.S. Army's standardized medical training program. The program has reduced the died-of-wounds rate on the battlefield by providing Soldiers with the skills to save wounded warfighters in combat.

The capability, managed by the Assistant Project Manager Medical Simulation at PEO STRI, has trained more than 78,000 Soldiers since the program's inception in 2006. PEO STRI has fielded 15 of the 18 MSTCs to domestic and worldwide

locations; the remaining three will be fielded in 2008. One MSTC resides in theater and a deployable site can be used for contingency operations. An additional 18 sites are expected to be fielded over the next several years.

Through this instruction, Soldiers learn how to treat the three most preventable combat deaths: a collapsed lung, a blocked airway, and blood loss. Students can also practice performing intubations and tracheotomies, inserting catheters, applying

splints, treating chest wounds, and inserting intravenous needles.

Before the simulated battlefield training, Soldiers are provided classroom-based instruction to learn how to apply medical treatment in a high-stress combat environment. After the students complete their coursework, their knowledge is validated on this simulated battlefield.

During the hands-on training, Soldiers are assessed on a computer that monitors a mannequin's condition. Since the mannequins are physiologically based, their survivability is dependent on what the trainee does or does not do. If a student fails to administer proper care, the simulator will deteriorate and shut down. Conversely, the students can also experience what happens when they successfully treat the simulator and the mannequin's conditions improve. The Soldier's actions are monitored and recorded in the master patient monitoring station. If the simulator "dies," the Soldier is retrained in the classroom and reassessed.

A large number of Soldiers undergo this training before they deploy to Iraq or Afghanistan because the combat arms warfighter is usually the first responder since he or she is there at the point of injury. As a result, it is very important for nonmedical Soldiers to learn these lifesaving methods.

Warfighters who have undergone MSTC instruction and trained on the human-patient simulators said they feel they are learning critical skills that will increase survivability on the battlefield.

Language and Cultural Training

The current fight has greatly changed the way U.S. forces are trained.

Whether it is high-paced, high-skilled



A Soldier treats the mannequin's tension pneumothorax, or collapsed lung, through a needle decompression at a recent training exercise intended to prepare students for basic combat medical care. This instruction is part of PEO STRI's medical simulation program. (U.S. Army photo by Doug Schaub, PEO STRI.)

medical instruction or HMMWV rollover training, U.S. Soldiers are refining their skills like never before.

For language and cultural training, this phenomenon is no different. Because of the nature of urban combat, Soldiers regularly interact with the Iraqi people, often without the support of a translator. In response, PEO STRI fielded a device, the Vcommunicator, which allows Soldiers to effectively engage with the local Iraqi and Afghan populations.

PEO STRI saw the importance of quickly acquiring and fielding this device as the Army is currently experiencing a severe shortage of human translators in theater. For that reason, PEO STRI expedited the acquisition process to get the Vcommunicator into the hands of the 1st Brigade Combat Team (BCT) at Fort Drum, NY, and the 4th BCT at Fort Polk, LA, faster.

In fact, Soldiers from the 10th Mountain Division are currently using this state-of-the-art language and cultural hand-held translator in Iraq and Afghanistan. Considering the generation of Soldiers deployed to the theater of combat operations, the Apple iPod®-based translator is not only easy to use, but also a trendy way to translate.

The device provides Soldiers with the ability to converse in Arabic, Kurdish, Pashtu, and Dari languages while mimicking the correct cultural mannerisms. To do this, the Vcommunicator shows realistic, virtual characters that can lip-sync the spoken language while displaying culturally appropriate gestures.

The Soldiers can use the Vcommunicator either for training during downtime or during a mission. They can select a message on the device

and the iPod, equipped with a speaker, that will amplify that command. Soldiers can select from a list of orders associated with interrogations, vehicle checkpoints, and raids, for example.

A Soldier assigned to PEO STRI, SGT Dennis Godfrey, got the chance to experience the Army's newest language and cultural training tool firsthand. "In an ideal situation, everyone would have an interpreter, but with that not always being possible, the Vcommunicator will help fill the gap," Godfrey said. "Soldiers will now be able to get their point across easier and be able to ask simple 'yes' and 'no' questions. I think the Vcommunicator will definitely help Soldiers communicate better with non-English speaking people in the absence of an interpreter."

Before Godfrey got to test out the new technology, the Vcommunicator was field tested by the 10th Mountain Division's 1st BCT at the Joint Readiness Training Center at Fort Polk.

The device received positive feedback. One of the sergeants from the 1st BCT said it was incredibly easy to use and puts the "friend in user-friendly." He also said that he was able to use the device with no training or reference to a user's manual.

Warfighters around the globe are being positively impacted by PEO STRI's recent undertakings, to include becoming an acquisition authority for the Army's system and nonsystem training devices, housing



While examining the Vcommunicator translation device's equipment, SFC Thomas Poindexter, Co. B, Division Special Troops Battalion, 1st Cavalry Division, speaks to Ernie Bright, one of the device's developers, during a demonstration at Fort Hood, TX, July 22, 2008. (U.S. Army photo by SSG Jon Cupp, 1st Brigade Combat Team, 1st Cavalry Division.)

an Army Acquisition Center of Excellence, and forging strong Joint partnerships to better contribute to warfighter readiness.

"For those of us who acquire training and testing enablers, we will remain relentless in meeting the urgent needs of our customers — U.S. Soldiers and all American and allied armed forces alike — by providing them the best possible solutions," Blake said. "By standing up an Army Center for Acquisition Excellence, PEO STRI is achieving a higher level of service to the Nation's men and women in uniform."

Enabling the Soldier with training is strong; working in collaboration with other Army components and the Joint community to provide unsurpassed support to the warfighter is "Army Strong."

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PM FCS — Testing Underway for FCS Network

Richard Condello

Recently, on the training ranges at Fort Bliss, TX, squads of Soldiers conducted urban operations in search of enemy high-value targets. This was no ordinary training exercise — Soldiers moved quickly through the “town” using small ground robots, unmanned air vehicles, and unattended sensors — all linked by the power of the Future Combat Systems (FCS) Network.

The U.S. Army FCS(BCT)'s first FCS MGV was publicly unveiled on The National Mall, Washington, DC, June 11, 2008. (U.S. Army photo by Robert E. Coultas.)



The urban operations exercise allows the Fort Bliss Soldiers to evaluate FCS capabilities during its phase one roll out. The FCS Network comprises many components. The network includes hardware (radios and touch screens), software (System-of-Systems Common Operating Environment and Battle Command), and all of the FCS platforms.

The best way to show how the FCS Network functions is to describe an operational example. Consider an Unattended Ground Sensor (UGS) that is deployed and detects an enemy vehicle. This information is automatically

relayed to a Manned Ground Vehicle (MGV) over a Joint Tactical Radio System (JTRS) radio where the battle command application in the MGV fuses the sensor hit with other potential tracks, classifies the enemy vehicle, and updates the Common Operational Picture (COP) with a threat warning. The COP update is transported over the JTRS and Warfighter Integrated Network-Tactical (WIN-T) across the brigade. Based on this threat, received in the COP of a commander's vehicle, a decision is made to destroy the target.

The battle command services within the MGV provide the warfighter with

numerous planning tools to determine the proper course of action. Destroying the threat using the Non-Line-of-Sight-Cannon (NLOS-C) fire is a course of action, so the order is transmitted to take out the threat using an NLOS-C. The order to fire the NLOS-C is transferred over the JTRS and WIN-T to an NLOS-C vehicle, which then fires on the target. The commander then directs a Class IV Unmanned Air System over the target and employs the sensors onboard to make an assessment. The sensor video data is downlinked via a WIN-T waveform into a multitude of platforms (MGVs) where an assessment is made,



MAJ Ralph Overland illustrates the user-friendly COP at the NLOS-C NetFires Demonstration on June 13, 2008, at the Pentagon. (U.S. Army photo by Jill Nicholson, FCS.)

and the images taken by the Class IV are appended to and distributed across the brigade COP.

In this scenario, the entire mission would take just a few minutes. But in today's warfight, it would take much longer. Additionally, not all brigade levels would be able to share the sensor information on the COP, since the systems and platforms fielded today are either stand-alone (i.e., non-networked) stovepipe systems to fill a specific

need, or have incorporated networking capabilities as an afterthought. The FCS approach recognizes the importance of the integrated network from the start and builds the network components into the platforms. Because every platform, sensor, and Soldier is networked, leaders at all levels can see first, understand first, act first, and

There are five layers to the FCS Network: sensors/platforms, applications, services, transport, and standards.

finish decisively. One of the major improvements is that a robust network is pushed further down in echelons and in greater density than today.

Today's robust network stops at the battalion level. Eventually, FCS will push the network down to the individual Soldier. This will include integrating within each platform a significantly greater transport capacity than what exists today, while operating on the move. Integrated within every MGCV is the computing power to run the full battle command services. This battle

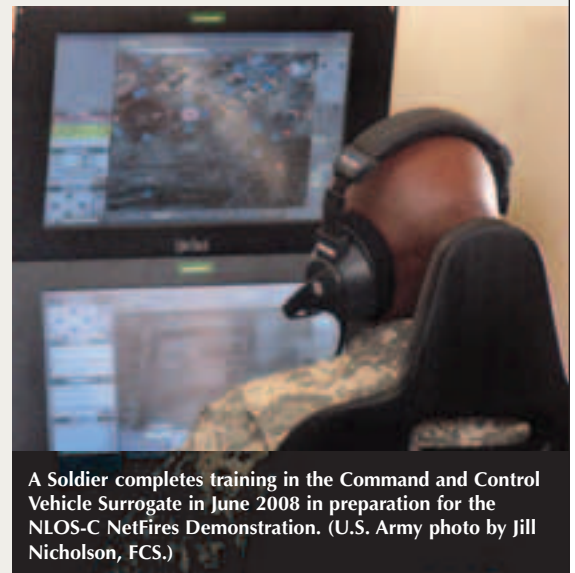
command can be customized based on the warfighter's role. Customization will reduce the burden on the warfighter by increasing automated processes and decision tools, and permits any Soldier, regardless of his role, to perform his battle command functions from any platform.

Contrast this with today's capability where the predominant battle command functions are performed at the halt within the battalion and brigade command posts. The FCS Network also adds a significant density of sensors organic to the brigade combat team (BCT) that are integrated on the manned and unmanned vehicles.

Besides battle command information, the network also provides other tools and information. For instance, Soldiers can perform training operations in real time from any networked location, even while in their vehicles. Vehicles, themselves, will also be smarter. Both manned and unmanned vehicles will have embedded diagnostics. This diagnostic and maintenance information will be sent via the network to vehicle operators and maintainers, which will help mechanics better plan what services to perform and allow for less vehicle downtime.

Network Layers

Each of these tools, along with the platforms, software, and hardware, are broken down and described as the FCS Network layers. This layered approach is a new way to develop network connectivity and information transmission. There are five layers to the FCS Network: sensors/platforms,



A Soldier completes training in the Command and Control Vehicle Surrogate in June 2008 in preparation for the NLOS-C NetFires Demonstration. (U.S. Army photo by Jill Nicholson, FCS.)



Here, an AETF Soldier tests the Warrior Machine Interface in combination with the UGS and Small UGV during Spin Out test and evaluation at Fort Bliss in spring 2008. (U.S. Army photo by Michael Satchfield, FCS.)

applications, services, transport, and standards. The integration of all five layers enables greater situational awareness (SA), sensor fusion, and networked fires, thereby transforming the ground forces' ability to dominate in land combat.

Recognition of the network's five layers is important since, historically, the network has been referred to as "routers and radios" and has resulted in decoupled development of the applications from the radios. For the Army, the past approach creates challenging, after-the-fact integration, and, ultimately, suboptimal performance for the warfighter. The layered approach recognizes that the network is more than just the radios, and the sensors and battle command software must be developed in concert with the transport.

The FCS Network is being developed in four phases. FCS has rolled out phase one, which is currently being evaluated by Soldiers at Fort Bliss.

This unmatched SA will not only assist Soldiers in their training and missions; it will also save Soldiers' lives.

