MARCH–APRIL 2011

ARMY SUSTAINMENT

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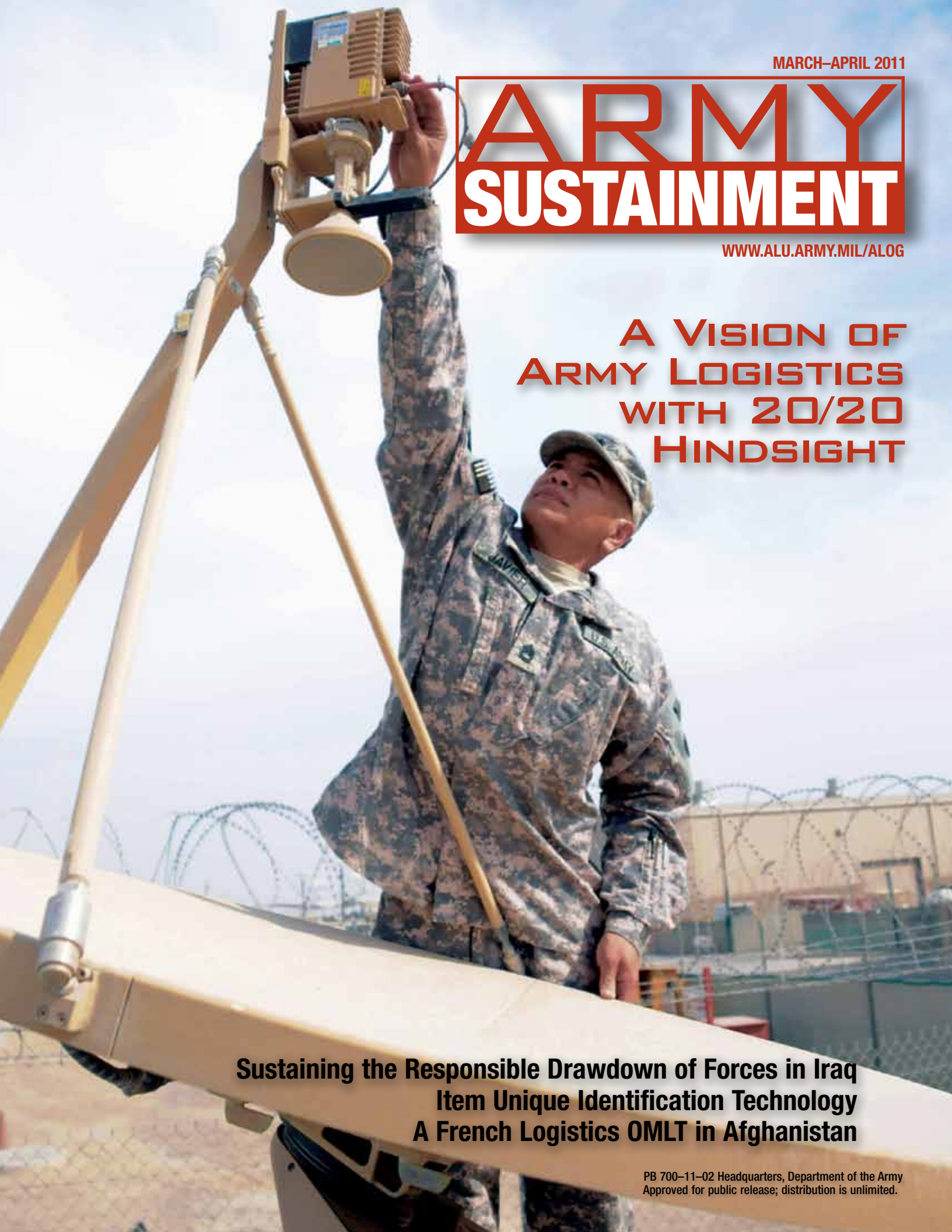

A Vision of Army Logistics with 20/20 Hindsight

Sustaining the Responsible Drawdown of Forces in Iraq
Item Unique Identification Technology
A French Logistics OMLT in Afghanistan

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Cover: The identification of the need for a "Revolution in Military Logistics" in the late 1990s led to major improvements in force sustainment, force projection, and technology application and acquisition agility. In the article beginning on page **3**, the Army's Deputy Chief of Staff, G–4, Lieutenant General Mitchell H. Stevenson, looks back over the last decade and evaluates how far the Army has come and what still needs to be done to achieve the envisioned revolution. Technological advances such as the very small aperture terminal (VSAT) have played a major role in implementing logistics transformation. In the cover photo, a sergeant with the 311th Sustainment Command (Expeditionary) performs a maintenance check on a VSAT in Southwest Asia.

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FOCUS

The Army's Functional Concept for Sustainment

BY MAJOR GENERAL JAMES L. HODGE

These are exciting times for all the members of the sustainment community. Over 24 months ago, the Army rewrote its Capstone Concept, which in turn created the need to rewrite the Army's Functional Concept for Sustainment. This rewrite, and all that it entails, is a major priority for the Army Combined Arms Support Command (CASCOM).

The past 8 years have provided valuable insights and observations concerning how we, as sustainers, conduct sustainment operations in support of the joint fight in the new operating environment. The Army Capstone Concept (Army Training and Doctrine Command [TRADOC] Pamphlet 525–3–0) and the Army Operating Concept (TRADOC Pamphlet 525–3–1) have changed the previous direction in which the Army was heading by acknowledging that the basic nature of war has not changed.

Despite our advances in technology, uncertainty remains a constant in the operational environment, and our dominance as warfighters will continue to force our adversaries to blend in with the local population, causing us to operate in complex and urban terrain.

As an expeditionary Army, we must be able to deploy to the fight, operate over extended distances, and deal with anti-access and area denial challenges, all while conducting distributed operations. We will also have to sustain all phases of full-spectrum operations, often simultaneously. Sustaining the future force in an era of persistent conflict, under conditions of uncertainty and complexity, requires an adaptive and versatile sustainment framework that is capable of maintaining the force's freedom of action.

