ARMY AL&T

September - October 2005

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From the Army Acquisition Executive

FCS — A Truly Integrated Approach

The Future Combat Systems (FCS) program is extremely important to the Army — indeed, the Joint Future Force. It is the core building block. Still, while building toward tomorrow, we are well on our way to meeting the Army Chief of Staff's desire to spin FCS technologies as they mature to the Current Force. Our plan expands the scope of the program's System Development and Demonstration phase by adding four discrete "Spin Outs" of capabilities. Spin Out 1 (SO1) will begin fielding in 2008 and consist of prototypes fielded to the Evaluation Brigade Combat Team for their use and evaluation. Following successful evaluation, production and fielding of SO1 equipment to the Current Force will begin in 2010. This process will be repeated for each successive SO.

The FCS program is on track. Most recently, it passed the program's System-of-Systems Functional Review, which sets the technical baseline to move into the Preliminary Design phase — on time with high quality — within 18 months. Its success is due in large measure to teamwork. The FCS "One Team" is a solid partnership between government and industry. The Lead Systems Integrator team of Boeing and Science Applications International Corp., along with its key system subcontractors and industry supplier team, works closely with the Army to ensure that FCS will be delivered to the warfighter on schedule.

With FCS, we are redefining the term *integration* as it applies to weapon systems development. The FCS program has totally integrated its technologies, platforms and management approach. From day one, all Army stakeholders have been on board — from the requirements and resources communities to our scientists and engineers, as well as the acquisition, test and logistics communities, at all levels within the Army and DOD — working closely with our industry partners. The result of this comprehensive One Team effort is a successful program that will provide our warfighters unprecedented capabilities.

The FCS program is a brilliant example of the successful synergism of all stakeholders in supporting a process that I have termed "Big A, Little a." The "Big A" process begins with a capability statement and resourcing, then moves to acquisition ("Little a"), testing, fielding, sustainment and, ultimately, retirement and disposal. Throughout the "Big A, Little a" process, our aim is to provide the Soldier with the right product, at the right time, right place and right price.

In the Army, we have begun in earnest to address the "Big A" through our four Life Cycle Management Commands (LCMCs) — the Aviation/Missile LCMC at Huntsville, AL; the Soldier/Ground Systems LCMC at Warren, MI; the Communications/Electronics LCMC at Fort Monmouth, NJ; and the Joint Ammunition LCMC at Rock Island, IL. This life-cycle management concept is designed to provide an integrated, holistic approach to product development and systems support. In the first year of our 2-year LCMC experiment, we are seeing tremendous results. Of significant importance is bringing together the equipping and sustaining program evaluation groups to provide effective programmatic oversight during a system's life cycle. We plan to expand this effort by incorporating all necessary training and education to ensure success.

Attacking the "Big A" is a strategic imperative that has become part of the Army's transformation. It will enable us to provide our warfighters with what they need to do their jobs better, faster and cheaper.

Every day, America's warfighters stand ready to make the ultimate sacrifice. They serve with distinction in Iraq and Afghanistan, in the Balkans, Kuwait, the Sinai and Korea, and in 120 countries throughout the world. They face threats that change, quite literally, overnight, and their success in meeting these challenges rests on our shoulders. Our courageous men and women in uniform display unrelenting tenacity, steadfast purpose, quiet confidence and selfless heroism. Let us continue to work hard and work together to ensure their decisive victory and safe return home.

Claude M. Bolton Jr.
Army Acquisition Executive

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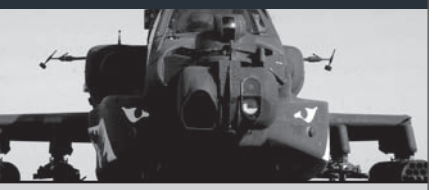

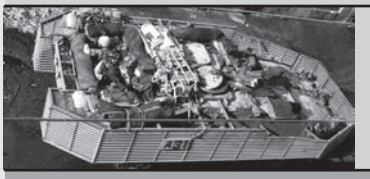

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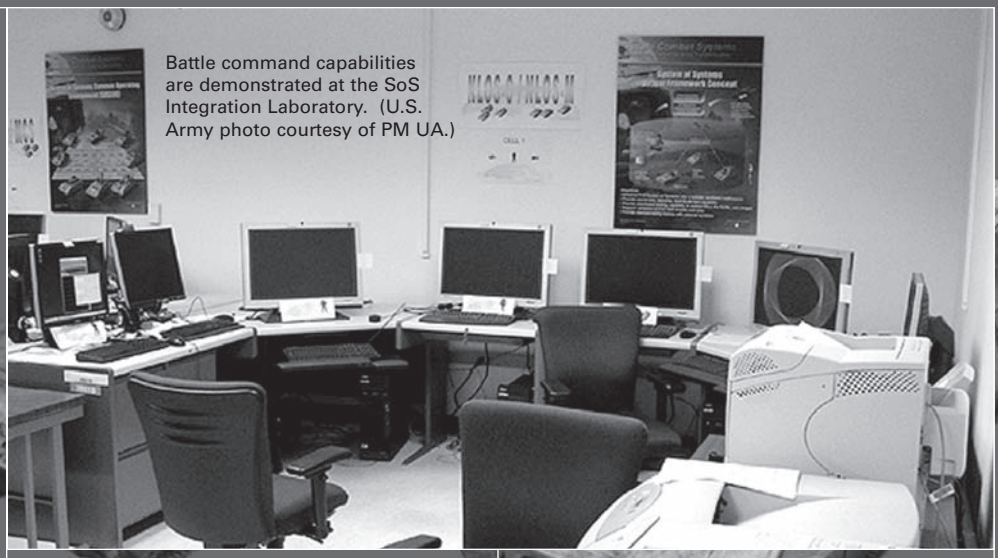
Future Combat Systems and the Unit of Action — An Overview

BG(P) Charles A. Cartwright and Dennis A. Muilenburg

Future Combat Systems (FCS) is the Army's core effort to ensure that we will move, shoot and communicate as a Joint team member better than ever before and better than any opponent we will face in the 21st century — anytime, under any circumstances and anywhere that the Nation needs us.

Figure 1. The FCS-equipped UA will be a highly integrated structure of 18 manned/unmanned air and ground maneuver, maneuver support and sustainment systems bound together by a distributed network. (U.S. Army images courtesy of PM UA.)

Lessons learned in *Operation Iraqi Freedom* and the global war on terrorism have shown that a Joint, combined-arms, network-centric force has the ability to both rapidly defeat an enemy in battle and act as a key element in follow-on peacekeeping efforts. The Army is using these lessons to fundamentally transform into a faster, more agile force with superior situational awareness (SA) and power-projection capability.



Battle command capabilities are demonstrated at the SoS Integration Laboratory. (U.S. Army photo courtesy of PM UA.)

Equipping the Unit of Action (UA)

This force — the Army's FCS-equipped UA — will be part of a Joint team that is decisive in any operation, against any level threat, in any environment. The UA balances the capabilities for battlespace dominance, lethality and survivability with its agility and versatility, deployability and sustainability. Although optimized for offensive operations, the UA can execute stability and support operations as well. The UA's operational hallmark will be the ability to develop situations out of contact, engage the enemy in unexpected ways, maneuver to positions of advantage with speed and agility, engage enemy forces beyond the range of their weapons and destroy enemy forces with enhanced fire and assault at times and places of our choosing. At the same time, the FCS-equipped UA is designed with the durability and stamina to fight battles and engagements for the campaign's duration, while focusing on critical decisive points and centers of gravity.

The FCS-equipped UA's core is a highly integrated structure of 18 manned and unmanned (MUM) air and ground maneuver, maneuver support and sustainment systems, bound together by a distributed network and supporting the Soldier (18+1+1 systems) acting as a unified combat force in the Joint environment. The network uses a battle command architecture that integrates networked communications, network operations, sensors, battle command system, training and MUM reconnaissance and surveillance capabilities to enable situational understanding and operations at a synchronization level not achievable in current network-centric operations.

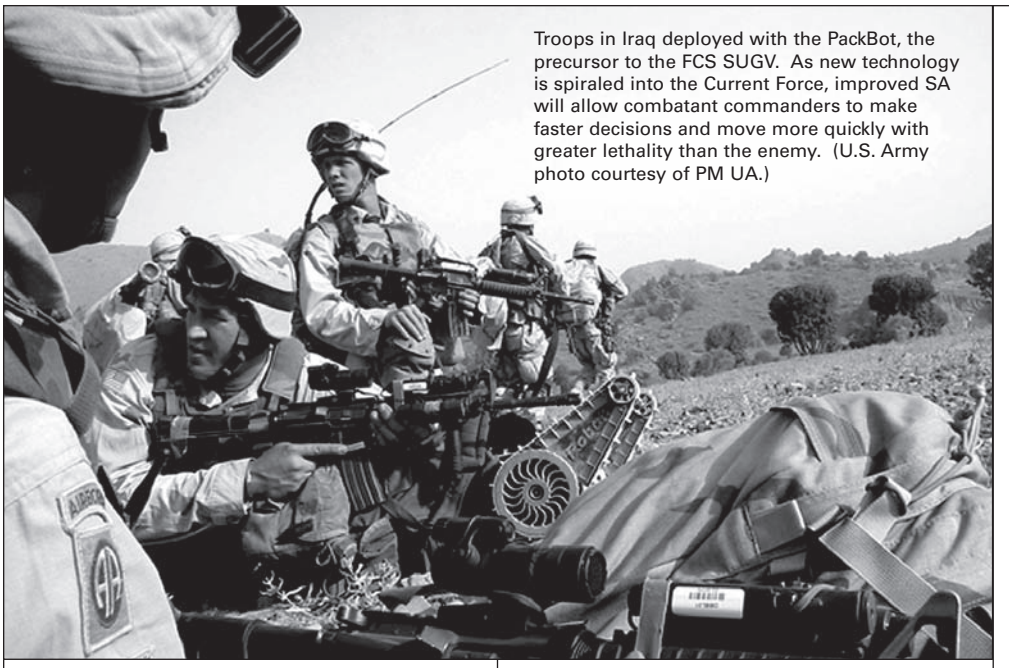
> A Joint, combined-arms, network-centric force has the ability to both rapidly defeat an enemy in battle and act as a key element in follow-on peacekeeping efforts.

MUM systems include:

- Unattended ground sensors (UGS).
- Two unattended munitions:
  - Non-Line-of-Sight Launch System (NLOS-LS).
  - Intelligent Munitions System.
- Four unmanned aerial vehicle (UAV) classes organic to platoon, company, battalion and UA echelons.
- Three unmanned ground vehicle (UGV) classes:
  - Armed Robotic Vehicle (ARV).
  - Small Unmanned Ground Vehicle (SUGV).
  - Multifunctional Utility/Logistics and Equipment Vehicle (MULE).
- Eight manned ground vehicles (MGVs):
  - Infantry Carrier Vehicle.
  - Command and Control (C2) Vehicle.
  - Mounted Combat System.
  - Reconnaissance and Surveillance Vehicle.
  - NLOS-Cannon (NLOS-C).
  - NLOS-Mortar.
  - FCS Recovery and Maintenance Vehicle (FRMV).
  - Medical Treatment and Evacuation.

FCS will provide the UA with several key attributes:

- SA that enables superior knowledge and survivability for our Soldiers.
- Networked information and advanced, seamless C2 to allow Soldiers to make faster decisions and move more quickly and lethally than the enemy.
- Reduced MUM platforms and organizational size, cube and weight and the agility needed to get the right



Troops in Iraq deployed with the PackBot, the precursor to the FCS SUGV. As new technology is spiraled into the Current Force, improved SA will allow combatant commanders to make faster decisions and move more quickly with greater lethality than the enemy. (U.S. Army photo courtesy of PM UA.)

force to the right place at the right time.
- Embedded training and networked support that reduces the traditional logistics footprint for fuel, water, ammunition and repair parts by 30-70 percent.

FCS Development — An Innovative Way to Do Business

FCS is one of the most complex systems integration and development programs ever executed by DOD. The program's scope — developing 18 MUM systems and their integrating network; integrating more than 150 complementary and associated programs; and developing the underlying doctrine, organization, training, facilitization and other functions needed to develop and field a fully functioning UA — requires an innovative approach to complex systems integration. This approach — using a single, accountable Lead Systems Integrator (LSI) to integrate the FCS family of systems — will optimize UA operational capability, maximize competition for systems development, ensure interoperability and maintain commonality to reduce life-cycle costs.

The LSI executes total system-of-systems (SoS) engineering, integration, simulation and testing and acts as a "general contractor" for resource allocation, subcontract implementation, coordination and programmatic responsibilities. Likewise, the LSI provides the vital link to:

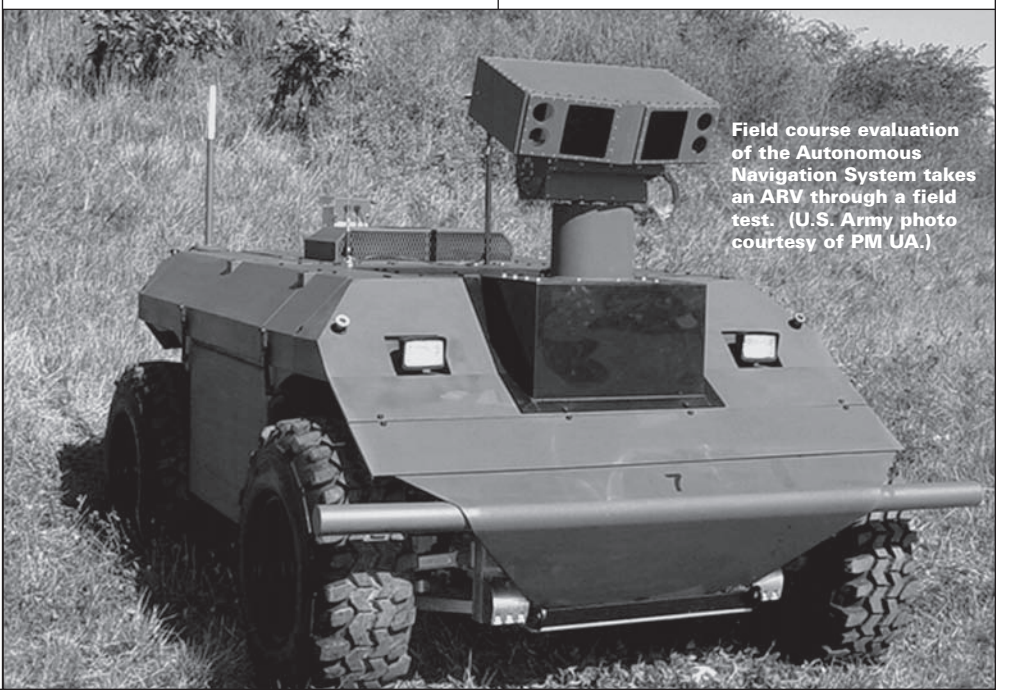
- "Best of industry" (BOI), including domestic/foreign contractors.
- Government programs/labs.
- Educational institutions.
- Other government agencies as required.

Boeing and Science Applications International Corp. were chosen to execute the FCS LSI role in 2002. They bring a unique combination of systems integration and technical development expertise to this challenge.

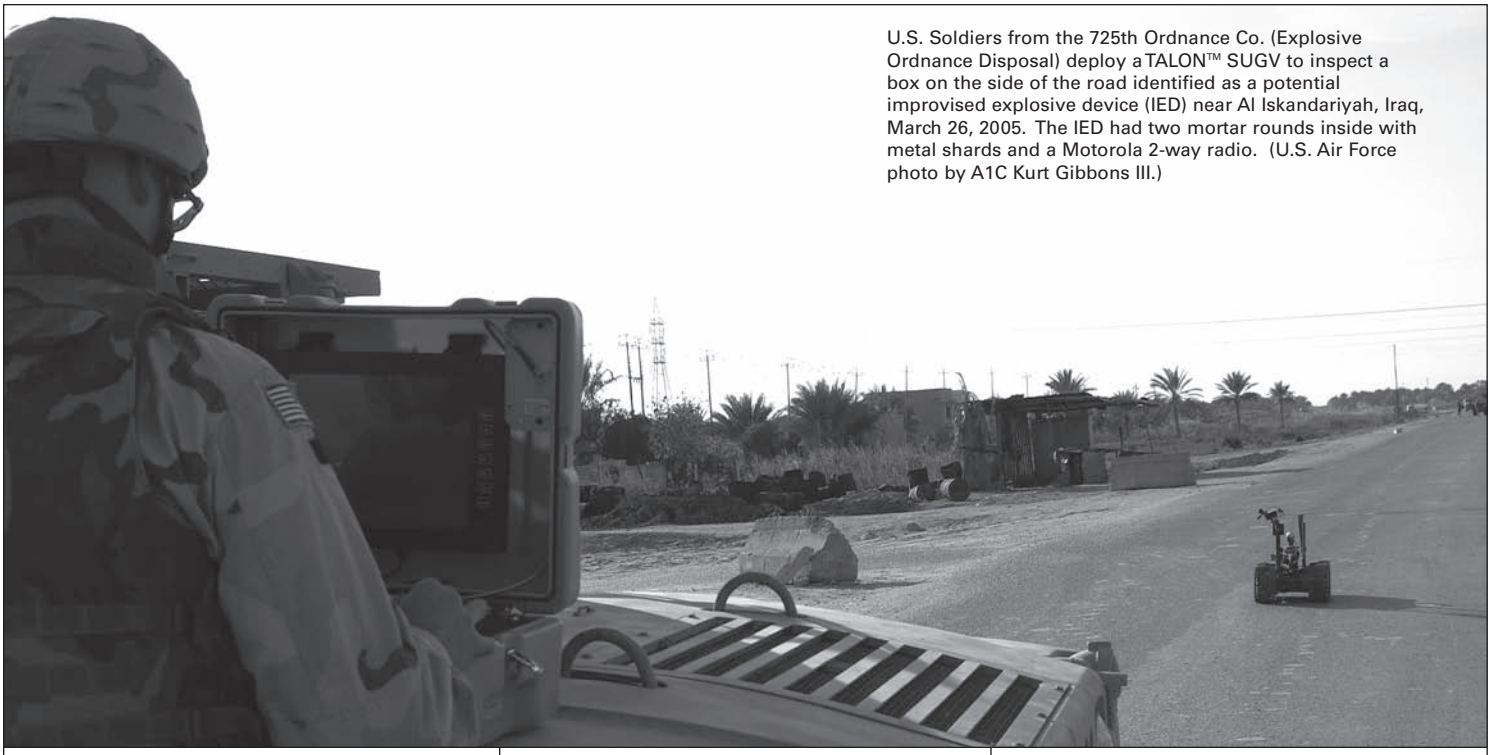
Supporting the LSI in a "shared destiny" relationship is an industrial base of 358 One Team Partners (OTPs) that bring the best talent and BOI capabilities within the Nation. Our OTPs will execute most of the systems development and subcomponent integration, such as air and ground sensors, for overall SoS integration for the LSI. Most resources will be released to the LSI, who will execute and manage subcontracts and a significant number of cooperative program interface agreements.

The FCS program has created a "One Team" environment to manage its partners. The One Team's key elements are:

- Shared destiny — financial instruments to motivate management to work toward a common goal.
- Integrated Master Plans (IMPs) and Integrated Master Schedules (IMSs) that are tiered and fully integrated.



Field course evaluation of the Autonomous Navigation System takes an ARV through a field test. (U.S. Army photo courtesy of PM UA.)



U.S. Soldiers from the 725th Ordnance Co. (Explosive Ordnance Disposal) deploy a TALON™ SUGV to inspect a box on the side of the road identified as a potential improvised explosive device (IED) near Al Iskandariyah, Iraq, March 26, 2005. The IED had two mortar rounds inside with metal shards and a Motorola 2-way radio. (U.S. Air Force photo by A1C Kurt Gibbons III.)

The OTPs' statements of work, work breakdown structures and IMPs/IMSs are directly linked to the master LSI IMP/IMS.

- Performance and quality processes, best practices and metrics are flowed down through the procurement packages and negotiated in the contract terms and conditions.
- A One Team Earned Value Management System using a single software package and process to plan, monitor and manage the program.
- The use of our Advanced Collaboration Environment for information gathering, reporting and managing geographically dispersed partners.
- Rigorous configuration management and change processes have been implemented to maintain control of the physical and logical interfaces and technical baseline.
- Management across the program using cost-as-an-independent-variable process.

The result is an integrated industry team, in partnership with the Army, that will ensure a collaborative allocation of human, financial and technological resources to efficiently develop and field the FCS.

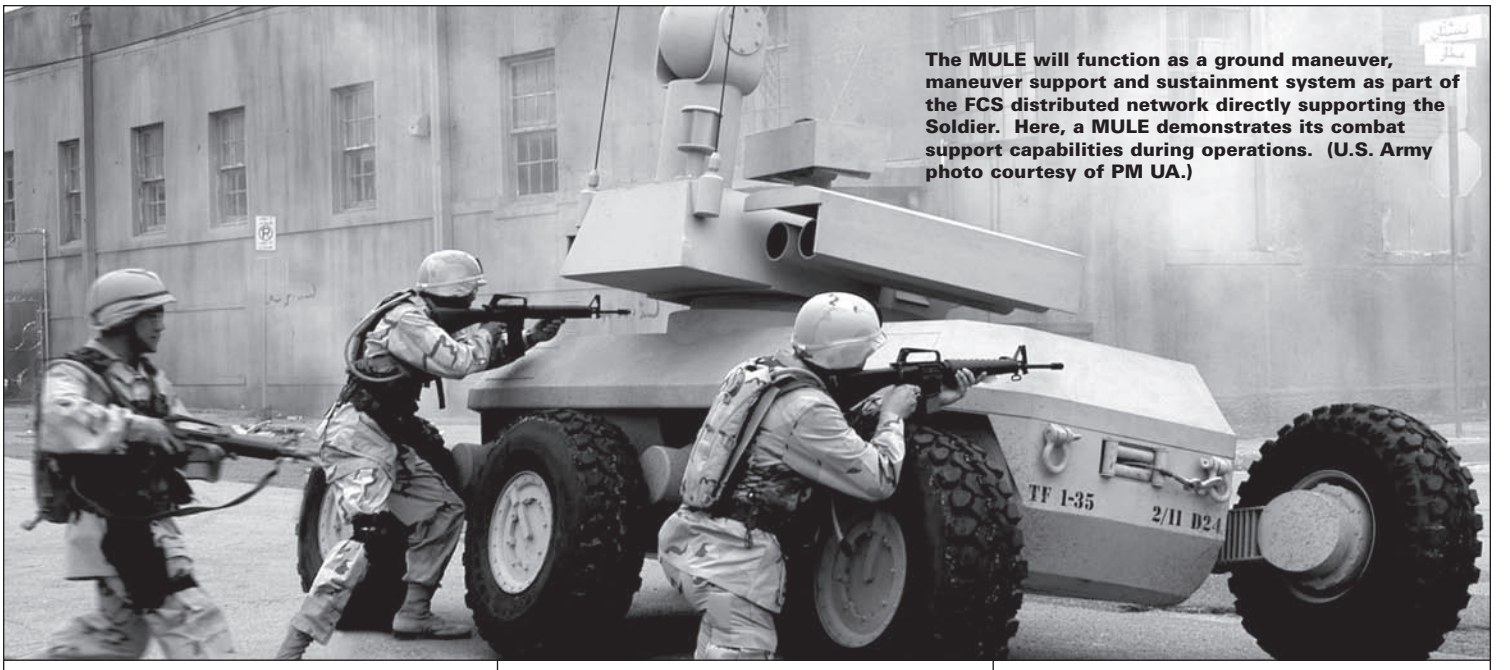
Independent reviews by the Government Accountability Office and the Institute for Defense Analysis support the LSI/BOI approach.

The FCS-equipped UA's core is a highly integrated structure of 18 MUM air and ground maneuver, maneuver support and sustainment systems, bound together by a distributed network.

On Schedule, On Cost and Executing to Plan

The FCS System Development and Demonstration (SDD) program has been ongoing since May 2003. In July 2004, the Army identified and announced adjustments to strengthen the FCS program and simultaneously improve the Current Force through early delivery of selected FCS capabilities. The adjustments maintain the Army focus on FCS-equipped UA development and substantially reduce program risk. The adjustments to the FCS program acquisition strategy fall into these primary categories:

- The five previously deferred FCS core systems — UAV Class II, UAV III, ARV (Assault and Reconnaissance), FRMV and integration for the Intelligent Munitions System — have been fully funded and will be fielded with the first FCS-equipped UA, allowing UA fielding of the complete 18+1 FCS core systems to begin delivery to the Army in 2014.
- The SDD program was restructured into a series of integration phases (IPs) that will cyclically develop, build and test FCS components and systems. These IPs incorporate robust experimentation, evaluation and technology maturation efforts to prove out revolutionary concepts, mature the architecture and components and assist in spin-out (SO) development.
- A series of SO packages, associated with IPs, will begin in 2008 and continue every 2 years through 2014 to evaluate and insert FCS capability into the Modular UAs consisting of



The MULE will function as a ground maneuver, maneuver support and sustainment system as part of the FCS distributed network directly supporting the Soldier. Here, a MULE demonstrates its combat support capabilities during operations. (U.S. Army photo courtesy of PM UA.)

mixed current fleet systems. These Modular UAs will have enhanced capability over Current Force units and become the stepping stones to full Future Force capability.

The FCS core program will use the Evaluation Brigade Combat Team (BCT) concept — a Current Force BCT equipped with a mix of combat and tactical vehicles — to evaluate the SO systems and identify necessary technical changes for the FCS-equipped UA prior to Milestone (MS) C. SOs will bring FCS benefits to Soldiers more quickly and allow technology maturation based on field-tested applications.

The adjusted program schedule will use an iterative development, integration and verification process to demonstrate readiness to move into low-rate initial production and provide FCS SO capabilities to the Current Force. The SDD phase will lead to an FCS MS C decision in 2012, an initial operational capability in 2014 and a full operational capability FCS-equipped UA BCT in 2016.

The past year has been a critical and successful one for the FCS program. The Army, LSI and OTPs have flawlessly executed and completed 2005's goals while simultaneously pursuing SoS engineering, subcomponent and software development and requirements development, along with completing the program adjustments previously described. This culminated in a successful Office of the Secretary of Defense program review and the SoS functional review in August, which set the initial program functional baseline.

The next year has even greater challenges, including system-level functional reviews and an initial SoS preliminary design review. The first year of integration Phase I — including initial hardware prototype and software development — will result in delivery and integration and verification testing, continued technology maturation and initial experimentation. The result: an integrated capability for the 21st-century Soldier that is faster and cheaper than individual system procurements and will ensure the Joint force has the essential capabilities to dominate across the full range of military operations.

An NLOS-C fires a round downrange during recent testing at Yuma Proving Ground, Yuma, AZ. The NLOS-LS will give the Future Force unprecedented out-of-contact and standoff capability, safely placing friendly forces beyond the range of enemy weapon systems. (U.S. Army photo courtesy of PM UA.)

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DENNIS A. MUILENBURG is the Boeing Integrated Defense Systems PM FCS. He has a B.S. in aerospace engineering from Iowa State University and an M.S. in aeronautics and astronautics from the University of Washington.

One Team Approach — Building the Best-of-Industry Team

Thomas W. Phillips

The Future Combat Systems (FCS) program is the new way of doing business and is changing the way government and industry work together. Two guiding principles that emphasize industry involvement in the Army's FCS program are communicated in the *Key Tenets of the Program*. Two of these tenets are used to guide the FCS program in building the "best-of-industry" (BOI) team.

The Stryker is an excellent example of a manned ground vehicle that was restructured under the FCS program to spiral critical technology to the Current Force years sooner. Here, a Soldier from Company B, 2nd Squadron, 14th Cavalry Regiment, patrols the streets of Sinjar, Iraq, in his Stryker April 27, 2005. (U.S. Army photo by SPC Jory C. Randall, 55th Signal Company (Combat Camera).)

The Boeing Co. and Science Applications International Corp. (SAIC) are teamed to perform the FCS Lead Systems Integrator (LSI) role. The LSI and Army Program Manager Unit of Action (PM UA), collaborated early on as to how to provide opportunities for industry to participate in the FCS program. In early 2002, the FCS Web site was created to communicate bid opportunities to industry.

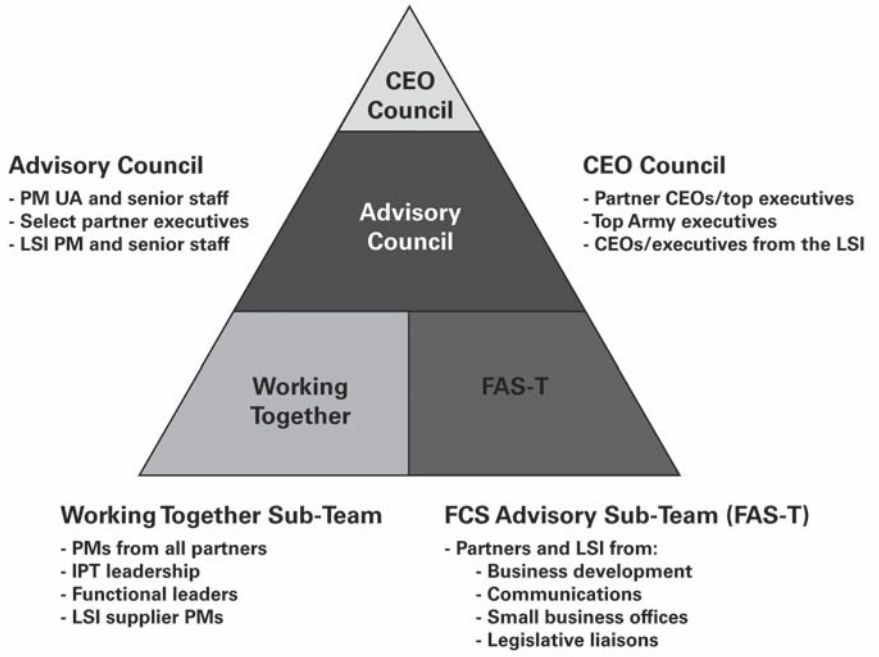
The LSI and Army conducted nine "Industry Day" events across the United States with more than 1,100 participants. Additional media advertisements in *Fed Biz Opps*, major defense trade publications, radio stations and classified advertisements in the *Defense News*, invited industry to apply to be a Tier 1 supplier.

The results of these efforts — combined with the completion of supplier pre-qualification reviews using questionnaires submitted by suppliers through the FCS Web site — were used to develop bidders lists of approximately 350 companies for all 23 major critical Requests for Proposal (RFP). The process included two rounds of draft specification and reviews with industry in developing the final RFP. A total of 1,600 RFPs were released to industry.

Spiraled technology, including Armor Survivability Kits, cooling systems and more powerful engines and drive trains, are directly benefiting Soldiers on the front lines. Here, a 1st Battalion, 325th Airborne Infantry Regiment paratrooper with the 82nd Airborne Division provides security from his Humvee for Afghan National Army Soldiers questioning a detainee near Dila, Afghanistan, Aug. 9, 2005. (U.S. Army photo by PFC Mike Pryor.)

An FCS program Source Selection Plan (SSP) was then written and approved in collaboration with the Army to fairly evaluate supplier proposals. This plan included implementation of a program directive establishing strict firewall procedures, additional safeguards to protect proprietary and sensitive information and other measures designed to maintain the competitive process's integrity. The FCS program also established a resident ethics/conflict-of-interest (COI) office to address ethics/COI issues, questions and concerns. The SSP fully defined the source selection organization that comprised the LSI, Army and government technical review teams and an independent Source Selection Review Board. Army Acquisition Executive Claude M. Bolton Jr. was responsible for approving the program SSP, reviewing the source selection process and concurring with source selection decisions.

Source selection was conducted in a single building in a secure environment. Source Selection Evaluation Team (SSET) membership — approximately 650 people — consisted of both LSI and government personnel. More than 30 government organizations were involved in the source selection effort. Each SSET had an LSI chair and government co-chair. In cases where Boeing or SAIC submitted a proposal, the chair and co-chair roles of that particular SSET were reversed so that the government took on the leadership role as chair. In full compliance with the SSP source selection, the supplier award decisions were announced in



The Advisory Council and One Team Approach

three rounds: July 7, Aug. 8 and Aug. 28, 2003.

During post-award supplier briefings and debriefings, numerous government and industry representatives and leaders were impressed with the integrity of the FCS source selection's fair and comprehensive process. An industry representative not selected for subcontract award stated at the closing of their debriefing that they would gladly participate in future RFPs on the FCS program because they felt they were treated fairly and honestly. This process was again validated by the lack of any source selection supplier protests. Other independent reviews by the Government Accountability Office and the Institute for Defense Analysis supported the LSI approach to building the BOI team.