Phases two and three are currently being built and tested. The full network will be online in time for FCS brigading in the 2015 timeframe. This

phased approach allows us to bring Soldier users into the development process, and the real-time feedback will allow developers to make changes that Soldiers need, allowing for a more useable end product. The phased approach also allows the Army to transfer network technology into the hands of warfighters as the technology matures. Soldiers today are evaluating FCS Network technology as part of FCS Spin Out to Infantry BCTs.

Industry Partners

The Army is using the best of industry approach in designing the FCS Network, while also developing the hardware that the network will plug into simultaneously. There are a number of industry teams working network development. For example, the battle command development

team is comprised of different partners across industry including Overwatch Systems, BAE Systems, Lockheed Martin, Honeywell, Sparta, Boeing, and Raytheon, among others. The transport is predominantly performed by General Dynamics and Boeing. In addition, the program includes other industry partners with specific areas of expertise to perform independent analysis of the program in support of network development. In fact, the network could not get into the hands of Soldiers as quickly as it has without this industry team in place.

Soldiers at the Army Evaluation Task Force (AETF) at Fort Bliss are becoming believers in the unmatched SA the FCS Network gives them on the battlefield. "It is the combination of the unmanned ground vehicles (UGVs), unmanned aerial vehicles, and UGSs with the network that makes the FCS(BCT) so beneficial. It gives Soldiers early warning and unmatched SA. These systems will save Soldiers' lives," one AETF commander said. A sergeant added, "With the FCS Network you are able to see where everyone is without having to talk on your radio once."

This unmatched SA will not only assist Soldiers in their training and missions; it will also save Soldiers' lives.

RICHARD CONDELLO is the Deputy Project Manager for FCS's Network Systems Integration Office. He has a B.S. in mechanical engineering from Pennsylvania State University, an M.B.A. from Fairleigh Dickinson University, and an M.S.E.E. from Monmouth University. Condello is a U.S. Army Acquisition Corps member and is Level III certified in program management and systems planning, research, development, and engineering.



An Interview With MG Roger A. Nadeau, ATEC CG

Ben Ennis

As we continue to wage the global war on terrorism (GWOT), the acquisition community seeks ways to better equip, supply, and support the Army's warfighters quickly. One group that is often overlooked and, in some cases, not viewed as Army acquisition community members, is the Army's equipment and weapon systems testers and evaluators. The U.S. Army Test and Evaluation Command's (ATEC's) mission is to test and evaluate most equipment put in the hands of Army Soldiers. In this interview, the ATEC Commanding General (CG), MG Roger A. Nadeau, discusses ATEC's role and how the command is transforming to better support its customers.

A Stryker combat vehicle undergoes rigorous performance testing on one of Yuma Proving Ground's (YPG's) 240 miles of road courses. YPG's desert location closely resembles current fighting conditions and has provided critical test data on equipment and systems to be operated under such environmental challenges. (Photo courtesy of YPG.)

AL&T: ATEC is a consolidation of the Developmental Test Command, Aberdeen, MD; the Operational Test Command, Fort Hood, TX; and the Army Evaluation Center, Alexandria, VA. Why does ATEC exist? More specifically, what is the mission of ATEC and how does your command make a contribution to the Army?

Nadeau: ATEC's mission is to assess the performance capabilities of almost every piece of equipment used in any way by Soldiers. The two basic questions we ask are: Does it work? How do we know? Our end-state

assessments address effectiveness, suitability, and survivability. Our assessment helps Army leadership decide if Soldiers will ultimately use the item.

ATEC offers vast experience to the acquisition community. On a typical day, ATEC conducts over 1,100 test events for more than 400 systems at 26 locations across 17 states. We work with our partner acquisition organizations to provide warfighters with the most technologically advanced equipment. ATEC helps ensure that warfighters receive the safest, most

reliable equipment that is effective, suitable, and survivable on the battlefield. Through ATEC's mutual partnerships and test community networks, our common goal is to provide Soldiers with the equipment they need when they need it. We help by providing information that facilitates the decisions of the Milestone Decision Authorities. Also, the information we provide supports decisions pertaining to the Office of the Secretary of Defense [OSD] oversight programs for which we are the Army's representative test agency.



ATEC's personnel and test facilities played a key role in conducting rigorous ballistic tests of the MRAP vehicles prior to accelerated fielding by the U.S. Army and U.S. Marine Corps. (Photo courtesy of U.S. Army Aberdeen Test Center (ATC), MD.)

ATEC recognizes that we must earn the right to be brought into the acquisition process earlier and that we must prove our value by reducing program costs, developmental timelines, and program risk. ATEC is not a decision agency. Success for ATEC is being recognized as a trusted advisor to the acquisition community and, more importantly, a trusted agent for the Soldier.

AL&T: Some people often say that ATEC is part of the U.S. Army Materiel Command (AMC) and others say ATEC reports to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology. What is ATEC's reporting chain of command?

Nadeau: We are owned by neither, but we work for both. To clarify, ATEC is a direct reporting unit to the Army Staff, specifically, the Chief of Staff, Army [CSA].

ATEC responds to the CSA through the Director of the Army Staff and the Vice CSA. It was set up that way to preserve our independence in the evaluation process. Our daily challenge is to make our relationship better with the acquisition community so we are seen as a value-added part of the process and not a roadblock that causes things to slow down.

AL&T: The Army has been undergoing transformation for several years. Army organizations are changing their processes and procedures. How is ATEC committed to the Army's transformational changes?

Nadeau: You can start with the Army transformation process, but you need to go even further than that.

Because of the transformational focus throughout DOD, everything is changing in some way. The glide path that we are on is parallel and designed to be additive to the CSA's vision of Army transformation. Our ties to the office of Director, Operational Test and Evaluation [DOT&E] make us part of the transition that is occurring throughout DOD test agencies. The reporting chain that I mentioned remains the same because of the independent nature of what we do. We are not pressured by the cost, schedule, and performance challenges of the acquisition community. That is not a shield to hide behind; it is a statement of fact. One transformational process challenge is to understand the pressures faced by program executive officers [PEOs] and program/project managers [PMs]. By becoming more aware of how they do their jobs, we can figure out how to do our job better.

If you look at the *DoD 5000* series relative to the life-cycle management process, the movement of a typical system through the acquisition process

On a typical day,
ATEC conducts over
1,100 test events
for more than 400
systems at 26 locations
across 17 states.

is linear. For greater efficiency in today's operating environment, we need to be less linear where appropriate to better serve Soldiers. In looking for non-linear process scenarios, we had

to figure out what that meant to our business. We knew the linear process was not being proactive to providing good support. The *5000* series does not mandate test requirements for pre-Milestone A. Mostly, you see the preponderance of organized scheduled test events somewhere between Milestone B and shortly after

Milestone C to support entry into production. Our organizational construct starts with developmental testing [DT] as a direct hire to the PEOs to help them in their developmental decisions. After DT, we conduct operational testing [OT] in support of Milestone C production decisions. The 5000 series does not encourage learning from DT, in a way to shorten OT. That's the standard acquisition process. The Army has been at war over a sustained period of time and the rapid support to the war challenge was: How do we support testing of equipment during the GWOT? We must do things faster to support combat Soldiers as quickly as we can. That doesn't mean we can put equipment whose performance is unproven in the hands of Soldiers. But under the concept of rapid acquisition, how much testing is enough testing? The answer is generally, 'it depends.'

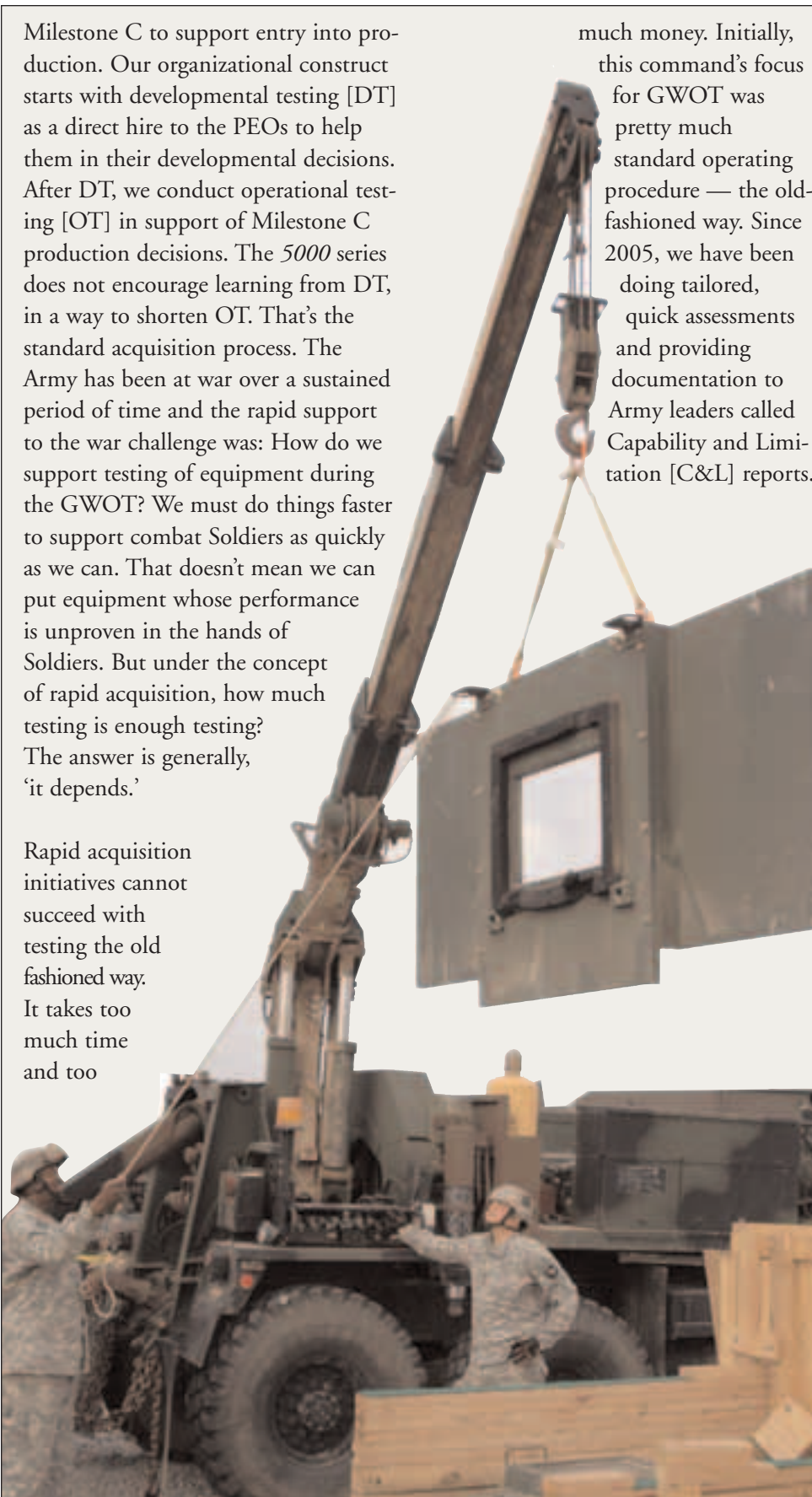
Rapid acquisition initiatives cannot succeed with testing the old fashioned way. It takes too much time and too

much money. Initially, this command's focus for GWOT was pretty much standard operating procedure — the old-fashioned way. Since 2005, we have been doing tailored, quick assessments and providing documentation to Army leaders called Capability and Limitation [C&L] reports.

In those reports, we provide warfighters a performance analysis of the equipment or system and its strengths and weaknesses — not pass/fail. Army decision makers can make procurement/fielding decisions using C&L report data. Combat commanders also read the C&L reports to better understand where the equipment or system best fits into their mission and if they want to accept it into their units.

From our perspective, C&L reports help ensure minimum risk to the Soldier by identifying equipment strengths and weaknesses. It is a faster way to document equipment performance and help facilitate procurement/fielding decisions.

Another document driving transformational change to traditional acquisition programs is the joint Under Secretary of Defense for Acquisition, Technology, and Logistics and DOT&E memorandum dated Dec. 22, 2007. The memorandum challenges the acquisition and test communities of the services and agencies to think differently along some very specific lines. The memorandum calls for the test community to integrate DT and OT when appropriate and to use all available information. That means we can potentially take both contractor and Army DT information and use it to perhaps shorten OT requirements. Additionally, we are challenged to make better use of modeling and simulation in the evaluation process. We see the memorandum as a catalyst for change that allows us to apply those challenges on a case-by-case basis for every piece of equipment we test. Our challenge is how to get ATEC involved as early as pre-Milestone A and remain engaged throughout the life cycle in a way that saves time and money over the long haul. We are working on implementing that now.