The new TRADOC Pamphlet 525–4–1, The United States Army Functional Concept for Sustainment 2016–2028, approved in October 2010, expands on the ideas presented in the Army Capstone Concept and the Army Operating Concept and describes the functional capabilities required to sustain the future force while conducting full-spectrum operations. Sustaining future Army forces in austere environments, often at the end of extended lines of communication, requires a logistics network capable of projecting and providing the support and services necessary to ensure freedom of action, extend operational reach, and prolong endurance.

However, if the logistics network is to be successful, future Army forces must decrease the demand-side characteristics of the force. Those decreases will serve to reduce the strain and frequency of resupply operations. In support of this approach, TRADOC Pamphlet 525–4–1 serves as a foundation for future force development pertaining to sustainment and the sustainment warfighting function.

Concept development leads change for the Army and drives the development and integration of future capabilities. It also provides a framework for analysis, readiness assessments, prioritization, and feedback. The CASCOM team is conducting a number of efforts to hone future required capabilities in the Army Functional Concept for Sustainment by including a sustainment functional capabilities-based assessment (CBA) and conducting a number of organizational-based assessments (ObAs).

Our CBA looks across the 21 functional areas within the sustainment warfighting function and identifies gaps and solutions that enable us to accomplish our sustainment mission in the most appropriate and resource-informed manner. With your support from the field, we are evaluating our theater sustainment command, expeditionary sustainment command, sustainment brigade, and explosive ordnance disposal formations during the ObAs to develop and refine critical required capabilities, gaps, and solutions for the Army and the sustainment community.

However, we are not developing the Sustainment Functional Concept in a stovepipe. We have successfully integrated our concept and CBA effort with the Army Capabilities Integration Center and the other TRADOC centers of excellence. This past winter, I had the opportunity to provide an assessment briefing to the Army Chief of Staff on our Sustainment Warfighting Functional Concept with the five other warfighting functions to ensure an integrated and mutual supporting approach to the future.

I foresee the greatest impact of the new Sustainment Functional Concept to be on our greatest resource, our sustainment leaders and Soldiers. We will emphasize cultural awareness, operational adaptability, and the practice of mission command to our Soldiers at all echelons. Well-trained and informed Soldiers will be our most versatile resource, while training and education will serve to create operational adaptability at the individual and small-unit levels. Sustainment Soldiers will be capable of reacting to unforeseen changes, operating in a degraded network, and making decisions at the lowest level.

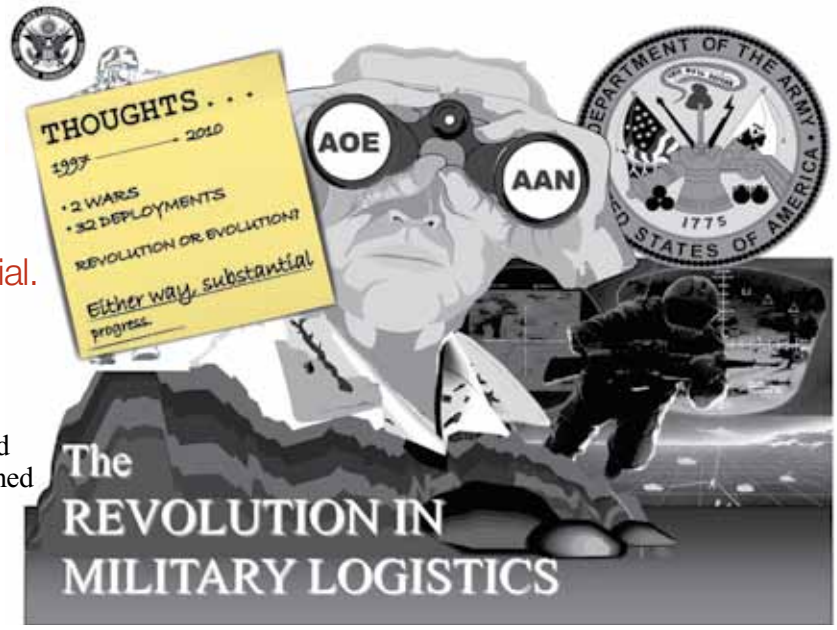
By the time you read this article, we will have completed our important work on the current edition of the Army Functional Concept for Sustainment, we will be about to complete the Sustainment Functional CBA, and we will start the revisions of the next editions of the Army Operating Concept and the Army Functional Concept for Sustainment. Throughout our efforts, your involvement has proven instrumental to our success, and I value your continued input and look forward to hearing from you on these vital and important concepts for our sustainment community.

MAJOR GENERAL JAMES L. HODGE IS THE COMMANDING GENERAL OF THE ARMY COMBINED ARMS SUPPORT COMMAND AND SUSTAINMENT CENTER OF EXCELLENCE AT FORT LEE, VIRGINIA.

A Vision of Army Logistics With 20/20 Hindsight

BY LIEUTENANT GENERAL MITCHELL H. STEVENSON

What happened to the Revolution in Military Logistics that began in the late 1990s? The events of 9/11 and the wars in Iraq and Afghanistan introduced barriers to some changes, but overall progress has been substantial.



In the late 1990s, we spent quite a bit of time trying to envision what Army logistics would look like in 2010. There was considerable discussion of the need for a "Revolution in Military Logistics." The idea gained momentum, strongly influenced by the Army After Next project and by the emerging requirements associated with supporting the new brigade designs that began to develop. During his tenure as the Army Chief of Staff, General Pete Schoomaker established a task force that was given a blank sheet of paper to "revolutionize" logistics, leveraging all the work that had been done to date.

Now, looking back 10 to 15 years, how did we do? What still needs to be worked on? And what did we miss entirely?