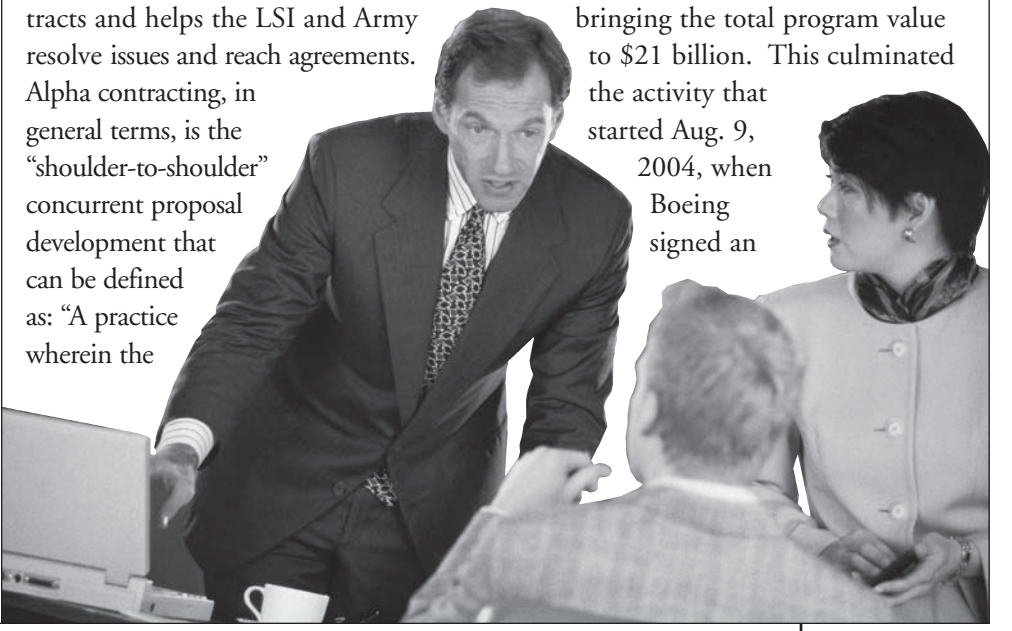
The FCS "One Team" Approach

The One Team Council (OTC) kickoff meeting brought together FCS Army and LSI leadership, as well as Boeing's and SAIC's chief executive officers (CEOs). The meeting brought together the BOI team responsible for executing the FCS mission. Before the next OTC meeting was held, everyone on the team signed the "One Team Commitment."

The FCS One Team comprises partners awarded the major critical competitive procurements and two directed suppliers (General Dynamics and BAE Systems) who produce the eight manned ground vehicle (MGV) variants. An Alpha contracting process is used to definitize the MGV subcontracts and helps the LSI and Army resolve issues and reach agreements. Alpha contracting, in general terms, is the "shoulder-to-shoulder" concurrent proposal development that can be defined as: "A practice wherein the LSI and government team meets with the corresponding subcontractor team, prior to negotiations, to consider where cost differences and technical misunderstandings exist. *Together*, they work to resolve their differences and misunderstandings to the maximum extent possible."

The Alpha contracting process has been essential to executing the FCS program's restructure to ensure critical technologies are brought to the Current Force years sooner. The Alpha contracting process for this restructure used representatives from 9 Army program executive offices and 23 industry One Team Partners (OTPs), all working together to synchronize plans, streamline contract definitization and optimize the integrated program plan for the Army. The challenging objective was to interact prior to negotiations, select the necessary modifications and then concurrently develop proposals and resolve technical schedule and cost differences prior to all proposal submissions.

On March 7, 2005, this challenge became a reality when the Army and Boeing signed a $6.1 billion modification to the existing FCS System Development and Demonstration contract, bringing the total program value to $21 billion. This culminated the activity that started Aug. 9, 2004, when Boeing signed an



agreement with the Army to accelerate the FCS program to bring needed technologies to the Current Force years sooner than originally planned. The LSI challenge to engage the existing 23 Tier 1 OTPs on the program to assist in definitizing this change at the program and subcontract levels was achieved using the Alpha contracting process.

The OTC

The FCS One Team integrates the Army, LSI and industry partners to execute to the same plan. The integrated industry team ensures collaboration of resources to efficiently allocate people and financial and technological resources to achieve program objectives. The One Team uses program management best practices and works to mitigate top-level program risks, share information and take collective corrective action.

The FCS program has established and structured the OTC to integrate industry partners at various program leadership levels.

The OTC meets quarterly to fulfill its charter, with seven sessions held to date. The Advisory Council (see figure on Page 9) leads the One Team activity by determining goals, objectives and priorities. The "Working Together" and "FCS Advocacy" sub-teams meet twice a month between quarterly meetings to carry out their responsibilities to develop integrated strategies, approaches and processes that will fully integrate all One Team members. The Working Together sub-team develops the One Team culture, adopts a standard set of operating norms and measures One Team maturity progress. The FCS Advocacy sub-team coordinates legislative liaison activities, small business involvement and external communications. Both sub-teams implement actions of the overall council and report progress at the quarterly council meetings.

The Alpha contracting process has helped the FCS program restructure to ensure critical technologies are brought to the Current Force years sooner.

> Collectively, the One Team operates in an open environment where information and data are shared, problems are identified and issues are resolved through teamwork.

Today the LSI and the OTPs continue to use the processes and tools to communicate opportunities with industry. Both the OTPs and the LSI use the FCS Web site to announce future business opportunities and conduct industry days to brief suppliers on upcoming major bid opportunities. Most recently, the LSI selected sources for the Class II and III unmanned aerial vehicle procurements that followed the same bid opportunity and source selection process used for the initial 23 major critical procurements.

FCS industry partners have become integrated at multiple levels and are an integral part of the FCS program's battle rhythm. They are invited to attend all programmatic meetings and are full-time members of the integrated product teams (IPTs) and subcontract management teams. They routinely report performance in a monthly partner program managers meeting and conduct monthly program management reviews with their IPTs. This assists the LSI in oversight of technical and horizontal integration across IPTs and between industry partners. Collectively, the One Team operates in an open environment where information and data are shared, problems are identified and issues are resolved through teamwork. Partner involvement is at an unprecedented level on the FCS program, and the integrated FCS One Team is stronger and uniquely committed in executing the FCS mission — to equip our Joint warfighters with the world's best capability. The FCS program is a new way of doing business and is changing the way government and industry work together, successfully.

THOMAS W. PHILLIPS is the Chief of Staff for Boeing FCS Supplier Management in Huntington Beach, CA. He holds a B.S. in business administration and an M.B.A., both from the University of Southern California.

The FCS Requirements Development Process Sets New Standards of Excellence

MAJ Michael Gray and Christine A. Neubauer

The Future Combat Systems (FCS) Unit of Action's (UA's) complexity mandated modification of the classical system engineering processes to provide high-quality requirements and to minimize future rework on the program. The System-of-Systems (SoS) Engineering Integration (SSEI) Integrated Product Team (IPT) management understood that given the program's intricacy, a traditional model for requirements development was inadequate and had to be enhanced. The processes used on the program have been tailored and are continually improved as a result of the increased understanding of handling such a complex program. Today, the FCS requirements development process is a new way of doing business, and the FCS program is setting new standards for the industry to follow.

The new requirements development process will minimize future rework on FCS programs such as the Stryker. Here, a 120mm mortar round is fired from a Stryker MCV-B mortar tube at Yakima Training Center, WA. (U.S. Army photo by Jason Kaye.)

First and foremost, emphasis is placed on identification and involvement of all key stakeholders. This means that requirements development process participants include the Lead Systems Integrator (LSI) — Boeing and Science Applications International Corp. — the U.S. Army Program Manager UA, Army combat developers, the U.S. Army Training and Doctrine Command, the Army user community and the UA Maneuver Battle Laboratory. Additionally, the FCS One Team Partners encompass those companies that are directly involved in developing SoS requirements as they impact their specific prime and configuration items. This engagement of all critical stakeholders ensures continuous focus on the FCS SoS requirements and, in turn, will have a major impact on successful program execution by balancing cost, schedule and risk effectively at the system level.

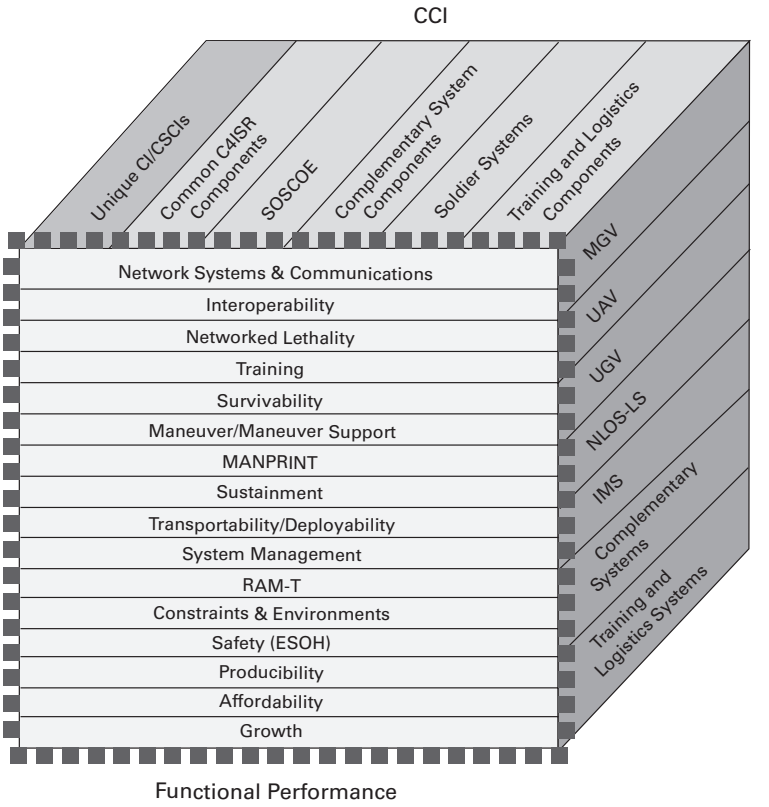


Figure 1. The FCS Cube provides multidimensional relationship visibility between functional performance, CCIs and systems/platforms.

The FCS SoS's complexity and the addition of four integrated FCS technology spin outs to the Current Force identified the need for an incremental engineering, integration and assessment/verification approach. This incremental approach enables the program to prioritize requirements and design development activities within each phase to reduce overall risk. This approach also allows the FCS SoS concepts, requirements, architecture and designs to mature as performance trades and analyses are conducted and the results of experiments and development tests are assessed.

CPL Chris Chladny (right) and SSG Joshua Rygiel, 2nd Battalion, 7th Infantry Regiment, 3rd Infantry Division, maneuver a Raven unmanned aerial vehicle near Tikrit, Iraq, March 29, 2005. (U.S. Army photo by SGT Matthew Acosta.)

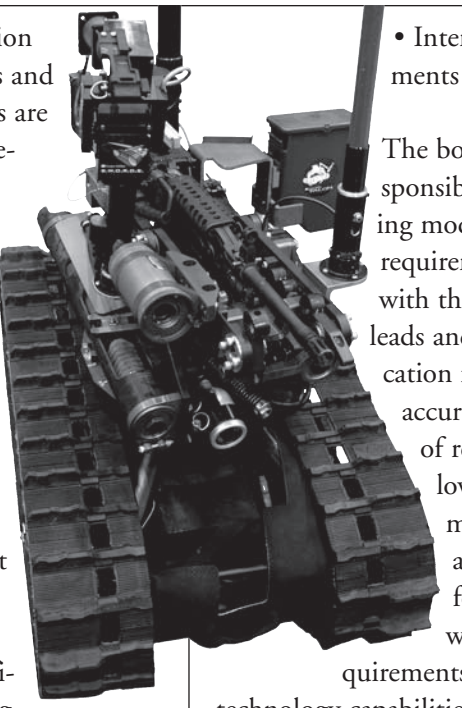
The processes used to develop the FCS UA requirements comprise critical elements such as architecture, requirements analysis, requirements management and leadership, which must be seamlessly interconnected to produce a high-quality product. Those processes must be effectively executed to ensure that the program meets an aggressive schedule to support iterative and evolutionary development concepts consisting of four integration phases.

Requirements Leadership Execution

One of the program's most challenging aspects is associated with the definition of the framework for FCS technical requirements development and allocation. With SoS requirements reaching more than 11,000, it is important to ensure that the program's seven key performance parameters (KPPs) are provided robust coverage. To do that, a unique process using "requirements leaders or owners" and "book leads"

has been developed based on the FCS "cube" that provides visibility of the multidimensional relationships between functional performance, common critical items (CCIs) and systems/platforms as depicted in Figure 1.

Requirements leaders are responsible for "womb-to-tomb" (development through verification to SoS "sell-off") ownership of their assigned FCS capability, function or requirements sets. The requirements owners are acknowledged subject matter experts within the LSI team. They have powerful coordination and integration abilities and have been delegated responsibility, authority and accountability for their functional areas. Each requirements owner is supported by a multifunctionally staffed team with dedicated leaders and members drawn from various FCS IPTs, including verification, architecture and modeling and simulation. These "owners" are responsible for requirements definition tasks at the SoS and Prime Item Development Specification (PIDS) levels. The IPTs and their associated suppliers are responsible for subtier requirements definition below the PIDS level with the responsible requirements leader's concurrence to ensure the continued development of appropriate requirements and design concepts.



The book leads represent the product IPT's interests and their assigned section of the SoS specification and corresponding lower-tier requirements documents:

- PIDS
- System requirements review
- Hardware configuration item
- Computer software configuration item
- Interface requirements document
- Interface control drawing
- Interface requirements specification

The book leads are responsible for coordinating modifications to the requirements database with the requirements leads and assigned verification focals to ensure accurate "flow down" of requirements to lower-level documents. They are also responsible for identifying whether the requirements are beyond technology capabilities or adversely impact the prime item design, while keeping program affordability and schedule in mind. The book leads also ensure consistency across the requirements leads and prevent duplication or conflict of requirements.

The assignment of requirements and book leads establishes a natural "tension" within the FCS organization. The requirements leads/teams look horizontally across the systems to fulfill the SoS concepts and achieve the KPPs. The book leads look vertically within their system and are responsible for balancing the technical, cost and schedule risks associated with their system as part of the overall FCS SoS.

Requirements development encompasses requirements analysis, operational and system architecture development and functional analysis, functional decomposition and allocation as depicted in Figure 2. Feedback on the risks, achievability and FCS SoS maturity and system requirements are provided through the use of performance measures and through feedback from experimentation, assessment and verification activities.

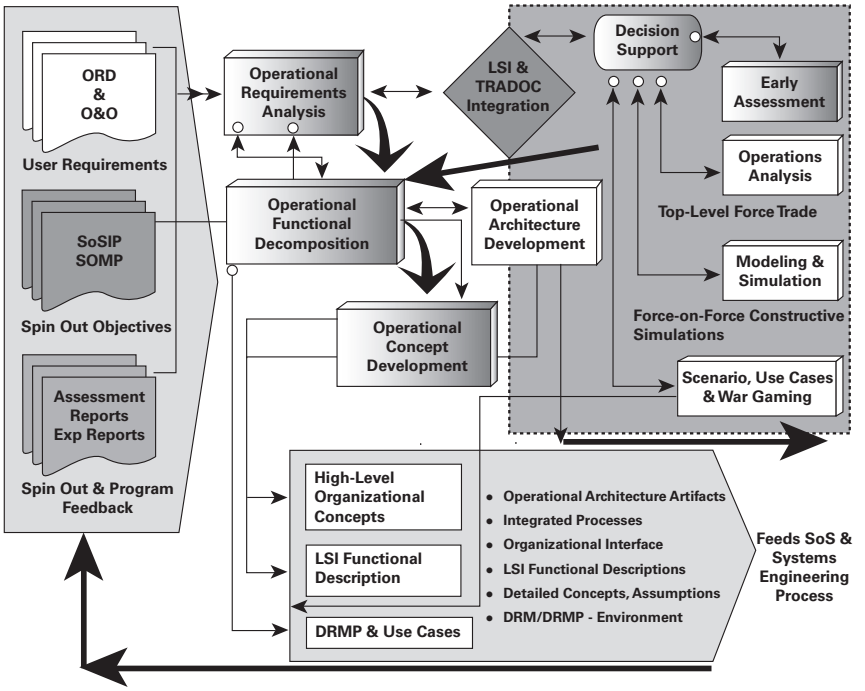


Figure 2. The Requirements Development and Management Process

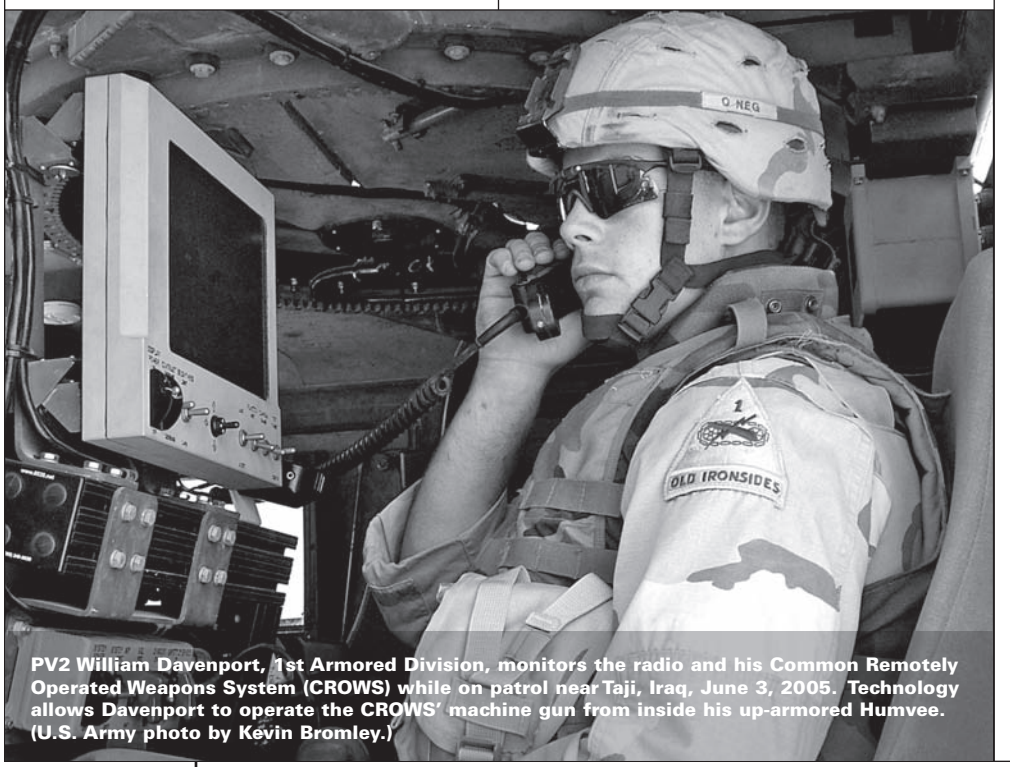
Requirements Analysis

Requirements analysis is being conducted on FCS to identify and capture the overall SoS and system-required capabilities and intended usage environments. Requirements analysis produces the SoS, prime item and configuration item specifications. Requirements analysis also documents assumptions, rationale and guidelines for use in SoS. Likewise, it also documents system requirements and design analysis and definition. Traceability of specification requirements, assumptions and guidelines will be maintained and validated as part of these tasks. Initial requirements analysis was accomplished using integrated working groups comprised of the joint Army customer and the LSI's Systems Engineering and Integration, Integrated Simulation and Test and platform IPTs.

Requirements leaders are responsible for "womb-to-tomb" ownership of their assigned FCS capability, function or requirements sets.

Requirements analysis started with an assessment of the FCS Operations and Organization (O&O) and Operational Requirements Document (ORD), including the seven FCS KPPs. These documents were used along with Army Universal Task List, Universal Joint Task List and Mission Training Plans to capture the operational concepts across the various Army command levels. These concepts are documented within 24 approved integrated processes.

In parallel with FCS integrated processes development, the SoS boundaries and interfaces to external, non-FCS programs were defined. Here again, the integrated FCS UA's complexity becomes apparent. The FCS SoS boundaries include the UA/Unit of Employment (UE) boundary; interfaces to complementary programs within the UA and across the UE boundary to other current Army, U.S. and international forces; and commercial systems and services.



PV2 William Davenport, 1st Armored Division, monitors the radio and his Common Remotely Operated Weapons System (CROWS) while on patrol near Taji, Iraq, June 3, 2005. Technology allows Davenport to operate the CROWS' machine gun from inside his up-armored Humvee. (U.S. Army photo by Kevin Bromley.)

The integrated processes and SoS boundaries described above established the foundation for performing the FCS team's functional analysis and allocation, and SoS and system performance analyses as described below. The SoS human factors, design standards and constraints were identified by assessing the existing and projected technology base, applicable laws and standards and strategic programwide management plans and decisions.

Functional Analysis and Allocation

The functional analysis at the FCS SoS level transforms operational capabilities into functional, performance and interface attributes at the system level. These attributes are then used to guide the design synthesis activity that follows. Additionally, functional analysis products flow into the integration and test phases to clarify what verification method will be used to ensure that each system meets its individual functionality and combined interoperability capacity. Functional analysis is performed to transform the top-level user operational requirements (capabilities) and concept of operations into a set of SoS, prime item and common subsystem functional and performance requirements to achieve FCS capabilities.

The functional analysis process's key results are identified and more detailed functional and related performance requirements are determined. Functional requirements define details of how the needed capabilities must be provided over the span of expected usage scenarios and environments. The performance requirements — derived from analysis of mission activities — provide measurable parameters for the functions in terms of quantity, quality, coverage, timeliness and effectiveness. Critical performance measurements are being tracked at the

A Soldier with Company B, 1st Battalion, 55th Parachute Infantry Regiment, communicates via tactical radio with his command cell after responding to a "shots fired" scenario in Fallujah, Iraq. FCS will ensure the SoS provides precise information when and where Soldiers need it most. (U.S. Army photo by SSG Charles B. Johnson.)

program level in the form of KPPs and technical performance measures (TPMs). These KPPs and TPMs provide summary indicators of the development effort's health.

Integrated Architecture

During the requirements derivation process, direct linkages of the defined functional operations and the associated performance and interface requirements in the integrated requirements database are maintained with the FCS-equipped UA architecture model data elements. This process supports the full traceability of all the requirements to the ORD and the associated context documents related to it.

The integrated architecture describes the FCS architecture, beginning with the FCS SoS, through the individual system, to hardware subsystems and software components. This integrated architecture will be captured in a single integrated representation called "The Integrated Model." The Integrated Model will incorporate numerous views to represent the information required by stakeholders, including operational, system and use-case views. Links and traceability will be maintained within the integrated architecture as well as between the SoS, system, subsystem and component architecture levels and requirements. The integrated architecture and specification form the essential requirements baseline for the FCS UA.

The FCS program is setting new standards of excellence and pushing the envelope for requirements management. The goal is to deliver quality products and systems on time and within cost. This is a challenging task given SoS complexity, interactions and interdependencies between different KPPs, TPMs and system constraints. Uniform execution of the requirements management processes and commitment to continual improvement to accommodate growing understanding of the system's complexity are the key. The FCS program has modified best practice systems engineering techniques to perform requirements development in light of the special challenges an SoS requirements set poses. The program has adopted an iterative engineering and integration approach, acknowledging the integrated FCS SoS's complexity. This process enables experimentation and assessment results to be fed back into the requirements base and initial design.

This process starts with the O&O and ORD and leads to functional analysis, the initial operational architecture and, ultimately, helps define the initial requirements set for the system IPTs. The initial architecture is then used to integrate the SoS requirements and perform the SoS detailed design configuration. This process leads to further recommended changes to the base requirements and design. Additional assessments are made and continuous trade studies are reviewed and analyzed for possible implementation into the design structure. These essential steps will be repeated, to some extent, in each of the program's four integration phases.

When asked to name the most significant elements of the successful requirements management process, Brad Cohen, SSEI IPT Director, answers without any hesitation — "It is people, leadership and organizational execution of the systems engineering processes."

The Army SSEI IPT Co-Director, Cliff Boyd, agrees and, together, they strive to provide innovative leadership for the FCS SoS engineering activities. Their goal is to deliver a quality product to the user, and with the implementation of the requirement lead and book lead process for requirements management, the framework is established for ensuring the necessary balance is achieved between optimizing the FCS SoS and providing affordable and technically feasible systems. Indeed, the FCS requirements development process is a new way of doing business.

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'SPIN-OUT' TECHNOL FROM THE CURRENT

COL Russell J. Hrdy and Valori B. Bring

In summer 2004, the Army directed a change to the Future Combat Systems (FCS) program, the scope of which included numerous improvements aimed at strengthening the Future Force while also benefiting the Current Force. This modification covered four major additions:

- **A comprehensive experimentation and technical maturation program.**
- **The return of five major systems previously deferred in the original FCS program.**
- **The extension of the program schedule.**
- **The spin out (SO) of FCS capability to the Current Force.**

SO technology has already benefited Current Force systems like the Bradley Fighting Vehicle. Here, SGT Tavarance Jones, 70th Armor Regiment, 3rd Brigade, 1st Armored Division, provides overwatch during a patrol July 16, 2005, near Mushada, Iraq. (U.S. Air Force photo by TSGT Russell E. Cooley IV, 1st Squadron Combat Camera.)

OGIES — THE BRIDGE TO FUTURE FORCE

This article will describe the objectives, content and approach to fielding FCS capability to the Current Force in what has become known as FCS SOs. Technology SOs, four in all, implemented in 2-year cycles, have been conceived as an opportunity to improve the Current Force through early delivery of selected FCS capabilities.

SO Objectives

Overall, SO objectives fall into three categories. The first is to provide a qualified set of Future Force equipment and software to the Current Force that incrementally fills Army capability gaps over time. Structurally, the Army will provide four increments of SO capability to the Current Force with insertions in FYs 08, 10, 12 and 14. The key elements of Future Force equipment are the network backbone centered on the Joint Tactical Radio System (JTRS), FCS Battle Command and the System-of-Systems Common Operating Environment (SOSCOE). At each of the four SO increments, the network backbone will increase functionally until it approaches the capability of the FCS Unit of Action (UA). Additionally, each SO will add qualified FCS programs and components to enhance situational awareness (SA), force protection and lethality.

The second SO objective is to target enhancement of selected Current Force systems with portions of the Future Force architecture. Currently, the Abrams tank, Bradley Fighting Vehicle and Humvee will receive SO improvements.

The final objective is to initiate an Evaluation Brigade Combat Team (EBCT) that will provide dedicated support for SO and core FCS program verification and testing. The use of an EBCT is fundamentally essential for FCS program success in general. The EBCT will be the test bed to ensure that SO and core FCS program capability is ready for fielding to the Army. It will also become the mechanism by which an operational unit learns to employ newly provided SO technologies. In addition, the EBCT will present valuable opportunities to capture

both the technical and operational lessons learned and become a conduit to feed this information back to the developers and the U.S. Army Training and Doctrine Command (TRADOC) centers for system and doctrinal improvements. Under this concept, the EBCT will receive prototype systems for testing.

Following a 2-year shakeout period, SO material will be fielded to the modular brigades. The EBCT will grow in capability with each SO and ultimately become the Army's first FCS-equipped UA. In essence, the Army's transition to the FCS UA begins with the fielding of SO1 in FY08.

It's important to note that SOs are not individual programs but rather the development and distribution of capability that will follow standard acquisition regulations and mandates. For example, TRADOC is developing a Capability Development Document (CDD) for each SO package. Each SO will have a unique CDD that will contain tailored requirements from the core FCS UA Operational Requirements Document. Moreover, each SO will follow the same standard programmatic template. Technologies will be developed as part of the core FCS program and verified through the FCS test cycle. Unique SO testing will take place in separate technical field tests and limited user tests of specific FCS SO technologies and network connections. This data will support a Milestone C decision authorizing low-rate production, providing near production-ready systems for an initial operational test and evaluation (IOTE) of SO technologies and network connections. The last milestone will be a beyond low-rate initial production (LRIP) decision, setting in motion the production of SO systems for the modular brigades.

A second SO objective is to target enhancement of selected Current Force systems with Future Force architecture. The Bradley Fighting Vehicle will receive SO improvements. Here, Soldiers from Company H, 2nd Squadron, 11th Armored Cavalry Regiment, string concertina wire blockades near Tunis, Iraq, July 28, 2005. (U.S. Marine Corps (USMC) photo by LCPL Nicholas J. Lapinski, 2nd Force Service Support Group (2FSSG).)

The beyond LRIP decision highlights another unique aspect of SO development — namely that capabilities will in some cases be less than the threshold requirement for the core FCS program. One factor remains firm: all systems must provide military utility and be value added to the force. This provides the FCS program enormous flexibility to improve the speed at which Future Force capability is inserted into the Current Force. Consequently, as FCS designs mature, the program will field threshold-compliant systems to the Current Force.

These SOs introduce another innovative concept: a lead program executive office (PEO) tasked to field SO systems to Current Force units. The lead PEO provides one point of contact for the development of sustainment and fielding plans, for the execution of an IOTE, conduct of the beyond LRIP decision and the fielding of combat and communication systems to the

warfighter. The lead PEO is the primary voice for all PEO and program manager (PM) stakeholders and provides one face to the warfighter.

The relationship between the PM UA/Lead Systems Integrator (LSI) team and the lead PEO is one of partnership where emphasis between partners changes depending on where the SO is in the development cycle. Before Milestone C, the PM UA/LSI team will be in a leadership role during technology development while the lead PEO will be in support. After Milestone C, the roles reverse and the lead PEO will direct the process. For SO1, PEO Ground Combat Systems will be the lead PEO. To emphasize the critical role of PEO Command, Control and Communications Tactical (C3T) as the Current Force Network Architect, PEO C3T has a critical deputy role to the lead PEO in SO1.

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While defining each SO slice, the Army and UA program leaders knew that SO increments after the first would be subject to change depending on the maturity of FCS technology, needs of the Army and funding availability. In fact, the configuration of each SO increment could change depending on what is learned from the EBCT warfighter. However, in the spirit of the Army's budgeting process, each SO package was defined with a fairly high degree of detail. The remainder of this article will describe each increment, with emphasis on SO1 content.

SO1

One essential SO1 element is the Future Force network foundation that will steadily increase with capability through successive SOs. To build this foundation, increment 1 will center on the integration of FCS network components into Abrams, Bradleys and Humvees. The FCS package, or B-Kit, will consist of a state-of-the-art FCS Integrated Computer System, SOSCOE, the JTRS Cluster 1 radio with Wideband Networking Waveform and Soldier Radio Waveform, battle command and network software.

The B-Kit will be an appliqué configuration that will exchange information with the vehicle's Force XXI Battle Command Brigade and Below

As FCS designs mature, the program will spiral threshold-compliant systems to the Current Force and platforms such as the Humvee. Here, Soldiers and William Torres, a civilian contractor, patrol Main Supply Route Tampa near Tunis, Iraq, July 31, 2005. (USMC photo by LCPL Nicholas J. Lapinski, 2FSSG.)

The M1A1 Abrams Main Battle Tank is one platform that will benefit from SO improvements in the near future. Here, Marines from the 2nd Marine Division (MARDIV) conduct counter-insurgency operations near Karabilah, Iraq, June 20, 2005. (USMC photo by CPL Neill A. Sevelius, 2nd MARDIV Combat Camera.)

(FBCB2) system, allowing the operator to maintain SA of FCS sensor data and control FCS subsystems. Additionally, SO1 will include the deployment of the Urban-Unattended Ground Sensor (U-UGS) and Tactical-UGS (T-UGS) configurations. The T-UGS will feature magnetic, acoustic, radiological, visual and seismic monitoring of threats, providing early warning to unit commanders. The U-UGS will provide intrusion detection and imaging of cleared areas.

SO1 will also feature the introduction of the Intelligent Munitions System (IMS) with a combination of sensors and lethal munitions in antivehicular and antipersonnel configurations. Sensor data from both the IMS and UGS will be managed by the FCS Sensor Data Manager, routed through a Level One fusion generator, assembled into battlespace objects and distributed on the FBCB2 network for situational understanding. Sensor control will be through the FBCB2 display.

> One factor remains firm: all systems must provide military utility and be value added to the force. This provides the FCS program enormous flexibility to improve the speed at which Future Force capability is inserted into the Current Force.

SO1's final element addresses improvements in lethality: the Non-Line-of-Sight Launch System (NLOS-LS) featuring 15 40-kilometer range Precision Attack Missiles (PAMs) per container launch unit. NLOS-LS will be controlled via the existing Current Force Advanced Field Artillery Tactical Data System. Missile guidance will come from either infrared (IR) or semiactive lasing, both functions to be embedded in each PAM.

Later SOs build on the Future Force network and also add increasing levels of Future Force capability. For example, SO2 will add FCS communication relay packages and electro-optic (EO)/IR sensors on unmanned aerial vehicles to extend the range of Future Force communications and sensor capability in the modular brigade.