Forward-deployed ATEC personnel continue to gather feedback from Soldiers firsthand on the effectiveness of Army equipment and systems in theater such as the add-on armor kits seen here being installed on a Family of Medium Tactical Vehicles truck. This information has proven invaluable to senior Army leaders for making timely acquisition decisions. (U.S. Army photo.)



The Stryker MGS undergoes a live-fire test at ATC. The ATC is one of ATEC's test centers across the U.S. that conducted ballistic, mobility, and survivability testing on Stryker MGS prior to its deployment into theater. (Photo courtesy of ATC.)

We are constantly educating our workforce on how our thinking needs to change. We must implement transformational changes in ways that do not compromise the organization's mission or integrity. Externally, to support transformational changes, we are working to show private industry how we can be of assistance to them. Usually, PEOs and PMs don't see early involvement by the test community as a good thing. We are perceived as a roadblock to schedule success. We need to earn our way into the PEOs' and PMs' developmental timelines and

We are constantly educating our workforce on how our thinking needs to change. We must implement transformational changes in ways that do not compromise the organization's mission or integrity.

prove to them that there is value added to the early involvement of the test community. There are already many examples of small successes toward that end state. ATEC was involved in the development and fielding of add-on armor for tactical wheeled vehicles, the test-fix-test cycle of the Mine Resistant Ambush Protected [MRAP] vehicle, the collection and distribution of operational and combat data to help facilitate fixes to the Stryker Mobile Gun System [MGS] and its recommended employment methods, and the testing and evaluation of a wide range of improvised explosive device [IED] jammers.

AL&T: What is your approach to the Army's Lean Six Sigma (LSS) effort and how is ATEC using LSS?

Nadeau: Just over a year ago, ATEC revisited its strategic plan. We rewrote the strategic focus. When we did that, we found a number of the LSS projects were not necessarily the most productive projects toward achieving our end-state goals. That had to be fixed. We put a halt to some things we thought would not support the end states of the command's strategic plan. We made sure the remaining projects were in alignment with our strategic goals. Now we have a pretty robust LSS program within the organization. It will get even better over time. Starting at ATEC Headquarters [HQ], we are constantly reviewing our value added to our subordinate elements. We look at it as the inverted organization chart, looking up and saying: What have we done for you lately? If we don't have a good answer

for that at the corporate HQ, then we're not earning our paycheck and properly supporting our workforce.

Externally, our LSS effort is focused in large part on the challenges OSD identified relative to how we are doing business and the parallel efforts of Army transformation. How do we change? How do we alter or reconstruct test operations to fit the challenges of early and constant involvement? We are examining initiatives that will save the Army time and money without compromising the independence of the evaluation or the acceptance of risk in the decision factors.

AL&T: In closing, most of your career has been in acquisition assignments. Even though testers and evaluators are members of the acquisition community, I sense that some testers and evaluators view other acquisition members with skepticism. What do you as an acquisition professional bring to the ATEC team?



A variant of the MRAP vehicle undergoes grueling cross-country road evaluation during operational testing conducted by Soldiers and ATEC personnel at White Sands Missile Range, NM. (Photo courtesy of U.S. Army Operational Test Command.)

Nadeau: I bring an understanding of the acquisition rules and regulations that allow me to educate the ATEC community on the challenges facing PEOs. I'm convinced that the more we

know about how PEOs do their job, the better we can do ours in support of their mission. I hope I also bring a reputation of fairness and a team spirit within the acquisition community that will enable ATEC to help PEOs and PMs, quickly working through some of the old myths that testers are more to be avoided than embraced. That said, I'd also be quick to point out that a good reputation might get you in the door the first time. It's performance that will get you an invitation to come back.

BEN ENNIS is the U.S. Army Acquisition Support Center Strategic Communications Division Chief. He has a B.S. in business from the University of Colorado and an M.B.A. in marketing from Atlanta University. Ennis is a former Army Reserve Advertising Chief and has attended numerous military schools, including the U.S. Army Command and General Staff College and Defense Information School.



An IED explodes alongside one of the paved roads at YPG's National Counterterrorism/Counterinsurgency Integrated Test and Evaluation Center. Numerous counter-IED systems and technology have been, and continue to be, tested by ATEC personnel, allowing for critical information to be provided to senior Army leaders for making timely utilization and acquisition decisions to support Soldiers in the combat zones. (Photo courtesy of YPG.)

The Army Establishes New Test and Evaluation Office (TEO)

Janet Garber

Earlier this year, the U.S. Army Test and Evaluation Management Agency (TEMA) and the Office of the Army Test and Evaluation (T&E) Executive were realigned to form the U.S. Army TEO. This merger consolidates and strengthens T&E oversight within the Office of the Secretary of the Army (SecArmy), providing a single focal point for Army T&E and, as executive agent, on DOD Chemical and Biological Defense Program (CBDP) T&E matters. The TEO director serves as senior advisor to the SecArmy and the Army Chief of Staff (CSA) on all T&E matters as well as senior advisor to the Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Programs (ATSD(NCB)) on CBDP T&E matters.

TEO ensures that Soldiers receive the best possible warfighting systems and equipment within available cost and time constraints. Here, Mine Resistant Ambush Protected (MRAP) vehicle explosive testing is conducted at Aberdeen Test Center (ATC), MD. (Photo courtesy of ATC.)

TEO

TEO ensures that T&E associated with acquisition of Army materiel supports fielding the most operationally effective, suitable, and survivable warfighting equipment possible to current and future Soldiers and commanders. This mission is accomplished by establishing and enforcing T&E policy, managing T&E resources, and continuously coordinating with the T&E community, including Army and Joint program managers (PMs); the Assistant Secretary of the Army for Acquisition, Logistics, and Technology; and Director of Operational Test and Evaluation

(DOT&E). The TEO has a Senior Executive Service (tier 2) director, deputy director, administrative staff, three divisions, and a special assistant. The TEO director reports to the Deputy Under Secretary of the Army (DUSA).

The TEO director serves as the Army and CBDP T&E Executive and is responsible for T&E policy, program oversight, and program and budget analysis. The director advises key Army and Joint decision-making panels, including the Army Systems Acquisition Review Council, Army Requirements Oversight Council (AROC), Army Acquisition

Overarching Integrated Product Team, and Army-Marine Corps Board, on the testability of materiel requirements, sufficiency of test plans and results, and ability of tested systems to fill warfighter capability gaps. The director serves as the Department of the Army (DA) staff interface with the Office of the Under Secretary of Defense (USD) Director, Defense Research and Engineering; USD Test Resource Management Center; and DOT&E on T&E related issues, policy, funding, and program coordination. The director approves test-related documentation for HQDA and forwards, when required, to DOT&E and the USD

for Acquisition, Technology, and Logistics (AT&L) for final approval. Additionally, the director is the acquisition workforce T&E functional chief for career field T (i.e., T&E).

TEO's divisions provide guidance and subject matter expertise to Army and Joint test programs and promote early tester/evaluator involvement, thus ensuring T&E is integral to the entire acquisition cycle. TEO has a complementary mix of government civilians, military officers, and contract employees.

Programs and Analysis (P&A) Division

The P&A Division coordinates all T&E matters across PMs, the Army Test and Evaluation Command, HQDA staff, and the Office of the Secretary of Defense (OSD) (USD AT&L and DOT&E).

This coordination is used as follows:

- Ensures T&E programs support materiel requirements.
- Assesses sufficiency of test plans and test results.
- Recommends modifications to the scope or focus of T&E activities.
- Harmonizes Army analysis with T&E activities in supporting the acquisition process.

Additionally, the P&A Division verifies that T&E activities comply with Army and OSD T&E policy.

Chemical and Biological Defense (CBD) T&E Division

CBD T&E Division works closely with CBDP stakeholders to provide T&E input to the CBDP Program



The TEO director serves as senior advisor to the SecArmy and the CSA on all T&E matters as well as senior advisor to the ATSD(NCB) on CBDP T&E matters. Here, a Soldier wearing mission-oriented protective posture gear and protective mask exits an Infantry Combat vehicle mock-up during a demonstration at the Santa Clara, CA, BAE Systems facility. (U.S. Army photo courtesy of Future Combat Systems (Brigade Combat Team).)

Objective Memorandum (POM), ensuring that T&E infrastructure is maintained and modernized to support adequate developmental and operational testing. The division develops the T&E infrastructure

TEO's divisions provide guidance and subject matter expertise to Army and Joint test programs and promote early tester/evaluator involvement, thus ensuring T&E is integral to the entire acquisition cycle.

investment strategy, test standards, and processes, and provides T&E program oversight ensuring credible and robust testing and evaluation in supporting programs of record. Additionally, the division coordinates actions throughout the CBDP community including DOT&E; Joint Program

Executive Office (PEO) CBD; Defense Threat Reduction Agency; Joint Science and Technology Office; Joint Staff (J-8); Joint Requirements

Office-Chemical, Biological, Radiological, and Nuclear Defense; service operational test agencies; and various test facilities.

Strategy and Resources (S&R) Division

The S&R Division serves as the proponent for Army T&E resources at HQDA by developing and defending the T&E funding (approximately \$900 million annually) to the Army, OSD, and Congress, and serves as the HQDA staffing and approval agent for all T&E resource programming. The division develops and monitors the Army test capabilities in DOD's major range and test facility base and provides HQDA funding oversight of Army instrumentation, targets, and threat simulator programs. The division also develops the Army T&E strategy for the test community, administers the Army portion of DOD's Central T&E Investment Program, and oversees Army validation of threat representations used in testing.

Special Assistant for Policy and Education

The Special Assistant for Policy and Education develops and promulgates Army T&E policy and procedures. The special assistant authors *Army Regulation 73-1* and *DA Pamphlet 73-1*, manages the HQDA Test and Evaluation Master Plan (TEMP), supports OSD and Army T&E education and training, and chairs the DA-wide chartered T&E Managers Committee. These initiatives improve T&E processes in rapid acquisition, volatile acquisition schedules, and specialized multiservice acquisition programs.

Value Added

TEO provides senior Army leadership with expert advice on acquisition programs from an independent, overarching perspective, ranging from requirements analysis adequacy, documentation, and testing to the best use of information in supporting acquisition decisions. By overseeing Army T&E activities in close collaboration with other key Army and OSD agencies, TEO ensures that Soldiers receive the best possible warfighting systems and equipment within available cost and time constraints. This is accomplished by the following:

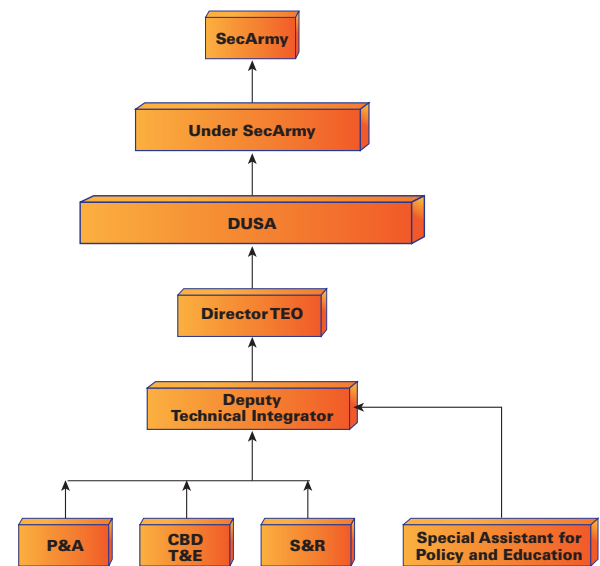
- Setting the strategic direction for the Army T&E community.
- Facilitating and adjudicating T&E issues between the T&E community and the PEOs.
- Coordinating with DOT&E to resolve test documentation issues for OSD T&E oversight programs.
- Overseeing the T&E infrastructure and minimizing duplication of capabilities.
- Facilitating TEMP development and approval.
- Improving T&E processes.
- Standardizing test procedures and

methodologies.