The events of 11 September 2001, the wars in Iraq and Afghanistan, and 32 deployments diverted our attention from transformation somewhat. However, overall progress has been, I think, substantial. We have leveraged the great work produced in earlier years and incorporated lessons learned from 9 years of combat to give us a very, very capable logistics force. Feedback from the field indicates that logistics transformation is working well, but we know we will never get things exactly right and must continue to adapt.

Our new capabilities were not dreamed up overnight—they were the result of years of study, debate, and experience. Furthermore, many of the principles that drove strategists back then generally remain valid today and will drive us in the future. Uncertainty, disorder, and fluidity will continue to characterize battlefields, and logistics must adapt accordingly.

At a very high level, logistics transformation was about a concept of support for modularity that leverages joint and strategic partners. It created modular organizations that support full-spectrum operations; enhanced our theater-opening and force-reception capabilities; and developed a single Army logistics command and control capability at echelons above brigade that provides joint-capable options to the combatant commander.

With the Army Force Generation process, we also changed the way we generate forces—standardizing capabilities in the Active and Reserve components to deliver a steady stream of trained and ready capabilities and centralizing what might be termed strategic reach back through the integration of industry and strategic partners in the national sustainment base, all while helping to scale back or reduce the deployed footprint.

The 1990s Vision of Logistics 2010

How did we get to this point? In the late 1990s, the thinking was that because of the expeditionary nature of Army operations—with forces deployed abroad for extended periods of time in locations with little infrastructure or lines of communication (LOCs)—we would require a fundamentally different view of sustainability. Indeed, that has been the case in Afghanistan and Iraq.

Back then, the premise of the joint operational concepts was that the key operational challenge would be to gain access to a theater, establish a sustaining capability, and establish a logistics footprint that not only could be smaller but would also take into account the social and political realities of the countries where the Army would deploy. That, too, has been the case.

Our goal was to "evolve a seamless logistics system that ties all parts of the logistics community into one network of shared situational awareness and unified action." To pursue that endeavor, we set goals for three domains: force sustainment, force projection, and technology application and acquisition agility.

Force sustainment. We wanted a single logistics system that would be more predictive and responsive. This was to be the single most important factor in laying the foundation for information supremacy and situational understanding.

Force projection. The focus here was on the need for lighter yet more powerful land-power systems that were easier to deploy globally, at lower cost, and with greater speed; strategic pre-positioning of equipment and materiel to reduce initial air and sea transport requirements; and deployment of task-organized, modular logistics organizations to support initial combat operations.

Technology application and acquisition agility. The key here was the integration of technology and acquisition processes to work at reducing the physical size of our systems. The goal was to find materials that are lighter, stronger, and more reliable and consume less fuel, along with streamlining the process to quickly and cost-effectively acquire materiel and services necessary to maintain readiness, transition to war, and sustain combat operations.

What Has Come To Fruition?

Let's start at the top. One of the most significant changes has been the movement away from a division-centric force to the modular brigade combat teams and echelons-above-brigade units of today. Modularity has created a major change for logisticians in how we are organized and conduct operations. Overall, we've done a pretty good job of adjusting to the new organizations; functions; tactics, techniques, and procedures; and mission roles. Combat service support (CSS) within modularity has done exactly what it was designed to do: sustain combat operations in two theaters without mission shortfall.

Force Sustainment

Admittedly, we have not yet achieved our vision of a Single Army Logistics Enterprise (SALE), but we are well on our way with technological advancements that significantly impact operations. The Army Materiel Command's Logistics Modernization Program leads the way, having just launched its final deployment. The Global Combat Support System-Army, which involves the reengineering of 12 legacy Army logistics processes, is not far behind, operating near its full functionality in a limited-user test with the 11th Armored Cavalry Regiment at Fort Irwin, California. With the SALE, we will finally achieve a web-based, integrated enterprise solution that enables materiel readiness and provides asset management and accountability, acquisition compliancy, and financial transparency.

As we move toward realization of the SALE, we continue to look for ways to replace legacy systems and applications. In the last 5 years, we've cut the Army's standing repository for information technology investments by 80 percent. By centralizing the Army corps/theater automated data processing service centers at a single site, we reduced the Army's tactical supply system footprint, reduced network traffic, enhanced response time, and saved 115 manpower slots that were returned to the force pool.

Two other information-related technologies have been implemented and are greatly enhancing force sustainment: very small aperture terminals and item unique identification.

Very small aperture terminals (VSATs) use commercial satellite technology to deliver the networks to warfighting sustainment units. Network communications can now be provided for up to 40 tents, vans, or shelters within a 7- by 7-kilometer area using wireless bridging between nodes. All CSS units now have connectivity *organic* to their units. VSATs have been, and will remain, a game changer for Army sustainment.

Item unique identification (IUID) represents a significant step in improving asset visibility and will enable the life-cycle management of end items and major components like never before. Initial results in the 160th Special Operations Aviation Regiment indicate a potential for a 50-percent reduction in digital

Technology has transformed Army logistics. With this very small aperture terminal, warriors in remote locations have a wireless ability to send in their orders.

arms-room inventory, issue, and receipt times, as well as a reduction in transaction times in automated tool rooms, aviation life support equipment management, and organizational clothing and individual equipment management. (See related article on page 36.)