SO3 adds a significant leap in capability with the addition of the FCS suite of unmanned ground vehicles (UGVs). They include the Small UGV, Armored Robotic Vehicle (ARV)-Assault (Light), ARV-Assault, ARV-Reconnaissance, Multifunctional Utility/Logistics Equipment Vehicle (MULE)-Countermine and MULE-Transport. In each of these SO packages, Future Force network tools will grow with increasing levels of battle command — including fusion, sensor data management and embedded training — and network management to the point where SO4 approaches full UA capability.

The SO concept offers a great opportunity to provide the warfighter Future Force benefits years before the first UA is introduced. In effect, the SOs become the Army's bridge to the Future Force. In addition, SOs provide a learning laboratory for all stakeholders — from warfighters to developers — and the mechanism to ensure the first UA becomes a timely and affordable reality.

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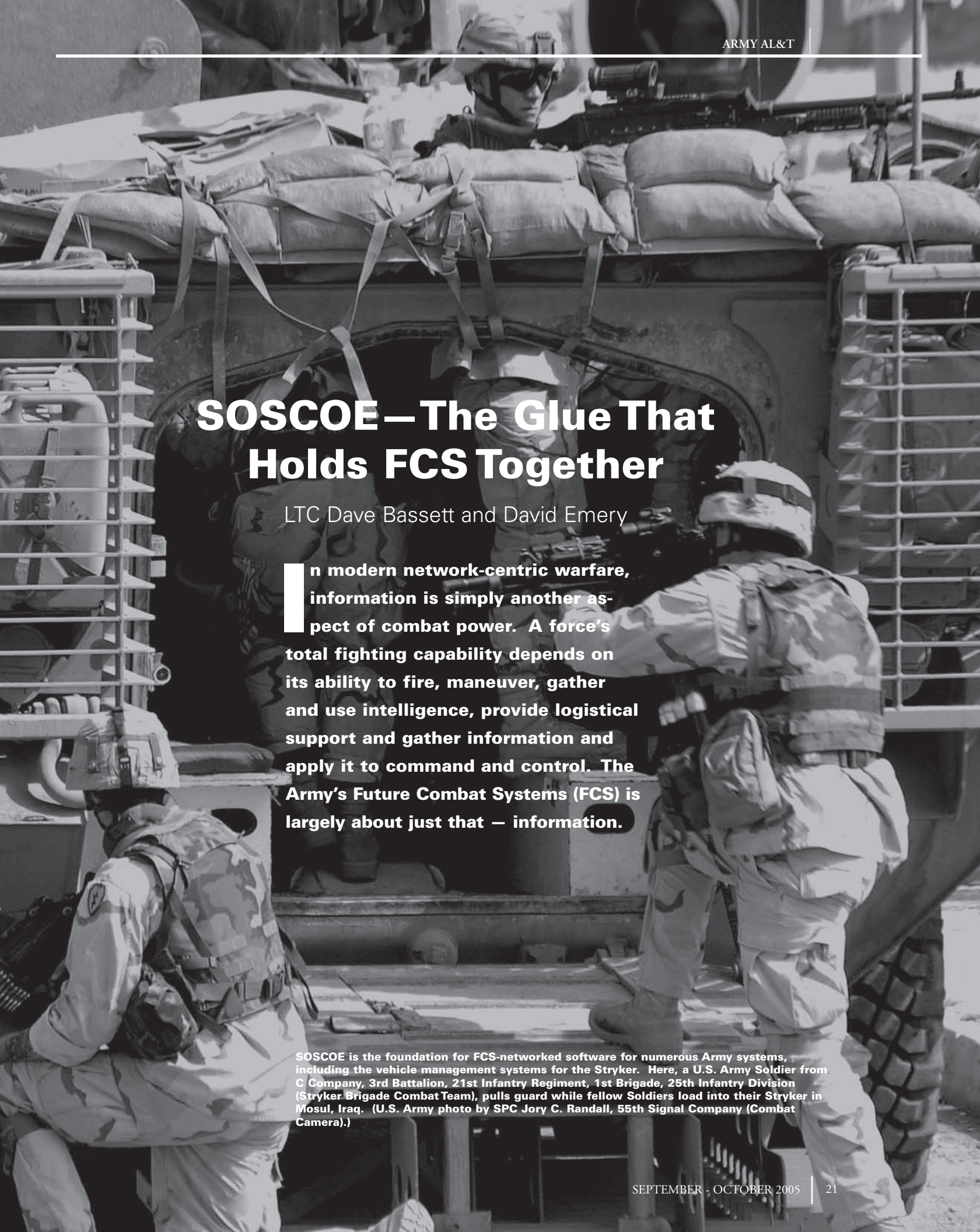
SOSCOE—The Glue That Holds FCS Together

LTC Dave Bassett and David Emery

In modern network-centric warfare, information is simply another aspect of combat power. A force's total fighting capability depends on its ability to fire, maneuver, gather and use intelligence, provide logistical support and gather information and apply it to command and control. The Army's Future Combat Systems (FCS) is largely about just that — information.



SOSCOE is the foundation for FCS-networked software for numerous Army systems, including the vehicle management systems for the Stryker. Here, a U.S. Army Soldier from C Company, 3rd Battalion, 21st Infantry Regiment, 1st Brigade, 25th Infantry Division (Stryker Brigade Combat Team), pulls guard while fellow Soldiers load into their Stryker in Mosul, Iraq. (U.S. Army photo by SPC Jory C. Randall, 55th Signal Company (Combat Camera).)

As the first Army system to be designed for network-centric operations, FCS is a leader in integrating new Global Information Grid (GIG) standards. However, the system also interoperates with Current Forces, allowing the program to provide useful spin outs that benefit Current Forces.

Network capability for the FCS-equipped Unit of Action (UA) will be implemented as an integral part of the GIG and the Army's LandWarNet approach. The FCS program's network comprises several key components:

- Network standards
- Network transports
- Network services
- Applications
- Platforms
- Sensors

While building and deploying network transport, applications, platforms and sensors are well understood, this new architectural approach's network services layer has been more difficult to define. GIG descriptions separate services into core and application services. For FCS, these core services are implemented by a common set of open standards-based software components tailored to the safety-critical/mission-critical, real-time/near-real-time needs of the FCS family of systems (FoS), including both manned and unmanned platforms. These components are called the Systems-of-Systems Common Operating Environment (SOSCOE).

This article explores FCS SOSCOE's role as the "glue" that ties the FCS FoS together as a critical FCS Net-Centric Information Environment (NCIE) component and SOSCOE's role in the FCS approach to realizing DOD's "net-centric vision."

> In modern network-centric warfare, information is simply another aspect of combat power. ... The Army's Future Combat Systems is largely about just that — information.

What Is SOSCOE?

SOSCOE is the foundation for FCS networked software including vehicle management systems; command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR); Soldier and unmanned air and ground systems. Just as an operating system on your computer allows you to interact with resources and other computers, SOSCOE allows battlefield systems to communicate and interact with the UA. SOSCOE provides several key functions:

- Internal FCS information delivery and management mechanisms.
- Interoperability services.
- Data storage.
- Security and information assurance services.
- Information discovery services.
- Web services.

The FCS network approach's overarching goal is to allow commanders and their staffs to manage all information required to execute their mission. It is important to note, however, that the primary SOSCOE user is neither the commander nor the Soldier, at least not directly. Rather, SOSCOE delivers a reusable set of software components that platform integrators and application developers use as the foundational building blocks of their software code. This allows developers to focus on their code's "business logic" rather than dealing directly with the complexity of the tactical network environment (underlying tactical network transport environment).

The goal is for SOSCOE — not the application developer and certainly not the Soldier — to deal with the unique and complex tactical communications infrastructure in which FCS must operate on the battlefield.

SOSCOE provides the common services of the NCIE, integrating information distribution within the UA and making FCS battle command services and data available to other Army and enterprise users throughout the GIG. The NCIE concept provides for seamless access to data throughout the GIG, regardless of where that data is located.

NCIE

NCIE encompasses the entire spectrum of hardware and software C4ISR systems used to manage and disseminate information to, from and within the UA. The NCIE's mission is to provide the right information to the right warfighter at the right time, in the right medium, the right language and at the right level of detail. Other NCIE parts include:

- Joint Tactical Radio System (JTRS) Cluster 1, Cluster 5, network data link (NDL) and Warfighter Information Network-Tactical (WIN-T) communications networks monitored and managed as a shared communications backbone.
- A network management system capable of integrating and dynamically managing the bandwidth of the JTRS, WIN-T and NDL communications "pipes" into a single, adaptable logical network. The network must integrate with the FCS platforms, including the FCS network management system and services.
- Battlefield sensors to provide information on the UA's status — including logistics sensors and Blue Force Tracking information — and the enemy. The sensors are "network

Army WIN-T and JTRS will continue to provide the communications backbone for the foreseeable future until SOSCOE can provide the overarching and unifying network-centric link between FCS operational platforms.

aware," making information available to the UA as well as to the larger set of GIG subscribers.

- FCS battle command services that fuse sensor information with planning data and human inputs, producing an information environment focused on meeting the commanders' needs and providing automated and semiautomated decision support.
- A unified, GIG-compliant, data model referred to as the "FCS One Model." Metadata is ubiquitous across this model in compliance with GIG requirements.

While bandwidth within the bounds of each FCS platform is abundant, it is the JTRS and Army WIN-T communications backbone that brings the platforms together into a unified net-centric force and links that force into the GIG communications backbone. These radio networks provide far less bandwidth than the internal hard-wired networks. Rather than providing battle command services and situational awareness to only a fraction of the UA platforms (specifically equipped with direct connectivity to high-bandwidth satellite communications), the FCS network approach extends connectivity and corresponding network capability down to each platform and Soldier.

A consequence of bringing more users into the net-centric environment is an increased density of subscribers sharing the UA's communications system. It is clear that exposing all UA subscribers directly to the Net-Centric Enterprise Services (NCES) would significantly exceed available bandwidth.

The ability to seamlessly cross boundaries on the network from UA to Unit of Employment and beyond necessitates carefully managing scarce resources to ensure that those resources are applied with the proper priorities, thus providing maximum benefit to warfighters. The FCS NCES portfolio proposal will address the need to manage services use across the boundary between the UA and higher echelons.

Net-Centric Design

SOSCOE is only part of the overall NCIE in the FCS-equipped UA. The FCS design increases the warfighter's awareness of and access to information, maximizes the ability of the underlying communications networks (JTRS, WIN-T and NDL) to deliver that information and enhances the UA commander's ability to control and prioritize information dissemination within the area of responsibility.

DOD has chartered a Program of Record for NCES to provide implementations of GIG core services to the DOD Enterprise. The communities of interest (COIs) define domain-specific services that will leverage the underlying NCES core services. The specific set of potential core enterprise services are: enterprise systems management, messaging, discovery, mediation, collaboration, user assistant, information assurance (IA) and security, storage and applications that allow plug-in of COI capabilities.

The NCES program does not provide data transport. Rather, NCES is dependent upon adequate bandwidth and GIG infrastructure availability, relying on GIG transport services and tactical communications systems for all data exchange. It is clear that — given the lack of bandwidth-oriented metrics supporting the NCES Analysis of Alternatives and in discussions with the office of the Secretary of Defense's Network and Information Integration Office and others — the initial NCES increment services will be focused on meeting the needs and bandwidth availability of strategic, rather than tactical, systems.

FCS implements net-centric concepts both within the architecture of each combat platform as well as in the C4ISR architecture that brings the various platforms together into the integrated UA. Specific design tenets directly addressed include:

- **Make data visible.** All data within the FCS UA system is published to the FCS NCIE and will be published to NCES-based systems to the maximum extent bandwidth allows. This mechanism is "soft-wired" into the system through policy and metadata interpreted by the SOSCOE. While bandwidth will not be sufficient to make all FCS data visible to the enterprise, the FCS NCES effort will maximize data visibility to NCES services.
- **Make data accessible.** The FCS NCES-managed connectors will make data and services accessible per the standards and mechanisms required by the core enterprise services, service discovery and content discovery services. All data will be metadata tagged and marked for security classification to maximize coalition accessibility.
- **Make data trustable.** Role-based access control and NCES IA services integration will result in trustable data across the UA and up to the enterprise.
- **Provide data management.** The density of users and sensors in the UA results in substantial amounts of data. SOSCOE data-store services — both local and distributed — provide data management to user applications in a standard, open way across the FoS.
- **Open architecture.** The entire FCS software architecture is based on layered, open architecture and open standards. All Web services provided by SOSCOE use the latest industry standards of hypertext transfer protocol, hypertext markup language, transport control protocol/Internet protocol, extensible markup language, cascading style sheets, simple object access protocol and the Commercial Joint Mapping Toolkit.
- **Identify management and authentication.** Information assurance services integrate role-based access controls across the communications and data store middleware. The net-centric connector that FCS NCES will provide will link these services directly to the NCES security services in a managed way across the bandwidth-constrained boundary.

FCS will increase Soldiers' access to critical information and maximize the JTRS, WIN-T and NDL communication networks. Here, SSG Curtis Chekel, Company B, 1st Battalion, 5th Infantry Regiment, monitors radio traffic from his Stryker during a patrol near Mosul, Iraq, April 15, 2005.

The special challenge for FCS is to provide seamless network access over an ad-hoc, mobile, limited-bandwidth network. Unlike many other ad-hoc networks, such as a public cell phone system, the absence of fixed centralized nodes in the FCS network further complicates the design. By building on SOSCOE, combat platforms — from Soldier hand-helds to sensor networks to manned command and control vehicles — provide and obtain information that integrates into a UA-wide managed information network.

Thus, the FCS challenge is to integrate seamlessly with NCES and GIG high-bandwidth transports, while managing the reachback from the UA into NCES and, more importantly, the *reachforward* from NCES into the UA's tactical NCIE. In general:

- FCS will employ tailored SOSCOE discovery and dissemination within the UA and between tactical systems employing SOSCOE or SOSCOE-compatible services.
- FCS will expose data and services in NCES-compliant standards where the network environment supports those standards and protocols, primarily coincident with WIN-T points of presence providing nonterrestrial, high-bandwidth communications linkages to GIG transport.

SOSCOE provides for net-centric information "enclaves" at the tactical level, allowing for all elements within the UA to participate in the overall GIG environment.

As DOD evolves toward a fully net-centric DOD, FCS is the system that implements the last tactical mile of the Army's LandWarNet architecture and extends the GIG directly into the hands of American Soldiers.

LTC DAVE BASSETT is the Product Manager (PM) for UA Software Integration including the FCS SOSCOE. He also serves as the government's Chief Software Engineer for the FCS C4ISR Integrated Product Team. He holds a B.S. in electrical engineering and an M.S. in computer science, both from the University of Virginia.

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U.S. Army Research, Development and Engineering Command Supports FCS

Debra O. Saletta, Christopher S. Rinaldi and
Albert S. Wedemeyer

The future of land warfare depends on the Army's ability to incorporate science and technology (S&T) into the Future Force. The U.S. Army Research, Development and Engineering Command (RDECOM) was established to consolidate S&T efforts that accelerate the Future Combat Systems (FCS) transition. The RDECOM System-of-Systems Integration (SOSI) organization's mission is to provide superior technology opportunities by influencing the Army's research, development and engineering (RD&E) portfolio to ensure technology dominance of the Current and Future Joint land forces. To accomplish this mission, some key SOSI initiatives include technology integration and assessment, modeling and simulation (M&S) and experimentation.

An FCS Multifunctional Utility/Logistics and Equipment (MULE) Vehicle is put through its paces during a recent capabilities demonstration. (U.S. Army photo courtesy of Program Manager Unit of Action.)

Technology Integration and Assessment

RDECOM SOSI conducts technology integration and assessment by integrated product teams (IPTs). The IPTs consist of members from RDECOM headquarters and all RD&E centers, the Army Research Lab, national and international industry, academia and other government agencies. They provide strategic evaluations, develop technology road maps, recommend technologies to fill current and future operational capability gaps, identify risk, prevent undesired risk mitigation and promote cooperation and collaboration opportunities. IPTs do not manage or execute specific programs or allocate resources. This nonvested aspect of IPTs coupled with broad member participation enables them to provide unbiased and comprehensive technology assessments.

Figure 1 illustrates the horizontal integration function provided by the IPTs. At present, there are nine standing IPTs: countermine and counterimprovised explosive device, lethality, survivability, network, supportability, robotics, nanotechnology, biotechnology and power and energy. These IPTs focus on broad capabilities or technologies that support the Current and Future Forces. Additional IPTs are being considered, and all IPTs are periodically evaluated according to the Army's changing requirements.

> IPTs provide their assessments and recommendations to senior Army leadership to strategically guide and support Army S&T.

IPTs serve a wide variety of customers ranging from combatant commanders to program executive officers, program managers and U.S. Army Training and Doctrine Command (TRADOC) future analysts. They provide their assessments and recommendations to senior Army leadership to strategically guide and support Army S&T. IPTs evaluate proposed and existing RDECOM Army Technology Objectives (ATOs) on the ability to satisfy customer requirements. FCS is a primary customer and receives support from all RDECOM IPTs.

An example of IPT support to the FCS program is Active Protection Systems (APS) (see Figure 2). APS defeats incoming threat munitions before they reach their targets. The survivability IPT is currently working with the FCS program to jointly develop the

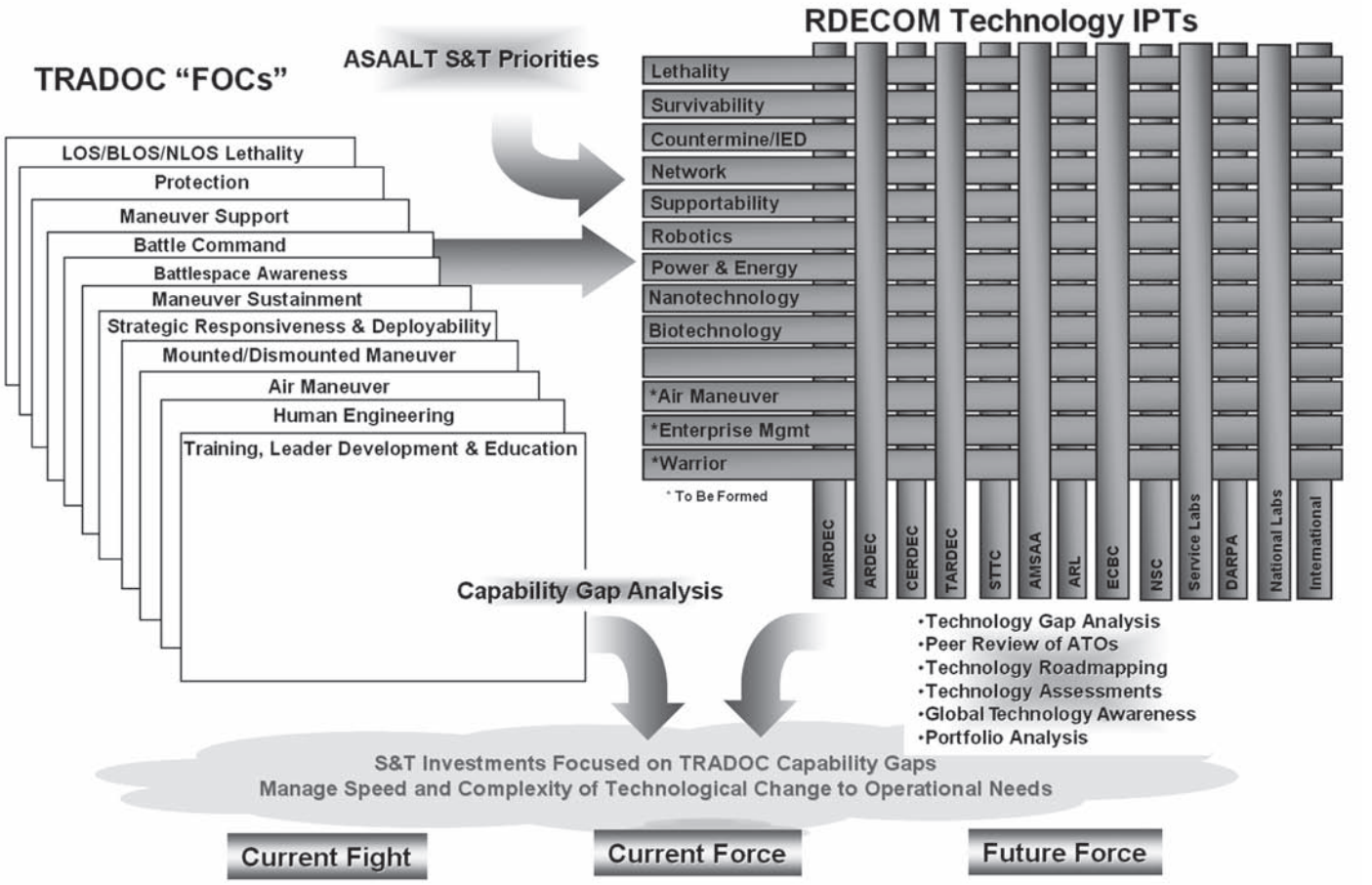

Figure 1. Horizontal Technology Integration

objective technical architecture and identify critical technologies for FCS' APS subsystems, and has contributed numerous technical experts to assist the FCS program conducting the trade-off studies and analysis necessary to determine the appropriate APS acquisition strategy for both Current and Future Forces.

The robotics IPT is investigating several broad initiatives critical to FCS, including perception, intelligent control architecture and human-machine interface. Further, robotics IPT members have provided expertise in developing the technical specifications and architecture of the FCS Autonomous Navigation System, Robotic Multifunctional Utility/Logistics and Equipment Vehicles and Armed Robotic Vehicles. They also provided technical evaluations of laser radar hardware and processing algorithms for obstacle detection, terrain classification and navigation and collision avoidance.

RDECOM not only supports FCS with technical performance evaluations but also provides early evaluation of affordability and producability via the Manufacturing Technology (ManTech) program. Examples of ManTech programs directly supporting FCS include manufacturing methods for Structural and Appliqué Armor, Dual Band Focal Plane Array and Advanced Gun Barrels. The ManTech program facilitates transition of newly developed technologies to production.

M&S

M&S is another critical element of support to the FCS program. FCS has complex SoS dependencies that require rigorous M&S. The RDECOM Modeling Architecture for Technology, Research and Experimentation (MATREX) ATO supports this effort. MATREX is a persistent, secure, distributed and reusable simulation environment where subsystem models can be integrated for analysis, evaluations and technology trade-offs. It assists in the analysis of force-on-force concepts for Unit of Employment (UE) in support of Brigade Combat Teams in a simulated environment for network-centric warfare and network battle command (see Figure 3). The MATREX ATO will provide enhanced capability to address such M&S issues as facilitating the integration of engineering-level models into the simulation environment, developing tools and interfaces to rapidly configure models and exposing interfaces in legacy simulation systems to interoperate in the MATREX environment.

Various MATREX architecture and environment versions, including tools, have been delivered to the FCS Lead Systems Integrator (LSI) and are the foundation for the LSI's SOSI Laboratory Virtual Framework Version 1.0. Specific capabilities modeled are lethality and vulnerability, non-line-of-sight, vehicle dynamics and mobility, missile, human performance modeling, situational awareness and communications effects and visualization. MATREX was also delivered to TRADOC and the U.S. Army Test and Evaluation Command (ATEC), who both use it to support the FCS LSI. MATREX's final version will be multiresolution for enhanced

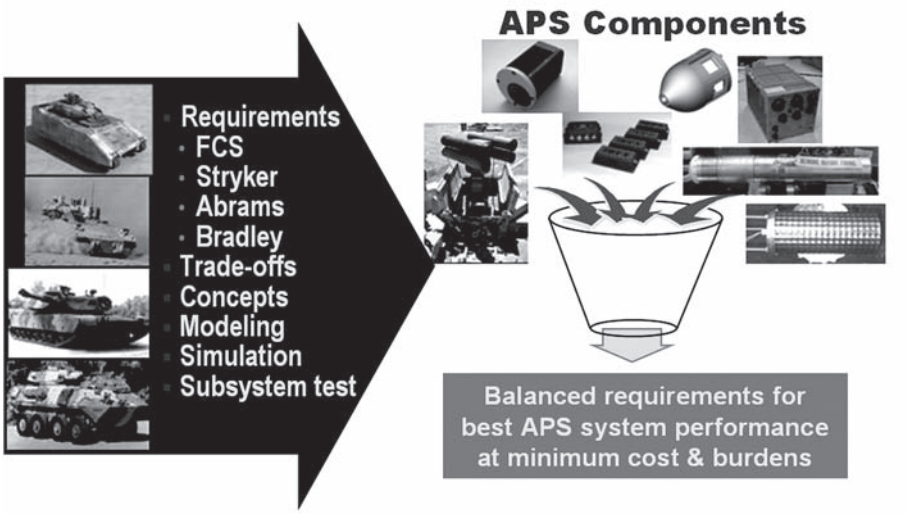

Figure 2. APS Technology for FCS

RDECOM's technical and professional staff stands ready to assist FCS program integrators with strategic and technical performance evaluations from their office at Fort Belvoir, VA.

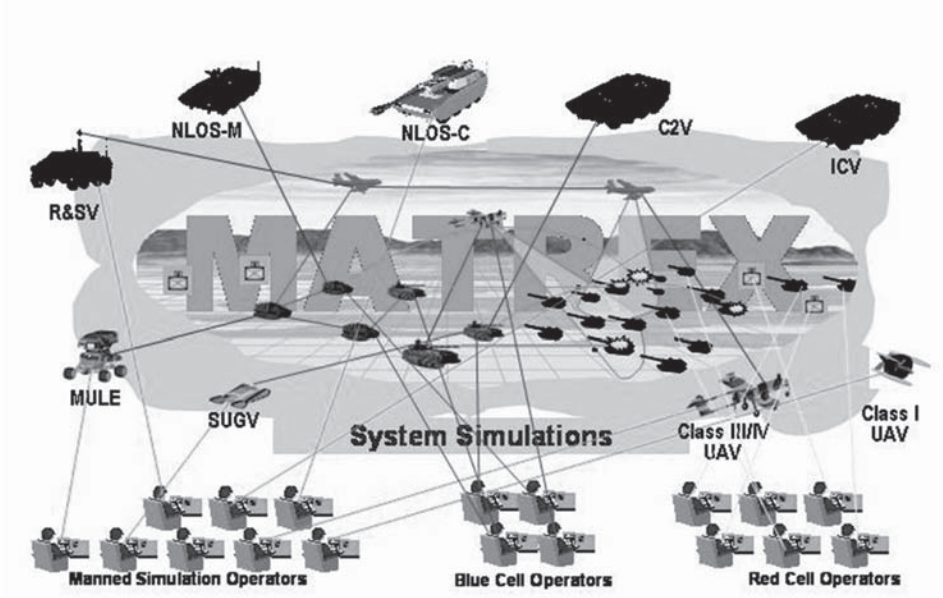

Figure 3. Modeling and Simulation

large-scale exercises and scalable in virtual and/or constructive modes from individual platform or Soldier level to the UE. It will also reduce the time and cost of developing and evaluating FCS concepts and products.

Experimentation

Experimentation is an important FCS program aspect. RDECOM is consolidating its experimentation activity information in coordination with TRADOC, ATEC, FCS and other relevant communities. RDECOM is working closely with TRADOC to provide an experimentation-planning annex to the yearly Army Concepts Development Experimentation Plan. This is expected to lead to an RDECOM Experimentation Campaign Plan intended to assist the cross-command and internal command experimentation coordination activities. The RDECOM Experimentation Campaign Plan will identify all FCS-related experimental activities within the command.

> STEM ... tracks programs of specific interest to FCS and provides automated data management to measure progress.

APS technology will benefit all combat platforms as FCS components are spiraled into current weapon systems like this M-2 Bradley Fighting Vehicle from 1st Battalion, 15th Infantry Division, on patrol near Samarra, Iraq, May 29, 2005. (U.S. Air Force photo by SMSG Kim M. Allain.)

RDECOM has initiated an effort to consolidate enterprise management information in an automated S&T Enterprise Management (STEM) database. STEM includes all relevant ATO information. It tracks programs of specific interest to FCS and provides automated data management to measure progress, such as experimentation results and technology readiness level progression. FCS is developing several technology transition agreements (TTAs) with RDECOM that specify maturation requirements for transition. STEM will enable RDECOM management to comprehensively monitor multiple FCS TTAs.

RDECOM SOSI initiatives fully support FCS. RDECOM's SOSI organization's vision is to be the first-choice provider for driving and focusing Joint warfare technologies for the Future Force, and FCS is the primary Future Force enabler.

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FCS AND THE UNIT OF ACTION — ACCELERATING TECHNOLOGY TO THE MODULAR FORCE

An Interview With BG(P) Charles A. Cartwright

Meg Williams

BG(P) Charles A. Cartwright, Program Manager Unit of Action (PM UA), recently took time out of his busy schedule to discuss Future Combat Systems (FCS) and PM UA's transformation goals.

FCS will provide the Army with networked air- and ground-based maneuver, maneuver support and sustainment systems that will allow warfighters to better counter today's adaptive adversaries. Here, Soldiers from the 3rd Armored Cavalry Regiment prepare their M1A2 Abrams tank for border security operations along Iraq's border with Syria. (U.S. Navy photo by PH2 Robert M. Schalk.)

Q. After several studies, the Army published *The Army Vision* prescribing the key tenets for transforming the Army from the Current to Future Force. Can you tell us how the UA and FCS will help accomplish the Army's transformation goals in the near term?

A. Change in wartime requires dealing concurrently with both current and future needs. Modular Forces and FCS act in tandem to solve immediate and future shortfalls. The Army is applying lessons learned from today's fight to Future Force programs, even if that means adjusting their direction and timing.

Joe Emerson of Northrop Grumman UMS explains Fire Scout capabilities to BG(P) Cartwright (right) and COL Lingenfelter. (Photo courtesy of PM UA.)

The primary difference between FCS and the Modular Force is that the current Modular Force uses the "organizational variable" as the primary near-term means to achieve operational requirements, while FCS-equipped UA will use the "materiel variable" applied to a matured modular organization to move us closer to achieving operational needs for the projected operational environment.

The Army is applying lessons learned from today's fight to Future Force programs, even if that means adjusting their direction and timing.

Modular Brigade Combat Teams (BCTs) address immediate Army shortfalls and urgent force-capability gaps using organizational changes and systems/technologies available "off-the-shelf" to reset the force. Modular Force sets several conditions for FCS success — doctrine, organization, training and leader development — thus reducing risk. The FCS program is our major materiel developmental effort to deliver future capabilities such as battle command; manned ground vehicles (MGVs) with agility, mobility, lethality and survivability; and fully networked unmanned aerial vehicles (UAVs) and unmanned ground vehicles (UGVs). These are tied directly to achieving concepts and capabilities to meet the Joint Force's future needs.

FCS accelerates technologies to the current Modular Force through spin outs (SOs) of selected FCS capabilities such as networks, UGVs, UAVs, sensors and unattended munitions. The FCS-equipped UA is one type of modular BCT — Heavy, Infantry, Stryker and FCS — for the Future Force mix to counter adaptive adversaries using antiaccess strategies and technology proliferation.

Q. The UA/FCS program is more than just new technology. How have Lean Manufacturing, Six Sigma and Value Stream Analysis helped position the Army for success?

A. Affordability is driven into designs through the early use of advanced analysis tools and lean concepts. During the design phase, 70-80 percent of a product's cost is fixed. Applying these lean tools will result in reduced cost, time, inventory and defects. Deploying lean tools will help shape the industrial base by eliminating unnecessary capital expenditures, promoting lean production-process design and creating an infrastructure that continuously improves cost, quality and schedule throughout the product life cycle. For example, a Design Commonality Team has been established for the Integrated Computer System (ICS). This team includes supplier management; reliability, availability and maintainability; logistics; operations; and production planning representatives. One design goal is to make the ICS interchangeable between MGV, UGV and UAV platforms. ICS versions will be fielded across Current Force platforms. The team is well aware of the impacts their early design decisions will have on unit cost as well as life-cycle cost. The design team is actively recruiting inputs from all disciplines to assist in trade decisions made in early design phases.

Q. The enemy and "battlefield" have changed dramatically since *Operation Desert Storm*. Ongoing asymmetric operations in Iraq and Afghanistan today are forcing the Army to reevaluate its warfighting doctrine, tactics, techniques and procedures. How will the UA/FCS spearhead this change as

the Army moves toward network-centric operations and a Modular Force capable of sustained Joint and expeditionary operations?

A. Modular Forces and the FCS program work in tandem to accelerate fielding of selected FCS capabilities such as networks, sensors, unattended munitions, Non-Line-of-Sight Launch System (NLOS-LS), UGVs and UAVs through spiraling to the Modular Force. In light of urgent demands today for an Army engaged in war, significant adjustments have been made in the FCS program that will result in an earlier SO of available technologies as soon as they can reasonably be incorporated into the force. The first SO begins fielding in FY08 and consists of prototypes fielded to the Evaluation BCT. Following successful evaluation, SO1 production and fielding to Current Force units will commence in 2010. This process will be repeated for three successive SOs of FCS capabilities.