- Ensuring Army and Joint doctrine and capabilities are represented in analyses supporting AROC/Joint Requirements Oversight Council approvals of Joint capability documents and related studies.
- Reviewing study plans, scenarios, and analysis of alternatives results.
- Establishing and maintaining Army T&E policy and procedures to ensure efficient and effective T&E application in support of the defense acquisition process.
- Developing and defending the Army T&E and DOD CBDP POM to ensure T&E infrastructure, manpower, analysis, and instrumentation requirements are sufficiently funded.

The Army T&E Strategic Plan contains the following four overarching goals that TEO uses to set the future direction for the T&E community:

- Cultivate a highly skilled, multi-disciplinary professional workforce with skills and competencies to provide current and future T&E capabilities.
- Tailor the T&E infrastructure to meet current and future needs.
- Improve the quality, rigor, and responsiveness of Army T&E to better meet decision-making needs of senior leaders.
- Continuously improve the T&E enterprise by developing better corporate processes.



TEO Organization Chart

The plan also outlines strategies and initiatives to achieve these four goals. TEO will work with the T&E community to move these initiatives forward.

Combining TEMA and T&E executive offices has increased efficiency, streamlined functionality, and improved value added to the community while saving time and reducing expenses. Establishing TEO not only provides HQDA with a single focal point for all Army and CBDP T&E matters, but also centralizes T&E subject matter expertise and analysis to ensure timely, accurate, and relevant information to decision makers who support the warfighters. More information about TEO and the T&E strategic plan is available on Army Knowledge Online; enter TEO into the search box.

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Quality Assurance Model Streamlines Acquisition Through Process Improvement

MAJ T.J. Wright and Danny W. Hanson

Today's most business-savvy industry and government professionals are integrating quality assurance (QA) and process improvement techniques, promising an era of more efficient, effective operations. The paradigm shift is rippling throughout the defense acquisition community, and Program Executive Office (PEO) Soldier is seeing the techniques take root in its own operations. The product management offices (PMOs) within PEO Soldier welcome an influx of new QA engineers who are introducing new process improvement and QA techniques to our standard business practices — those we implement internally and those we employ with our stakeholders. The number of QA engineers continues to grow, as does support for their practices. Product managers (PMs) and PEOs recognize this, as do senior acquisition leaders who offer initiatives such as the Army Lean Six Sigma (LSS) Additional Skill Identifier. The looking glass appears to have turned inward, with a heavier focus on process improvement in the PMOs.

PEO Soldier's Personnel Airdrop Systems Team uses QA processes to improve communications to its airdrop manufacturers. Here, Soldiers from B Troop, 504th Battlefield Surveillance Brigade (Bde), parachute into a drop zone during an airborne exercise. (U.S. Army photo by SGT Matthew Cooley, 15th Sustainment Bde.)

PEO Soldier's Personnel Airdrop Systems team integrates QA processes into all functions, from daily meetings and document reviews, to the planning and execution of program development, testing, production, and life-cycle support. We believe this streamlined approach to process improvement will revolutionize the acquisition process when collectively employed across the Army and the entire Defense Acquisition System.

The ideals for a quality system already exist within the Defense Acquisition Management Framework, although accomplishing the ideals can be difficult without the correct tools. *DoDD 5000.1, The Defense Acquisition System*, directs defense acquisition programs to employ "flexibility, responsiveness, innovation, discipline, and streamlined and effective management" into acquisition procedures. "Acquisition streamlining," a process improvement technique that aims to eliminate unnecessary specifications and standards, is complex.

Program offices must take into account factors such as interoperability, collaboration, information assurance, and performance-based acquisition and logistics, to name a few. Acquisition streamlining is not easily accomplished without clearly defined and documented organizational processes, and a lack of clarity can lead to decisions that are not based on empirical data evaluations.

Implementing a Quality Management System (QMS)

To implement a proper QMS, an organization's current operating environment must be understood.

The organization must embrace *International Organization for Standardization (ISO)* principles, recognized standards developed by a worldwide federation of national standards bodies. Lean, another important QMS component, is a structured set of tools that are used to remove waste from an organization. Yet another tool, Six Sigma, uses the define, measure, analyze, improve, and control (DMAIC) principle to remove variation from processes and fully support best practices. These quality management programs help an organization adopt a QA and performance improvement ideology.

So how can quality professionals help organize an office? Here is a road map to follow based on a plan adapted from J.R. Broomfield's article "Develop a Process Based Management System."

- **Obtain senior management buy-in.** The senior management team must agree that there are opportunities

for improvement and changes are required. Management must act as agents for change and enable their personnel to make the necessary changes by leading by example.

- **Understand the tools and requirements that you want to implement.** The organization must understand QA principles and how to use them. QA professionals need to educate, reinforce skills, and facilitate improvement efforts.
- **Define the scope and organization of the system.** Not all QA tools fit the requirement of every job. The QA team must offer informed suggestions that will yield desired results. For example, a QA team facilitator may recommend developing a fishbone diagram to determine potential root causes for an issue.
- **Determine road map and assess current conformity level.** Define where you are, where you want to go, and how to get there. The organization must evaluate its ability to conform to the desired state.

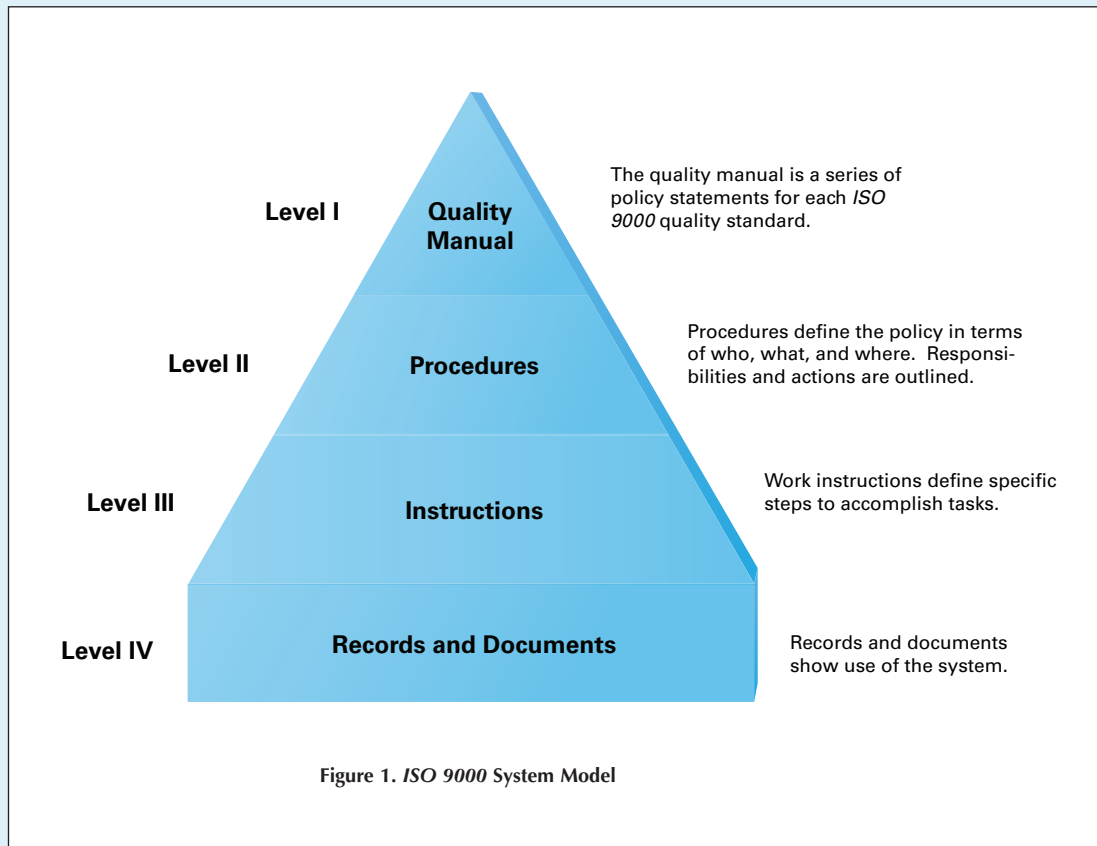


Figure 1. ISO 9000 System Model

This evaluation will identify system gaps and pinpoint opportunities, as well as courses of action for improvement. Caution and restraint are paramount at this step. Many organizations want quick fixes without understanding the effect that changes will have on the system. Employ the DMAIC road map to ensure that impacts are fully assessed and actions are data driven.

- **Analyze core processes.** Identify process leaders and examine internal processes that convert requirements into fielded products. Leaders must meet with teams to develop flowcharts showing inputs, objectives, tasks, meetings, milestones, and process outputs. These exercises will reveal how teams:
 - o Determine requirements.
 - o Translate requirements into product specifications.
 - o Plan, develop, and design processes to achieve specifications.

- o Operate value-added processes.
- o Deliver products that meet or exceed the customer expectation.

The flowcharts will determine the structure for measuring customer satisfaction, data analysis, decision making, audits, and performance reviews for future improvement opportunities.

- **Identify key processes.** Each core process has key sub-processes or support processes that direct, sustain, and continually improve the core process. For example, “quality” is a core process. There are many supporting key processes, including defining contract language, developing quality requirements, writing performance specifications, evaluating test plans and procedures, conducting quality system reviews, evaluating corrective action effectiveness, and implementing metrics and process controls. Processes will

emerge as the system matures; document as they arise. Assign owners to defined processes, and make them responsible for accuracy and completeness. The procedure should include:

- o Process objectives.
- o Sources of inputs, such as data, information, or material.
- o Responsibilities and decision-making authorities.
- o Process controls.
- o Evaluation of the process outputs to determine conformity.

Of the many models available, the *ISO 9000* system is internationally recognized and easy to follow. (See Figure 1, Page 71.)

- **Review each process.** Use internal personnel to review the process. The effort’s goal is to determine if the processes are accurate. Return all responses to the process

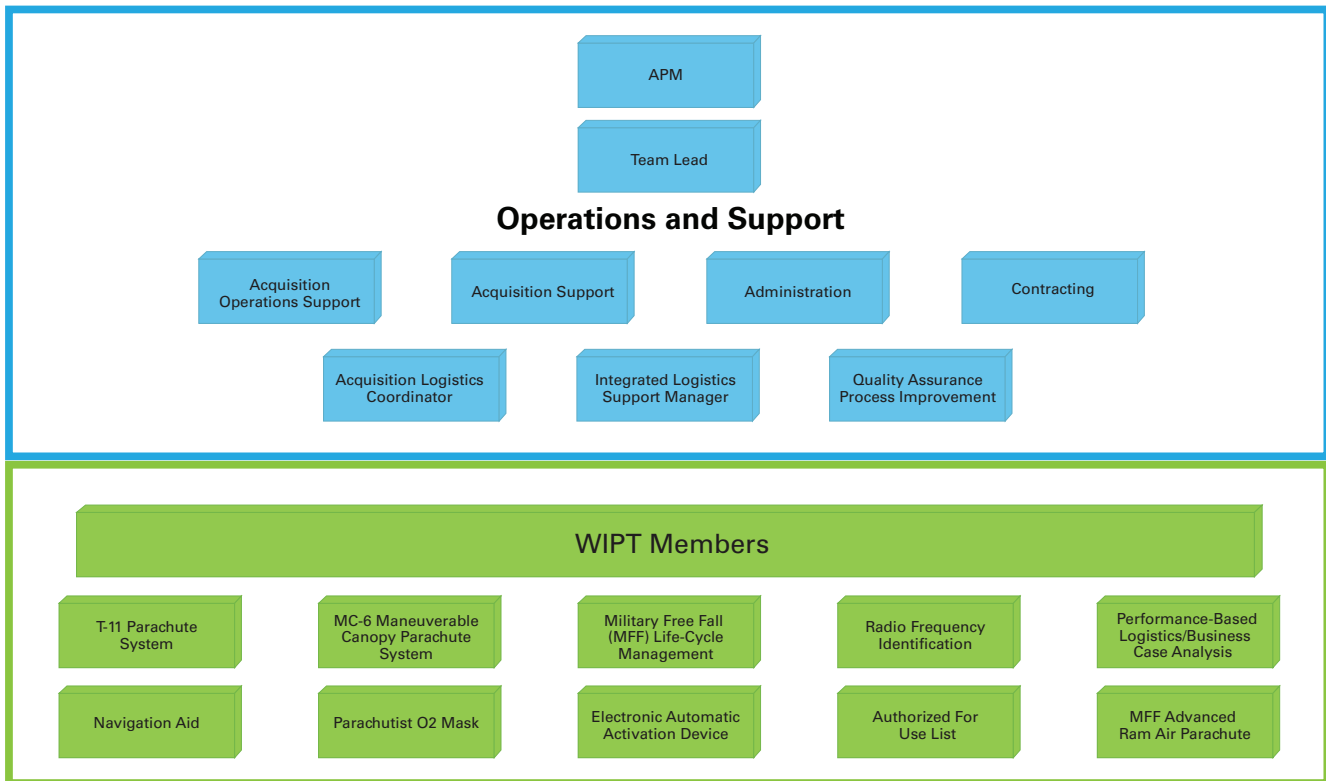


Figure 2. Personnel Airdrop Team



Soldiers prepare to jump the MC-6 Maneuverable Canopy Personnel Parachute System, which offers the Airborne Soldier a new tactical, static line-deployed, steerable personnel parachute system, replacing the legacy MC-1 series parachute assembly, associated harness, and reserve. (Photo courtesy of PEO Soldier.)