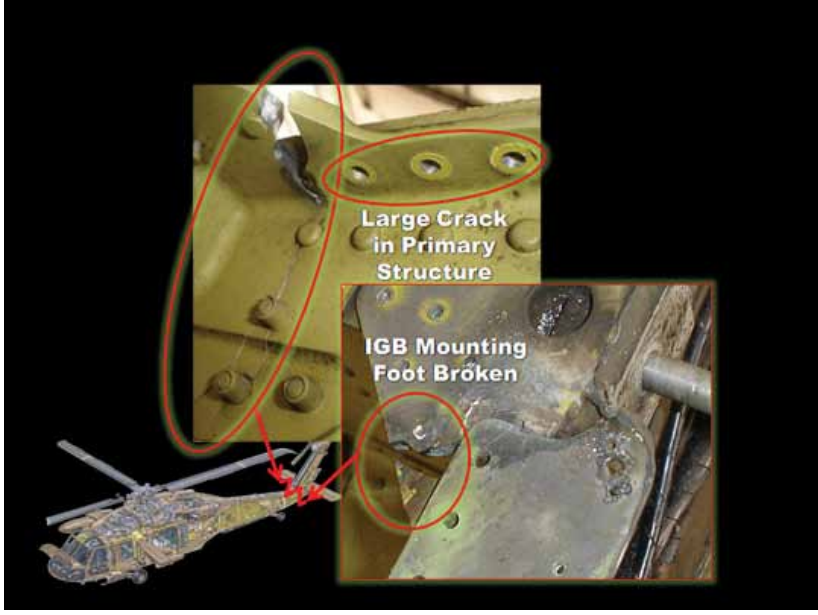
For deployment and in-theater distribution management, the Transportation Coordinator's Automated Information for Movements System (TC−AIMS) is on line and working well. The decision to adopt the Air Force's Cargo Movement Operation Systems (CMOS) in place of blocks IV and V of TC−AIMS will be helpful. The Movement Tracking System (MTS) also continues to evolve; it now incorporates an ability to read active radio frequency identification tags on the cargo being carried by MTS-equipped trucks, thus eliminating the need for fixed interrogator networks.

In-transit visibility has continued to mature. As we move cargo out of Iraq, into Afghanistan, and back to the continental United States (CONUS), we're able to see where the cargo is all the time; that is unlike Operation Desert Storm, where we had little-to-no visibility of cargo shipments and zero "in the box" visibility. In some instances, we also are using sensor technologies to address the condition of items, along with pilferage and intrusion of containers. And our commercial carriers are using satellite transponders to identify and track cargo.

Several improvements have been made in distribution. Velocity management has gone from an idea to a routine way of doing business, reducing average customer wait time for outside CONUS air shipments from 21 days in 1994 to just 13 days in 2010. We are leveraging the Defense Logistics Agency's forward distribution depots to gain further efficiencies. The Army stood up the Army Sustainment Command, bringing together the power of our strategic and joint partners in the national sustainment base and extending that power forward into Afghanistan and Iraq.

We are collaborating with system product managers to demonstrate a condition-based maintenance capability to monitor health indicators of our more complex weapon systems. We've already equipped over half of the Army's manned aircraft fleet with the ability to collect essential maintenance data from components and transmit that information off-platform. Thus far, this has extended the time between overhaul on 22 parts, eliminated almost 5,000 maintenance events, improved more than 125 maintenance procedures, and enhanced safety through avoidance of at least three class A mishaps.

We continue working to implement a common logistics operating environment (CLOE), which comprises a fully-integrated suite of Army logistics information technologies and processes that fuse network-centric data-sharing and sensor-based self-reporting systems within the Army's LandWarNet construct in support of multifunctional logistics operations.



The Army has equipped over half of its manned aircraft fleet with Condition-Based Maintenance Plus (CBM+). In this helicopter, CBM+ detected a crack along the vertical fin and a broken intermediate gearbox (IGB) mounting foot.

Innovation also has been brought to distribution in the tactical and operational spaces through improved aerial resupply options, including both high- and low-altitude resupply systems. Joint precision airdrop systems are used at 20,000 feet and above; at lower altitudes, low-cost low-altitude systems are used at 150 to 500 feet above the ground. Testing of another system, free-drop packaging (for altitudes below 100 feet), is ongoing.

In Soldier protection, significant enhancements have been made over the past decade, particularly in body armor. The same can be said for Army combat helmet capability enhancements, such as fragmentation protection, increased Soldier comfort, and helmet sensor internal mounts.

Warfighter feedback has driven improvements in field feeding. We developed and continue to enhance unitized group rations (UGRs), simplifying and streamlining the process of providing high-quality meals to the Soldier in the field. The first UGR, introduced in 1995, maximized use of commercial items, significantly reduced line-item requisitioning, eased preparation and assembly, and reduced the logistics footprint.

Various improvements have continued to the present. For example, in 2005, we replaced the unitized B ration, which had 200 meals on 1 pallet, with the UGR−B, which offers 400 complete meals (also in 50-serving modules) on a pallet; this effort reduced the overall cost of the ration by reducing components by more than 65 percent. In 2007, we introduced "UGR−Express," a complete self-contained, self-heating group meal for up to 18 Soldiers operating in remote areas.

As these food improvements were being made, we also designed the First Strike Ration, an eat-on-the-move assault meal designed for short durations of

First Strike Rations contain a day's supply of food for warfighters on the move. The rations are also half the weight and volume of three daily meals, ready-to-eat.

An example of the Army's improved force-projection capabilities is provided by the expansion of the Fort Hood, Texas, rail facility. It has gone from a 4-spur railhead to today's 240-railcar railhead, 300-railcar classification yard, and 45,000-square yard marshalling facility.

highly mobile and high-intensity combat operations. Each First Strike Ration contains a day's supply of food, averaging a total of 2,900 calories, while at the same time reducing the Soldier's load. One ration, in place of three daily meals, ready-to-eat, saves 49 percent in weight, 55 percent in space, and 22 percent in costs.

We also are looking at improvements in battery use. Use of rechargeable batteries is increasing, with some units using them 90 percent of the time during dismounted operations. Modular brigades of all types are now able to leverage many of the benefits of rechargeable batteries, and we are now examining policy and training recommendations that provide for their use, when practical, as the preferred method of powering end items.

Force Projection

It is in this domain that the greatest improvements have occurred. We have significantly enhanced our throughput and capacity at power-projection installations. For example, whereas the railhead at Fort Hood, Texas, in years past had a 4-spur railhead with no supporting facilities, today it has a 240-railcar railhead, a 300-railcar classification yard, a 45,000-square-yard marshalling yard, and the capability to deploy 240 to 320 railcars per day. Similar improvements at the Fort Lewis, Washington, rail and logistics facility have provided a capability to deploy 240 railcars per day. And there are many more such examples.