The FCS-equipped Modular Force is designed to ensure a campaign-quality Army. FCS will consist of a family of advanced, networked air- and ground-based maneuver, maneuver support and sustainment systems. They employ a revolutionary, integrated architecture to help meet the future Joint and Army commanders' requirements. The FCS-equipped UA is a network-enabled force. Its vast sensor array will dramatically improve a commander's situational awareness (SA). Sensor-shooter relationships begin with the Soldier and exist throughout the formation, allowing the UA to accurately direct internally generated effects or those generated from supporting units and Joint assets. These will enable improved situational understanding and operations at a synchronization level heretofore unachievable. FCS will enable the networked maneuver UA to develop the situation in and out of contact, set conditions, maneuver to positions of advantage and destroy the enemy.

Q. Since reviewing "lessons learned" from the global war on terrorism, the Army has announced that it is accelerating delivery of selected UA/FCS capabilities to the Current Force. Which technologies will be accelerated and into what kinds of platforms?

A. FCS technologies that are sufficiently mature for spiral to the Current Force will be issued in increments starting in FY08. The strategy for the first SO is to position into the Abrams tank, Bradley Fighting Vehicle and Humvee the Future Force network backbone consisting of a high-capacity FCS computer, the FCS software operating system, FCS battle command and network management systems. These capabilities successively grow with each SO increment, ultimately allowing the Current Force to grow in capability as we field the FCS UAs. FCS battle command capability will provide the Current Force the ability to control FCS-provided sensors and munitions and perform data management and fusion of information necessary to give the tactical commander increased battlespace SA. SO-provided sensors and munitions include the Unattended Ground Sensors for both tactical and urban environments; Intelligent Munitions System, which is a Future Force mine system; NLOS-LS 40-kilometer Precision Attack Missile; and the versatile collection of attack, reconnaissance and transport UGVs. Selected FCS sensors and communication relay packages will be provided to UAVs to allow greater SA and operating range for the tactical formations.

Rob Smith of iRobot watches as BG(P) Cartwright "test drives" a PackBot Explorer. (Photo courtesy of PM UA.)

Q. Secretary of the Army Dr. Francis J. Harvey said that after a 2-month review, the Army will restructure the FCS program from an Other Transactional Authority (OTA) to a traditional contract. What changes do you foresee and will this affect the program's timeline?

A. The most notable changes between our existing OTA and the resultant *Federal Acquisition Regulation* (*FAR*) contract will be the addition of numerous *FAR* general provisions and a revised fee structure. The current OTA's main portions, such as scope of work, schedule and articles, will be transposed virtually intact into a *FAR*-based contract format. There may be a few special provisions inserted into the *FAR* contract to maintain certain program management techniques that were contained in the OTA as articles. The transition from an OTA to a *FAR*-based contract does not add time to our development schedule in any way.

Q. May 26 was the projected date for the Defense Acquisition Board Milestone B update. Can you tell us what this entailed and what the Army accomplished?

FUTURE COMBAT SYSTEMS SYSTEM-OF-SYSTEMS

1. Medical Treatment and Evacuation Vehicle
2. FCS Recovery and Maintenance Vehicle
3. Command and Control Vehicle
4. Reconnaissance and Surveillance Vehicle
5. Mounted Combat System
6. Infantry Carrier Vehicle
7. Armed Robotic Vehicle (ARV)-Reconnaissance Surveillance and Target Acquisition
8. ARV-Assault
9. Intelligent Munitions Systems (IMS) 1
10. IMS 2
11. IMS 3
12. Multifunctional Utility/Logistics Equipment (MULE)-Countermine
13. MULE-Transport
14. MULE A
15. Non-Line-of-Sight Mortar (NLOS-M)
16. NLOS Launch System
17. NLOS Cannon
18. Small (Manpackable) Unmanned Ground Vehicle
19. Unmanned Aerial Vehicle (UAV) Class I
20. UAV Class II
21. UAV Class III
22. UAV Class IV
23. Soldier
24. Unattended Ground Sensor


NETWORK

An Office of the Secretary of Defense-level FCS program review chaired by Under Secretary of Defense for Acquisition, Technology and Logistics Ken Krieg was successfully completed June 21, 2005. The review focused on strategic departmental issues rather than program details. In addition to me, Army participants included Secretary Harvey; Office of the Secretary of Defense Administration and Management Director Raymond F. DuBois Jr.; Assistant Secretary of the Army for Acquisition, Logistics and Technology Claude M. Bolton Jr.; and U.S. Army Training and Doctrine Command Deputy Commanding General/Director Futures Center LTG John M. Curran. The review was very positive.

Key discussion topics included the FCS network and integration with the DOD Joint network, multimodal — including C-130 — transportability, *Quadrennial Defense Review* implications and the long-term Army plan for the Modular Current and Future Force mix.

Q. Please tell us about the new System-of-Systems Integration Lab (SoSIL) that just opened in Huntington Beach, CA.

A. SoSIL is the collection of laboratories and test facilities housing the hardware and software needed to develop, analyze, integrate and test various systems for the Army's FCS program.

Each FCS system, such as UAV, MGV or UGV, will be represented and developed as a separate test article. SoSIL will interconnect the labs developing these articles into a secure wide-area network (WAN) to support a near-real-time distributed test capability across the United States. Additionally, SoSIL will interconnect analysis labs and government test sites on the same network. The WAN's basic design will support the timely and secure distribution of data, voice and video service to these multiple sites.

BG(P) Cartwright and Michael Thome examine the Honeywell Class 1 UAV. (Photo courtesy of PM UA.)

SoSIL will connect multiple geographically distributed sites throughout the United States. The network will provide secure connectivity to both FCS Lead Systems Integrator and FCS industry partners/One Team integration and analysis labs as well as to government test/experimentation facilities. The central integration facility is located at the Boeing facility in Huntington Beach. It will have approximately 100 personnel and can accommodate more than 300 additional staff when required by specific activities.

SoSIL will support the following data transmission categories:

- Near real-time
- Viewing portal
- Software updates
- Advanced Collaborative Environment

Its primary function will be to provide seamless secure transmission of near-real-time test and analysis data between geographically dispersed FCS sites. Real-time test data will always be given the highest priority for transmission across the SoSIL. Concurrent with support for formal test events, the FCS Distributed Network will support secure data transmission during informal development and integration testing among sites.

SoSIL will also support data transmission to viewing portals. Viewing portals will allow key observers to view data on remote displays and monitor near-real-time video and audio streams of activities taking place in multiple locations. SoSIL is designed to allow for the addition of new viewing portals as required.

A third data category supported by SoSIL will be software updates. As new software versions are developed and made available, the SoSIL will be used to securely transfer these updates to the appropriate test sites. Routine software updates will normally be transmitted at a lower priority, but SoSIL will support assigning a higher priority to any critical updates required during designated activities.

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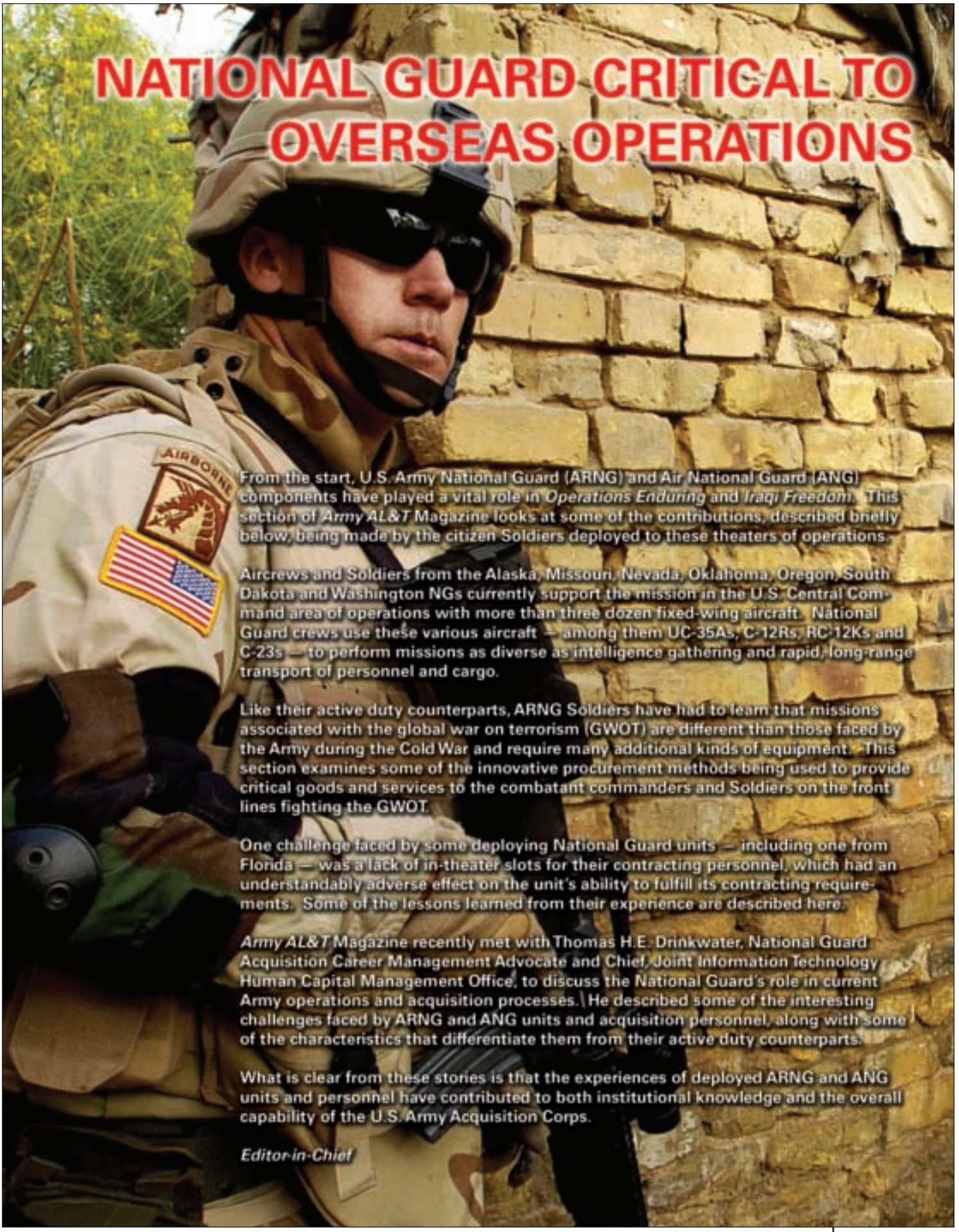


NATIONAL GUARD CRITICAL TO OVERSEAS OPERATIONS

From the start, U.S. Army National Guard (ARNG) and Air National Guard (ANG) components have played a vital role in *Operations Enduring* and *Iraqi Freedom*. This section of *Army AL&T* Magazine looks at some of the contributions, described briefly below, being made by the citizen Soldiers deployed to these theaters of operations.

Aircrews and Soldiers from the Alaska, Missouri, Nevada, Oklahoma, Oregon, South Dakota and Washington NGs currently support the mission in the U.S. Central Command area of operations with more than three dozen fixed-wing aircraft. National Guard crews use these various aircraft — among them UC-35As, C-12Rs, RC-12Ks and C-23s — to perform missions as diverse as intelligence gathering and rapid, long-range transport of personnel and cargo.

Like their active duty counterparts, ARNG Soldiers have had to learn that missions associated with the global war on terrorism (GWOT) are different than those faced by the Army during the Cold War and require many additional kinds of equipment. This section examines some of the innovative procurement methods being used to provide critical goods and services to the combatant commanders and Soldiers on the front lines fighting the GWOT.

One challenge faced by some deploying National Guard units — including one from Florida — was a lack of in-theater slots for their contracting personnel, which had an understandably adverse effect on the unit's ability to fulfill its contracting requirements. Some of the lessons learned from their experience are described here.

Army AL&T Magazine recently met with Thomas H.E. Drinkwater, National Guard Acquisition Career Management Advocate and Chief, Joint Information Technology Human Capital Management Office, to discuss the National Guard's role in current Army operations and acquisition processes. He described some of the interesting challenges faced by ARNG and ANG units and acquisition personnel, along with some of the characteristics that differentiate them from their active duty counterparts.

What is clear from these stories is that the experiences of deployed ARNG and ANG units and personnel have contributed to both institutional knowledge and the overall capability of the U.S. Army Acquisition Corps.

Editor-in-Chief

National Guard ACMA Discusses Reserve Component's Acquisition Role in Current Army Operations

Elizabeth Connell

On Aug. 5, 2005, Thomas H.E. Drinkwater, National Guard Acquisition Career Management Advocate (ACMA) and Chief, Joint Information Technology Human Capital Management Office, met with *Army AL&T* Magazine to discuss the Guard's role in current Army operations and acquisition processes.

Soldiers from Company A, 3rd Battalion, 141st Infantry Regiment, Texas Army National Guard (NG) conduct insurgent suppression training near Bagram, Afghanistan, June 16, 2005. More than 40 percent of the forces on the ground today in the theater of operations are from the Reserve Component. (U.S. Army photo by SPC Harold Fields.)

Q. The National Guard (NG) is unique among the services because it is both a federal and a state organization. How does this dual structure affect the Guard's acquisition processes?

A. The Guard is both a state and federal organization — it belongs to the state governor until it is federalized. When the Guard is in state status, they follow federal procurement rules and regulations, such as *DFARS* [*Defense Federal Acquisition Regulations Supplement*]. However, they may also follow any state acquisition regulations at the same time, which are often quicker, more flexible and less intrusive than federal procedures. So, in fact, they almost have to follow two sets of rules.

There are two acquisition career fields that are prevalently found in the states — contracting and purchasing. And, since DOD established the facility engineering acquisition career field a few years ago, our facility engineer workforce could potentially outnumber contracting people in the field. NG facility engineers are adept at operating in a multi-stakeholder environment, balancing various regulations, statutes and fiscal years to complete projects. Officers with this type of flexibility are certainly a valuable asset within DOD systems acquisition.

We also have a good-sized acquisition workforce in the field who during the week are technicians, i.e., hold a GS-grade position, and on weekends fill military roles that don't necessarily correlate to their civilian jobs. So there are subtle nuances that really present some interesting challenges to peoples' experiences in both their civilian and military roles. We have a supervisory contracting officer who is a Special Forces company commander on weekends so, when he deploys, he deploys as a Special Forces company commander, not as a contracting officer.

Guardsmen with civilian contracting experience use that experience to help their unit while deployed. In the case of the Special Forces company commander, several years ago he deployed to Afghanistan where he did the contracting duties for his unit in addition to being the company commander. He was a great asset to the unit and its mission supporting *OEF* [*Operation Enduring Freedom*].

When these technicians deploy, it leaves gaps in their civilian organizations, presenting some challenges. When units deploy out of a state, adjacent states provide mutual support if necessary. Contracting officers from one state have provided support to another state to fill in the gaps.

Q. Given the Guard's large presence in Iraq, what percentage of *Operation Iraqi Freedom* contracts is the NG responsible for? Generally speaking, does the NG's acquisition workforce focus more on procuring items for domestic or international operations?

A. Right now, we have about 10 people — officers and NCOs [non-commissioned officers] — between Iraq and Afghanistan in contracting

Many of the Guard's acquisition personnel bring extensive civilian experience to their military positions, often allowing program managers and commanders to accomplish more with fewer personnel. Here, Soldiers from the Oklahoma NG offload hurricane-relief supplies in Florida. (U.S. Army photo.)

positions under the Contract Operations-Iraq and the PARC [Principal Assistant Responsible for Contracting] offices. They bring a great wealth of experience to the PARC offices because of their vast civilian contracting expertise.

An Army Guardsman from Alabama, CPT Theresa Glasgow, is now Chief of the Regional Contracting Center in Talil. One of the first contracting actions she was given was to rebuild the prison, a multimillion-dollar contracting action, and she was right out of the chute almost. We also have MAJ Eric Shuler up in Mosul. He's from the 42nd Infantry Division, New Jersey NG, and he's been doing a great job. We just deployed SFC Patricia McDonald from the Florida NG to Afghanistan. She has more than 10 years of contracting experience between the Army and the Navy — she works for the Navy construction office in Florida as a civilian. So here we have an E-7 who has the experience of a major or lieutenant colonel over in Afghanistan doing contracting. You don't normally find that wealth of experience.

Another interesting piece of information — and this is history — is that CW4 Tom Dahlgren from the Nebraska NG is deploying to Iraq as a contracting officer. He is the first Army NG Warrant Officer to be deployed as a contingency contracting officer. And, as far as I know, he is the first DA individual warrant officer to be deployed as a contracting officer. Dahlgren has more than 22 years of contracting experience. In civilian life, he is the GS-13 Supervisory Contract Specialist for the state of Nebraska, U.S. Property and Fiscal Office, NG. He brings his civilian National Guard experience to the table with him, in uniform. The people in Iraq are just waiting for him to get there. We're pretty proud of that, as well as all the rest of our mobilized forces. They're all doing great.

We have an E-7 who has the experience of a major or lieutenant colonel over in Afghanistan doing contracting. You don't normally find that wealth of experience.

I can't answer the question about what percentage of contracts the Guard is responsible for because, it is my understanding, when a contracting officer arrives in country, they get stripped out of their unit and put into the PARC office in Iraq. Our NG officers and NCOs are part of that — when they arrive in country, if all goes according to plan, they get stripped away from their units and assigned to the PARC office.

Q. How many NG personnel are involved in contracting, or does the Guard rely heavily on DOD civilian contracting personnel?

A. We have a rather large number of NG contracting personnel — about 330 full-time Army Guard contracting and purchasing technicians in the 54 states, territories and the District of Columbia [DC]. And we have a full-time contracting staff in the Joint Headquarters — which is Joint blue and green. We have *Title 5* Army and Air Force civilians, *Title 10* Air Force and Army Guard officers and a couple of NCOs — about 20 military personnel — in that office. The contracting office here in the Guard's headquarters does contracting for both the Army and Air Guard headquarters. The 330 technicians throughout the states do the contracting for the Army Guard in each state. The Air Guard number is just under 200. We have about 300 Army Guard and about 120 Air Guard technicians in the facility engineer career

The NG is frequently called upon to coordinate and assist in humanitarian and disaster relief operations. Here, MAJ Roger Alsup, Missouri NG 35th Engineer Brigade, takes a break with students in Fallujah, Iraq, Aug. 19, 2005. Alsup is a project engineer helping to refurbish local area schools with the U.S. Army Corps of Engineers Gulf Region Central District. (U.S. Army photo by Norris Jones.)

The NG defends the United States both at home and abroad. Today, more than 109,000 National Guardsmen are on active duty worldwide, with a significant portion serving in Iraq. Here, Soldiers from 2nd Battalion, 130th Infantry Regiment, Illinois Army National Guard, search for insurgents in Abu Ghraib, Iraq. (U.S. Army photo by SPC Jeremy Crisp.)

field. The full-time technicians and headquarters staff do most of the contracting. There are some contract offloads to other federal agencies but we try to do what we can in house.

Q. Do the Army NG and the Air NG share an acquisition workforce or do they have separate and specialized staffs?

A. In the States, the Army Guard and the Air Guard generally have separate contracting offices because there may be an Air Guard air base that isn't located with the U.S. Property and Fiscal Office.

Q. Given that many National Guardsmen have long and successful civilian careers in addition to their Guard experience, does the NG's acquisition workforce bring any special or distinctive skills to the Army's acquisition workforce?

A. The Guard's acquisition personnel often do have professional civilian careers and diverse backgrounds that don't show up on an Acquisition Career Record Brief but that complement their Guard duties, and often allow program managers to accomplish more with fewer personnel. For example, one of our guys, MAJ James Helm, is currently the assistant product manager [APM] for homeland defense activities within the Joint Tactical Radio System (JTRS) Joint Waveform Program Office (JWPO). Helm has been in the acquisition field since 1985, on both the private and government sides. Although his program management experience as a facility engineer allows him to efficiently coordinate actions between his program office and other federal, state and local agencies that are required to communicate together for homeland defense, his contracting experience has been especially useful. Neither his peers nor his immediate supervisors have contracting experience so they rely heavily on the program's contracting personnel, who are stretched thin by today's high demands. Helm has drawn on his contracting experience to improve JTRS JWPO's acquisition strategies and ensure key intellectual property issues were addressed before contract award. His understanding of fiscal and contracting processes have enabled him to resolve payment issues and other disputes after contract award.

Helm's NG acquisition experience has directly prepared him to contribute to DOD's acquisition efforts across multiple agencies. His story is just one example of how NG acquisition officers are well suited to address the homeland defense requirements of agencies that aren't yet playing a direct role in DOD systems acquisitions, such as the

Departments of Homeland Security and Justice.

The advantage of sharing Guard acquisition personnel with other agencies is a two-way street — the Guard clearly benefits from exposing its acquisition officers to the rigors of working within the greater defense acquisition framework. The challenge is to balance these career-broadening opportunities with personnel shortages.

Q. According to National Guard Bureau (NGB) Chief LTG H Steven Blum, as of Jan. 1, 2005, there are more than 109,000 Army and Air National Guardsmen on active duty worldwide, with an additional 9,700 alerted and awaiting mobilization. More than 40 percent of the forces on the ground in Iraq are Guard and Reserve. Clearly the Guard plays a critical role in the success of the global war on terrorism (GWOT), but it is also key to successful operations both at home and elsewhere around the world. Is it difficult for the Guard to adequately allocate resources and personnel to each operation?

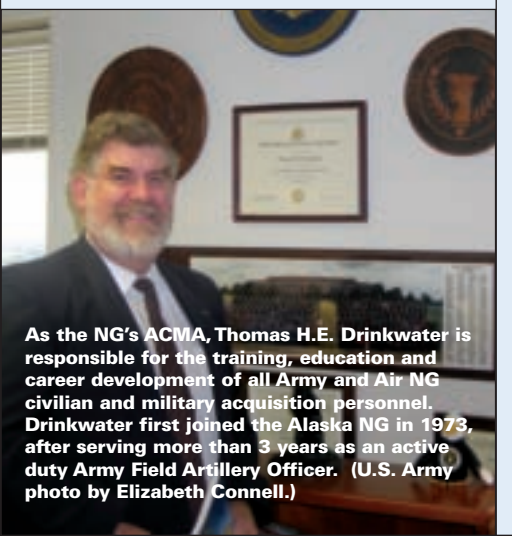
A. We face the same challenges for allocating resources and personnel as the Army does, or any of the services do. However, 2 years ago when LTG Blum took over the NG, he made an agreement with the NG Adjutants General Association and DOD that Guard forces would be developed with a management model that would adequately provide forces to each governor as well as to homeland security missions, while simultaneously supporting GWOT and the combatant commanders' needs. At all times, we want to have at least 50 percent of the forces available to the governors in each state.

> NG acquisition officers are well suited to address the homeland defense requirements of agencies that aren't yet playing a direct role in DOD systems acquisitions, such as the Departments of Homeland Security and Justice.

It's a new way of doing business. There are challenges, but it really is working like a well-oiled machine. We've had great successes supporting such events as G8 conferences, the Democratic and Republican national conventions and a Joint security mission conducted along the Canadian border with New York, Vermont and New Hampshire in 2004.

Bottom line is the NG acquisition workforce is ready, relevant and fully able.

Q. Other services engaged in the GWOT have recently had trouble meeting recruiting goals. Given the nature of its dual role — to defend and protect the United States at home and abroad — has the NG experienced any difficulties recruiting or retaining personnel?



As the NG's ACMA, Thomas H.E. Drinkwater is responsible for the training, education and career development of all Army and Air NG civilian and military acquisition personnel. Drinkwater first joined the Alaska NG in 1973, after serving more than 3 years as an active duty Army Field Artillery Officer. (U.S. Army photo by Elizabeth Connell.)

A. We face the same challenges that the active components do, but March 2005 was our best recruiting month in 14 months. We think we'll continue to be successful in recruiting.

Q. In 2002, then Secretary of the Army Thomas E. White introduced the Army NG Restructuring Initiative to convert existing heavy and light combat structure to new organizations that better support combatant commanders. Has that conversion begun, and, if so, how is it progressing?

A. We have begun the conversion — with great enthusiasm — and we are progressing along with the Army's schedule. The NG is a full player with the Army and we are all converting together.

Q. The 56th Brigade of Pennsylvania will be the first Army NG Stryker Brigade. How is that going?

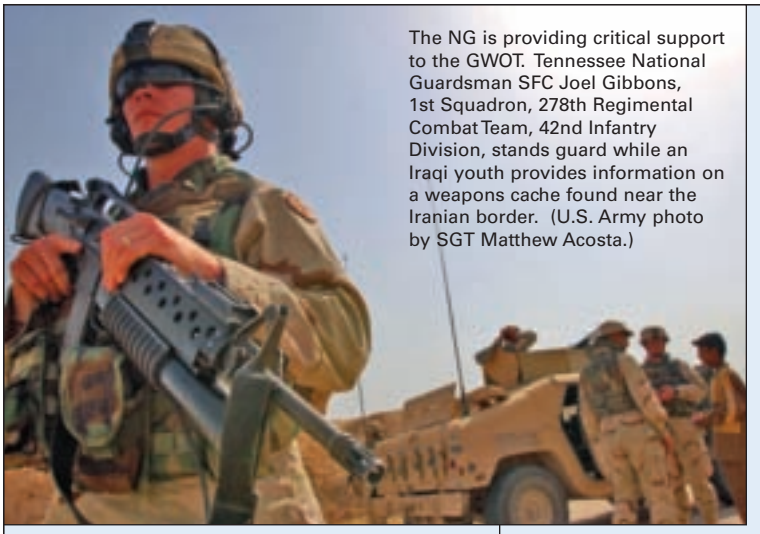
A. I've talked to some of our Pennsylvania Guardsmen and they are very enthusiastic about being the first Army NG Stryker Brigade. They are training up for it, they are getting ready to receive the equipment and it's going well.

Q. As the NG restructures to a modular and expeditionary force, is it receiving adequate resources to make these changes?

A. The NG is resourced the same way Congress resources all the services, so we have the same challenges as everybody else.

Q. How is the Air NG transforming?

A. The Air Guard is transforming in concert with the active Air Force. The Guard has made the commitment that along with the transformation there would be at least one manned — and



The NG is providing critical support to the GWOT. Tennessee National Guardsman SFC Joel Gibbons, 1st Squadron, 278th Regimental Combat Team, 42nd Infantry Division, stands guard while an Iraqi youth provides information on a weapons cache found near the Iranian border. (U.S. Army photo by SGT Matthew Acosta.)

"manned" is important here because there are unmanned systems — flying unit per state. At one point, the Air Guard would divest itself of obsolete missions and equipment. Of course, that change would certainly be made in full concert with the Air Force.

Q. How does the NG interact with the program executive offices (PEOs) and the program management offices (PMOs)?

A. We try to work very actively with the PEOs and PMOs. We have six APMs who are Army Guard officers located in PMOs. One is in Apache, one is in PM Soldier, one is in PM JTRS and three are in the PM RCAS [Reserve Component Automation System] office, under PEO EIS [Enterprise Information Systems]. We also have liaison officers at Army Materiel Command Headquarters; Communications-Electronics Command Life Cycle Management Command (LCMC); Aviation and Missile Command LCMC; Tank-automotive and Armaments Command LCMC; and PEO Simulation, Training and Instrumentation. We provide Defense Acquisition University [DAU] training to those officers so they can be familiar with the PMs located in their geographical area, what they do and how they can support the Guard.

We are highly interested in having NG officers work closely with PMs and PEOs who are fielding equipment to NG units. We regularly get requests from PMs and PEOs asking if we can provide an officer to work in their organization. Although we would love to support every request we get, we have some resource constraints. We do try to provide support to those PMs and PEOs that are fielding equipment to the Guard because we want to continue to have that close relationship. We also currently have seven PMs who are Army Guard officers. LTC Dorothy E. Taneyhill is PM Fixed Wing in Huntsville, AL (see related article on Page 48); LTC Carol R. Solesbee is PM Forklifts in Detroit [MI]; and COL John Fellows is our first O-6 board-select PM with Ground-based Missile Defense. We're proud that our officers have been selected as PMs.

Q. NGB is participating in the U.S. Army Acquisition Support Center's (ASC's) Wounded Soldier Program. How is that going?

A. We currently have one Soldier participating in ASC's Wounded Soldier Program here at NGB, SFC Denis Viau. We think he'll do great in the program. He is an active Army Soldier from the 11B Infantry Platoon who suffered a severe leg injury from a mortar round in Iraq and is now a below-the-knee amputee. Viau has 17 years of service and was looking forward to a career in law enforcement upon retirement from active duty. Through the Wounded Soldier Program, and with a commitment from the Acquisition Career Management Officer, he is now looking forward to serving as an acquisition professional and putting his infantry experience to use in acquisition programs.

Viau's acquisition training includes taking DAU courses to become certified in more than one acquisition career field, completing a bachelor's degree and receiving lots of on-the-job training. After this training and exposure to basic acquisition functions, Viau will be reassigned to a PMO in the National Capital Region to gain additional acquisition programmatic experience and higher certification levels. Given the training, education and experiences Viau will receive, he will develop into a valuable acquisition community member for continued uniformed service, or as a civilian member should he choose to retire in 3 years.

We are also looking to expand this program to provide the Guard's own wounded Soldiers and Airmen with great career opportunities.

ELIZABETH CONNELL is the *Army AL&T* Magazine Managing Editor and provides contract support to the Army Acquisition Support Center through BRTRC's Technology Marketing Group. She has a Joint Honours degree in geography and East Asian studies from McGill University.

Planning Your Next Contingency Contracting Deployment

LTC David Blevins

As a Staff Officer with Joint Force Headquarters-Florida (JFHQ-FL), I am assigned to the 53rd Infantry Brigade (Inf Bde) in support of *Operation Enduring Freedom*. In the short time this unit has been preparing for deployment, the Brigade's Soldiers have greatly impressed me with their dedication, morale and motivation. These young Soldiers are our Army's future, and our future is in good hands.

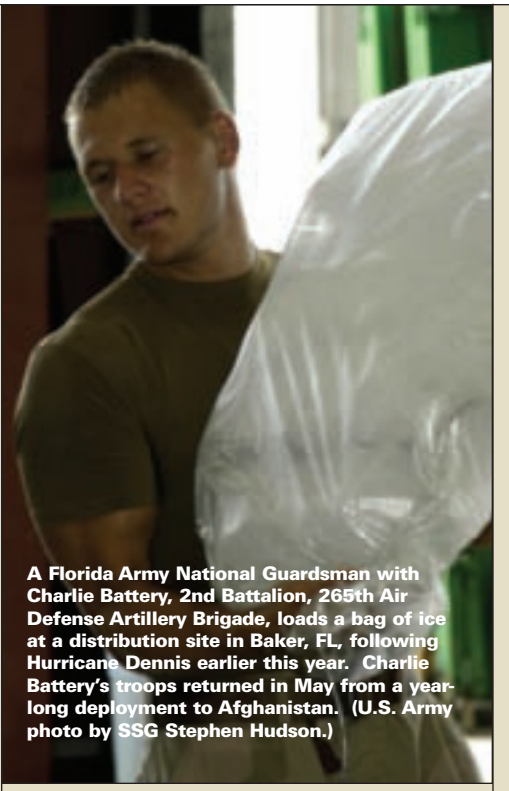
The National Guard Bureau (NGB) ensures that Guard contracting teams receive all training necessary to execute missions around the world, including this 2004 relief mission providing tarps to a hurricane-ravaged area of North Carolina. (U.S. Army photo by Jonas Jordan.)

As mobilization began, the Florida National Guard's senior leaders ensured the necessary resources were made available to properly prepare our Soldiers for mobilization station requirements. The medical screening process was rigorous and helped determine the unit's Soldiers' overall physical and emotional condition and general well being. Likewise, the Family Support program provided several home station activities for the deploying Soldiers' families.

The 53rd Inf Bde was mobilized to Camp Shelby, MS, for pre-deployment requirements April 4, 2005. Mobilization Center Shelby provided superior training for the Brigade's Soldiers. The training was challenging, on target and prepared our Infantrymen for their upcoming deployment.

One challenge we ran into was preparing to deploy our 4-person contracting team into theater — there were no slots on the Brigade's Joint Manning Document (JMD). NGB and theater requirements indicated a need for six contracting personnel. The Brigade identified two slots in its S-4 section and two slots in the Support Battalion to handle the unit's contracting requirements. This obviously had an adverse effect on the Brigade's contracting requirements. From my view, this issue could be resolved by allocating six contracting positions on the JMD. This initiative must be taken at levels above brigade.

Another area of concern was the availability of qualified federal contracting personnel. Our contracting team consisted of an E-7 and E-5, both highly qualified in federal contracting procedures, and an O-5 and E-9 with no federal contracting experience. However, the less experienced Soldiers did have extensive nonfederal contracting experience. The NGB did a remarkable job in coordinating for and ensuring that our contracting team received the maximum training opportunities available given our deployment time constraints.