- owner by the agreed upon due date.
- **Complete the Project Management Plan.** This plan lists key processes, responsible parties, and dates for implementation. It is a road map for implementation.
 - **Implement metrics.** Metrics illustrate the ability to achieve goals and measure efficiency. For example:
 - o Lower costs by 10 percent.
 - o Keep weekly staff meetings to 45 minutes or less.
 - o Complete document reviews in 5 days or less.

Connect metrics to improvement sources, such as:

- o Customer identification.

- o Customer satisfaction (internal and external) — Do we meet their needs?
- o Process performance — Are processes capable of meeting customer specifications?
- o Product conformity — Does the product meet the specifications?
- o Supplier performance — Are suppliers delivering the quality product on time?
- **Train teams on the value-added business process.** Provide employees training on the process improvement system structure. Use reference manuals, procedures, work instructions, and DMAIC. Keep training ongoing because the QMS is a living system.

Add and remove documents as necessary and keep employees aware of current documentation.

- **Launch the system and audit.** Implement the system and audit to measure efficiency and effectiveness without assigning blame. This will identify system gaps and improvement opportunities. Process owners should use the audit result to drive improvements.
- **Measure, analyze, and improve.** Use advanced tools such as Lean and Six Sigma to reduce waste and variation within each process. Metrics will guide improvement opportunities throughout the entire process. Use all-hands meetings to determine what is working and identify gaps in the system.

Embracing QA

Within PEO Soldier's Personnel Airdrop Systems Team, we have embraced QA as a way of doing business. We imbed QA into every aspect of our programs and daily operations. Using the philosophy of "get our own house in order," everyone is responsible for identifying improvement opportunities. Here are our accomplishments:

- Developed a team charter congruent to *ISO*.
- Defined our team structure, leadership, operations support, and working integrated product teams (WIPTs). (See Figure 2, Page 72.) Each WIPT leader is responsible for team identification and operation. The QA engineer facilitates each WIPT and assists with process development. WIPT members are categorized as follows:
 - o **Approval authority.** Individuals having the authority to implement an action.
 - o **Resources.** Individuals who are not involved in all aspects of the team, but are contacted for their knowledge (subject matter experts).
 - o **Members.** Individuals who are involved in running the WIPT.
 - o **Interested parties.** Individuals who have a need to know about the WIPT and may be affected by actions taken by the WIPT.
- Developed communication directories for each airdrop manufacturer providing contact information for program management, contracting, engineering, logistics, and quality. Our manufacturers provided their respective information. This tool improved communication significantly.
- Defined roles and responsibilities for team members.

- Developed a template for weekly team meetings. The QA engineer facilitates keeping these meetings at the predetermined 30-minute limit.
- Adopted a configuration management database as a repository of information that team members can use anywhere there is an Internet connection. The system's main feature is to track revision levels of documents, thereby showing the complete history of changes. Examples of other documents include trip reports, staff notes and updates, and temporary duty (TDY)/significant activity reports. Each has a defined template that was refined by the team.
- Used a weekly updated TDY/leave/event calendar to track all team members' location and activity at any given time.
- Conducted a process improvement activity to better track test assets. The effort is underway and a working process was scheduled to be implemented in late summer 2008.

We have just scratched the surface in QA process improvement. The new approach will help us avoid cost, shorten schedules, and improve quality and performance of products fielded to Soldiers. Our path forward involves frequent team huddles, continuous education, and cross-training. We must maintain a QA mindset and look for areas to improve. Our QA engineers' involvement, education, and facilitation "upfront and early" are critical in everything we do,

as is leadership's understanding and buy-in.

Acquisition streamlining is not easily accomplished without clearly defined and documented organizational processes, and a lack of clarity can lead to decisions that are not based on empirical data evaluations.

There is no end state, but rather an objective to continually improve our own processes both organizationally and programmatically. There is great potential to expand the QA factor across every level of the Army and defense acquisition framework. This mindset of continually looking for areas to systematically improve organizationally and programmatically will

reduce the cost of doing business, move the schedule left, and provide better systems to the entire force to fight and win our Nation's wars.

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Force Protection — Everyone's Responsibility

Christina A. Wright

Force Protection (FP) is preventive measures taken to mitigate hostile actions against DOD personnel (including family members), resources, facilities, and critical information. An active FP program involving the Acquisition, Logistics, and Technology (AL&T) Workforce encompasses all aspects of protecting the force. The mission is to coordinate FP functions worldwide and perform oversight of antiterrorism, physical security, information assurance (IA), operations security (OPSEC), intelligence, and continuity of operations (COOP).



The U.S. Army Acquisition Support Center (USAASC), a direct reporting unit under the Assistant Secretary of the Army for AL&T, has the responsibility to implement an FP program for the center, 11 program executive offices (PEOs), and 2 direct reporting product managers (DRPMs). Each PEO and DRPM was tasked with appointing an FP officer to report to USAASC. In a short time, several big steps have been accomplished, including USAASC completing 100 percent of its antiterrorism level 1 training requirement.

The Army FP program includes daily practices most Soldiers and Department of the Army (DA) civilians conduct on a regular basis including keeping common access cards (CACs) secure, conducting daily inspections of safes containing classified or controlled items, and signing in visitors to the installation. Everyone can help minimize the threat by practicing staunch FP.

Antiterrorism is a well-known term that has come into wider use since the Sept. 11, 2001, terrorist attacks.

HQDA antiterrorism guidelines require annual level 1 training for all personnel. USAASC is generating and publishing tailored guidance for the AL&T Workforce, conducting training, and tracking and reporting to HQDA.

AL&T Workforce members can practice antiterrorism by being aware of

their surroundings and reporting suspicious activities or anything that's out of place to the appropriate authorities. Also, it's important to understand that random antiterrorism measures conducted at the gates and on the installation are not inconveniences — whether it means waiting extra time at the gate for an identification (ID) check or walking farther to enter the building — they are for everyone's safety and protection.

Physical security is probably the most widely practiced FP measure. It includes maintaining positive control of a unit's arms room, keeping CACs on hand at all times, and making sure visitors are always accompanied. When you enter a military installation, the guards check the car and conduct hands-on ID verification. These are physical security practices that are part of the installation's FP.

Safes are another form of physical security.

They have to be maintained at all times. A *Standard Form 702* must be initialed when the safe is opened and when it's secured. Also, Soldiers' charge of quarters duties help secure the barracks and ensure that there is no unauthorized activity.

To access installation computer systems, all personnel must take the



Using CAC certificates on each computer system is one step in securing personal information used on the global e-mailing system, file sharing, and other electronic communications. (U.S. Army photo by Richard Mattox.)

online IA course. This measure teaches anyone who has access to a computer on the installation how to keep information — one of the most important forms of intelligence — out of the hands of those who would misuse it. Using CAC certificates on each computer system is one step in securing personal information used on the global e-mailing system, file sharing, and other electronic communication.

IA is an OPSEC function dealing mainly with the intranet, Internet, and technology hardware and software. Under IA guidelines, outside computers cannot access the intranet because all users and computers are tracked and protected according to their authorization level. Each computer is assigned to a port that only works with that computer. Any changes must be made by the Directorate of Information Management.

According to *Army Regulation 25-2*, OPSEC is a process of identifying critical information and subsequently analyzing friendly actions attendant to defense acquisition, defense activities, military operations, and other activities to: (a) identify those actions that may be observed by adversary intelligence systems; (b) determine what indicators hostile intelligence



FP preventive measures require worldwide coordination. Here, a military police Soldier and her Iraqi interpreter input information into her computer for analysis in support of the theater's FP program. (U.S. Army photo.)

systems may obtain that could be interpreted or pieced together to derive critical information in time to be useful to adversaries; and (c) select and execute measures that eliminate or reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation.

In Iraq and Afghanistan, the threat is “just beyond the wall” and OPSEC is everyone’s watch word. Every bag of trash is a hot commodity among the enemy and each unsecured communication is likely monitored, so a 100-percent shred policy is maintained to ensure snippets of information don’t fall into the wrong hands. Mailing labels, junk mail, and phone rosters are shredded as

well. Every small bit of information can be gathered by the enemy to create a big picture and a possible security problem.

Shredding is one of the easiest ways to destroy sensitive information such as social security numbers, pay data, troop movements, supply shipments, and daily schedules. Destroying classified documents and information is a very important part of maintaining a strong FP program. IA guidelines authorize software for military computers and provide information on safeguarding against unauthorized users gaining access to military networks from outside sources.

Just as the enemy collects information on us, we collect information about

Just as the enemy collects information on us, we collect information about them. Intelligence is a big part of the FP program because it can be collected, analyzed, and developed to preempt major enemy threats or attacks.

them. Intelligence is a big part of the FP program because it can be collected, analyzed, and developed to preempt major enemy threats or attacks. USAASC collects intelligence from many different sources, including local law enforcement, HQDA, the Transportation Security Administration, and other agencies. The information is disseminated by USAASC to its lateral commands and to a threat working group that helps mitigate threats and prepares for possible incidents by raising the threat condition level.

COOP is the last part of the FP program. The COOP outlines organization operations when personnel are unable to get to normal work facilities. This requires extensive planning and organization to quickly set up alternate work sites, equipment, and network capabilities to minimize the disruption of the organization’s work flow. Each unit is responsible for developing a plan and reporting to its headquarters. Ultimately, HQDA should have every unit’s COOP on file in case of massive catastrophic events affecting a single unit or the entire Army.

The FP program, when implemented and maintained properly, is successful at protecting most military assets and deterring outside interference, malicious or otherwise. The goal is to be such a hard target to enemies and external forces that they move on to easier targets. Every Soldier, civilian, and contractor has the obligation and responsibility to uphold the FP guidelines.

CHRISTINA A. WRIGHT provides contract support to USAASC through BRTRC Technology Marketing Group. She is a U.S. Air Force Reserve Public Affairs Specialist and an honor graduate from the Defense Information School.



From the Acquisition Support Center Director

Our Nation is entering its 8th year in the global war on terrorism.

Our Soldiers have performed brilliantly, literally facing life and death situations while defending our country from the persistent conflict of terrorism. Since 1973, the Army has been an all-volunteer force.

Describing this all-volunteer Army as a “national treasure,” Secretary of the Army Pete Geren said, “These Soldiers go on when most would quit, risk or give everything, and step up when most would step back.” The Acquisition, Logistics, and Technology (AL&T) Workforce plays a critical role in keeping this national treasure the best fighting force in history. We must remain committed to providing our Soldiers with the best weapons systems, technology, and logistics as quickly as possible so they can continue to be the world’s premier fighting force. The AL&T Workforce can be proud in knowing that our steadfastness and dedication to duty is an integral component of the Army’s success in accomplishing the awesome mission of defending our Nation.



Section 852 Catalog of Opportunities

The U.S. Army Acquisition Support Center (USAASC) has fervently been preparing the Army’s catalog of opportunities in response to the enactment of *Section 852* of the *National Defense Authorization Act of 2008, Public Law No. 110-181*. Principally important to this act is the establishment of the Defense Acquisition Workforce Development Fund (DAWDF). This fund allows DOD to recruit, hire, develop, train, recognize, and retain its acquisition workforce with an estimated budget exceeding \$3 billion. On Aug. 5, 2008, the Service Acquisition Executives (SAEs) and their staffs met with Dr. James I. Finley, Deputy Under Secretary of Defense for Acquisition and Technology. The Army SAE, along with the other services, gained incremental approval and supplemental funding. For the Army, this meant a partial deployment of its initiatives. This approval resulted in the first allocation of Army funds toward the FY08 total of \$69.6 million.