At the joint level, we now have a "Distribution Process Owner," resulting in a stronger relationship among the Defense Logistics Agency (the supply arm of Department of Defense logistics), the U.S. Transportation Command, and the services. The outcome has been better planning, execution, and control of global distribution operations.

The C−17 Globemaster III, the most flexible cargo aircraft to enter the airlift force, has replaced the C−141 Starlifter as our principal cargo lifter. It is capable of rapid strategic delivery of troops and all types of cargo to main operating bases or directly to forward bases. The C−17, designed to provide direct delivery of cargo loads

Soldiers arrive in Pakistan aboard a C−17 Globemaster III with supplies in support of flood relief efforts. The aircraft is the most flexible to enter the airlift force.

The Army had spray foam insulation applied to temporary structures in Iraq and Afghanistan, which reduced fuel consumption and thereby took fuel convoys off dangerous roads.

to austere airfields, has been used extensively in Afghanistan. It can land with payloads of up to 160,000 pounds on austere runways as small as 3,500 feet by 90 feet.

Technology Application and Acquisition Agility

Significant accomplishments have also been made in this domain. Sensors are being used to report real-time status of critical items; diagnostics and prognostics can sense pending system failures, requisition parts, and schedule repairs; smart munitions are enabling materiel mass to be decreased; and artificial intelligence and intelligent agents are helping logisticians to perform analytical and judgmental tasks.

In acquisition reform, we have increased the use of electronic commerce; conducted privatization and outsourcing of non-core capabilities; increased the use of commercially contracted maintenance and services; and implemented the use of performance or commercial instead of military specifications where appropriate.

We made great progress in how we conduct business operations through implementation of the Single Stock Fund and National Maintenance Program while adapting to a Materiel Enterprise that will support broader efforts that lead to a balanced Army, better business processes, shorter cycle times, and reduced costs.

At a time when the Army's energy costs have continued to rise, we have embarked on a strategy to help achieve, over time, less energy consumption, which will ultimately take fuel convoys off dangerous LOCs. In the short term, the Army has done such things as applying exterior spray foam insulation to temporary structures in Iraq and Afghanistan, which reduces fuel consumption for heating and cooling by 50 percent.

Technology also has improved the way water is produced on the battlefield. In Iraq and Afghanistan, 1,500 gallon-per-hour tactical water purification systems are in use, as are 125 gallon-per-hour lightweight water purification systems. And water re-use technology is now used in all of our laundry and shower units.

For the past 5 years, the Army has been able to sustain in Iraq and Afghanistan ground equipment readiness rates of greater than 90 percent. Our military industrial base production, for example, is twice as high as pre-war levels, and it is now at the greatest output since the Vietnam War. Our depots and arsenals are world class. In the last 5 years, they have won 26 Shingo Awards (what some call the "Nobel Prize" for production and manufacturing excellence). They have reduced costs, increased productivity, and gained efficiencies—all while our Nation is at war.

As part of our logistics transformation, we also have gone from a four-level to a two-level maintenance system, supported and enhanced by the creation of Army field support brigades forward on the battlefield. It's the sum of all these improvements that has been a game changer for maintenance support.

Many new technologies are being developed to reduce demands on manpower; improve the efficiency of logistics support; and improve reliability, maintainability, sustainability, and operational readiness.

A mechanic at Anniston Army Depot, Alabama, dismantles an M88 recovery vehicle. Army depots and arsenals have won 26 highly-coveted Shingo Awards for production and manufacturing excellence in the last 5 years.

These include next-generation wireless communications that can significantly enhance the visibility of Army assets; robotics technologies that can perform repetitive, dangerous, or difficult work that humans cannot perform well or would not want to perform; micro-electrical mechanical systems that can track temperature, humidity, and vibration so they can monitor shelf-life and environmental factors affecting assets; and such things as the Hellfire Captive Carry Monitor for Asset Readiness, which is in use today by the Army to monitor and record the environmental details of assets in storage and transport.

What Do We Still Need to Do?

Despite all that has been accomplished since we introduced the Revolution in Military Logistics, 2 wars and 32 deployments have somewhat slowed some of the transformation that had been envisioned a decade earlier, making the "revolution" more of an "evolution."

As priorities changed, the needed funding for development and fielding of technologies that we thought would be important had to be diverted to more important areas, such as fielding and sustaining tens of thousands of mine-resistant, ambush-protected (MRAP) vehicles critical to keeping Soldiers alive on the battlefield. So, we're not done yet—not by any means! Full transformation will take a great deal more time, perhaps a decade or more. Consequently, Army logistics must continually adapt accordingly!

Afghanistan and Iraq have shown us that the need to support small dispersed units over significant distances will only grow in importance, as will the need to appropriately size and reduce the logistics footprint. Many of our changes represent paradigm changes in how we operate. The evolving strategic environment will pose a series of strategic choices that we will need to examine as we adapt the character of logistics' contributions to the fight.

Over the last decade, logistics organizations, processes, tools, and technology have witnessed significant adaptation, which has created a continuum of momentum that makes the next level of adaptation more readily apparent. Technology maturation will be a factor, but our continued partnering and teaming with industry and academia will help to shape the progression, integration, and implementation of evolving technologies. As we move forward, we will continue to seek capabilities that satisfy the Soldiers' needs and help us to better manage the uncertainty that will continue to characterize current and future operations.

Lieutenant General Mitchell H. Stevenson is the Deputy Chief of Staff, G–4, Department of the Army.

Making The Evolution A Revolution

Working with our partners in the Department of Defense, joint, and other service communities, the Army needs to evolve several areas to complete the Revolution in Military Logistics. They include:

Networked communications. While there are a number of communications systems in the theater, no single network provides guaranteed communications for all organizations. As a result, some organizations are unable to establish or maintain contact while they are on the move.