A Florida Army National Guardsman with Charlie Battery, 2nd Battalion, 265th Air Defense Artillery Brigade, loads a bag of ice at a distribution site in Baker, FL, following Hurricane Dennis earlier this year. Charlie Battery's troops returned in May from a year-long deployment to Afghanistan. (U.S. Army photo by SSG Stephen Hudson.)

> The Brigade's Soldiers have greatly impressed me with their dedication, morale and motivation. These young Soldiers are our Army's future, and our future is in good hands.

If contracting requirements for units notified for deployment were known well in advance, steps could be taken to identify personnel and training requirements. This process would allow for more training time and ensure the necessary training resources would be in place. Since contracting personnel will be required on all future deployment rotations, coordinated action should be taken at the earliest opportunity to establish deployment-ready contracting teams. A possible solution would be to rely more heavily on DOD civilian contracting personnel who have the real-world expertise to execute contingency contracting missions.

Pre-deployment coordination with the Head of Contracting Activities (HCA) in the theater of operations is an absolute necessity. The HCA needs to know the capabilities and expertise of contracting personnel reporting to theater. Advance coordination allows the HCA to position contracting personnel to best support operational mission requirements.

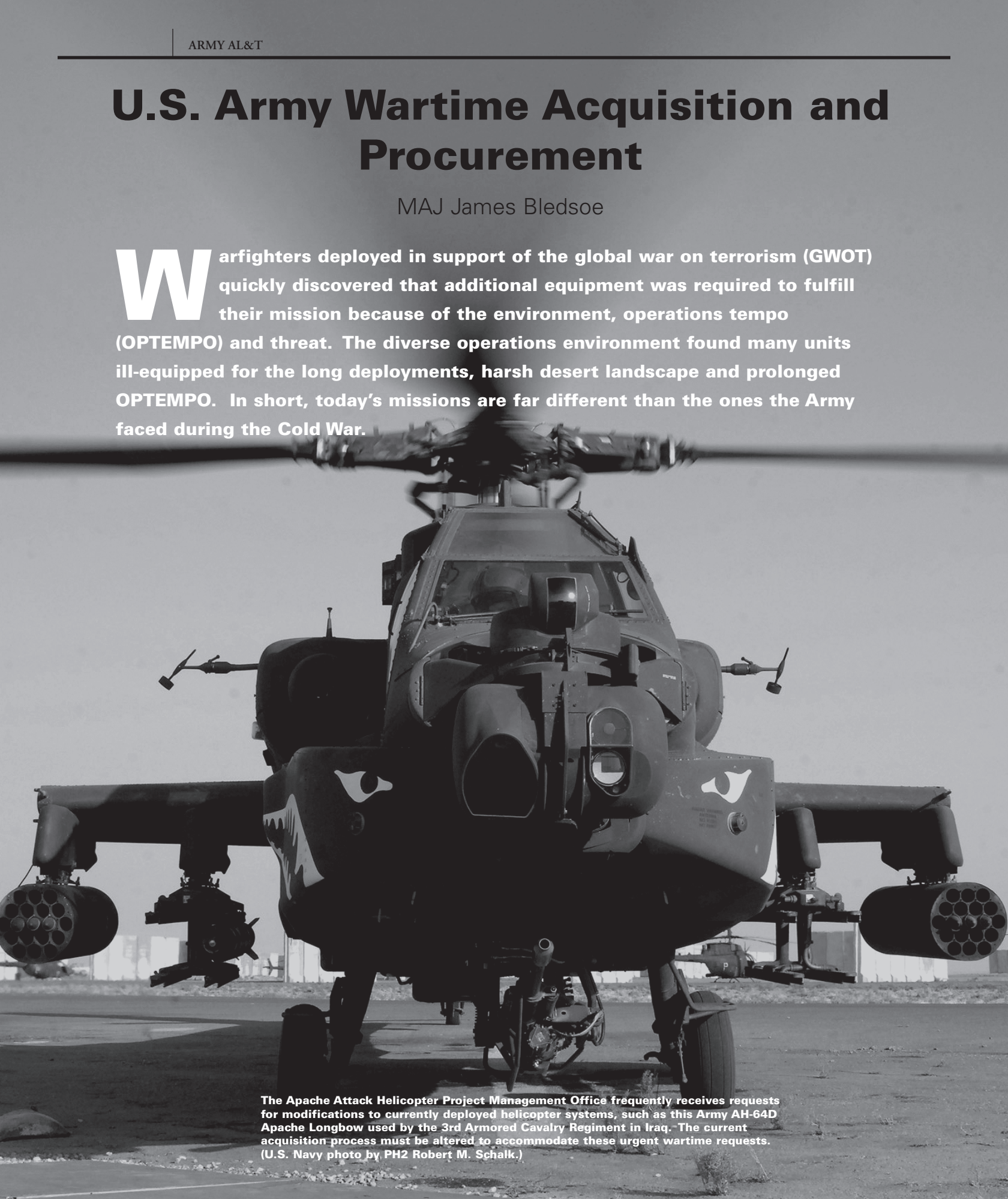
When I'm not in uniform, I work full time for the State of Florida Department of Military Affairs. Before being mobilized, I was the Deputy to the State Resource Manager for the State Quartermaster. On the military side, I'm a Finance Officer. I have extensive knowledge of state contracting procedures and have been actively involved with purchasing and contracting support for numerous operations, including hurricanes and wild fires. When the 53rd Inf Bde was alerted for mobilization, I requested assignment through the JFHQ-FL mobilization cell as a contingency contracting officer (CCO). To this point, the experience has been very challenging, but extremely rewarding professionally.

LTC DAVID BLEVINS is a CCO with the 53rd Inf Bde, Florida Army National Guard, and is currently deployed to the Joint Contracting Center-Iraq. He has a B.A. in business administration from State University of New York Empire State College. He is a U.S. Army Command and General Staff College graduate and has completed several Defense Acquisition University contracting courses in preparation for mobilization.

U.S. Army Wartime Acquisition and Procurement

MAJ James Bledsoe

Warfighters deployed in support of the global war on terrorism (GWOT) quickly discovered that additional equipment was required to fulfill their mission because of the environment, operations tempo (OPTEMPO) and threat. The diverse operations environment found many units ill-equipped for the long deployments, harsh desert landscape and prolonged OPTEMPO. In short, today's missions are far different than the ones the Army faced during the Cold War.



The Apache Attack Helicopter Project Management Office frequently receives requests for modifications to currently deployed helicopter systems, such as this Army AH-64D Apache Longbow used by the 3rd Armored Cavalry Regiment in Iraq. The current acquisition process must be altered to accommodate these urgent wartime requests. (U.S. Navy photo by PH2 Robert M. Schalk.)

To counter these emerging threats, the military is rapidly transforming into a lighter, leaner and more lethal and sustainable force. Today's combat environment is all encompassing, from fighting urban insurgents with superb technology to cave-dwelling nomads who prosecute the war with a frightening single-mindedness and tenacity. As a result, U.S. forces have had to continually change tactics, techniques and procedures (TTPs).

The austere, extremely harsh environmental conditions, coupled with using equipment at rates 5-10 times the normal peacetime rates have placed much greater demands on all facets of the Army's logistics and sustainment capabilities and support structure. Accordingly, the acquisition of materiel solutions, supplies and services to support frontline equipment halfway around the world has been extremely challenging and resulted in the procurement of commercial-off-the-shelf (COTS) items. These evolving field requirements must be swiftly and effectively managed to properly outfit warfighters to ensure their battlefield survivability. This article briefly discusses some current procurement methods the Army is using to provide products and services to our combatant commanders and Soldiers waging the GWOT.

Evolving field requirements must be swiftly and effectively managed to properly outfit warfighters to ensure their battlefield survivability.

The Apache Attack Helicopter Project Management Office receives requests daily for modifications or additions to currently deployed helicopter systems and subsystems. User requirements are funneled from the requesting unit through the U.S. Army Training and Doctrine Command (TRADOC) to

Today's combat environment — with its harsh physical conditions and high OPTEMPO — demands a responsive procurement and supply system to ensure warfighter lethality and survivability. Here, Soldiers from Company A, 3rd Battalion, 141st Infantry Regiment, Texas National Guard, set up a defensive position near Bagram, Afghanistan. (U.S. Army photo by SGT Christopher Kaufmann.)

HQDA and DOD. HQDA and DOD — and in some cases Congress — work the approval process and funding piece and then issue directives to the Assistant Secretary of the Army for Acquisition, Logistics and Technology for execution. The product managers (PMs) then execute the programs under their charter. In the past, DA had to carefully manage numerous budgets supporting multiple operations and maintenance programs. As a result, procurement cycles could be rather cumbersome and slow. But given today's high OPTEMPO environment, the acquisition community has developed solutions to streamline Army procurement and acquisition.

Our traditional life-cycle acquisition process is a 5- to 7-year process that begins during pre-systems acquisition with the combat developer presenting an Interim Capabilities Document to the Army Requirements Oversight Counsel and Joint Requirements Oversight Counsel for authority to begin developing concepts for a materiel solution to bridge gaps in current and future capabilities. The process is thorough, but slow. It involves multiple levels of decision makers, staffers, technical people, contractors and government personnel within the Army and DOD. They provide data, analysis, technical input, hardware, software, simulation, testing, fielding and sustainment. The process serves a purpose, but in wartime is not responsive enough to meet combatant commander or Soldier requirements.

Operational Needs Statement (ONS)

The process begins when organizations identify new requirements. They then submit an ONS or Urgent Needs Statements (UNS) to the first general officer in their respective chains of command. Each ONS must address an accurate description of the requirement, including — most importantly — the capability gap that needs to be filled. Most units have a tendency to request specific products and name brands. Unfortunately, the *Defense Federal Acquisition Regulation Supplement* (*DFARS*) typically requires government contracts to be available in an equitable manner to all potential vendors. Thankfully, *DFARS* allows contracts that are competitively bid to be awarded as "best value" not "lowest bidder," as was frequently done in the past.

The ONS must include a recommended Basis of Issue Plan for distribution and a sustainment and supportability plan. It must also address all known safety and health hazards. The PM can assist with the technical aspects and independent government cost estimates. Once these documents are compiled, the ONS is forwarded through the chain of command for endorsements of concurrence or nonconcurrence. Most staff offices have tracking systems for each ONS as it is staffed

through various levels of command. *Army Regulation 71-9, Materiel Requirements,* provides regulatory guidance on how the ONS process works. Additionally, recent HQDA G-4 guidance describes the detailed coordination and approval required by HQDA, the materiel developer and the testing community.

The ONS is usually presented to the Joint Acquisition Review Board (JARB). The JARB is generally conducted at the Multi-National Corps/Force-Iraq, Combined Joint Task Force-76 (Afghanistan) and the Coalition Forces Land Component Command (CFLCC) level with certain authority and funding restrictions. The JARB can endorse a requirement and forward the ONS to HQDA or, in some cases, take actions at that level to fulfill a requirement by validating and funding the requirement. The "power-down" concept works great in this situation because it provides the warfighters' equipment faster. The drawback is Army Materiel Command and its major subordinate commands may not be "in the loop" and could lose track of configuration changes.

The "power-down" concept works great ... because it provides the warfighters' equipment faster.

Often, not being aware of sustainment responsibilities and associated costs thwarts rapid procurement, illustrating the need for a well-planned ONS from the originator as well as the staff. Staffs at each level of approval must scrutinize every ONS to ensure the gap cannot be bridged without a materiel solution. Staffs and commanders should approve materiel solutions only as a last resort and only after a solid analysis of doctrine, organization, training, leadership, materiel, personnel and facilities (DOTLMPF) has been conducted. Time spent doing this analysis could save the Army millions of dollars. Something as simple as changing TTPs and updating doctrine could actually bridge a gap, thus providing a nonmateriel solution. Units should not adopt the mentality of "just buy it and we'll get the Army to figure out how to sustain it." In fact, 60-80 percent of all life-cycle costs occur after a system is fielded. It is incumbent upon the combat developers and logisticians to ensure that materiel solutions are valid for bridging both technology and capabilities gaps.

If a nonmateriel solution using DOTLMPF cannot be found, the JARB may validate an ONS at the JARB level. Sometimes an ONS may have to be staffed further and validated by HQDA. Intermediate staffing is required at CFLCC and U.S. Central Command prior to being staffed at HQDA G-3. In cases involving Army aviation, the ONS should be forwarded to the Aviation Task Force (AVN TF). The AVN TF would then staff the requirement with the Aviation Center and the combat developer for concurrences/nonconcurrences for materiel solutions.

The user's representative with the loudest voice is the TRADOC Systems Manager (TSM). The TSM typically has two main focus areas — futures and immediate capability gaps. To best support units in the field, TSMs must continuously try to identify immediate capability gaps within the perspective of DOTLMPF. Ultimately, every change to the DOTLMPF must have a requirement behind it and an ONS/UNS is a very good place to start. This process normally can take months for simple needs, and years for more complex needs. The bottom line is the TSM will work all identified gaps and continue to provide warfighters with the best possible capabilities. Fortunately, with HQDA approval, TSM offices, in concert with the PM offices, are taking the initiative to push non-DOTLMPF solutions to fill identified critical needs. There are several major initiatives underway to provide immediate capabilities to the field. There are limitations to these fixes, but the benefits greatly outweigh any shortcomings.

The Advanced Combat Helmet is part of the Rapid Fielding Initiative — a program designed to get Soldiers in the field the best and most up-to-date force protection, mobility and lethality equipment as quickly as possible. (U.S. Army photo.)

To enhance Soldiers' effectiveness in a complex and ever-changing combat environment, the Army is working hard to provide immediate capabilities to the field. Here, Soldiers from Troop E, 2nd Squadron, 3rd Armored Cavalry Regiment search for weapons caches near Fallujah, Iraq. (U.S. Army photo by SGT Derek Gaines.)

Once the ONS makes it to the Pentagon G-3, it may be presented to the Counsel of Colonels and the General Officer Review Board for the Army's Requirements and Resources Board. During the validation process, the requirement will go to G-8 Force Development Aviation for sourcing strategy and funding determination with the Army Budget Office. If the ONS is deemed to be a high priority, then funding will be assigned. If funding is limited, then quantities might be adjusted to support limited fielding, which might include deployed units only. For example, in aviation units, this may become a Threshold Mission Essential Package. In some cases where funding is extremely limited, some equipment may be designated as Stay-Behind Equipment.

In cases where the requirement is validated and funded, the G-3 Future Warfighting Capabilities Division will initiate a materiel release by issuing a Directed Requirement Memorandum, which requires a:

- Safety and health hazard assessment.
- Airworthiness statement, if applicable.
- Explosive ordnance disposal statement.
- Insensitive munitions certificate.
- Acceptance statement signed by the gaining command's general officer (or civilian equivalent).

The procurement process — once validated and funded — will depend on the type of equipment to be purchased. In the case of COTS equipment, the product is generally considered readily available unless large requests generate lead times. Non-Developmental Items require longer procurement timelines to accommodate developmental and operational testing. Some cases may require further testing, even after an Urgent Materiel Release (UMR). COTS procurements, although quick, may present second- and third-order consequences that, if not properly planned for, may cause sustainability and stockage problems as mentioned earlier. Approved UMRs require materiel release coordinators to enter items into the Materiel Release Tracking System. The PMs will work through their Life Cycle Management Commands to enter the UMR into the Standard Study Number-Line Item Number Automated Management and Integrating System. Other procurement systems include the Rapid Equipping Force, in which teams are deployed forward and have the ability to make fast procurements happen through nontraditional, streamlined acquisition processes.

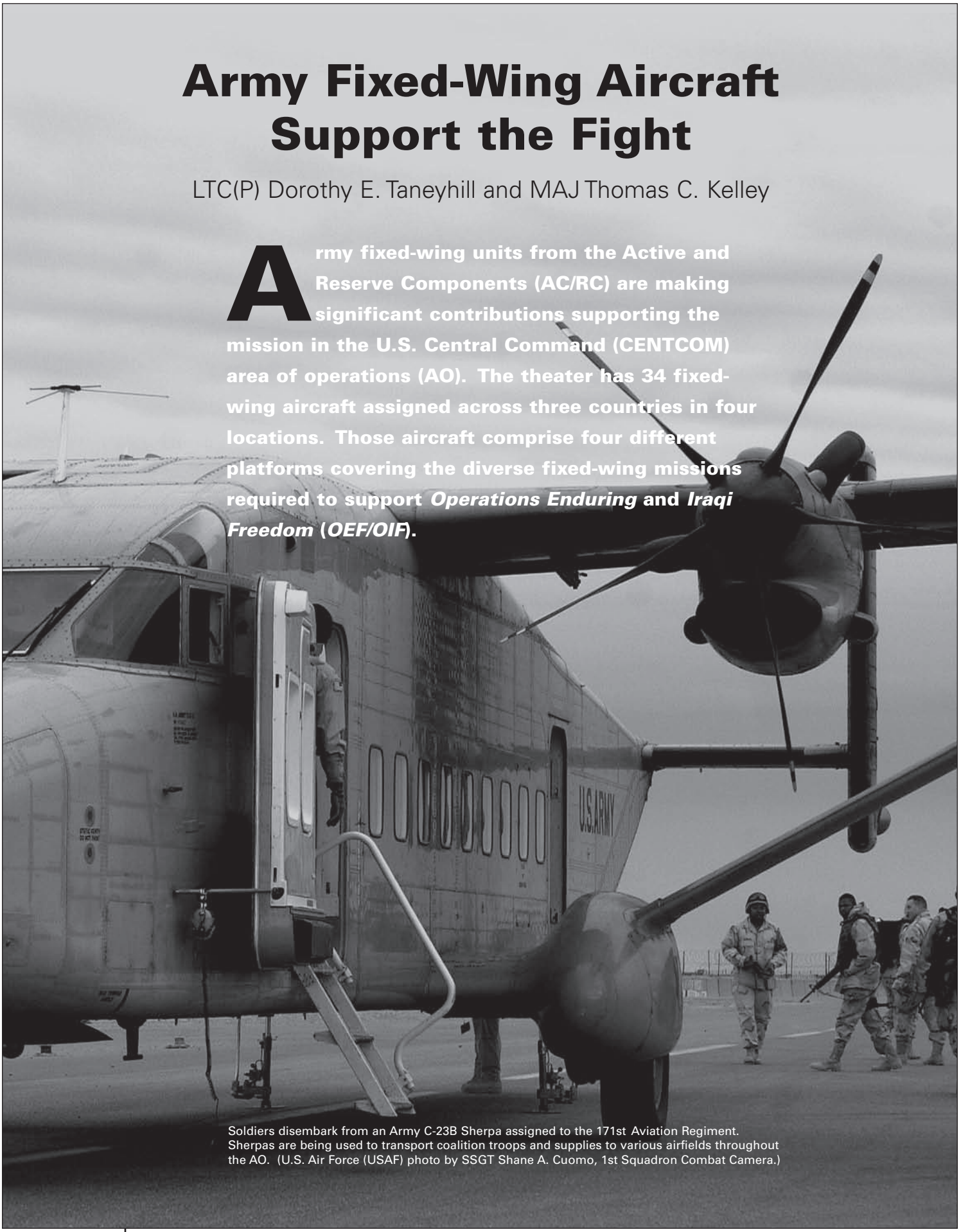
These new procurement instruments are getting much-needed equipment and supplies into warfighters' hands quicker and with fewer logistics setbacks than ever before. Using this method, we can mitigate issues associated with rapid procurements, including technical manuals, provisioning for spare parts, special tools, calibration, repair contracts, configuration management, unit accountability and disposal costs. New equipment delivered faster will challenge logisticians at all levels. As we rapidly decrease the traditional logistics tail and footprint, acquisition professionals will continue to overcome sustainment challenges through innovation, procurement process changes and manufacturing solutions.

MAJ JAMES BLEDSOE is an Assistant PM in the AH-64 Apache Helicopter Project Office, Apache Modernization and Recapitalization, Redstone Arsenal, AL. He earned a B.A. in American studies from California State University-Chico, and is a U.S. Army Command and General Staff College and Acquisition Basic Course graduate. Bledsoe recently returned from Iraq where he served as the Chief, U.S. Army Aviation and Missile Command Theater Aviation Single Manager. To share lessons learned or continue this discussion with the author, e-mail him at **james.bledsoe2@us.army.mil**.

Army Fixed-Wing Aircraft Support the Fight

LTC(P) Dorothy E. Taneyhill and MAJ Thomas C. Kelley

Army fixed-wing units from the Active and Reserve Components (AC/RC) are making significant contributions supporting the mission in the U.S. Central Command (CENTCOM) area of operations (AO). The theater has 34 fixed-wing aircraft assigned across three countries in four locations. Those aircraft comprise four different platforms covering the diverse fixed-wing missions required to support *Operations Enduring* and *Iraqi Freedom* (*OEF/OIF*).



Soldiers disembark from an Army C-23B Sherpa assigned to the 171st Aviation Regiment. Sherpas are being used to transport coalition troops and supplies to various airfields throughout the AO. (U.S. Air Force (USAF) photo by SSGT Shane A. Cuomo, 1st Squadron Combat Camera.)

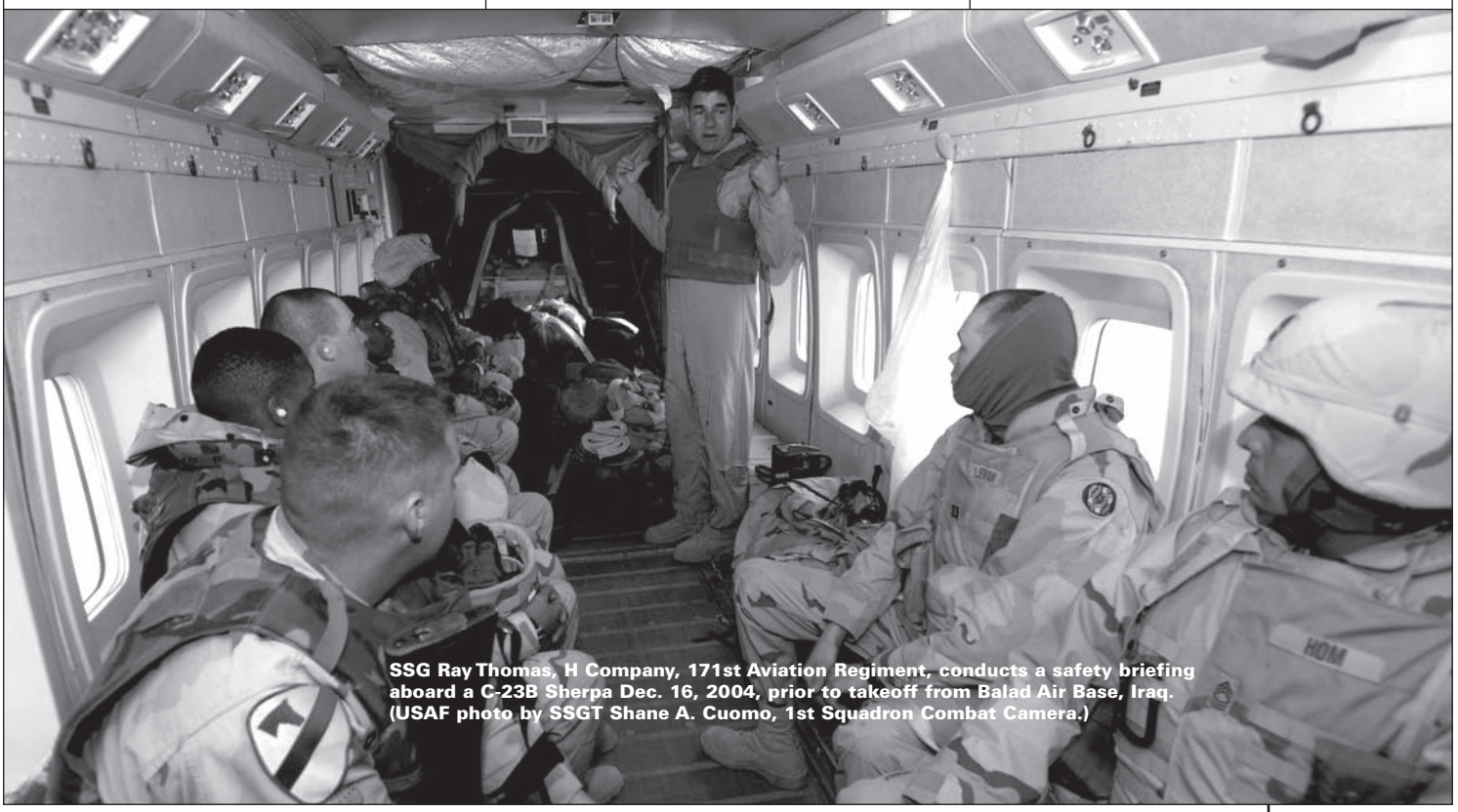
The Product Manager's (PM) Office for Fixed Wing Aircraft coordinates closely with PM Aviation Electronics System and with deployed units to modify designated aircraft with Aircraft Survivability Equipment (ASE) and timely field the aircraft to theater operators. This coordinated effort currently includes the exchange of the C-12T models, which are not modified with ASE, with the C-12R models, which are. Several C-12R model aircraft currently based in Kuwait have recently received the Common Missile Warning System ASE upgrade. Aviators and Soldiers from the Missouri National Guard (NG) and the Nevada NG are operating these aircraft to transport personnel and supplies quickly over long distances and to different sovereign nations in the AO. In addition to the C-12R aircraft, UC-35A aircraft are also based in Kuwait. This aircraft primarily transports key personnel and, because of its capability, effectively reduces the transport time between locations. The aircraft based in Kuwait are flying more than 50 hours per month.

> [MCT] efforts are vital to safe aircraft operation and they must remain prepared at all times to rapidly reconfigure large quantities of supplies to support C-23 mission requirements daily.

The Army has 26 fixed-wing assets based in Iraq. These aircraft consist of various platforms including UC-35A, C-12R, RC-12K and C-23 aircraft.

The UC-35A and the C-12R aircraft are efficient and expedient systems, used to fill the personnel transport shortages and, when necessary, assist with alleviating supply chain challenges by delivering critical repair parts to remote areas within theater. In addition, the RC-12s conduct critical intelligence collection missions to provide commanders with time-sensitive intelligence and targeting information, which enhances the maneuver units' lethality and battlefield survivability.

Additionally, the C-23s provide timely movement of key personnel to critical locations throughout the theater of operations and transport time-sensitive, mission-critical supply items and repair parts to remote organizations. The C-23s are able to transport personnel and cargo faster and at greater distances than is possible with helicopters. Army Reservists, National Guardsmen and AC pilots are all flying the C-12s from dispersed locations throughout the AO. An AC aerial exploitation battalion flies the RC-12s. Four Army NG (ARNG) detachments from the states of Oregon, Washington, South Dakota and Oklahoma form A Company, 1/249th Aviation Battalion and are flying the C-23 Sherpa aircraft missions. These detachments, in consort with



SSG Ray Thomas, H Company, 171st Aviation Regiment, conducts a safety briefing aboard a C-23B Sherpa Dec. 16, 2004, prior to takeoff from Balad Air Base, Iraq. (USAF photo by SSGT Shane A. Cuomo, 1st Squadron Combat Camera.)

A C-23 fixed-wing aircraft, like those being used in support of *OEF* and *OIF*, fires a flare during aeronautical operations. (U.S. Army photo courtesy of PM Fixed Wing Aircraft.)

E Company, 1/207th Aviation Battalion from the Alaska ARNG, are vital in supporting the logistical maintenance and sustainment mission in the CENTCOM AO.

The Movement Control Teams (MCTs) ensure the fixed-wing cargo mission's success. These teams are present hours prior to each mission and their task is to ensure the aircraft are correctly palletized with the proper weight and balance of cargo and personnel. Their efforts are vital to safe aircraft operation and they must remain prepared at all times to rapidly reconfigure large quantities of supplies to support C-23 mission requirements daily.

The two C-23 units have flown more than 6,500 hours in the past 12 months and have hauled over 3,000 passengers and 2 million pounds of cargo.

In addition to *OIF*, *OEF* is also supported with fixed-wing assets operating within the Afghanistan theater. The 1/214th Aviation Regiment, Wiesbaden, GE, is responsible for operating the C-12R and UC-35A aircraft throughout *OEF*. These aircraft support transport of supplies and key personnel throughout the AO. The unit is currently flying more than 60 hours per aircraft per month. The high operations tempo at which these units are flying, combined with very few aircraft sustainment systems, makes expedient aircraft maintenance a logistics challenge.

Key mission drivers that differentiate Army fixed wing from rotary wing — in addition to greater speeds and longer range — is that unit-level maintenance is not performed by military mechanics. Currently, every fixed-wing platform operating in the CENTCOM theater of operations is Contractor Logistics Support (CLS) maintained. Two contractors maintain the four platforms at four different sites in Kuwait, Iraq and Afghanistan. The contracts that govern the agreement between the Army and the maintenance contractor are funded and managed by the Fixed Wing Product Management Office at Redstone Arsenal, AL. The CLS maintenance is even more impressive when the mission-capable rate, which consistently averages greater than 90 percent, is taken into consideration. The field service representatives for these two maintenance contractors often work long hours to ensure that uninterrupted fixed-wing support effectively translates into mission accomplishment. Fixed-wing support to *OIF* and *OEF* forces is a decided combat multiplier. The C-23 Sherpa cargo mission assists combatant commanders by saving "blade hours" on CH-47s, as well as substantially reducing the number of convoy vehicles needed to transport personnel and critical, time-sensitive parts and supplies to potentially dangerous or remote areas. In addition, fixed-wing aerial exploitation platforms gather critical intelligence, further contributing to friendly force situational awareness. These critical roles and missions are made possible by the hard work and diverse contributions made by maintenance contractors serving as critically important combined team members. Their efforts continue to provide critical service to the Army's fixed-wing fleet.

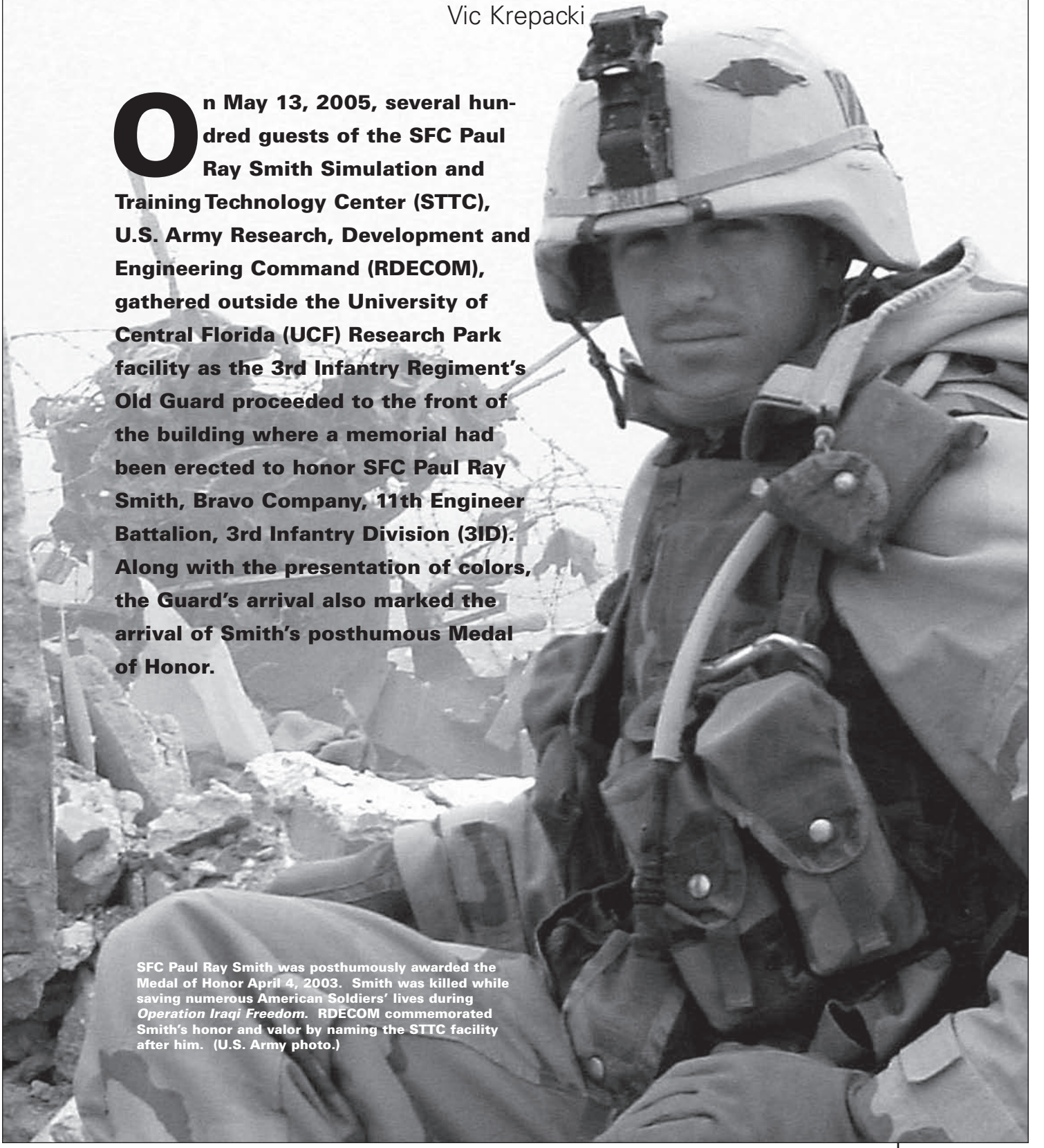
LTC(P) DOROTHY E. TANEYHILL is an ARNG officer serving as the PM Fixed Wing Aircraft, which is part of the Project Manager for Aviation Systems, Program Executive Office Aviation, Redstone Arsenal, Huntsville, AL. Taneyhill has a B.A. in political science/history from McDaniel College, a B.S. in business administration/legal studies from Villa Julie College and an M.S. in management and legal studies from the University of Baltimore. She is a U.S. Army Command and General Staff College and Program Management Course graduate. Taneyhill is Level III certified in program management and information technology.