USAASC will ensure that the AL&T Workforce is kept apprised of future efforts related to the Army’s implementation of the *Section 852* DAWDF via future *Army AL&T*

Magazine and *Army AL&T Online* articles. In the future, the Army’s catalog of opportunities will be available on the USAASC Web site. For more information, contact Kelly Terry at (732) 532-1406/DSN 644-1406 or kelly.terry@us.army.mil.

Business Transformation and Acquisition Certification

On May 3, 2008, an important memo was signed by the Acting Assistant Secretary of the Army for AL&T and the Director for Acquisition Career Management. The memo, which can be viewed at http://asc.army.mil/docs/policy/Bus_Trans_Acq_Cert_Standards_Memo.pdf, requires that by the beginning of the FY09 1st quarter, all addressees must include business transformation and acquisition certification standards in assigned military and civilian support forms and performance evaluations. Supervisors are responsible for ensuring that business transformation principles and concepts and the linkage to strategic map initiatives are included in their subordinates’ support forms. Likewise, nonsupervisory employees must show linkage to strategic maps/initiatives and include business transformation activities in their objectives.

Military and civilian AL&T Workforce members are required to be certified to the required level (I, II, or III) within 24 months of assignment in their positions. This memo directs that supervisors monitor and support the achievement of both position certification and continuous learning points (CLPs). Employees and supervisors will document certification and the progress toward attaining CLP requirements on the Individual Development Plan (IDP). The memo provides additional details on these standards and identifies points of contact to answer questions. I encourage you to carefully read and implement the directives in this memo. For more information, contact Mary McHale at (703) 805-1234/DSN 1234 or mary.mchale@us.army.mil.

Core Plus

The Defense Acquisition University (DAU) has developed Core Plus, a competency model that provides a road map for the development of acquisition workforce members to go beyond the minimum certification standards required for their position. Core Plus identifies appropriate learning activities by connecting workforce members to their career field, level, and particular job assignment needs. Core Plus also identifies targeted training that relates to specific tasks in a given assignment. The Core Plus Development Guide for each acquisition career field can be found in the DAU catalog. I encourage you to consider these recommendations as you and your supervisor discuss your IDP. Remember,

unlike certification training, there is no deadline to complete Core Plus training other than what your supervisor specifies and what you need to meet your continuous learning standards. For more information, contact Mary McHale at (703) 805-1234/DSN 644-1234 or mary.mchale@us.army.mil.

FY10 Centrally Selected List (CSL) Review

The Army Acquisition Corps (AAC) Director conducted the FY10 annual review for CSL on Aug. 28, 2008. Thirteen project manager, 44 product manager, and 27 acquisition director positions rotating out in FY10 were reviewed as well as consideration of establishing 13 new project/product manager positions. The CSL review's intent was to ensure continued clarity in achieving AAC CSL objectives and meeting *Defense Acquisition Workforce Improvement Act* requirements. All positions were closely analyzed to ensure that AAC's limited resources were used in the best possible manner to support identified acquisition category-level programs. During the review, the AAC Director made decisions on revalidating, establishing, disestablishing, downgrading, upgrading, and merging acquisition key billets of project/product managers and acquisition directors. Other areas reviewed included special qualifications and the need for a military officer versus best-qualified (military or civilian) slate. For more information about the FY10 CSL review, contact Randy Williams at (703) 805-4363/DSN 655-4363 or randall.williams@us.army.mil.

USAASC Division Chief Farewells

I would like to say goodbye to two departing USAASC Division Chiefs. Maria Holmes, former Strategic Planning and Analysis (SP&A) Chief, and David Duda, former Acquisition Career Development (ACD) Chief, were selected to attend the Industrial College of the Armed Forces. Although their positive influence on this organization will be felt for many years to come, they will be deeply missed. We wish Maria and David the very best in their future endeavors. LTC Norm Hilton, coming from ACD, will be taking the reins as SP&A Chief, and Joan Sable is stepping up as the new ACD chief. I'm looking forward to watching these two professionals succeed in their new responsibilities.



Craig A. Spisak
Director, U.S. Army
Acquisition Support Center

Contracting Community Highlights



As we begin FY09, Army contracting remains deeply involved in improving its support to the warfighter. The activation of the U.S. Army Contracting Command, with its Expeditionary Contracting Command, and Mission and Installation Contracting Command, has streamlined Army contracting. The new Army Contracting Campaign Plan has brought battle-focused improvements in contingency contracting operations, management, and oversight. Additionally, efforts to increase the contracting workforce and enhanced personnel training are beginning to pay off.

In addition to these pivotal Army contracting transformations, several contracting process changes in cost controls, technical innovations, and procurement policy are featured in this issue. Our feature article explains how Earned Value Management is used by the Army and other government agencies to judge a program's capability and execution success.

Other articles cover the Army Purchase Card Program changes, an Army Contracting Think Tank update, and the *DAR* Council Corner provides details on how to volunteer for *Federal Acquisition Regulation* and *Defense Federal Acquisition Regulation Supplement* committees.

These articles demonstrate how the contracting community at every leadership level constantly improves, discusses, develops, and implements the procurement process. Thanks to all the contributors for sharing their experiences and knowledge. As we enter FY09, I challenge you to continue sharing best practices and innovative ideas within the contracting community.

Wimpy Pybus

Acting Deputy Assistant Secretary of the Army
(Procurement)

Putting Earned Value Management (EVM) in Perspective

Daron D. Fullwood and LTC Keith J. Samuels

According to a recent *New York Times* article, the chairman of the Senate Armed Services Committee declared that cost overruns for DOD weapons had “reached crisis proportions” after government auditors reported that the projected final cost of the Pentagon’s major programs had ballooned \$295 billion over initial budget estimates. We can address and help mitigate this problem by embracing EVM as part of our daily project management discipline. EVM provides a consistent and repeatable decision-making discipline to objectively measure a program’s capability and execution success. Whether the goal is to save money, execute cost effectively, or forecast efficiently, EVM plays a significant role. EVM allows leadership to proactively assess who may be the better steward of future funds, who has performed better with the funds they have already been given, and which programs will show a better return on investment.

What Is EVM?

EVM is a process for planning, managing, and controlling large cost-type contracts in DOD. EVM represents a clear and accepted way to identify and control program costs. It quantifies cost and schedule growth and reports this information in a series of standardized reports and formats. However, this is not the answer to all program challenges. EVM

can give us a clear picture that trouble is coming, but cannot fix an unexecutable program. What EVM can do is point out to leadership early on that a program is facing significant challenges or requires a change in strategy. In the end, EVM metrics, combined with other data points, such as unit cost, risk analysis, and congressional reporting, should give leadership the breadth and depth needed to make complex acquisition decisions.

Why Use EVM?

The Army uses EVM to objectively assist leadership in making the best possible program decisions in support of the warfighter (see EVM Considerations figure). At the senior leadership level, EVM accomplishes four goals:

- Improves the quality and speed of program decision making.
- Standardizes the analytical rigor and discipline to make effective investment and disinvestment decisions.
- Provides a consistent method to determine program value and understand execution risks.
- Integrates program budgeting, funding, and costs into one performance-based process.

Who Needs EVM?

All project and acquisition professionals should have an understanding of EVM. What and how much EVM you need to know is different depending on your level and position within an organization. However, everyone must have an understanding of the basic principles that apply to their role; otherwise, project management and decision making are more difficult.

When Does a Program Need EVM?

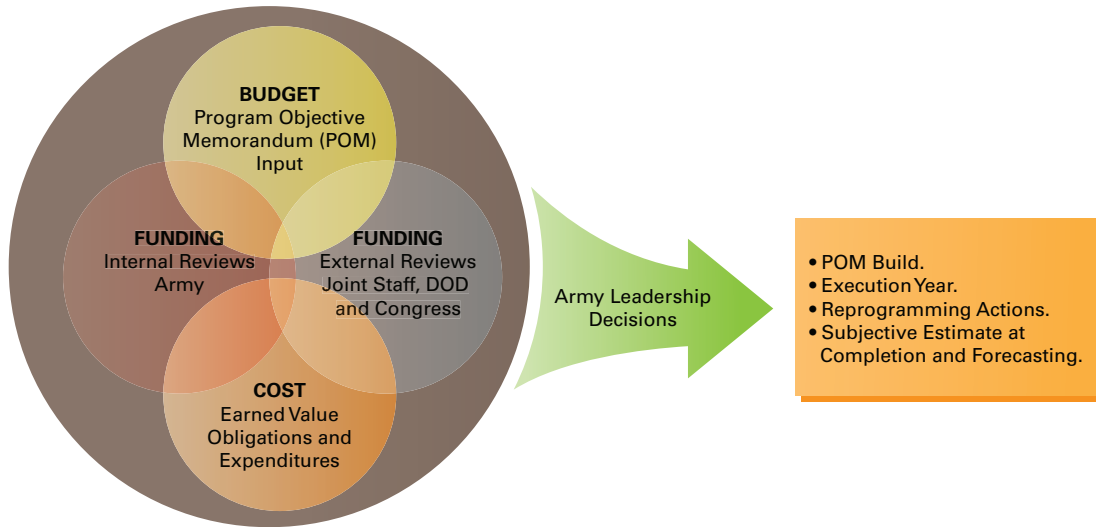
Per the *Defense Federal Acquisition Regulation Supplement*, cost- or incentive-type contracts greater than or equal to \$20 million are required to have an EVM system (EVMS) and to adhere to the reporting requirements and guidelines outlined in *Military Handbook-881-A*. Cost- or incentive-type contracts greater than or equal to \$50 million are required to have their EVMS formally validated by the Defense Contract Management Agency.

How Do We Use EVM?

To successfully implement EVM in the Army, the Office of the Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ASAALT) is assessing a 3-tiered management approach:



The Army uses EVM to objectively assist leadership in making the best possible program decisions in support of the warfighter. Here, 1LT Kurt Shingledecker and his platoon participate in a mission conducted by the 101st Airborne Division (Air Assault) in central Iraq, July 3, 2008. (U.S. Army photo by SPC Richard Del Vecchio.)



EVM Considerations

- **Analysis.** Tier-1 is program execution and initial EVM analysis. The contractor and program manager (PM) will plan, measure, and analyze scope, schedule, cost, and performance. The proposed Center of Excellence (COE) staff will have the primary duty of performing cost, schedule, and performance analysis in addition to program reviews on all Acquisition Category I and II programs.
- **Core Processes.** Tier-2 defines core processes, manages Army EVM challenges, and implements recommendations from the Army’s Communities of Interest (COIs). The COE staff, in addition to their program analysis function, will lead one of the six core

processes that make up the COE and support Army program execution. The six core processes are Policy and Governance, Training, Interdepartmental Collaboration, Analytics, Business Systems, and Strategic Communications. In addition to the COE staff lead, each core process is comprised of subject matter experts who are tasked to solve particular functional issues and provide the day-to-day perspective of the PMs and program executive offices (PEOs). The COE staff lead will serve as the COI facilitator. The COI facilitator will work hand-in-hand with the PEO’s community to prepare for EVM functional efforts. The facilitator will also serve as a liaison between the COI and the EVM operational teams.

- **Governance and Direction.** Tier-3 forms the body that provides the COE governance and direction. There are two levels of governance: the COE Board of Directors and the EVM decision makers. The COE Board is a 7-person panel made up of Deputy Assistant Secretary of the Army Executive Officers within ASAALT. The divisions represented include Procurement; U.S. Army Acquisition Support Center; Acquisition and Systems Management; Plans, Programs, and Resources; Strategic Communications and Business Transformation; and one member-at-large. EVM decision makers are the ASAALT senior staff who set policy, vision, goals, and direction.



EVM provides a consistent and repeatable decision-making discipline to objectively measure a program’s capability and execution success. Here, Oregon Army National Guard Medics SSG Jo Turner (left) and SPC Cheryl Ivanov are “battle buddies” who stick together and help each other cope with the emotional and mental stress of combat operations in Afghanistan. (U.S. Army photo by 1LT Amanda Straub.)