Joint distribution information systems. A variety of information technology systems are used by joint and service organizations, but many are organization-centric and do not communicate or transfer data readily across the Joint Deployment and Distribution Enterprise (JDDE). This hinders their ability to coordinate and control distribution operations in a holistic manner.

Distribution-based logistics. Distribution operations are managed by a variety of disparate joint and service organizations, and their efforts are not adequately synchronized. As a result, distribution operations are not managed for effectiveness, stock holdings are larger than they could be, and delays occur that adversely impact distribution.

Joint operational-level logistics command and control. No standing joint logistics organization can command and control logistics and theater distribution operations at the operational level in the theater in support of the regional combatant and joint force commanders.

Integration of coalition and host-nation capabilities. Current and future operations increasingly involve coalition and host-nation partners. These partners will have requirements that need to be provided for and capabilities that can contribute to the distribution operation.

Intertheater airlift. The current fleet of strategic aircraft is based around the C–5 Galaxy transport and the newer C–17 Globemaster III. The increase in expeditionary operations, often in distant and austere locations, and in future requirements for rapid interventions means that the airlift capability must be capable of deploying and supporting a deployed force. This is likely to require an increase in the size and a change in the makeup of the airlift fleet.

Energy. More needs to be done, and is being done, in developing capabilities for energy and power systems that satisfy mission requirements, minimize the need to transport energy sources, and promote greater independence from vulnerable logistics resupply.

Sustaining the Responsible Drawdown of Forces

BY BRIGADIER GENERAL GUSTAVE F. PERNA

Following the President's orders to reduce the U.S. military presence in Iraq, U.S. Forces-Iraq has been busy closing bases, retrograding equipment, and transitioning from combat to stability operations.

I clearly remember visiting my father's office as a child and seeing a picture frame with the quote, "People working together, without concern for who will get the credit, can accomplish anything." Needless to say, for those of us serving in Iraq, teamwork and selfless service are the key values that led to our overall success in the responsible drawdown of forces (RDoF).

Foundations of Drawdown Success

On 1 September 2010, following orders from the President, 50,000 military personnel remained in Iraq in support of Operation New Dawn. During the past year, we have closed 263 bases, retrograded over 1.5 million pieces of equipment, including over 25,000 pieces of rolling stock, and transported over 100,000 personnel by rotary- and fixed-wing aircraft—remarkable accomplishments to say the least.

We, U.S. Forces-Iraq (USF–I), are successfully accomplishing the RDoF because of dedicated, hard-working Soldiers, because of noncommissioned officers who ensure that standards and discipline remain high, because of commanders at all levels who issue clear and concise intent, and because of civilians, both Department of Defense employees and contractors, who directly support the mission and are ready to do what is needed to accomplish it.

We are also supported by remarkable partners like the Under Secretary of Defense for Acquisition, Technology and Logistics; the Deputy Chief of Staff of the Army, G–4; the Army Forces Command; the U.S. Central Command; the Army Materiel Command; the Defense Logistics Agency; and many other agencies. Together, we have already accomplished something that many said we could not do: We have executed the RDoF with precision even while bringing home more equipment and personnel than the Army has since leaving Europe and the Pacific after World War II.

Our drawdown began in 2008 after the peak of the surge operations and will continue until the completion of our mission on 31 December 2011, as set forth in the security agreement between the United States and Iraq. The drawdown has been a continuous process that began after violent extremists began steadily losing ground at both the operational and tactical levels at the peak of the surge operations. The severe degradation of extremist violence was clearly evident in early 2009.

The drawdown is possible because of the increased capabilities of the Iraqi Security Forces and the overall improvement of the security environment. These factors allow USF–I to continue to transition from combat operations to stability operations. Improved security allows for continued progress toward a long-term bilateral relationship—an enduring partnership—with a sovereign, secure, and self-reliant Iraq.

Operation New Dawn, which began 1 September 2010, is about advising, assisting, and training the Iraqi Security Forces, conducting partnered counterterrorism operations, and providing support to provincial reconstruction teams and other organizations as they help Iraq build civil capabilities. However, even though Operation New Dawn has begun, we continue to set conditions for the final RDoF.

Sustainment During the Drawdown

Our drawdown plan must ensure that the commander has maximum flexibility to control the measured pace of the redeployment of U.S. forces based on assessments of the security environment and the progress of the new Government of Iraq's transition, including the readiness of the Iraqi Security Forces.

As we are planning for the final RDoF, we must effectively and efficiently execute daily sustainment operations for a force structure that consists of just under 50,000 servicemembers and 75,000 civilian contractors. The concept of support in Iraq is challenging and requires a constant flow of commodities, such as the 1.2 million gallons of JP8 fuel that we receive and distribute every day across the Iraq joint operations area (IJOA).

Currently, we distribute commodities over main supply routes that span from Harbor Gate in the north to Umm Qsar in the south (roughly a distance equal to the length of California). Undoubtedly, our sustainment convoys must stay vigilant against indirect fire, direct fire, and of course, improvised explosive devices.

The commodities required to sustain a force that at one time numbered over 200,000 troops and civilians are monumental in number. Thus, the RDoF is not just the retrograde of rolling and nonrolling stock. It is also the "right sizing" of commodities so that we still have enough to sustain the 125,000 troops and civilians remaining without having more than we require. Classes III (petroleum, oils, and lubricants), V (ammunition), and IX (repair parts) are very difficult commodities to right size because they are demand oriented. A drawdown in force structure does not necessarily equate to a proportional drawdown of a commodity, and no two commodities are measured in the same way.

Class III. Bulk fuel use by U.S. and coalition forces steadily increased from an initial consumption of 170 million gallons in 2003 to a peak of 1.1 billion gallons in 2008 during the surge. The total consumption for 2009 was 853 million gallons. At the height of the surge, there were almost 30 million gallons of fuel in storage bags throughout Iraq. Only a third of that amount of fuel is on the ground today.