MAJ THOMAS C. KELLEY is an AC officer currently serving as the Assistant PM for the C-23 Sherpa Cargo Fleet. He has a B.A. in business administration from Furman University and an M.A. in computer resources and information management from Webster University. Kelley is Level II certified in program management.

Medal of Honor Recipient SFC Paul Ray Smith Commemorated

Vic Krepacki

On May 13, 2005, several hundred guests of the SFC Paul Ray Smith Simulation and Training Technology Center (STTC), U.S. Army Research, Development and Engineering Command (RDECOM), gathered outside the University of Central Florida (UCF) Research Park facility as the 3rd Infantry Regiment's Old Guard proceeded to the front of the building where a memorial had been erected to honor SFC Paul Ray Smith, Bravo Company, 11th Engineer Battalion, 3rd Infantry Division (3ID). Along with the presentation of colors, the Guard's arrival also marked the arrival of Smith's posthumous Medal of Honor.



SFC Paul Ray Smith was posthumously awarded the Medal of Honor April 4, 2003. Smith was killed while saving numerous American Soldiers' lives during *Operation Iraqi Freedom*. RDECOM commemorated Smith's honor and valor by naming the STTC facility after him. (U.S. Army photo.)

President George W. Bush originally presented the medal to Smith's family at a ceremony at the White House April 4, 2005, marking the second anniversary of the day that Smith, a fallen hero of *Operation Iraqi Freedom* (*OIF*), saved numerous American Soldiers' lives by paying the ultimate sacrifice. Now, it seemed fitting that such a great Soldier from the "Rock of the Marne" — as the 3ID is called among its brethren — would be honored on the eve of Armed Forces Day and Memorial Day weekend. Participants could feel his presence as his family — including his wife of 13 years Birgit, daughter Jessica Martha, son David Anthony and sister Lisa DeVane — proudly represented him at the ceremony. Devane provided inspiring words about the brother who had always been a hero in her eyes.

The RDECOM STTC facility, whose mission is to enhance Soldier readiness through simulation-enabled learning, was rededicated as the SFC Paul Ray Smith Center in a ceremony conducted Nov. 7, 2003. Smith, who was posthumously awarded the Silver Star and, subsequently, the Medal of Honor, was one of 12 Florida candidates who had served in *OIF* and were considered for the building's renaming in honor of all fallen Floridian servicemen.

> "Paul ... spoke of being prepared to give 'all that I am to ensure that my boys make it home.'"

MAJ Ray Compton, STTC Director of Military Operations, led the efforts for the May 13 Commemoration Ceremony, which included remarks by Program Executive Officer Simulation, Training and Instrumentation (PEO STRI) Commanding General BG Stephen M. Seay; University of Central Florida President Dr. John Hitt; U.S. Forces Command SGM Carl Christian; Florida Gov. Jeb Bush; and DeVane. However, DeVane summed up the ceremony best.

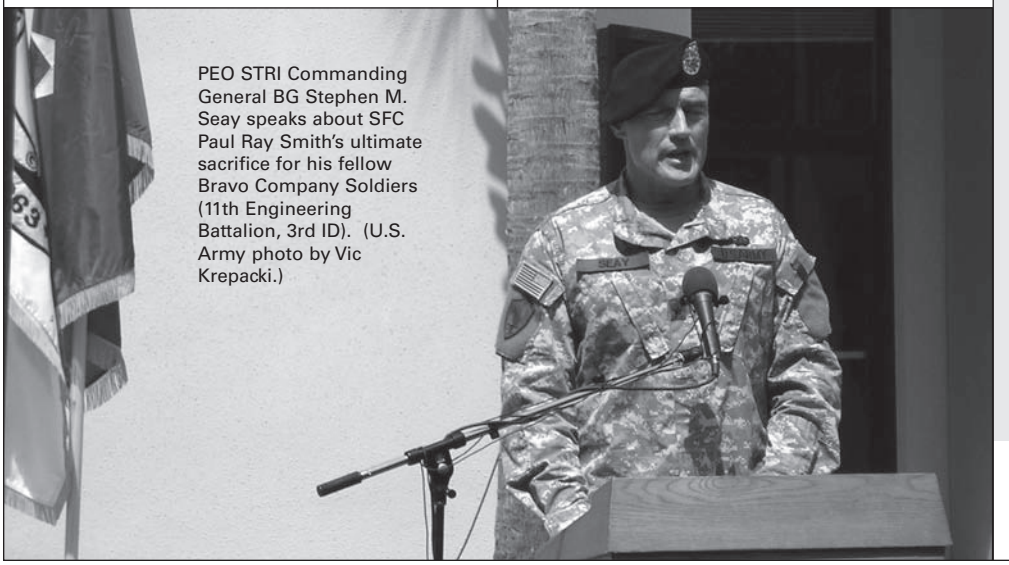
"Paul had an incredible love for the troops under his command," she said. "He spoke of being prepared to give 'all that I am to ensure that my boys make it home.' I can actually feel Paul's presence in this fantastic center, which bears his name, and feel his enthusiasm and energy in the dedicated passion of the officers, noncommissioned officers, Soldiers and civilian engineers and scientists who run its daily operations."

That day, the Army not only commemorated SFC Paul Ray Smith and the Medal of Honor bestowed upon him for valor above and beyond the call of duty, but also commemorated a

STTC Director of Military Operations MAJ Ray Compton escorts Birgit Smith, widow of SFC Paul Ray Smith. They are followed by Smith's son David Anthony and daughter Jessica Martha, Florida Gov. Jeb Bush, Smith's sister Lisa DeVane, his mother Janice Pvirre, University of Central Florida President Dr. John Hitt and U.S. Army Chief of Engineers, Forces Command, LTG Carl Strock. (U.S. Army photo by Vic Krepacki.)

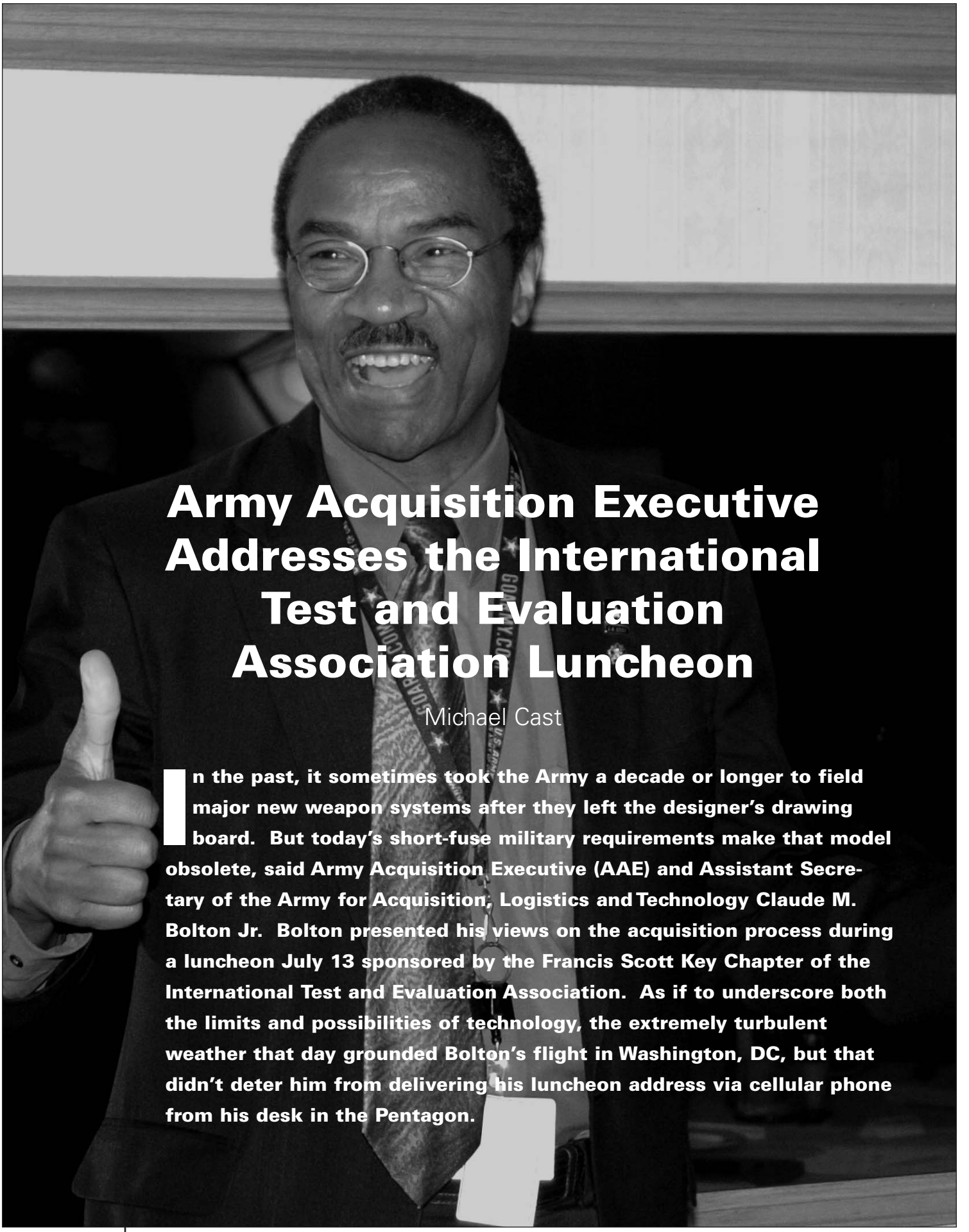
Members of the 3rd Infantry Regiment's Old Guard rehearse for the Medal of Honor Ceremony in front of the SFC Paul Ray Smith STTC building. (U.S. Army photo by Vic Krepacki.)

great American son, brother, husband and father who will always stand as a shining example of leadership and excellence to those Army members — civilian and military — who perform their duty at the SFC Paul Ray Smith STTC, in Orlando, FL. At the STTC, Smith will always be remembered as our Nation's first Medal of Honor recipient in the global war on terrorism. His medal now sits permanently displayed behind a glass case on the wall of what he himself would no doubt feel is the most appropriate of places — the STTC Soldiers Conference Room. For it is here that Smith's family decided to display this highest of military awards for all who visit to see — from general officers to local school students who one day themselves may be inspired to follow in the footsteps of a truly great American hero — SFC Paul Ray Smith.



PEO STRI Commanding General BG Stephen M. Seay speaks about SFC Paul Ray Smith's ultimate sacrifice for his fellow Bravo Company Soldiers (11th Engineering Battalion, 3rd ID). (U.S. Army photo by Vic Krepacki.)

VIC KREPACKI is a Project Director at STTC. He has more than 23 years experience in the Army as a design and integration engineer at Aberdeen Proving Ground, MD, and as an instrumentation engineer at PEO STRI. Krepacki has a B.S. in engineering from Virginia Tech, an M.B.A. from Webster University and is Level III certified in program management and systems planning, research, development and engineering. Krepacki is an Army Acquisition Corps member who was recently selected for the Competitive Development Group program.



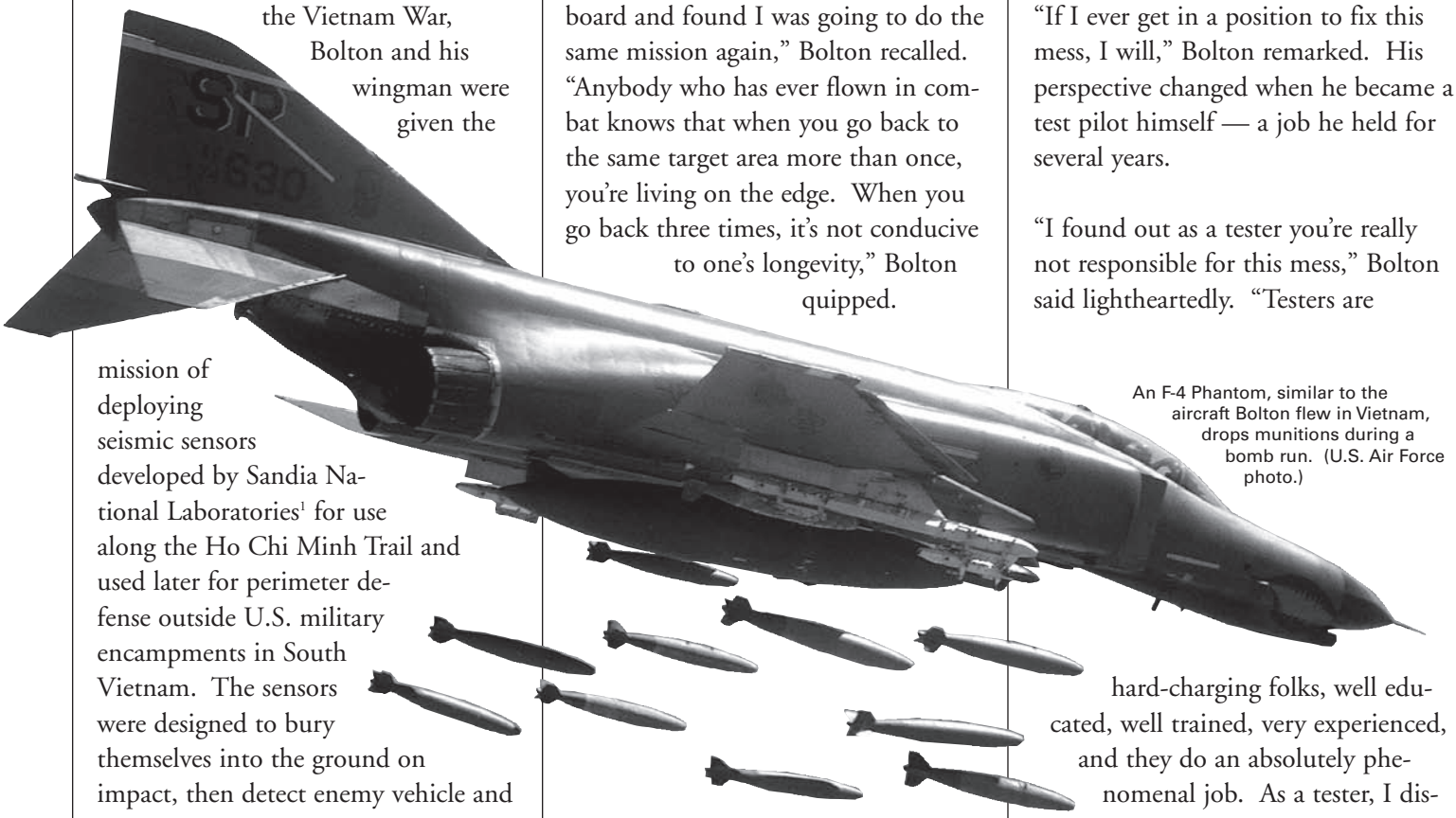
Army Acquisition Executive Addresses the International Test and Evaluation Association Luncheon

Michael Cast

In the past, it sometimes took the Army a decade or longer to field major new weapon systems after they left the designer's drawing board. But today's short-fuse military requirements make that model obsolete, said Army Acquisition Executive (AAE) and Assistant Secretary of the Army for Acquisition, Logistics and Technology Claude M. Bolton Jr. Bolton presented his views on the acquisition process during a luncheon July 13 sponsored by the Francis Scott Key Chapter of the International Test and Evaluation Association. As if to underscore both the limits and possibilities of technology, the extremely turbulent weather that day grounded Bolton's flight in Washington, DC, but that didn't deter him from delivering his luncheon address via cellular phone from his desk in the Pentagon.

Bolton began his presentation by asking a question he had asked himself as a combat pilot during the Vietnam War, when he had to repeat a hazardous mission to deploy a new system that didn't work the first time around: "Who is responsible for this thing?"

As F-4 Phantom pilots during the Vietnam War, Bolton and his wingman were given the mission of deploying seismic sensors developed by Sandia National Laboratories[1] for use along the Ho Chi Minh Trail and used later for perimeter defense outside U.S. military encampments in South Vietnam. The sensors were designed to bury themselves into the ground on impact, then detect enemy vehicle and troop movements along the trail and relay that information via aircraft to a ground station.



An F-4 Phantom, similar to the aircraft Bolton flew in Vietnam, drops munitions during a bomb run. (U.S. Air Force photo.)

The two pilots were to drop sensors along one end of a valley one night and along the other end the second night. After they completed their mission on the second night, a mission made riskier by returning to an area on which North Vietnamese gunners had trained their sights, Army operators discovered the sensors weren't going to work because the pilots were given an incorrect air speed and altitude needed for placing the sensors properly.

> "The warfighter starts the clock when his hand goes up and he says, 'I want,' and the clock stops when his hand goes down and he says 'I got.'"

"By night number three, when I came in for my briefing expecting I would get a whole lot better mission than flying along dropping stuff on the ground, I looked on the scheduling board and found I was going to do the same mission again," Bolton recalled. "Anybody who has ever flown in combat knows that when you go back to the same target area more than once, you're living on the edge. When you go back three times, it's not conducive to one's longevity," Bolton quipped.

After getting the correct data, Bolton and his wingman split the fire on the third night by flying over the valley toward each other from opposite directions, but they were still greeted by a display of firepower that reminded Bolton of Fourth of July fireworks.

"We dropped all the sensors at the right air speed and at the right altitude and returned to base," Bolton reminisced. "I got out of my aircraft and gave the large pieces of it back to the crew chief, and I started to kick the tarmac as I walked back to my mission debrief thinking, 'Somebody is responsible for this mess.'"

At that time, he said he blamed the screw-up on test pilots initially because he didn't know who else had a role to play in fielding systems of this type. "If I ever get in a position to fix this mess, I will," Bolton remarked. His perspective changed when he became a test pilot himself — a job he held for several years.

"I found out as a tester you're really not responsible for this mess," Bolton said lightheartedly. "Testers are hard-charging folks, well educated, well trained, very experienced, and they do an absolutely phenomenal job. As a tester, I discovered who I thought was fully responsible for this mess. It had to be the folks in the program offices," he continued. "These folks never give the testers enough time. They never give us enough money. They only believe about half of what we say. They hear the parts that they want to hear. And so I said, 'If I ever have an opportunity, I will fix this mess.'"

Bolton's military acquisition career includes stints in three separate program offices, where he found people to be "hard-charging, well educated and well trained." He found the same kind of hard-charging people in the Pentagon when he arrived at that "5-sided headquarters." Then he happened to look

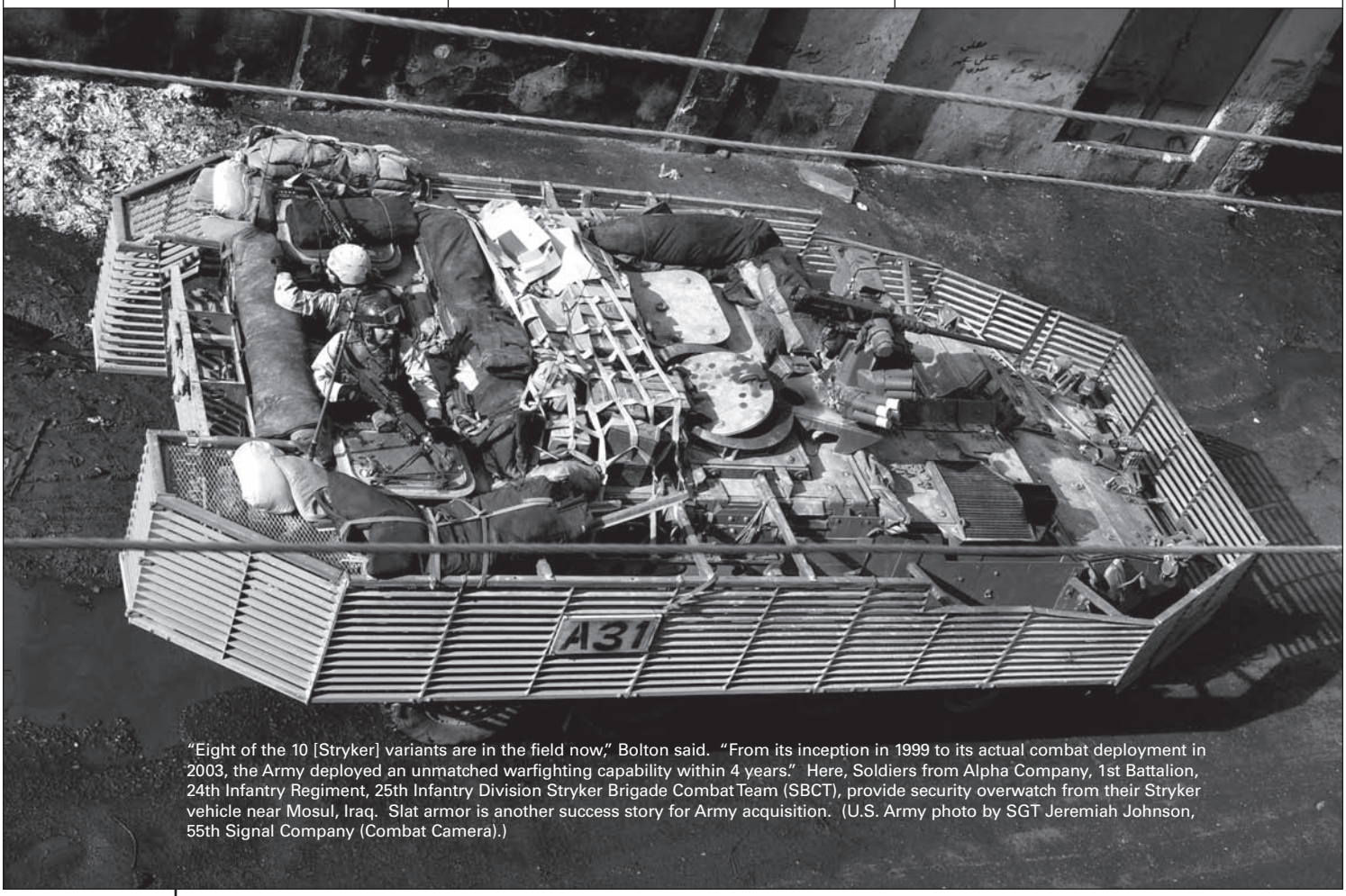
out a window at the Pentagon to see the big domed building on the hill, he thought maybe the people up there were the guilty ones. Of course, he soon realized they too were "hard-charging and well educated" and only had the best intentions for the Nation's military men and women. The answer to Bolton's initial question, naturally, is that everyone involved with the acquisition process is responsible for its failures and successes.

"You may have heard that we're going to improve the acquisition process yet again this year," Bolton told luncheon attendees. "We will put teams together. We will put panels together. We will have policy papers and briefs over on the Hill that will hopefully become legislation."

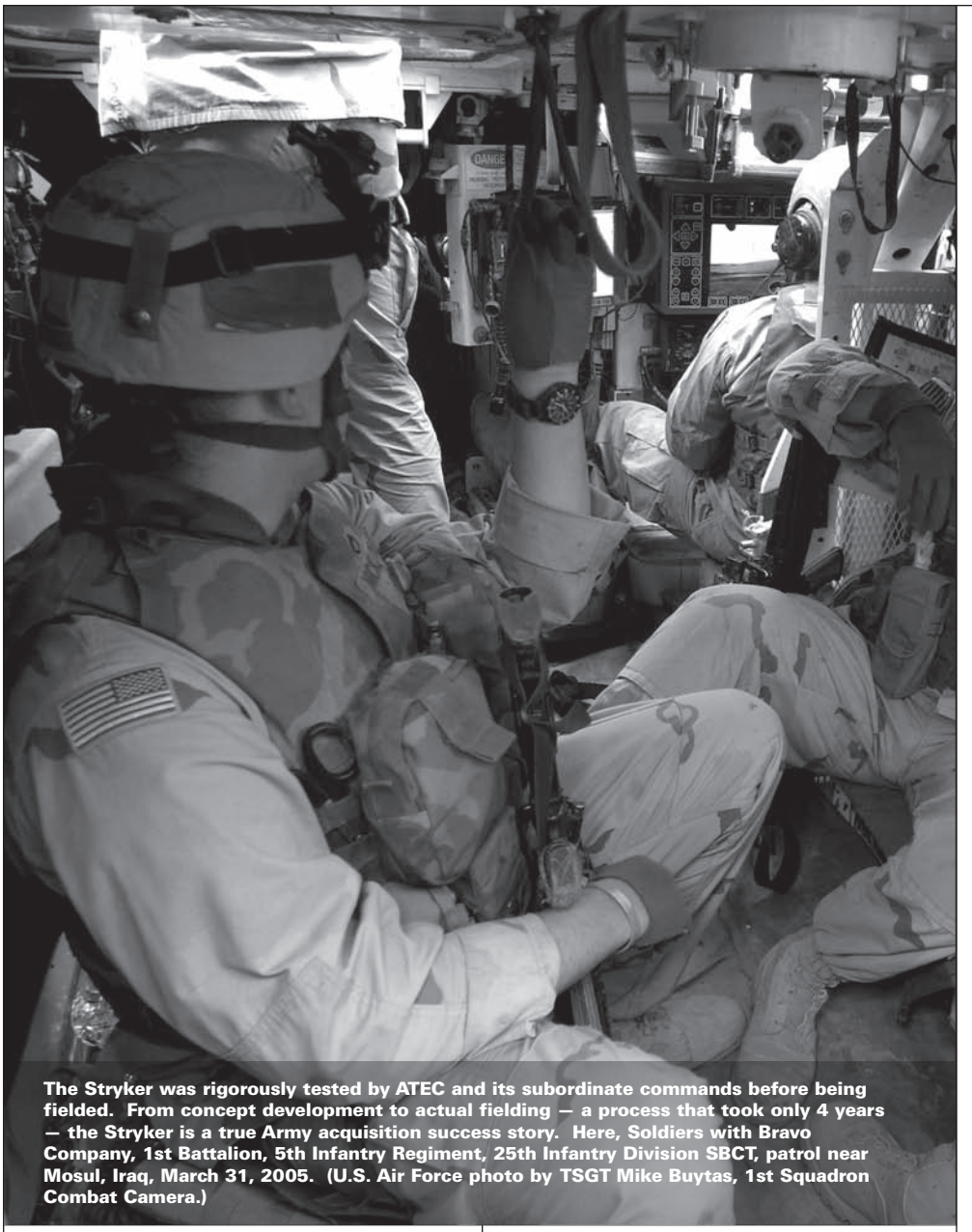
None of that will really solve acquisition problems, he suggested, unless the entire process is examined with a focus on providing warfighters what they want, when they want it and where they want it. To illustrate, he described what he called the "little a," or acquisition as it occurs now, and the "big A," which is the way the acquisition process must occur from beginning to end if it is to truly meet the needs of our combatant commanders and their Soldiers.

"The 'little a' is what we all do in this community," Bolton explained. "We acquire, we develop, we test, we use, we field, and we have lots of rules and regulations. We go to classes, and we get certified. I've been at this for more than 25 years, and we've been doing it formally by law since the early 1990s. The problem is, you could make the acquisition process absolutely perfect and not have helped the warfighter. The warfighter starts the clock when his hand goes up and he says, 'I want,' and the clock stops when his hand goes down and he says 'I got.' So my push this year is that, if we really want to help our warfighters, let's look at the entire acquisition process and put some effort into improving everyone and every part of the process."

> "I had the pleasure of talking to the Soldiers in the 3rd Infantry Division just before they redeployed to Iraq, and they're extremely happy with the quality of the equipment and the fact that they got it when they wanted it and where they wanted it."



"Eight of the 10 [Stryker] variants are in the field now," Bolton said. "From its inception in 1999 to its actual combat deployment in 2003, the Army deployed an unmatched warfighting capability within 4 years." Here, Soldiers from Alpha Company, 1st Battalion, 24th Infantry Regiment, 25th Infantry Division Stryker Brigade Combat Team (SBCT), provide security overwatch from their Stryker vehicle near Mosul, Iraq. Slat armor is another success story for Army acquisition. (U.S. Army photo by SGT Jeremiah Johnson, 55th Signal Company (Combat Camera).)



The Stryker was rigorously tested by ATEC and its subordinate commands before being fielded. From concept development to actual fielding — a process that took only 4 years — the Stryker is a true Army acquisition success story. Here, Soldiers with Bravo Company, 1st Battalion, 5th Infantry Regiment, 25th Infantry Division SBCT, patrol near Mosul, Iraq, March 31, 2005. (U.S. Air Force photo by TSGT Mike Buytas, 1st Squadron Combat Camera.)

Bolton said everyone on the acquisition team must work together to give warfighters what they want, when they want it and where they want it. To do this, everyone must also be well trained, which may require formal education in classroom settings for many.

"We have very good people throughout this process," Bolton stated. "Everybody is working hard and doing the very best they can. But if you're not providing the training — and I mean classroom-type training, book-type education — and the right tools for everybody in this process, and I mean everybody, then we are suboptimizing, and the person who is paying for this is in the foxhole."

Bolton provided several success stories about programs that take very little time to go from warfighters saying, "I want" to "I got," including the Army's Rapid Fielding Initiative. This program provided Soldiers with a wide array of combat equipment over a very short time span, equipping nearly 250,000 troops with about $3,000 to $5,000 worth of items per individual Soldier.

"I had the pleasure of talking to the Soldiers in the 3rd Infantry Division just before they redeployed to Iraq, and they're extremely happy with the quality of the equipment and the fact that they got it when they wanted it and where they wanted it," Bolton observed.

Another Army success story was the Rapid Equipping Force items fielded to Soldiers in Afghanistan to help them clear caves. The PackBot (see photo on Page 4) — a robotic device developed by iRobot Corp. — helped Soldiers locate and then detonate mines, improvised explosive devices (IEDs) and other potentially hazardous items, thereby saving Soldiers' lives.

"We sent COL Bruce Jette over to Afghanistan as that conflict began," Bolton recalled, "and we said, 'go visit our Soldiers and find out what they want and see how we can best support them with new technology and help them better use the technology they already have.' Well, COL Jette proved to be a good choice. He's a Soldier first who just happens to hold a Ph.D. from MIT [Massachusetts Institute of Technology]. As a fellow Soldier, he inspired the trust and confidence of those on the ground. A Soldier talking to Soldiers enabled quick solutions that saved lives and addressed urgent requirements. Solutions such as the PackBot, which took only about 4 weeks to develop, became another Soldier over in Afghanistan. Now we have hundreds of these robots over there

> "FCS is a green program. It is doing what the Army wants it to do, and we will have a capability that is unsurpassed anywhere in the world."

clearing caves, mines and IEDs. Everyone loves them."

Bolton noted that dozens of much-needed items have been put into the hands of Soldiers, some within a matter of hours and all within 90 days or less.

"The Stryker, a system rigorously tested by the Army Test and Evaluation Command [ATEC] and its subordinate commands, is a true success story for Army acquisition," Bolton added.

"Eight of the 10 variants are in the field now," he continued. "We have the 2nd Stryker Brigade Combat Team in northern Iraq as we sit here today. From its inception in 1999 to its actual combat deployment in 2003, the Army deployed an unmatched warfighting capability within 4 years. This was an entire full-up, combat-capable brigade — not just the 100-plus Stryker vehicles, but all the other vehicles, everyone trained and fighting a war. Under the normal process, the Stryker alone should have taken 10 to 15 years to develop, and we did everything in 4 years. We understood the requirement, we had the resources, we had the right people who did everything correctly, and now the people who are benefiting from this are the Soldiers at the 'tip of the spear.' If you ever want to know how well this is working, don't talk to me. Talk to the men and women who are using this vehicle today. It has an absolutely phenomenal capability against everything the enemy over there throws at us," Bolton emphasized.

> "Though the issues are complex, I am extremely confident the test and evaluation community and its partners in acquisition will surmount the technological obstacles ahead due to the expertise and commitment of the people involved."

The biggest challenge in the years ahead for ATEC and other partners in the acquisition community is to field Future Combat Systems (FCS).