EVM can provide a consistent and repeatable decision-making discipline to program assessments. Embracing EVM as part of daily project management discipline greatly mitigates the military’s largest vulnerability. Simply put, in the future

when we are confronted with programs of similar stature, cost, and technical and political value requesting additional funding, the use of sound EVM principles will assist leadership in objectively determining who would be the better steward of the funds, who has performed better with the funds they have already been given, and which program will show a better return on investment.

Daron D. Fullwood is the ASAALT EVM Specialist, Army. He holds a B.S. in mathematics from the U.S. Naval Academy and completed the Executive Business Resource Program at the University of Virginia's Darden School of Business Administration. Fullwood is Level III certified in business, cost estimating, and financial management.

LTC Keith J. Samuels, a mobilized Army Reservist, is the Chief of the ASAALT Program Visibility, Analysis, and Reporting Team. He holds a B.S. from the U.S. Military Academy and an M.B.A. from the University of Kansas. Samuels is Level III certified in both program management and business, cost estimating, and financial management. He is a U.S. Army Acquisition Corps member.

New Task Order Awarded for the Army Purchase Card Program

KeYanna R. Boone

On June 3, 2008, the U.S. General Services Administration (GSA) awarded a new task order for the Army Purchase Card Program under the GSA SmartPay[®] 2 (SP2) contract to U.S. Bank. This award was made on a competitive basis by using a best-value approach. The task order is for a 10-year performance period, including options, with an estimated refund potential of \$471 million over the task order's life. It will support the Army's continuing need for purchase card services in the acquisition of micro-purchases and provide a more efficient process for making payments against contract vehicles. This task order will also provide new and unique requirements and processes that will improve the Army's Purchase Card Program oversight and management.

The Army's current task order under the GSA SP1 contract, awarded in 1998, expires on Nov. 29, 2008. With the recent task order award, the Army Purchase Card Program is working diligently with U.S. Bank to help bring an efficient and

smooth transition from SP1 to SP2 without interruptions in purchase card services. Since the Army's Purchase Card Program is the largest in the GSA SP Program, the change-over will be a significant task. In FY07, the Army managed 76,810 accounts and executed more than 4 million transactions with \$4 billion in sales volume.

On Nov. 30, 2008, all purchase cards, checking accounts, and foreign drafts will be canceled under SP1 and reissued under SP2. The cards will have a "face lift" so that cardholders will find it easier to distinguish them from personal credit cards. To enhance internal controls and refund potential, the Army task order requires a new electronic access system (EAS). This new Internet-based system will provide account access, bill payments, and various reports that assist in effective management of the charge card program capabilities. EAS will also support new program requirements, such as dual hierarchy reporting, contract payment cards, and electronic check imaging.

Dual hierarchy will provide direct reporting capabilities to both the contracting and financial chains of command more efficiently and effectively. EAS allows major commands (MACOMs) or equivalent organizations to electronically track and report on their Government Purchase Card (GPC) accounts across various installations using one unique reporting hierarchy. Currently, a MACOM must run a financial report within the bank's EAS for each installation contracting office that manages its accounts. This is a cumbersome process because, in most cases, MACOMs must request multiple reports and then manually consolidate the financial data to obtain a "roll-up" of their accounts. With this change, MACOMs can readily obtain financial data for all their accounts by using a new reporting hierarchy and gain budget management and oversight tools for all of their GPC accounts. This new capability will track spending streams from the Army to the MACOMs to the field.

This task order also requires the bank to provide a purchase card solely to make payments against contracts when GPC use is authorized. U.S. Bank offers improved management through its EAS "Access Online." One of the new features available to process contract payments is the single-use account. This is done by assigning a unique account number for each payment transaction and transmitting notification to the contractor once the cardholder authorizes the amount to be charged. This authorization will occur only after the cardholder has confirmed receipt and acceptance of goods or services. Additionally, to minimize the risk of unauthorized payments to the contractor, the organization program



The Army's current task order under the GSA SP1 contract, awarded in 1998, expires on Nov. 29, 2008, and will be replaced with the GSA SP2. (Photo courtesy of U.S. Bank.)

coordinator has the option to set account controls, such as specifying transaction amounts and the time the single-use account is valid.

The new EAS capabilities for contract payments will allow the cardholder to assign a complete line of accounting, including an Army standard document number, to each payment transaction and transmit certified invoices to multiple defense and finance administration service offices from a single billing official account. The system will transmit a discrete line of accounting for each transaction that will match the obligation posted by the resource manager after contract award. This process is critical in preventing double obligation associated with contract payments. Currently, the reconciliation and payment processes, including preventative measures for double obligation, are performed manually. The new electronic reconciliation and payment processes will have a positive effect on delinquencies because bills will be processed more timely and efficiently. Historically, delinquency rates have been higher for contract payment accounts because of the manual payment process.

In addition, the new system allows for daily certification of contract payments on a transaction-by-transaction basis. Electronic certification should minimize the government's risk for interest penalties that are authorized by the *Prompt Payment Act* for late contract payments. The Army Purchase Card Program Manager (PM) anticipates an increase in purchase card use, as well as improved refund potential, because of these new EAS capabilities.

Another notable EAS functionality required by the new task order is the ability to view both sides of redeemed checks via

the bank's EAS. Many concerns have been raised in reports from the DOD Office of General Counsel, the U.S. Army Audit Agency, and the U.S. Government Accountability Office concerning inadequate convenience check controls. In essence, this new capability will create another layer of oversight on check writers and allow for effective cross-walks between the data entered in the "books" and the data on the checks for those performing audits or third-party reviews on convenience checks.

With SP2, the Army Purchase Card Program will continue to provide purchase card services and achieve significant savings by reducing paperwork and acquisition costs associated with micro-purchases of goods and services. This new task order leverages commercially available technology to facilitate purchase card actions as well as provide more effective management tools to strengthen internal controls. The Army Purchase Card PM recognizes the need for continuous improvement and has established flexible requirements that will allow the Army to explore and take advantage of emerging technologies to further enhance its Purchase Card Program.

KeYanna R. Boone is a procurement analyst with Program Executive Office Simulation, Training, and Instrumentation. She completed a 6-month developmental assignment at the Office of the Deputy Assistant Secretary of the Army (Procurement) supporting the Army Purchase Card PM. Boone holds a B.A. in finance from the University of Central Florida and is Level III certified in contracting.

U.S. Military Supports More Than Troops During Exercise

SPC Crystal Abbott

U.S. service members spend a great amount of time training and working with coalition militaries during deployments and exercises. These exercises do more than just enhance our coalition partners' militaries; they can also help boost the local economy.

In Tbilisi, Georgia, more than 30 local vendors attended a vendor's conference hosted by two Soldiers from the 409th Contracting Support Brigade (CSB) on July 21-22, 2008, as a part of the Immediate Response 2008 Exercise.



MAJ James Conatser, 409th CSB Contracting Officer Team Leader, answers questions from local business owners during the vendor conference held in Tbilisi, Georgia, July 22, 2008. (U.S. Army photo.)

MAJ James Conatser, Contracting Officer Team Leader, and MAJ Todd Cundy, Contracting Management Officer, put together the conference to teach attendees how to register with the Central Contractor Registry (CCR) and to look for future contracting opportunities with the U.S. government.

“The purpose of the vendor conference was to gather information regarding supply and service capabilities within the country of Georgia,” said Conatser. “We explained the normal supplies and services that [the Army] requires when supporting training exercises. These services can include local cell phone recharging units, nontactical vehicles, and interpreters.”

“It is important to identify the capabilities that can meet our contracting requirements,” said Cundy. “By registering with the CCR, local businesses will get the opportunity to compete. This can be a stepping stone for some of the smaller businesses.”

The vendor attendees were a bit weary about this new system, but excited about the new opportunities the program would provide them. “I find this a little overwhelming, but I want to personally look at this as part of our company’s business strategy,” said Nino Ositashvili,

a local business owner. “I think our government knows what will benefit our economy, so I feel, why not keep that opportunity here in our country with our friends?”

Conatser is glad to have the opportunity to meet with the local business owners. “The best part of this job is being able to provide solutions to complex problems,” said Conatser. “I really enjoy the interaction with the local population.”

The 409th CSB is part of the U.S. Army Sustainment Command’s global network of units on the line with troops in the field. Plans call for transition this year of CSBs and their subordinate elements to the newly established U.S. Army Contracting Command.

SPC Crystal Abbott is with the Southern European Task Force (Airborne) Public Affairs Office.

MICC Accepts Service-Disabled Veteran-Owned Small Business (SDVOSB) Awards

Bryon Young, Executive Director, U.S. Army Mission and Installation Contracting Command (MICC) and Alice Williams-Gray, Associate Director, Office of Small Business Programs, accepted 25 awards from the Center for Veterans Enterprise (CVE). The awards, presented at the 4th Annual National Veteran Small Business Conference and Exposition, Las Vegas, NV, on July 28, 2008, were for significant contributions and dedication to expanding prime contract opportunities for service-disabled veterans.

Young had challenged the contracting officers and small business advisors to exceed the congressionally mandated 3-percent SDVOSB goal for FY07. His focused support to the warfighter led to contract awards of more than \$416 million for SDVOSBs — the highest dollar amount for this category in Army history. MICC’s collective efforts and focus on the small business program resulted in an unparalleled \$1.1 billion increase in small business prime contract awards.

Previously named the U.S. Army Contracting Agency, MICC transitioned to the newly formed U.S. Army Contracting Command (ACC) in March 2008. ACC, led by Executive Director Jeffrey Parsons, is a U.S. Army Materiel Command major subordinate command.



Pictured from left to right: MICC small business advisors Deanna Ochoa, Michelle Currier, Lashone Goodman-Cooper, and Lenneia Jennings; MICC Director Bryon Young; Associate Director for Small Business Programs Office Alice Williams-Gray; and MICC small business advisors Jackie Robinson-Burnette, Delores Thompson-Gad, and Pamela Monroe. (U.S. Army photo.)

Since 2001, the Gordon H. Mansfield, Deputy Secretary of Veterans Affairs, U.S. Department of Veterans Affairs CVE Awards Program, has been recognizing significant contributions by organizations and individuals who are dedicated to expanding business opportunities for veterans and service-connected disabled veterans. The Enterprising Veteran Award is CVE's most prestigious honor. This award recognizes veterans whose quality performance provides advocates with specific success stories, a critical tool in promoting the program nationwide.

For more information, contact Jackie Robinson-Burnette at (703) 806-4017/DSN 656-4017 or jackie.l.robinsonburnette@us.army.mil.

Infantry Combat Identification (ICID) Targets Bring Realism To Training

Gregory K. Johnson and Aaron M. Stetson

The face of war is changing and the environments in which it is waged are varied and extreme. Battlefields are becoming increasingly asymmetrical; enemies are becoming more resourceful, opportunistic, and elusive. The majority of Army live-fire ranges feature target arrays with clearly defined front lines and little or no variation in training targets. Mitigating this problem is a driving force in shaping warfighter training doctrine, methodology, and equipment. Integrating ICID targets into Army live-fire ranges will fill capability gaps by providing Soldiers more realistic training situations.

The Targetry Team at TACOM Life Cycle Management Command-Rock Island (LCMC-RI) and the U.S. Army Training and Doctrine Command's Capability Manager-Live are providing the Army realistic targets with the capacity to exercise modern sights, optics, and sensors. This material solution to support force-on-target training has been recognized Armywide. ICID requirements and specifications were refined following a multidisciplinary working group held in June 2007 at Fort Benning, GA. The group included representatives from more than a dozen Army commands and agencies as well as industry leaders in targetry and thermal technology. Responding to a tight deadline, TACOM LCMC-RI executed a multiple award, Indefinite Delivery Indefinite Quantity contract for ICID targets in September 2007. The contracts provide a vehicle for fielding realistic, high-resolution ICID targets representing allied/coalition, neutral, and enemy forces.