The expeditionary sustainment command (ESC) is responsible for keeping the fuel flowing throughout the IJOA by balancing the tasks of predicting consumption and ordering the correct amounts and types (JP8, diesel, or gasoline) from the correct sources. ESC elements receive the fuel, conduct quality control testing, store it, and redistribute it throughout Iraq. During Operation New Dawn, the anticipated reduction in fuel consumption will enable USF–I to remove roughly 50 percent of the bulk storage bags currently in place and reduce fuel orders to the Defense Logistics Agency.

Class V. Concurrently, the number of ammunition holding areas in Iraq dropped by over two-thirds, from a high of 19 in 2008 to 6 in 2010. In 2003, there were only 3. Oddly, the highest tonnage (over 14,000 tons) of ammunition was in 2005 while there were only 10 storage areas. When USF–I had 19 ammunition storage areas, only 10,000 tons of ammunition were on hand.

As USF–I reduces the onhand stocks of class V, we will reduce the number of holding areas proportionately. USF–I ammunition managers worked closely with the ESC to develop new models for class V operational and sustainment loads, since no existing models accurately reflected the composition or employment of advise and assist brigades (AABs) as opposed to brigade combat teams. The force mixes were different because of the fielding of the mine-resistant ambush-protected vehicle and the up-armored high-mobility multipurpose wheeled vehicle in lieu of heavy combat vehicles, and the missions conducted by AABs varied among, and even within, U.S. divisions.

Class IX. At the height of the Iraq surge, over 22 supply support activities (SSAs) operated in Iraq, stocking approximately 140,000 total lines of repair parts and other items. Because of the massive reduction in supply stocks, seven SSAs located at key distribution hubs remain in support of the AABs. Each remaining SSA has approximately 6,000 lines—a reduction of nearly two-thirds. The remaining SSAs will be reduced even further as each AAB redeploys with no backfill.

Critical to the success of class IX operations for the remaining months in Iraq is the ability to distribute from supply hubs to "spokes" and to partnered bases. This constant balancing act will be more complicated in the near future as the lines of communication expand because fewer assets and units will be spread out over the same geographical area. A continued partnership with the Iraqi trucking network may alleviate some of this problem by increasing the local-haul capability to fill the gap in resources.

We did more than just follow the President's direction to reduce the force structure to 50,000 personnel no later than 1 September 2010. As well as accounting for and successfully retrograding over 25,000 pieces of rolling stock and 1.5 million pieces of nonrolling stock, we reduced our overall commodity posture to best support the remaining forces inside the IJOA. These missions were accomplished while simultaneously advising, training, and assisting the Iraqi Security Forces, partnering with them for counterterrorism missions, and supporting the transition of the Department of State into the mission lead.

The President has mandated that all forces, equipment, and commodities must be out of the IJOA by 31 December 2011. What we just did was hard, but what we will do is going to be harder.

The USF–I staff and all of our partners are fully engaged in mission analysis to determine the best way to execute the RDoF. But remember, "People working together, without concern for who will get the credit, can accomplish anything."

Brigadier General Gustave F. Perna is the commander of the Army Joint Munitions and Lethality Life Cycle Management Command and Army Joint Munitions Command. He previously served as the director of logistics, J–4, for U.S. Forces-Iraq. He has a bachelor's degree in business management from the University of Maryland and a master's degree in logistics management from Florida Institute of Technology. He is a graduate of the Infantry Officer Basic Course, Ordnance Officer Advanced Course, Logistics Executive Development Course, Support Operations Course, the Army Command and General Staff College, and the Industrial College of the Armed Forces.

Security Assistance From the Logistics Point of View

BY MAJOR DANIEL M. MALONEY

The author describes his experience as a logistician assigned to a security assistance office in Afghanistan.

My 1-year tour in Afghanistan as a logistics officer clearly reinforced the importance of some basic logistics concepts (such as controlling inventory, meeting operational requirements, and tracking delivery) as well as the security assistance and cooperation practices for supporting our partners in the Global War on Terrorism.

When I arrived in Kabul, I was assigned to the Security Assistance Office-Afghanistan (SAO–A), Combined Security Transition Command-Afghanistan. I had no security assistance experience, but I did bring more than 16 years of logistics experience in various positions, ranging from maintenance company commander to support operations officer. When I arrived, I was assigned as the vehicle commodity manager and tasked with quantifying and qualifying the vehicle requirements for the Afghan National Security Forces (ANSF) and acquiring those vehicles to support the fight against the Taliban.

The director of the Integration Cell, Security Assistance Office-Afghanistan, briefs the Afghan National Army G–4 on the mission of the foreign military sales division of the Security Assistance Office-Afghanistan.

A couple of months later as a transition took place, the North Atlantic Treaty Organization (NATO) established operations, and people moved on, I became the chief of the foreign military sales (FMS) division responsible for the acquisition of all equipment, training, and sustainment requirements, with a budget of $13 billion. In the coming months, my appreciation for and reliance on many concepts I learned over the years at brigade, battalion, and company levels about procuring, fielding, and sustaining systems grew greatly.

Determining How to Accomplish the Mission

I had many issues to cover while I was assigned as FMS chief. The components of the ANSF—the Afghanistan National Army (ANA), Afghan National Air Corps, and Afghanistan National Police (ANP)—have their own specific equipment requirements that sometimes cross over among the agencies. For example, they all require a light tactical vehicle capability. Foremost in everyone's mind was the balance between wisely spending the funds at our disposal and the need to get the right equipment procured, into theater, and issued in a timely manner to equip the ANA, Afghan National Air Corps and ANP according to the fielding plan.

This sounds easy, doesn't it? In most cases it was. However, NATO Training Mission-Afghanistan and Combined Security Transition Command-Afghanistan were required to field a fighting force while in contact. That is when the concept of "simple" went out the window. In SAO–A, we had to figure out how to accomplish the requirement while in the fight.