"It is the first truly, for the Army, system-of-systems and the largest system-of-systems program ever done by DOD, let alone the Army — 18 systems wrapped around a network and focused on the Soldier," Bolton explained. "There has been a lot in the news. The truth of the matter is the FCS program is a green program. It is doing what the Army wants it to do, and we will have a capability that is unsurpassed anywhere in the world. As our technology moves forward, it will be spiraled to the field.

"The continued development of effective modeling and simulation tools for the FCS program is essential," Bolton continued. "The FCS program could not survive without modeling and simulation. How do you test a system-of-systems capability? How do you test spiraled technology? How do you do that so the timeline is reduced from 2, 3 or 4 years to less than 1 year? We need modeling and simulation with fidelity enough that we can reduce the risks the engineers see and reduce the time we're taking to field these complex systems and equipment. Army testers have been working to answer these questions and solve these problems from 'day one' because of FCS' complexity," Bolton summarized.

"The models that we have were good in the Cold War and may have been good 10 years ago, but they are seriously strained given today's operational environments," he warned. "It is imperative that we answer the question, 'What will happen to the Soldier in the foxhole if a system doesn't perform to a certain standard?' We've got to be able to answer that question," Bolton emphatically stated.

"Though the issues are complex, I am extremely confident the test and evaluation community and its partners in acquisition will surmount the technological obstacles ahead due to the expertise and commitment of the people involved," Bolton exclaimed. "People in the Army are central to everything that we do. People make it happen. I like to say that institutions don't transform — people do," he concluded.

[1] Documented from research article titled "Building On and Spinning Off: Sandia National Labs' Creation of Sensors for Vietnam," SAND96.2824C, Rebecca Ulrich, Nov. 8, 1996.

MICHAEL CAST is the Developmental Test Command's Public Affairs Officer. He is a former Army photojournalist and Keith L. Ware Award winner. He has a B.A. in journalism from Arizona State University.

From the Acquisition Support Center Director

For the past year, we have been a Nation at War and as such have been working hard to support our Soldiers at the tip of the spear in the most efficient and responsive manner possible. In direct response to combatant commander and Soldier requirements, we have made critical changes relative to mission and people. One of the biggest challenges we face today is resourcing — meeting our mission responsibilities with less.

In an effort to resource efficiently, we invited our Army Materiel Command (AMC) partners to join us at the 2005 Acquisition Senior Leaders and AMC Commanders Conference (SLCC), which was held Aug. 22-25, 2005, in Detroit, MI. This year's theme was "Together, Spiraling Tomorrow's Technology to Soldiers Today!" On behalf of our AMC partners, we would like to thank MG William Lenaers and his staff at U.S. Army Tank-automotive and Armaments Command (TACOM) for the tremendous support they provided in planning and executing this year's conference. From force protection and security to protocol and transportation, the TACOM staff worked tirelessly behind the scenes to make the conference a success. We look forward to building on this relationship in the future.

During the SLCC, LTG Joseph L. Yakovac, Director of Acquisition Career Management and Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology, underscored the importance of proper training and education for the Acquisition, Logistics and Technology (AL&T) workforce. It takes broad skills to manage complexity. LTG Yakovac explained that continuing education is important for everyone — even senior leaders — to develop flexible, well-rounded leaders prepared to lead as required. He highlighted the AL&T Executive Leadership Program held Aug. 1-5, 2005, at the Airlie Center in Warrenton, VA.

We partnered with the Defense Acquisition University (DAU) to develop the AL&T Executive Leadership Program to provide AL&T general officers and senior executive service leaders a recurring opportunity for relevant, executive education and continuous learning. There are three program phases: participating in team learning events, shadowing warfighters during exercises in Joint and Army operational training environments and undertaking individual executive education. The Acquisition Support Center is developing the operational exposure phase of the AL&T Executive Leadership Program, which will include activities conducted at the National Training Center, Fort Irwin, CA.

The August AL&T Executive Leadership Program event focused on Life Cycle Management Command (LCMC) implementation, a specific challenge facing the AL&T community. LCMC commanders, Integrated Materiel Management Center commanders and program executive officers were many of the participants. Leaders from academia and industry highlighted relevant concepts, tools and resources. DAU's staff from the Defense Systems Management College School of Program Management presented a case study developed from fused data gained in interviews over the previous 3 months from program/project/product managers and others involved in the implementation of LCMC across the Army.

I urge you to follow LTG Yakovac's lead and chart your educational and training goals for the year ahead. Now is the time to update your individual development plan and register for courses. Your actions help us all work to transform the Army Acquisition Corps, our workforce and our great Army.

Just before this issue went to press, Hurricane Katrina hit the Gulf Coast in late August and devastated cities, communities and lives in its wake. The Army National Guard, featured so prominently in this issue, has been called to provide protection and order, evacuate people and bring food, water and medicine to thousands of people in need. Soldiers, spouses, family members and all members of the Army Family who need assistance because of Hurricane Katrina should e-mail the Well-Being Liaison Office at **katrina.relief@us.army.mil**, or call 1-800-833-6622. Our fellow citizens affected by the hurricane and the many Soldiers and other service members providing help are in our thoughts and prayers.

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

Acquisition Graduate Degree Program (AGDP) Commencement

Fifteen U.S. Army Acquisition Corps (AAC) officers received acquisition-related Master of Arts (M.A.) or Master of Business Administration (M.B.A.) degrees at a commencement ceremony held June 15, 2005, at Fort Leavenworth, KS. Webster University conferred the degrees as part of the AGDP. MAJ David Brumlow, MAJ William Campbell, MAJ Bruce Ellis, MAJ Michael Foster, MAJ Brian Gruchacz, MAJ Richard Haggerty, MAJ Paul Hopkins, MAJ Mark Johnson, MAJ Shawn Lucas and MAJ Fidel Macan received M.A. degrees in procurement and acquisitions management. MAJ Federica King and MAJ Rochelle Roberson received M.A. degrees in computer resources and information management. M.B.A. degrees were conferred on MAJ Kevin Ellison, MAJ Roland Gaddy and MAJ Lance Green. Patricia Masidonski, Associate Dean, School of Business and Technology, gave the commencement address.

With Intermediate Level Education replacing the existing Command and General Staff Officers Course, this was the last group of AAC officers to graduate under the AGDP.

MAJ Haggerty Receives 2005 Hite Award

MAJ Richard T. Haggerty received the LTG Ronald V. Hite Award at a ceremony held June 15, 2005, at Fort Leavenworth, KS. The award, established in March 1999, recognizes the outstanding Army Acquisition Corps (AAC) student attending the resident Command and General Staff Officer Course (CGSOC). COL Genaro Dellarocco, then U.S. Army Acquisition Support Center (ASC) Director, presented the award. Haggerty received a plaque, a 3-star AAC coin and a congratulatory note from LTG Joseph L. Yakovac Jr., AAC Director.

Haggerty was selected from 23 AAC students attending the 2004-2005 CGSOC. All AAC officers attending the resident CGSOC were eligible to compete for the award. Selection was based on a student's grade point average, contribution to group work, leadership skills, written and oral communications, research ability, staff-group advisor recommendation and acquisition faculty consensus. The award is named in honor of the former AAC Director who was instrumental in establishing the Acquisition Education and Training Program at the U.S. Army Command and General Staff College (CGSC).

This will be the last Hite award for AAC officers attending CGSC. Beginning in FY06, AAC officers will attend the Core Intermediate Level Education and the FA51 Intermediate Qualification Course in lieu of CGCS.

MAJ Richard T. Haggerty receives the LTG Ronald V. Hite Award from then ASC Director COL Genaro Dellarocco. (Photo by Chappell Graduation Images.)

Haggerty's next assignment is as a systems manager in the Special Operations Command at MacDill Air Force Base.

Change to Medal Requests for Veterans

Veterans who were separated, discharged or retired after Oct. 1, 2002, should submit all medal requests to the U.S. Army Human Resources Command in St. Louis (HRC-STL), not the National Personnel Records Center. The address to submit such requests is: U.S. Army Human Resources Command-St. Louis; Attn: AHRC-CC-B; 1 Reserve Way; St. Louis, MO; 63132-5200.

This notice applies to all electronic official military personnel files for Army Active/Reserve Component (AC/RC) officers and enlisted members as well as National Guard (NG) officers, but excludes NG enlisted and Reserve member files, which are in paper format.

HRC formally activated Oct. 2, 2003, combining the U.S. Total Army Personnel Command and the U.S. Army Reserve Personnel Command.

Since Oct. 1, 2002, all official military personnel files for Army AC/RC officers and enlisted members and NG officers have been electronically stored at HRC-STL, and requests for any information pertaining to these records should be directed to HRC-STL.

For further information, contact HRC-STL customer service at (314) 592-0123 or toll free at 1-800-318-5298. You may also visit their Web site at **https://www.hrc.army.mil**.

Additional medal information for Army veterans is located online at **https://veteranmedals.army.mil**.

FY06 AAC COL/GS-15 PM/AC Slate

The U.S. Army Human Resources Command recently released the following FY06 Army Acquisition Corps (AAC) Colonel (COL)/GS-15 Project Manager (PM)/Acquisition Command (AC) Slate. Please note that ranks were current as of the release date.

Rank	Name	PM/Command	Organization
LTC(P)	Azemar, Jacques A.	Baghdad	Defense Contract Management Agency (DCMA)
LTC(P)	Bass, Joseph L.	Dallas	DCMA
LTC(P)	Bryant, Thomas H.	Technology Applications	U.S. Army Special Operations Command
LTC(P)	Bullington, Johnny R.	Yuma Proving Ground	Army Test and Evaluation Command (ATEC)
LTC(P)	Burke, Kyle T.	Contamination Avoidance	Joint Program Executive Office Chemical and Biological Defense (JPEO CBD)
LTC(P)	Cottrell, Daniel T.	U.S. Army Contracting Command-Korea (USACC-Korea)	Army Contracting Agency (ACA)
LTC(P)	Cunnane, John L.	Maryland	DCMA
COL	Franco, Debra D.	Medical Systems	JPEO CBD
COL	Gallagher, Daniel J.	Birmingham	DCMA
COL	Hoppe, William C.	Tactical Radio Communications Systems	PEO Command, Control, Communications Tactical
COL	Hughes, Daniel P.	Unslated	
COL	Leisenring, Stephen	USACC-Europe	ACA
LTC(P)	Lewis, Bruce D.	White Sands	ATEC
LTC(P)	Lockhart, David E.	Instrumentation, Target and Threat Simulators	PEO Simulation, Training and Instrumentation
LTC(P)	Malatesta, Mark L.	Guardian	JPEO CBD
LTC(P)	McGuiness, John J.	Soldier Equipment	PEO Soldier
LTC(P)	Shufflebarger, Newman	Cargo Helicopter	PEO Aviation
COL	Williamson, Michael	Future Combat Systems Network Systems Integration	Program Manager Unit of Action

FY06 AAC LTC/GS-14 PM/AC Slate

The U.S. Army Human Resources Command recently released the following FY06 Army Acquisition Corps (AAC) Lieutenant Colonel (LTC)/GS-14 Product Manager (PM)/Acquisition Command (AC) Slate. Please note that ranks were current as of the release date.

Rank	Name	PM/Command	Organization
LTC	Alvarez, John G.	Joint Vaccine Acquisition Program	Joint Program Executive Office Chemical and Biological Defense (JPEO CBD) Army Medical Department
LTC	Amsler, Duane E. Jr.	Mobile Command Satellite	PEO Command, Control, Communications Tactical (PEO C3T)

Rank	Name	PM/Command	Organization
LTC	Armstrong, Scott C.	Exoatmospheric Kill Vehicle	Missile Defense Agency (MDA)
LTC	Balda, John S.	Prophet	PEO Intelligence, Electronic Warfare and Sensors (IEW&S)
LTC	Boruff, William M.	Central Pennsylvania (York)	Defense Contract Management Agency (DCMA)
LTC	Bosworth, Brian E.	Terminal High-Altitude Area Defense (THAAD) Battle Management Command, Control, Communications and Intelligence	MDA
LTC	Brown, Keith J.	Fixed Wing	PEO Aviation, Reserve Component (RC), U.S. Army Reserves (USAR)
LTC	Brunson, Kerry P.	Apache Modernization	PEO Aviation
LTC	Burden, Patrick W.	Joint Automatic Identification Technology	PEO Enterprise Information Systems (EIS)
GS-14	Carlsen, Marlin D.	Manned Ground Vehicle	Program Manager, Unit of Action (PM UA)
LTC	Carter, Charles A.	Army Airborne Command and Control System	PEO C3T
LTC	Clements, Andrew T.	Communication and Intelligence Support Systems	PEO IEW&S
LTC	Courtney, John M.	Enterprise Logistics Systems	PEO EIS
LTC	Creech, Gregory S.	Live Training Systems	PEO Simulation, Training and Instrumentation (STRI)
LTC	Cunningham, Daniel J.	Intelligence Fusion	PEO C3T
LTC	Donovan, Sharlene J.	MH-60M Service Life Extension (SLE)	U.S. Army Special Operations Command (USASOC)
LTC	Fletcher, Robert E.	Small and Medium Caliber	PEO Ammunition (AMMO)
LTC	Garcia, Joseph G.	Defense Communications System (DCS)-CONUS	PEO EIS
LTC	Grein, Alfred J.	Medium Tactical Vehicle	PEO Combat Support and Combat Service Support (PEO CS&CSS)
LTC	Gresham, Shawn P.	Medium Altitude Endurance Unmanned Aerial Vehicle (UAV)	PEO Aviation
LTC	Grinsell, Christian	Special Product Office 2100	USASOC
LTC	Hannah, Robert J.	Mounted Combat System	PM UA
LTC	Hannon, John P.	Saudi Arabia	DCMA
LTC	Harris, Bobby	Test, Training and Exercise Capability	MDA
LTC	Heilig, Donald M. Jr.	Armed Robotic Advanced Technology	U.S. Army Materiel Command (AMC)
LTC	Higgs, Carl B.	Armed Reconnaissance Helicopter	PEO Aviation
LTC	Hill, Paul M.	THAAD Radar	MDA
LTC	Johnston, Robert J.	Light Utility Helicopter	PEO Aviation
LTC	Keller, Winfield R.	Future Force UAV	PEO Aviation
LTC	Laase, Gary L.	Sentinel	PEO Missiles and Space (MS)
LTC	Lewis, John W.	Mortar Systems	PEO AMMO
LTC	McVay, Robert G.	Non-Line-of-Sight Cannon/Mortar	PM UA
LTC	Mentzer, Rodney A.	Global Command and Control System-Army	PEO C3T
LTC	Minus, Joseph S. Jr.	Heavy Tactical Vehicles	PEO CS&CSS
GS-14	Mitchell, George J.	Target Range Interface Operations	MDA
LTC	Monis, Michael J.	Medium Extended Air Defense System	PEO MS

Rank	Name	PM/Command	Organization
LTC	Nassar, Michelle	Command Ground Station and Datalinks	PEO IEW&S
LTC	Noe, Steven M.	Unmanned Ground Vehicle	PM UA
LTC	Oregan, John M.	Electromagnetic Gun Armaments	AMC
LTC	Rasch, Robert A. Jr.	One-Semi-Automated Force	PEO STRI
LTC	Receniello, Michael	Petroleum and Water Systems	PEO CS&CSS RC (USAR)
LTC	Richards, Clyde E.	Defense Wide Transmission System	PEO EIS
LTC	Riordan, Matthew	Acquisition Logistics and Technology Enterprise System and Services	PEO EIS
LTC	Sanders, William A.	St. Petersburg	DCMA
LTC	Spear, Ronald L.	Defense Message System	PEO EIS
LTC	Statham, Alan T.	Ground-based Midcourse Defense Booster	MDA
LTC	Stawowczyk, Edward J.	Forward Looking Infrared	PEO IEW&S
LTC	Strange, Timothy J.	Lockheed Martin	DCMA
LTC	Swanson, Edward J.	DCS-Pacific	PEO EIS
LTC	Theodoss, Michael D.	Multi-Role Airborne Protection System	AMC
LTC	Todd, Thomas H. III	Improved Cargo Helicopter	PEO Aviation
LTC	Tolson, Todd F.	Boeing Philadelphia	DCMA
LTC	Tuftie, Bruce J.	MH-47G SLE	USASOC
LTC	Utroska, William T.	Battle Command/C3 Advanced Technology Demonstration	AMC
LTC	Vogelhut, Jonas	Joint Standoff Detection and Reconnaissance	JPEO CBD
LTC	Voigt, Jeffrey R.	Light Tactical Vehicle	PEO CS&CSS
LTC	Washington, Gail L.	Yuma Proving Ground Test Center	U.S. Army Test and Evaluation Command
LTC	Wilson, Veronica A.	Syracuse	DCMA
LTC	Womack, John S.	Air Warrior	PEO Soldier
No Name		Apache Block III	PEO Aviation
No Name		Special Operations Mission Planning Environment	USASOC
No Name		Contracting-Fort Bragg (XVIII AB Corps)	U.S. Army Contracting Agency

News Briefs

Partnering to Train the National Guard Acquisition Workforce

MAJ Lee C. Whalen

Soldiers' success often results from training received prior to mission assignment. Contracting successes are no exception. In July 2005, the 167th Theater Support Command (TSC), Alabama Army National Guard's (NG's) contracting team collaborated with the Anniston Army Depot (ANAD) Directorate of Contracting (DOC) to provide a unique training program to eight Alabama National Guardsmen of various ranks and acquisition certification levels.

ANAD DOC contract specialists provided one-on-one training for the Guardsmen. They used a well-developed training plan for each trainee and covered as many areas of contracting for supplies and services under $100,000 as possible. The 4-day training program discussed simplified acquisition procedures, contingency contracting and procurement ethics and integrity.

The program addressed the 167th TSC's specialized contracting mission of operating in either a homeland security situation or overseas in an area of operation supporting

Procurement training programs like the partnership between ANAD DOC and the 167th TSC help NG acquisition personnel ensure mission success. Here, U.S. Air Force CPT Kimberly Cardona-Smith, commander of the 105th Communications Flight, loads medical supplies onto a KC-135 at Stewart Air NG Base, Newburgh, NY. (U.S. Air Force photo.)

theaterwide logistics requirements by using the real-world exercise of purchasing supplies and services for ANAD, which has similar customer requirements as TSC. The Guardsmen worked directly with acquisition Soldiers, encountering and resolving typical systematic and developmental challenges.

"This experience provided us with real-world training in the contracting area that is not available in any military schooling," said LTC Tim Edgil, Deputy Director of the Contracting Office at the 167th TSC.

The program concluded with an after action review, during which lessons learned were shared. ANAD DOC and the 167th TSC both felt the training was beneficial and rewarding. The 167th TSC Commanding General, MG Abner C. Blalock Jr., viewed this training as critical to mission success. Both organizations expect to see many similar initiatives between ANAD DOC and the 167th TSC in the future. By partnering with an eye to the future, ANAD DOC and the 167th TSC Contracting Directorate can and will meet future contracting missions at home and abroad.

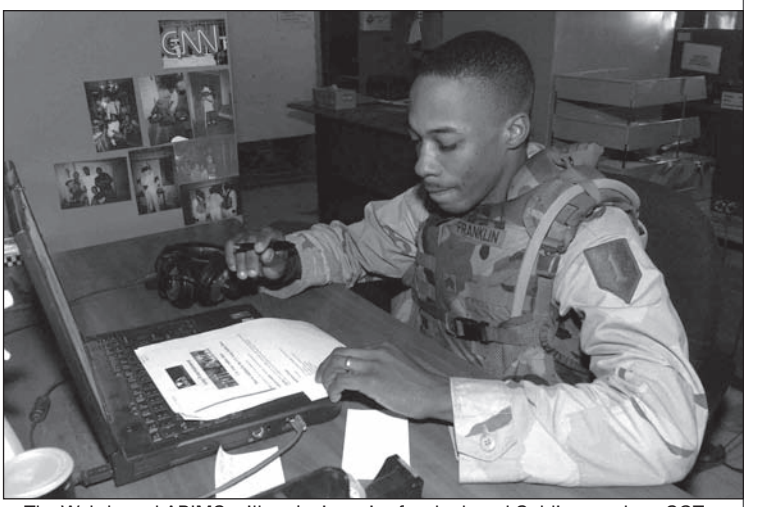
MAJ Lee C. Whalen is a procurement officer with the 167th TSC, Alabama Army NG. He is Level III certified in contracting.

Innovative Web-Based System Preserves Official Records

Karen Hampton

The Army recently replaced its official recordkeeping system, the Modern Army Recordkeeping System, with the state-of-the-art Web-based Army Records Information Management System (ARIMS). ARIMS' innovative recordkeeping approach supports Secretary of the Army Dr. Francis J. Harvey's direction given in a Feb. 22, 2005, memorandum: "The preservation of record information ... protects the legal and financial rights of the government and persons directly affected by the government's activities." He added that he expects "leaders to make the preservation of official records a matter of personal interest." Showing his support and confidence in ARIMS to meet the formidable challenge of recordkeeping in our current electronic environment, Harvey further directed the Army to transfer all electronic and e-mail documents that qualify as official records to ARIMS for long-term or permanent preservation.

ARIMS provides enhanced capabilities for authorized users to create, maintain, transfer, locate and retrieve official Army records, including tracking documents stored in Army Records Holding Areas and in the Army Electronic Archive (AEA). Its Web-based tool set helps ensure that the Army's long-term and permanent records are kept in compliance with the law and that they are securely stored and retrievable only by authorized personnel. System functionality focuses on minimizing user workloads at all recordkeeping levels.



The Web-based ARIMS will make it easier for deployed Soldiers such as SGT Levon Franklin of the 1st Infantry Division, shown here in Iraq, to create, track and maintain official records. (U.S. Army photo by SPC Sherree Casper.)

A key ARIMS component is the downloadable User's Guide, which defines ARIMS features and teaches users how to navigate and operate the system. The guide is divided into sections that deal with specific ARIMS modules so it is easier to understand. Each section contains sample screenshots to demonstrate a capability or functionality.

ARIMS registration uses Army Knowledge Online (AKO) account information, which provides ARIMS with much of a user's profile information, including user category and to which unit/organization they are officially assigned. AKO also notifies ARIMS when a user transfers to another unit or

ARIMS securely stores personnel records but makes them accessible to authorized users around the world, facilitating recordkeeping for forces everywhere. Here, SPC Tanya Gilstrap and CWO Claude Garner from the 45th Infantry Brigade, Oklahoma Army National Guard, review records of newly arrived Soldiers at Camp Phoenix in Afghanistan. (U.S. Army photo by SSG Robert R. Ramon.)

separates from the Army, which helps ensure that records submitted to the ARIMS AEA are associated with the correct unit and are only accessible to those who are authorized.

ARIMS' Electronic Capture and Store (ECS) module makes it easier for a user to identify and send e-mail and other types of e-records to the multi-terabyte AEA where they are centrally managed and stored. An enhanced ECS version fully supports the vision and direction given to the Army's Records Management and Declassification Agency (RMDA) by Administrative Assistant to the Secretary of the Army Sandra Riley and Army Chief Information Officer/G-6 LTG Steven W. Boutelle to further simplify the process for preserving electronic records. The ARIMS application is compliant with the revision to *Army Regulation (AR) 25-400-2*, *The Army Records Information Management System (ARIMS)*, which redesigned the Army's recordkeeping program.

Because this is the first system of its kind in the federal government, the National Archives and Records Administration presented RMDA the 2004 Archivist Achievement Award for their "innovative use of information technology to enhance the business process" when designing and fielding the ARIMS.

The ARIMS home page is located at **https://www.arims.army.mil/**. The latest *AR 25-400-2* can be downloaded from **http://www.apd.army.mil/pdffiles/r25_400_2.pdf**.

Karen Hampton is a Management/Program Analyst at RMDA, Alexandria, VA.

Force Sensing Treadmill Advances Gait Studies

Curt Biberdorf

Each foot gets individual attention on the force sensing treadmill, a newly patented design invented by U.S. Army Research Institute of Environmental Medicine (USARIEM) research physiologists.

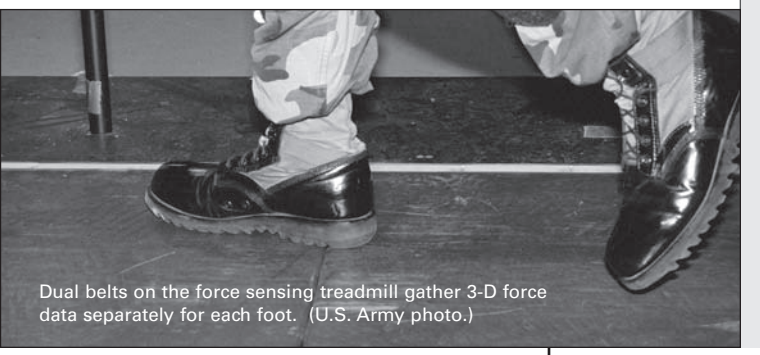
Built by Advanced Mechanical Technology Inc., Watertown, MA, the treadmill features one rolling belt in front of another, each with an independent force platform attached to a common chassis.

"The treadmill gathers more and higher quality data during gait studies in much shorter time than traditional methods," said Peter Frykman, who along with Everett Harman and Michael LaFiandra invented the treadmill as an upgrade to the existing force platform used in the Center for Military Biomechanics Research, a facility shared by USARIEM and the Natick Soldier Center at the U.S. Army Soldier Systems Center, Natick, MA.

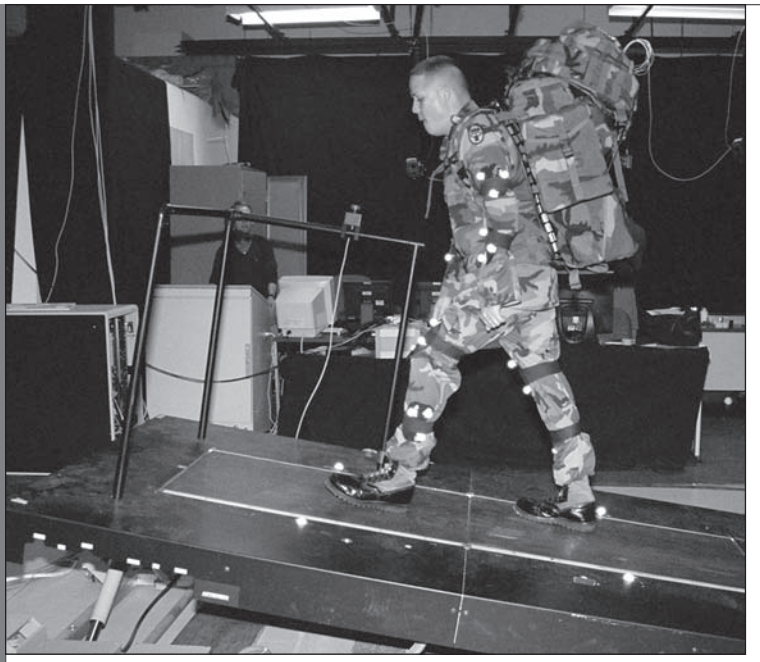
"The new force-platform treadmill is a unique tool that addresses the gait biomechanics of marching Soldiers. During previous gait studies, the test subjects had to step on the force plate just right. That made it very hard to walk naturally. In addition, we had to assume that what was happening on the right foot was happening to the left foot as well," Frykman remarked.

"The idea of joining two separate rolling belts on a treadmill has been attempted, but they were positioned laterally to each other rather than fore-aft," said Harman.

Because each foot tends to cross over or overlap the body's midline as it lands, the lateral design made it impossible to walk naturally while keeping each foot on a separate belt.



Dual belts on the force sensing treadmill gather 3-D force data separately for each foot. (U.S. Army photo.)



SPC Hipolito Ramos walks on the force sensing treadmill in the biomechanics lab. Hydraulic lifts adjust the platform up to a 25 percent uphill or downhill grade without stopping the belt or test subject. (U.S. Army photo.)

By positioning the two rolling belts front and back moving at the same speed, separate information on the 3-D forces and torques on each foot can be collected during walking or running the entire time either foot is in contact with the belt.

"If you stand on a scale to measure your weight, you can't determine what pressure each foot is exerting," Frykman commented, illustrating how a single-belt force-platform treadmill can't do the job. "With this treadmill, both feet are never on the same belt at the same time. To get a good analysis, you need to know the force on each foot separately."

Collecting data from each foot is especially important while walking because for part of the stride, both feet are touching the ground at the same time. That is when a single force platform under a treadmill belt can't tell how much of the total force is on each foot.

Computer post-processing produces independent time records of the forces on each foot with the new treadmill. The computerized system records thousands of data points per second captured by the force-platform treadmill and video cameras for later analysis, assisted by reflective markers worn by test subjects.

In 5 minutes of testing, researchers can now collect more information than when conducting many trials over several hours using a conventional force platform.

"Knowing the magnitude and direction of forces on the feet as well as body motion information recorded with high-speed video cameras allows researchers to use computerized mathematical models to calculate the forces and torques at the ankles, knees, hips and the other major body joints," said Harman.

The biomechanics laboratory is studying for the military how rucksacks, boots or clothing affect posture and gait.

"Large universities conducting biomechanics studies and hospitals with gait analysis labs for medical diagnosis and physical rehabilitation are potential customers for the new treadmill, which the Army hopes to license to Advanced Mechanical Technology Inc.," Frykman said.

The treadmill bed looks and feels like a conventional treadmill except for a sliver of space between the front and rear belts, which doesn't disrupt normal walking. Maximum speed is 11 mph, and hydraulic lifts adjust the platform up to a 25 percent uphill or downhill grade without stopping the belt or test subject. Bed capacity is 400 pounds to accommodate larger test subjects and their cargo load, and a removable handrail clears the view of the lab's cameras.

Several heavy cables connect the force-platform treadmill to the control panel, which is necessary to operate its high-precision motors, according to Frykman. The whole gait analysis system can be moved to another location if necessary. "We couldn't get the same data or the tremendous time savings without the new force-platform treadmill. Those are the factors that make it the great scientific tool it is," Harman concluded.

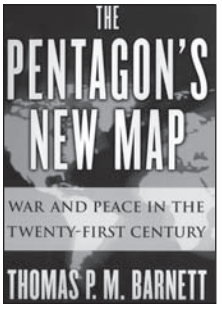
For more information about USARIEM or the U.S. Army Soldier Systems Center, go to **http://www.usariem.army.mil** or **http://www.natick.army.mil**.

Curt Biberdorf is an Editor in the Public Affairs Office, U.S. Army Soldier Systems Center.

Worth Reading

The Pentagon's New Map
War and Peace in the Twenty-First Century

Thomas P.M. Barnett
G.P. Putnam's Sons, 2004, New York



Reviewed by Chris Traugott, an Associate with Booz Allen Hamilton, who is currently working with the Army's Personnel Transformation Directorate.

For the four decades prior to the Soviet Union's dissolution, the U.S. military studied the enemy and knew it well — what the Soviets could do, what they might do and how to contain the military and political threat to maintain the status quo. An established rule set governed war and peace between the two superpowers, and military planners were able to base force structure, manpower projections, equipment acquisitions and doctrine and training on a well-defined threat. In the years since the Soviet Union's fall, U.S. military planners have struggled to define the new threat, the national security strategy to counter it and how to adjust structure, doctrine and war plans accordingly.

In his book, *The Pentagon's New Map*, Thomas P.M. Barnett offers a compelling vision for a successor to the Cold War strategy of containment — in essence, a security strategy for the 21st century. In this strategy, the struggle is not between superpowers with opposing ideologies, or between "near peers" (e.g., the United States and China), but between a "Functioning Core" and a "Non-integrated Gap." In Barnett's definition, the Functioning Core consists of countries that have integrated their national economies into the global economy and accepted certain rule sets governing security, commerce and international relations. Countries in the Non-integrated Gap are not reaping the benefits of globalization and are disconnected from the Functioning Core economically, politically and culturally. Countries and non-state actors in the Non-integrated Gap do not necessarily accept the rule sets by which the Functioning Core abides. The disparity between these "haves" and "have nots" leads to friction and conflict, which cannot be resolved by military action alone.

The book's title refers to a map that Barnett developed in the summer of 2001 on which he marked military activities in which the United States had engaged since 1990, including evacuation operations, peacekeeping and relief operations, contingency positioning, shows of force and actual combat operations. Marking these military responses on a map graphically depicted the focus of U.S. military efforts since 1990. Drawing a line around the hot spots effectively defined the boundary between the Functioning Core and the Non-integrated Gap, which includes much of Asia, most of Africa and several states in the Middle East.

Barnett argues that moving states from the Gap to the Core will require a multifaceted approach, including foreign aid, private sector investment and, in some cases, military intervention. America's national security interest is tied to the security of the Core, and it is in America's, and the Core's, interest to extend global economic connectedness to Gap countries. Barnett uses post-World War II Germany and Japan as examples of how economic connectedness can lead to political stability, and posits that the United States finds itself at a similar historical watershed with an opportunity to establish a new strategic security paradigm.