These ICID targets feature lifelike visual and thermal cues that are viewable with the naked eye, image intensification optics, and thermal sights to support training conducted both day and night. The thermal signatures of allied/coalition ICID targets will be used in cooperation with standard Soldier marking kits to differentiate between enemy and neutral entities during night training exercises. The targets will also provide Army live-fire training facilities immediate flexibility to set scenarios that more accurately represent contemporary operating environments (COEs), where operational environments often simultaneously include allied/coalition, enemy threat, and neutral personnel. Dynamic target presentations



ICID targets offer versatile training alternatives at the command level aimed at enhancing survivability in various combat environments. Here, a Soldier from Co. C, 2nd Battalion, 39th Infantry Regiment, uses the prone firing position to engage targets on Range 10, Fort Jackson, SC. (U.S. Army photo by Mike A. Glasch.)

during COE training scenarios afford Soldiers opportunities to improve their situational awareness and combat effectiveness by honing their target identification and shoot/don't shoot decision skills. Deploying more combat-effective Soldiers represents a primary inroad to eliminating fratricide.

Gregory K. Johnson is a TACOM LCMC-RI Contract Specialist. He holds a B.S. in marketing from the University of Alabama-Huntsville and an M.B.A from St. Ambrose University. Johnson is certified Level II in contracting and Level I in program management.

Aaron M. Stetson is a TACOM LCMC-RI General Engineer. He holds a B.S. in industrial engineering and an M.B.A. from St. Ambrose University. Stetson is certified Level II in systems planning, research, development, and engineering (SPRDE)-systems engineering and Level I in SPRDE-program systems engineering, life-cycle logistics, and program management.

Think Tank Members Help Set Army Contracting Direction

Dona Alexander

The Army Contracting Think Tank is a small consortium of senior contracting executives who meet several times a year. Established in 2005 by the then-Deputy Assistant Secretary of the Army (Policy and Procurement) (DASA(P&P)), which is now DASA (Procurement) (P), this forum guides the Army contracting community's strategic direction for business processes by leveraging expertise across the Army contracting workforce and setting contracting priorities.

One of the Think Tank's first initiatives was to establish an Army contracting brand identity. Its efforts culminated with a vision that sums up the level and depth of the contracting purpose — "Army Contracting: One Community Serving our Soldiers, Serving our Nation," a contracting creed expressing the workforce's commitment to fulfilling this vision. The members next focused on workforce issues and business practices. They identified and accomplished 55 action items during their first 6 months. An early achievement was the creation of a Workforce Development Roadmap for the Contracting Career Program. The roadmap provides contracting personnel with direction and guidelines to plan and navigate their career progression, education, training, experiences, and leadership development. It also helps ensure that

the Army maintains well-trained and highly skilled contracting workforces that are empowered to carry out the mission.

The Think Tank instituted biannual Army Procuring Contracting Officer (PCO) training symposiums with the first session held in July 2006. Leveraging its success, the Think Tank held the first combined PCO/Intern Training Symposium in April 2008. Feedback from the more than 650 attendees deemed this training event an overwhelming success. The symposium offered PCOs and interns practical technical and leadership training. It also addressed Army-identified audit deficiencies and fundamental changes to contracting laws and processes. The training program furthered individual development and enhanced the PCO/interns' ability to efficiently procure the goods and services that outfit, support, and protect Soldiers.

The Think Tank members, instrumental in developing new Army contracting business practices and processes, created and implemented the *Army Source Selection Manual (ASSM)* in 2007. This manual standardized the Army source selection process through best practices and lessons learned. The *ASSM* ensures greater consistency across the spectrum from post, camp, and station to major weapons systems, construction, services, and information technology. It provides flexibility within a standardized framework so contracting officers can design and execute tailored source selection plans and proposal document requests, providing optimal procurement solutions for their customers. The *ASSM* is a pivotal reference and training tool for Army contracting to export procurement excellence and sound business practices throughout the Army acquisition community. Improvement in the source selection process is an ongoing effort. An annual reporting requirement collects key data elements, identifying areas that can be improved and those that have demonstrated improvement.

In seeking to strengthen the Army's contracting capability and correct deficiencies noted in audits and, more recently, by The Commission on Army Acquisition and Program Management in Expeditionary Operations, more commonly known as The Gansler Commission, the Think Tank has supported initiatives to improve managerial oversight. The Procurement Management Review (PMR) program is one of the most significant mechanisms used by the Think Tank to identify areas for improvement. The PMR assesses the health of Army contracting, improves overall quality, and assists organizational leaders with management control responsibilities. In 2007, HQDA PMR teams reviewed 15 CONUS and OCONUS contracting offices, examining more than 1,100 contracts with the results

summarized in an annual health report. The PMR provides Army leadership with detailed insight into areas that require attention and assists the Think Tank members to set community priorities and initiatives.

The Think Tank members are an integral part of the contracting community, keeping Army senior leadership apprised of workforce issues and identifying business process improvements. The Think Tank is an active group that has identified 255 contracting actions with a 90-percent completion rate — an outstanding accomplishment. The Think Tank's mission is best described by Tina Ballard, then-DASA(P&P), in a 2005 meeting — “Our [contracting] support depends on three things: our ‘corporate’ view, our workforce, and the business practices we employ to get the Soldiers what they need. These three prongs, combined with the realization that [like] any corporation we must have a unity of understanding ... an understanding and commitment to our vision, our mission, and our strategy for sustaining our capability into the future.”

Dona Alexander is a DASA(P) Senior Procurement Analyst. She holds a B.S. in business management from the University of Maryland. Alexander is Level III certified in contracting and is a U.S. Army Acquisition Corps member.

DAR Council Corner

Ann Budd

The successful implementation of the statutes, executive orders, DOD policy, and other regulatory directives in the *Federal Acquisition Regulation (FAR)* and the *Defense Federal Acquisition Regulation Supplement (DFARS)* strongly depends on Soldiers and Army civilians volunteering for part-time responsibility as a committee or team member. These volunteers bring subject matter expertise, general policy advice, and working experience to the contracting, legal, quality assurance, environmental, government property, industrial base, information technology, finance, transportation, utilities, logistics, hazardous material, and critical safety functional areas. Committee and team members represent the Army and DOD in *FAR* and *DFARS* cases and their work is of the utmost importance across the DOD acquisition community.

As committee and team members transition, an e-mail to the Army contracting community is sent to request nominations for a specific *DAR* committee or *FAR* team. Committee members must be Level III certified O-4, O-5, or O-6 officers and GS-13 to -15 (or pay band equivalent) civilians. Committee work is considered to be an “other duty as assigned” with agreement from the member's supervisor. It is on a part-time basis (estimated 10 to 25 percent depending on the committee) with little or no travel required. There is usually 1 day of off-site annual training for the *DAR* committee members, and the caseload fluctuates depending on the committee. At the beginning of the fiscal year, some cases will be opened as a result of the *DOD Authorization Act*. The *DAR* System director requests any committee chair to be local to the National Capital Region (NCR).

Because there are only seven *FAR* teams, the caseload is heavier and probably would involve about 30 to 35 percent for a permanent member's time and about 10 percent for a rotational member or a supplemental advisor. For a permanent *FAR* team member, meetings are held in the NCR on a regular basis, so it would be best for a permanent team member to be local. Rotational members or supplemental advisors could be located outside the NCR. They would link into meetings via video teleconferencing, conference call, or e-mail. The usual *DAR* committee or *FAR* team assignment is for 2 years, with the caseload varying among the *DAR* committees. Meetings are scheduled by the respective committee chair as needed.

A listing of the 21 *DAR* committees and 7 *FAR* teams, as well as general information, can be found at the *DAR* System Web site at <http://www.acq.osd.mil/dpap/dars>. To learn more about volunteering for a committee membership, contact Ann Budd at (703) 604-7030/DSN 664-7030 or ann.budd@us.army.mil.

Ann Budd is a DASA(P) staff member responsible for all efforts related to the DAR System council as its Army policy member. She holds a B.A. in business administration from Mary Washington College, an M.B.A. from Strayer University, and an M.A. in national resource strategy from the National Defense University. Budd is certified Level III in contracting and Level II in program management and is a U.S. Army Acquisition Corps member.



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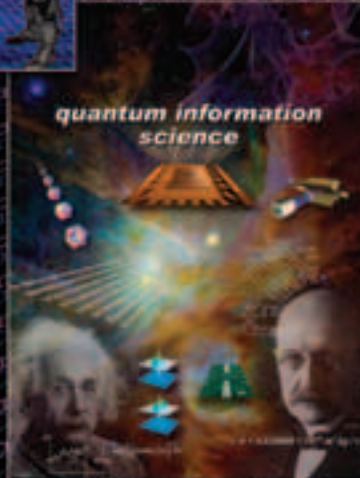
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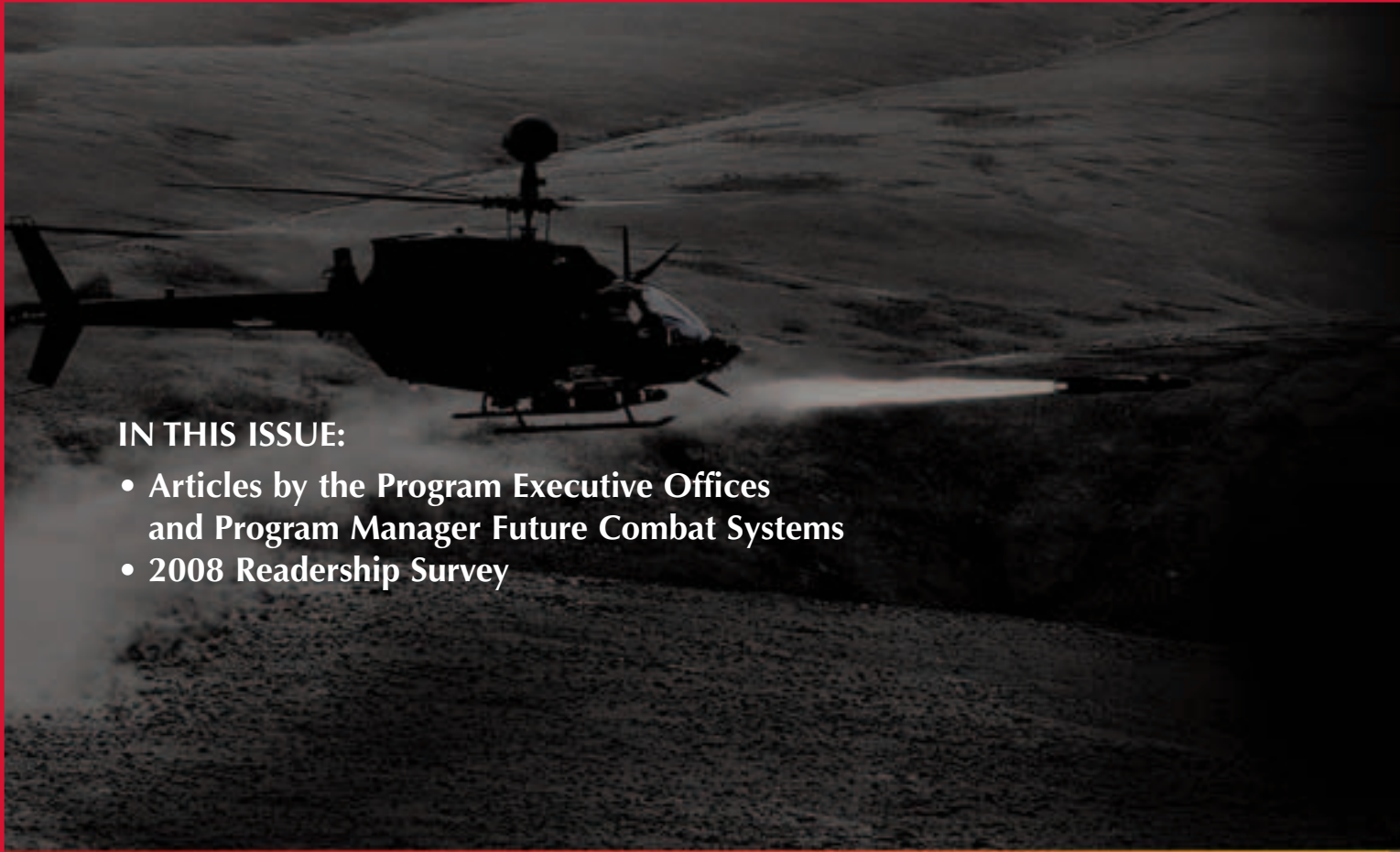


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