Among the elements Barnett's new strategic paradigm calls for are what he terms a "bifurcated" military, one part of which (the Leviathan) specializes in "high-tech, big-violence" wars — namely the war on terrorism — and another (the Sys Admin force) that specializes in relatively low-tech security, peacekeeping operations and shrinking the Gap. Barnett also calls for greater interagency cooperation, a transformed State Department capable of executing a "shrink-the-Gap" strategy through nonmilitary means, the reinvention or reinvigoration of global institutions such as the United Nations and the International Monetary Fund to progress the goals of globalization and closer coordination between the United States and traditional allies, as well as new members of the Core — Russia, China and India — to cooperatively set new global rule sets.

Barnett clearly articulates that the post-Soviet threat is neither Islam nor the Middle East, it is the disconnectedness between the Functioning Core and the Non-integrated Gap. His proposed resolutions are always thought provoking, and sometimes radical. Perhaps most radical of all is his optimism that, through shrinking the Gap, the end of war is within our historical grasp.

ALTESS News

MAUI Update

Raymond S. Soroka

Got applications (apps)? Got too many apps? Of course you do. We all do. The acquisition world is full of hundreds — if not thousands — of applications, and we use way too many of them on a daily basis. Surely there must be a simpler way to handle the data contained in the Acquisition Business Mission Area that you deal with every day. There is an easier way — the Master Acquisition User Interface (MAUI), a project sponsored by the Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Program Executive Officer Enterprise Information Systems.

MAUI is at the heart of application consolidation within Acquisition Information Management (AIM) and will provide a single interface and functionality that will allow you to interact with all data contained in each acquisition life-cycle phase.

As you already know, the Monthly Acquisition Program Review and Monthly Acquisition Report have been retired and the trend will continue. MAUI has attained several milestones since the last update in this magazine. We have formed a very successful Subject Matter Expert Integrated Process Team (IPT) that meets regularly. This IPT has been invaluable in identifying data sources and the business process associated with that data. This knowledge capture is being formalized and will help shape MAUI's structure and functionality. The initial draft of the MAUI Requirements Design Document is being prepared and, once the Critical Design Review is complete, we anticipate an initial release sometime this fall.

Interface Strategy

MAUI, at its simplest, will contain two broad functional capabilities. One segment will be devoted to data entry and the other to data retrieval. The data entry segment will allow you to enter all your acquisition data into one area as opposed to having to launch multiple applications, as you probably do now. The data retrieval segment will allow you to extract your data in formats that are familiar to you. These include Probability of Program Success charts, SmartCharts, acquisition category reports and acquisition program baselines.

Data Strategy

As the Army transitions to net-centricity, MAUI will align its data foundations accordingly. Net-Centric Enterprise Services (NCES) is defining how data needs to work in the enterprise, and the Product Manager Acquisition, Logistics and Technology Enterprise Systems and Services (PM ALTESS) database operations group is fine-tuning its own data strategy to align with it. The Common Organizational Database Infrastructure for Everyone project is the lead entity for current database operations within AIM. Operation Firedog, another ALTESS mission, is the transformational plan that will carry forward the acquisition data and functional components contained in AIM to the next level, which is NCES and Global Information Grid compliancy.

Raymond S. Soroka is an Applications Integration Supervisor and the AIM Group Leader at PM ALTESS. He has served in both the Engineering and Applications Divisions.

Virtual InSight (VIS)

MAJ Steve Lundy and Daniel Rivera

On Feb. 7, 2005, the Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT) signed the VIS implementation memorandum establishing policy and responsibility for using the VIS system to support the milestone decision review process. Once fully implemented, VIS usage will be mandated for all Army acquisition category I, II and III systems.

The Program Executive Office for Enterprise Information Systems (PEO EIS) has approved Phase 1, Limited Deployment Decision of 15,000 user licenses. Additional approval was given to enter into Phase 1.1 to conduct a System Acceptance Test and Lead Site Validation Test. Phase 1.1 will validate the commercial-off-the-shelf (COTS) components' usability as well as the hardware and network environment's ability to sustain the expected user load.

A regional training calendar will be published to inform the acquisition community when the Product Manager Acquisition, Logistics and Technology Enterprise Systems and Services (PM ALTESS) trainers will be on-site to conduct training. The VIS team will work closely with ASAALT proponents and PEO functional advocates to allocate and prioritize training. PM ALTESS VIS user account distribution is as follows:

User Community	Quantity
U.S. Army Materiel Command	1,000
U.S. Army Test and Evaluation Command	500
HQDA	500
Joint PEO Chemical and Biological Defense	1,000
PEO Ammunition	1,000
PEO Missiles and Space	1,000
PEO Aviation	1,000
PEO Command, Control and Communications Tactical	1,000
PEO Combat Support and Combat Service Support	1,000
PEO EIS	1,000
PEO Ground Combat Systems	1,000
PEO Intelligence, Electronic Warfare and Sensors	1,000
PEO Soldier	1,000
PEO Simulation, Training and Instrumentation	1,000
U.S. Army Research, Development and Engineering Command	500
Reserve	1,000
Other users	500

The Acquisition Information Management (AIM) system will be used to track user requests of the VIS components. The AIM Web site address is **https://aim.altess.army.mil**. Non-AIM users will have to apply for an AIM account and request access to the VIS components. Current AIM users will request access through the MyAIM link. Once the user's account is created, the VIS components can be accessed via the AIM Web site or by going to **https://vportal.altess.army.mil/vis**.

PM ALTESS was granted an Interim Authority to Operate for the VIS system March 14, 2005, and is working toward an Authority to Operate. The VIS Oracle COTS collaboration products were certified by the Joint Interoperability Test Command July 14, 2004.

MAJ Steve Lundy is the VIS program Assistant PM at ALTESS, Fort Belvoir, VA.

Daniel Rivera is an Applications Integrations Supervisor and the Financial Integration Group Leader at PM ALTESS, Radford, VA.

Contracting Community Highlights

In *Army AL&T* Magazine's "Contracting Community Highlights" section, each feature article is intended to provide in-depth information relative to a contracting organization, mission or process. This issue's feature article, "Bundling Contract Requirements," gives an in-depth overview of "bundling" requirements and their legal bases, when the requirements apply to an acquisition, and courses of action. Roger Neds, Chief General Counsel, Army Contracting Agency (ACA) Northern Region Headquarters, provides this article as an instructive tool on this concept.

In addition to the feature, we provide news from a number of our contracting organizations, such as announcing the winners of the General Services Administration Ida Ustad Award for Excellence in Acquisition and California's Employer of the Year Award. This issue, our regular "DAR Council Corner" provides a list of Army *Defense Acquisition Regulation* and *Federal Acquisition Regulation* representatives.

We appreciate the continued support from the field in providing material to submit for publication, and we hope you find the submissions as informative and interesting as we do. If you need more information on any of the topics presented, call (703) 604-7107 or e-mail **ann.scotti@hqda.army.mil** for the pertinent contact information.

Ms. Tina Ballard
Deputy Assistant Secretary of the Army
(Policy and Procurement)

Bundling Contract Requirements

Roger Neds

In virtually every major procurement on which we advise, there is some acquisition aspect where the customer has consolidated requirements in the contract vehicle. This consolidation, or "bundling," has been a great source of political concern resulting in legislative and regulatory changes. Consequently, this area continues to confuse our customers and frustrate everyone on the acquisition team. This article provides an overview of the three different bundling requirements and their legal bases, the particular acquisition circumstances in which they apply and potential courses of action in an effort to explain and advise our customers on this often confusing concept.

Small-Business Bundling

The first requirement concerning bundling stems from the *Small Business Act* (*SBA*). *Federal Acquisition Regulation* (*FAR*) Part 2.101(b) states that bundling occurs when two or more requirements that were procured under separate smaller contracts are consolidated into a solicitation for a single contract that is unsuitable for award to a small-business concern. Under this definition, a requirement is not bundled if it had been previously acquired as a consolidated requirement or if the consolidated requirement was suitable for a small-business award. Consequently, both the past procurement history and the ability of a small business to compete are key to determining whether a requirement is bundled. If both of these conditions are present, a proper bundling analysis — which demonstrates that the bundling is cost-effective — would be required before the acquisition could occur.

Section 801 Bundling

Section 801 of the *National Defense Authorization Act for 2004* is the most recent legislation dealing with bundling and is implemented in *Defense Federal Acquisition Regulation* Part 207.120. This section defines consolidation of contract requirements as when an agency uses a single contract to satisfy two or more requirements that were previously acquired under separate smaller contracts lower in cost than the consolidated contract's total cost. As in *SBA* bundling, Section 801 bundling requirements do not apply if the requirements were procured together previously. However, if the requirement falls under Section 801's purview, then numerous considerations must be addressed in the acquisition strategy when the procurement is expected to exceed $5 million. These considerations include developing market survey requirements, analyzing possible alternate contracting approaches and the senior procurement executive determining that the consolidation is necessary and justified. The statute and regulation further address administrative convenience and savings by providing that such savings must be substantial in relation to the procurement's total cost before the consolidation is justified. The small-business personnel must conduct annual reviews to determine the impact that such consolidations have had on small businesses as both prime and subcontractors.

In many ways, these two provisions complement each other. Both apply only to newly consolidated requirements and have provisions that show concern for small businesses. The primary difference is what happens when a requirement is found to be bundled. If a requirement is bundled under the *SBA* definition, then the agency has a generalized requirement to conduct a bundling analysis. If a requirement is bundled under the Section 801 definition, the acquisition strategy must address some portions of the bundling analysis, for which specific guidance is provided.

Competition in Contracting Act (CICA) Bundling

In addition to the statutory and regulatory requirements, a doctrine has developed where requirements bundling may run afoul of *CICA*. This notion of *CICA* bundling is a concept arising strictly from Government Accountability Office (GAO) bid protest decisions and is not contained in any acquisition statute or regulation. Since *CICA*'s passage, there have been tensions between agencies over requirements definitions and whether a particular definition hinders full and open competition. Over the years, GAO has issued numerous decisions in this area, including decisions where agencies have tried to combine requirements. However, in 2002, GAO started using the term bundling in these kinds of decisions and developed the *CICA*-bundling concept.

The case that actually established *CICA* bundling as a separate concept was Vantex Service Corp.'s challenge of a small-business set-aside to acquire portable latrine rental services and waste-removal services at Fort Campbell, KY. Fort Campbell had been acquiring these services as a package since the mid-80s. Vantex could perform the requirement's portable latrine portion but not the waste-removal portion. Because it could not bid on just the one requirement, it filed a protest alleging that the requirement was improperly bundled. The Army responded by arguing that it was administratively easier to award and handle one contract, that this requirement had a long history of being successfully fulfilled in this way and that the requirement still generated adequate

small-business competition. GAO ruled in the protestor's favor stating that, by keeping those bidders who could only perform one of the functions out of the competition, the Army violated *CICA*. GAO went on to hold that "administrative convenience" by itself would not justify bundling requirements. Rather, the Army would need to demonstrate that real savings resulted from combining the requirement.

The Vantex decision teaches many important points. First, the case establishes the distinct *CICA*-bundling concept. Second, although a procurement may not violate the *FAR* Part 2 bundling definition, it may still violate the *CICA*-bundling doctrine. In this regard, note that Fort Campbell had acquired the services on a combined basis in the past and that the procurement was a small-business set-aside. Either of these factors alone would keep the procurement from being bundled under the *FAR* and *SBA* definitions. That was not enough to sway GAO. Third, GAO makes it very clear that administrative convenience by itself will never justify combining requirements.

While GAO has now issued numerous decisions in this area, there is another case that is particularly noteworthy. The EDP Enterprises Inc. case involved a small-business set-aside competition among private offerors for the A-76 study for the Directorate of Logistics (DOL) at Fort Riley, KS. All DOL functions were combined into one package for proposals by the private bidders. Prior to the A-76 competition, EDP performed the food services work under a separate contract. EDP protested the consolidation of the food services work with the rest of the DOL functions in the A-76 study. EDP argued that this consolidation constituted improper bundling because EDP could not bid on the whole package of DOL functions but only on the food services portion. GAO agreed that this was bundling and looked to see if the Army had a proper justification for combining the requirements. The Army argued that this consolidation was in accordance with its long-standing doctrine where food services are grouped with the other logistics functions and that this grouping is, in fact, the way the Army organizes to go to war.

GAO rejected this argument and found the requirements grouping was improper *CICA* bundling. GAO's language on this point is very revealing: "We do not question the agency's decision to classify food services as logistics support functions to be administered by the DOL. Rather, our concern is whether the agency has provided a reasonable justification of its needs in terms of including food services in the same Request For Proposal with base, vehicle and aircraft maintenance services. In our view, the fact that the agency is organized in a manner that results in overseeing the performance of all these functions by one particular office, which may in itself be reasonable does not provide a basis for insisting that all these varied services be procured from one source."

The clear lesson from EDP is that, just as administrative convenience is an inadequate justification for combining requirements, so is the fact that a group of requirements may be within a single directorate's responsibility.

GAO has found adequate justification for a particular combination of requirements in only one case: Teximara Inc., which concerned the Air Force combining 14 requirements as part of an A-76 study. The Air Force — perhaps in light of the EDP decision — assembled a 114-page study that analyzed combining these requirements and demonstrated that economic savings would result from the consolidation. The study was performed by an in-house team of several individuals and took about 6 months to complete. While the Teximara decision provides an example of what constitutes proper justification for bundling requirements, the time, effort and expense necessary to do this kind of analysis on every potentially bundled requirement makes this solution problematic in many situations.

Potential Courses of Action

In light of recent GAO case law in this area, the question becomes, "What alternatives may we offer our customers to help them get the goods and services they need in a timely and efficient manner?" I believe there are three possible courses, each of which has pros and cons that must be weighed depending on the procurement's specific circumstances. However, all these solutions require the customer and the contracting officer to have a solid understanding of the marketplace in which they are dealing. A thorough market survey, close contacts with the small-business community, and an understanding of any past procurement history are essential in advising our customers on the proper course.

The first alternative is to do the kind of economic, business case analysis that GAO has consistently referred to in their decisions and approved in the Teximara case. Assuming the study supports consolidating requirements, this approach will give customers the single contact they want in a way that is virtually immune from protest. The downside is the amount of time and money that this will cost the government. Most studies such as this would be done through contract, which still requires the customer to spend time and money. One possible way to help the customer would be for the U.S. Army Contracting Agency (ACA) to put a master contract in place for this service, where the contracting officer could write a delivery order and the study could be started quickly.

The second alternative involves restructuring the procurement. Under this approach, the solicitation would permit offerors to bid on single or combined requirements, including a possible bid on all requirements. Part of the evaluation criteria would be for those offerors who choose to bid on a combination of requirements to demonstrate the savings generated by combining requirements. This could include items such as cross-training, combining overlapping functions or using a common management approach. The source selection evaluation board would then evaluate the various approaches and recommend the approach or combination of approaches that would provide the best value to the government. In effect, this course of action transfers the effort that would be done upfront under the first alternative and asks the offerors to provide the kind of data and analysis we must have.

The obvious advantage is that this will save the upfront expenditure of resources that a customer is facing under the first alternative. However, there are two potential downsides to this approach. The first is the customer will not have any reasonable expectation ahead of time as to how their requirements will eventually be met. While it is easy to say that such an expectation should not matter because the customer will, in the end, get the best value, such an approach discounts the "human factor" that is crucial to good customer relations.

The second downside is that this will add an extra burden to what we expect from our evaluators. For a small number of requirements, this should not be a big problem and the approach could work very well. However, this approach will become more complex as the number of combined requirements increases. At some point, a procurement could bundle so many requirements that it would be impossible for an offeror to consider the possible combinations or for an evaluation team to judge them all.

Finally, there is one caveat to this alternative approach. There are no cases where this approach has been tested in a protest before GAO. However, it is the consensus of the ACA senior attorneys that, if done properly, this approach is very likely to survive any GAO protest. If there are any acquisitions in the pipeline where this approach looks attractive, please let me know because we are looking for the right case to try this method.

The third alternative is perhaps the simplest of all and, at the same time, the most radical. This approach entails issuing the solicitation in the normal course of business and waiting to see if a bundling protest is filed. The obvious advantage of this approach is that the customer avoids all the resource issues and effort involved in doing a business study, while still retaining the possibility of getting a single or few awardees. The downside is that, should a protest be filed, it will in all likelihood be a winner and corrective action will have to be taken. Under the current rules, such a protest would have to be filed by the solicitation's closing date, so any challenge would be known early in the process.

In my discussions with attorneys and acquisition professionals, this approach is sometimes viewed as unseemly or an attempt to circumvent the rules. What these comments truly address is the fact that, as the keepers of the government acquisition process, we have an obligation to make sure all offerors are treated fairly and that the process we use appears to be a fair process. For that reason, before embarking on this course of action, the contracting officer must, at a minimum, do thorough market research and ensure that the procurement is properly publicized and vetted with the small-business community. When this is completed, contracting officers may decide to recommend this course of action if, based on all the facts and circumstances, they are satisfied that the requirements do not violate *CICA* and that they have a high degree of confidence that a protest is not forthcoming.

The problems with consolidating requirements are far more difficult and complex than one would expect from just reading the *FAR*. The *CICA*-bundling concept is an area that GAO continues to enforce strongly, which pressures our customers to make decisions and expend resources beyond what they would reasonably expect. This becomes even more difficult because the concepts behind *CICA* bundling are in many ways counterintuitive to what our customers believe makes good business sense. For this reason, it is imperative that we educate our customers in this area early in the process and that we take an active role as business advisors to steer them to the course of action that best meets their needs while staying within the law. To this end, early involvement by both the contracting officer and supporting legal counsel is crucial.

Roger Neds is the Chief General Counsel, ACA, Northern Region Headquarters.

Contracting Successes

WIN-T Contracting Team Receives Frank S. Besson Award. The Warfighter Information Network-Terrestrial (WIN-T) Contracting Team was recently awarded the first-ever Frank S. Besson Award for Procurement Excellence-Contracting Team Category. U.S. Army Materiel Command (AMC) Commanding General GEN Benjamin S. Griffin presented the award at a ceremony held in June at AMC Headquarters, Fort Belvoir, VA.

Designed to support the Army's Future Combat Systems (FCS), the WIN-T program's original acquisition strategy and schedule were synchronized to fit the FCS needs with initial fielding of equipment in FY09. However, because of ongoing Southwest Asia operations exigencies and to meet the coalition force's immediate needs, the program's acquisition strategy was reassessed. Warfighters on the front lines and the battlefield need WIN-T capabilities much sooner than 2009.

Therefore, the Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance WIN-T Contracting Team successfully instituted a new and improved acquisition strategy to support mission-critical initiatives, including the global war on terrorism and *Operations Iraqi* and *Enduring Freedom*. The team changed the acquisition strategy to combine the current two prime contractor teams to develop a single conceptual architecture. The combination of architectures resulted in a System Design Review in January 2005.

This change in strategy is consistent with the Army Chief of Staff's vision for "bridging" the Current and Future Forces by allowing incremental WIN-T capabilities. By combining the efficiencies of two world-class commercial organizations, the Army will obtain the "best-of-breed" solution that combines the unique strengths inherent in each of the prime contractors' respective WIN-T architectures.

Partnering with industry and teaming across functional lines within the government enabled the WIN-T Contracting Team to confront a real and significant challenge: accelerating WIN-T capability delivery much sooner than the original date. Without effective teamwork, this challenge could not have been met. Because of the team's effectiveness, warfighters will see tactical network technology sooner than originally planned. Moreover, the innovative technical approach resulting from the best-of-breed solution will ensure that the Army's FCS goals are met. It will also ensure that the warfighter is connected through an integrated communications network using a high-speed, highly secure and wireless network that will deliver voice, data and video.

National Training Center (NTC) Logistics Support Contractor Receives Employer of the Year Award. Vinnell Corp. Project Manager Dave Booze received California's 2005 Governor's Veterans Employer of the Year Award from Gov. Arnold Schwarzenegger at an awards ceremony held May 6, 2005. The California Employment Development Department and the Employer Advisory Council hosted the awards program to recognize employers for their exemplary practices in hiring and supporting our Nation's distinguished veterans. Vinnell proactively hires veterans, which has been great for successful business operations. The company's veteran population represents nearly one-half of its total employee population — 217 veterans employed on average. Outreach and recruitment efforts target military organizations, veteran representatives and veteran service organizations. Vinnell supports upward mobility and provides ample advancement opportunities to veterans.

Mary Pat Shanahan Wins Prestigious Award. Mary Pat Shanahan, Supervisory Contract Administrator at the Army Reserve Contracting Center's (RCC's) Coraopolis Satellite Office, supporting the 99th RRC, received the General Services Administration's Ida Ustad Award for Excellence in Acquisition at an award ceremony held in June in Washington, DC. This annual $5,000 award recognizes an employee whose actions demonstrate or embody the "contract specialist as business leader/advisor" concept. Nominations for the award are open to all employees in the 1102 series throughout the government.

Additional contracting successes can be found online at **http://asc.army.mil/pubs/alt/default.cfm**.

2004 DOD Honorary Value Engineering (VE) Achievement Award

Under Secretary of Defense for Acquisition, Technology and Logistics Michael Wynne presented the annual DOD VE Achievement Awards during a ceremony held June 15, 2005. The Army Small Computer Program (ASCP) received this award in the program/project/product management category for the Army Enterprise Infostructure-Enterprise Software Consolidated-Microsoft® (MS) Enterprise License Agreement (ELA). Product Manager ASCP reports to the Program Executive Officer Enterprise Information Systems and supports all Army commercial information technology requirements.

Robin Baldwin, the MS ELA awarding contracting officer, and Amy Wray, MS ELA contract specialist at the U.S. Army Contracting Agency-Information Technology, E-Commerce and Commercial Contracting Center (ACA-ITEC4), were among the ASCP team members cited in the award. The ASCP/ITEC4 team was able to negotiate significant discounts based on volume and future purchase commitments.

The Army's Chief Information Officer has mandated using the MS ELA for all Army MS software purchases. The cost-avoidance to the Army resulting from the MS ELA is approximately $300 million over 3 years.

DAR Council Corner

There are more than 200 DOD civilian and military personnel who are part of the *Defense Acquisition Regulation* (*DAR*) committees and *Federal Acquisition Regulation* (*FAR*) teams. About 50 Army personnel support these committees and teams as permanent, rotational, supplemental advisors or ad hoc members. These personnel are from DA Headquarters (HQ), the U.S. Army Materiel Command (AMC) and its major subordinate commands, the U.S. Army Contracting Agency (ACA) and its regions, the U.S. Army Corps of Engineers (ACE) and the Military Surface Deployment and Distribution Command (SDDC).

Successful implementation of the statutes, executive orders, DOD policy and other regulatory directives in the *FAR* and the *Defense Federal Acquisition Regulation Supplement* (*DFARS*) depends on these volunteers, who typically take on this responsibility as an additional duty. These Army personnel bring subject matter expertise, general policy advice and work experience in the following functional areas:

- Contracting
- Legal
- Quality assurance
- Environmental
- Government property
- Industrial base
- Information technology
- Finance
- Transportation
- Utilities
- Logistics
- Hazardous materials
- Critical safety

As committee and team members, these volunteers represent the Army and DOD in *FAR* and *DFARS* case deliberations. The committees' and teams' work are important to the entire DOD acquisition community.

The current Army *DAR* committee representatives (as of June 1, 2005) are:

Commercial Products/Practices	Zalerie Moore (Interim Chair) (HQAMC)
Construction/A-E/Bonds	Karen Thornton (HQACE)
Contract Administration	Zalerie Moore (HQAMC)
Contract Finance	Susan Orris (HQAMC) and Wallace Riggins (HQDA)
Contract Placement	Debra Parra (ACA-Information Technology, E-Commerce and Commercial Contracting Center (ITEC4) West)
Contract Services/A-76	Tom Watchko (HQACA) and Kathy Love (HQACA)
Cost Accounting Standards	Mark Gomersall (HQAMC)
Cost Principles	Mark Gomersall (HQAMC)
Debarment Suspension and Business Ethics	Christine McCommas (HQDA)
Environmental	Pete Stemniski (HQAMC)

Govt. Property/Plant Clearance	Joe Pieper (HQDA)
Information Technology	Vera Davis (Chair) (ACA-ITEC4)
Insurance and Pension	Dave Harrington (HQAMC)
International Acquisition	Steve Linke (HQDA)
Labor/Equal Employment Opportunity	Gregory Noonan (Chair) (HQACE)
Patents Data and Copyrights	Alan Klein (HQDA)
Pricing	Zalerie Moore (HQAMC)
Quality Assurance	Diane Meyer (HQAMC)
Research and Development	Susan Boblitt (AMC Research, Development and Engineering Command)
Simplified Acquisitions	Carmelia Rush (HQDA Defense Contracting Command-Washington (DCC-W))
Small Business	Paul Gardner (Chair) (HQDA)
Systems Acquisition	Zalerie Moore (HQAMC)
Taxes	Margaret Patterson (Chair)(HQDA)(Army Legal Member to *DAR* Council)
Transportation	Frank Galluzzo (SDDC) and Rosemary Kemp (SDDC)
Utilities	Rafael Zayas (HQACE) and Don Juhasz (HQDA)

The current Army *FAR* team members (as of June 1, 2005) are:

Acquisition Strategy

Permanent Member	Tom Watchko (Primary) (HQACA) Kathy Love (Alternate) (HQACA) Melissa Rider (Alternate) (HQACA)
Rotational Member Small Business	Paul Gardner (Chair) (HQDA)

Acquisition Finance

Rotational Member	
Cost Accounting Standards	Mark Gomersall (HQAMC)
Cost Principles	Mark Gomersall (HQAMC)
Insurance and Pension	Mark Gomersall (HQAMC)
Finance	Susan Orris (HQAMC)

Acquisition Law

Legal Advisor	Vacant
Rotational Member	
Debarment Suspension and Business Ethics	Christine McCommas (HQDA)
Labor	Gregory Noonan (Chair) (HQACE)

Acquisition Technology

Permanent Member	Stephanie Mullen (HQACA)

Other recent committee and team members who deserve the Army's thanks and appreciation are:

- John Bailey, HQAMC, Commercial Products/Practices and Cost Principles Committees.
- Tom Bushnell, HQDA DCC-W, Contract Placement Committee.
- Brian Davidson, HQACA, Contract Reporting Committee.
- Bob Friedrich, HQACA, Contract Services Committee and Acquisition Strategy Team.
- Luis Garcia-Baco, HQAMC, Ad Hoc Committee.
- Marilyn Harris, Intelligence and Security Command, Contract Placement Committee.
- Steve Jaren, HQDA, Ad Hoc Committee.
- Alan Lee, HQAMC, Ad Hoc Committee.
- Rich Lovell, HQAMC, Ad Hoc Committee.
- Robert Paschall, Environmental Committee.

Conferences

Defense Logistics 2005

Supporting and sustaining a unified force on a nonlinear battlefield present significant challenges. To achieve victory in this arena we must ensure seamless warfighter support through

excellence in defense logistics. For the fifth year, Worldwide Business Research (a subsidiary of Penton Learning Systems LLC) welcomes acquisition and logistics personnel to **Defense Logistics 2005, "Marching Towards Seamless Support of Our Warfighter Through Excellence in Logistics."** Defense Logistics 2005 takes place Nov. 28-Dec. 1, 2005, at the Renaissance Hotel, Washington, DC.

With transformation underway, continuous process reengineering and availability of real-time data to make accurate decisions is absolutely critical. The military's comprehensive transformation is guided by three goals:

- Reducing logistics footprint in the battlespace.
- Enhancing strategic mobility and deployability.
- Reducing the cost of logistics without affecting warfighting capability or readiness.

During the Networked Supply Chain Symposium, Nov. 28, 2005, attendees will hear how enterprisewide solutions are critical to supporting the warfighter's need for real-time data; examine technologies that enable warfighters to respond to a dynamic, complex battlespace; communicate their knowledge quickly and accurately and respond with speed and precision; and accurately assess the effects of their actions quickly.

Acquisition personnel who are developing and implementing innovative strategies designed to create a fully seamless acquisition process will speak during the Defense Acquisition and Procurement Symposium, Dec. 1, 2005. Attendees will examine the key initiatives to ensuring interoperability before acquisition, and how increased efficiency will lead to faster adoption and implementation of new technologies to support warfighters.

Confirmed Defense Logistics 2005 speakers include:

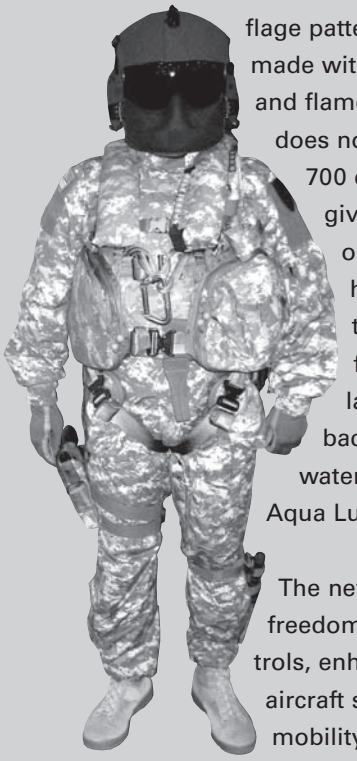
- GEN Benjamin S. Griffin, Commanding General, U.S. Army Materiel Command.
- GEN Norton A. Schwartz, Commander, U.S. Transportation Command.
- GEN Sir Kevin O'Donoghue, Chief, Defence Logistics.
- Ken Krieg, Under Secretary of Defense for Acquisition, Technology and Logistics, Office of the Secretary of Defense (OSD).
- VADM Justin D. McCarthy, Director for Material Readiness and Logistics, N4, U.S. Navy.
- LTG Duncan J. McNabb, Director, Logistics, The Joint Staff.
- LTG Claude V. Christianson, Deputy Chief of Staff, G-4, U.S. Army.
- VADM Keith Lippert, Director, Defense Logistics Agency.
- LTG Richard S. Kramlich, Deputy Commandant for Installations and Logistics, U.S. Marine Corps.
- Air Vice-Marshal K.J. Leeson, Assistant Chief of the Defence Staff (Logistics Operations).
- VADM Thad W. Allen, Chief of Staff, U.S. Coast Guard.
- Terry J. Pudas, Acting Director, Force Transformation, OSD.

For more information, go to **www.defenselog.com**.

Did You Know?

U.S. Army Aircrew Uniform Innovations

Program Executive Office Soldier's Product Manager (PM) for Air Warrior has been instrumental in designing a new aviation uniform called Air Warrior. The outer Air Warrior uniform uses the new universal camouflage pattern. A zippered inner layer is made with NOMEX® thermal protection and flame retardant material, which does not begin to char until it reaches 700 degrees F. This protection gives aircraft personnel 20 seconds to exit aircraft in intense heat. Should an aircrew find themselves in water, the uniform features a flotation collar, survival radio, a raft on back and an emergency underwater breathing device made by Aqua Lung Inc.



SSG Terry Patterson, an instructor at the Aviation Life Support Equipment School, Fort Rucker, AL, models the new Air Warrior aviation uniform. (U.S. Army photo by Nerman Syed.)

The new aviation suit allows greater freedom of movement at flight controls, enhances safe operation of all aircraft systems through improved mobility, enables easier ingress into and egress from the aircraft and, through enhanced comfort and cooling, increases the amount of time the aircrew spends in full, mission-oriented protective posture ensemble.

Competitive Development Group (CDG) Luncheon

CDG members John Davis, Stephen Hayes, Marcos Gonzalez and Barbara Brown joined ASAALT Claude M. Bolton Jr. and Principal Deputy to the ASAALT Dean G. Popps (back row), along with CDG members Gary Appel, Norma McKayan, John Adams and Jean Kampschroeder, for the first-ever NCR CDG luncheon. (U.S. Army photo.)

Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT) Claude M. Bolton Jr. hosted the first-ever luncheon for CDGs assigned to the National Capital Region (NCR) at the Pentagon Executive Dining Room, July 11, 2005. Principal Deputy to the ASAALT Dean G. Popps and Military Deputy (MILDEP) LTG Joseph L. Yakovac and their executive officers also mingled among the CDGs. Other VIPs included then ASAALT Chief of Staff COL Mary Fuller, Acquisition Support Center Director Craig Spisak and NCR Regional Director Tom Evans. The 90-minute gathering gave participants an opportunity to discuss acquisition issues, philosophy and program direction in an informal setting with the top three ASAALT leaders. Bolton's opening remarks focused on the American Soldier, our successes, challenges to equip the Future Force and the importance of each individual in making good things happen through knowledge, skills and enthusiasm. He then gave the floor to the CDGs in a candid and open question-and-answer session that provided an insightful conclusion to the event.

ASAALT MILDEP LTG Joseph L. Yakovac (center) dines with (from left) CDG member Barbara Brown, then ASAALT Principal Deputy's Executive Officer MAJ(P) Edward Fortunato, then ASAALT Executive Officer LTC Kirk Vollmecke and then ASAALT Chief of Staff COL Mary Fuller. (U.S. Army photo.)

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