Determining Who Gets What and How Much

Determining how to outfit the ANSF was a complicated process that stretched across several directorates. The CJ–7, as the force generator, builds the modification table of organization and equipment or, as it

A "jingle" truck concludes its journey from the Port of Karachi, Pakistan, to Depot 2 in Kabul with a medium tactical vehicle purchased through the foreign military sales division.

is called in Dari, the "Tashkiel." The document outlines the personnel and equipment requirements from ministry to corps and even down to commando and special forces units. For the Tashkiel and the subsequent byproduct "Annex K" (fielding schedule), we in SAO–A could identify new unit-fielding requirements and gain insight into the type and quantity of equipment to purchase for the ANA.

SAO–A took the operational requirement and matched it with the appropriate equipment. Our mission focused on meeting the operational requirement and used the following concepts to achieve success:

- Acquire the right equipment, training, and sustainment packages to meet the ANSF operational requirements (acquisition).
- Validate shipment of the equipment and status of training contracts (tracking).
- Advise and train the Afghans on the security assistance procedures that we use to reduce the coalition footprint in the future (transition).

Acquisition

The acquisition of equipment, training, and sustainment goes back to the Tashkiel. When coupled with onhand quantities and the operational requirement, the Tashkiel forms the genesis of the acquisition process. SAO–A also found that working with force structure was challenging because the number of ANA personnel grew from 134,000 to 171,000 and the ANP personnel grew from 96,800 to 134,000. This created a challenge in acquisition because the end state for appropriate quantities kept increasing.

Most of the crew-served weapons required by the ANA (M249s, M240Bs and M2s) had to be procured ahead of the production timeline. By the winter of 2009, we realized that we would have to divert these weapon systems from U.S. Army stocks to support the accelerated fielding of new ANA units to meet the 171,000-man force structure by the October 2011 deadline. The production timelines for some of those weapon systems can be anywhere from 12 to 18 months.

We could not always pull available stock from a warehouse to meet our requirements. Requesting diversions normally drew in expertise from the Department of the Army G–4 System Support Office and G–8 to facilitate the diversions and manage the priorities. To identify the requirements by type of equipment and quantity, security assistance officers had to manage a

large amount of information and plug into the unit fielding schedule the distribution and onhand quantities of equipment in the main depots in Kabul.

Once the security assistance officer knows what to order, he must plug the information into the Afghanistan security forces fund, which funds our "pseudo FMS" cases to buy equipment, training, and sustainment. The process is called "pseudo FMS" because the money for purchasing equipment, training, and sustainment for the ANA and ANP comes from U.S. and coalition donations. This is necessary because Afghanistan does not have a gross domestic product capable of purchasing the equipment required to defeat an insurgency.

Acquiring the equipment is the first step in a phased process to get the right equipment into the hands of the warfighter to ensure success on the battlefield. The timeliness of this process requires the security assistance officer to maintain visibility and be conscious of the quantity and type of equipment he is ordering and when it is scheduled to arrive in theater.

SAO–A is working locally to achieve a stable Afghanistan through economic development. In the end, SAO–A's goal is to provide the right equipment and support to meet operational requirements while in contact. To date, we have done this prudently, using our resources responsibly to outfit an army and police force to fight an insurgency.

Tracking

We developed what was commonly referred to as a common operational picture (COP), depicting quantities and authorizations for equipment grouped into the shoot, move, and communicate categories. Each piece of equipment was tracked to show the quantity on order through FMS, what was on hand in Kabul, and what was already issued to units. The reports that fed the COP included the net asset visibility report, the Corps Inventory Management System report, our own FMS procurement records, and the Security Cooperation Information Portal.

In FMS, two primary means of shipping equipment are available. Sensitive items (weapons, radios, and ammunition) are flown directly to Kabul International Airport. Rolling stock and all other equipment are usually shipped by surface from consolidation points in the United States (primarily the Defense Distribution Center at New Cumberland, Pennsylvania) and onward to the port of Karachi, Pakistan. A mix of "jingle" trucks and other conveyances makes for a treacherous journey for the locally-hired truckdrivers who face insurgents and, in the winter, a nearly impassable one-lane road network into Kabul.

Transition

As SAO–A prepares its Afghan colleagues to take on a larger role in the acquisition process, it is imperative to provide them with some common acquisition and supply management practices. Although certain aspects of the acquisition process in Afghanistan are unique, many of the practices are similar to those used by the U.S. military. Inventory management, prudent acquisition practices grounded in meeting operational requirements, and accountability are some of the concepts being passed to the Afghans in the transition process.

To encourage the transition, SAO–A stood up the Office of Security Cooperation with advisers specifically tasked to provide the Afghans with tools necessary for a smooth transition. As SAO–A continues to evolve, eventually the entire coalition force will draw down and the only military entity to remain will be SAO–A, which will become the Office of Security Cooperation-Afghanistan and will work out of the U.S. Embassy. At that time, the Afghans should be directing, executing, and tracking their own equipment procurement, training contracts, and sustainment. For that to happen, it is critical for the security cooperation personnel to teach, mentor, and then stand back and let their Afghan colleagues take over acquisition. It is clear that the Afghans wish to have this responsibility.

Although working in SAO–A was somewhat removed from the world of logistics status, fuel deliveries, ammunition supply points, and maintenance reports, many similarities could be found between the processes that guide security assistance officers and logisticians. Among these similarities are understanding requirements and acquisition and maintaining visibility of inbound equipment. Overall, acquisition and security assistance is the cornerstone of developing our partners in the Global War on Terrorism to provide not only for our own future security but also for their stability, security, and prosperity.

Major Daniel M. Maloney was the director of the Integration Cell, Security Assistance Office-Afghanistan, when he wrote this article. He holds a bachelor's degree from the University of the State of New York, Regents College, and a master's degree in organization from the University of Phoenix. He is a graduate of the Combined Logistics Captains Career Course, the Combined Arms and Services Staff School, and Intermediate Level Education.

Taking Oil Analysis to Southwest Asia

BY JACKIE E. CARNEY

Oil analysis can improve equipment performance and save funds. Mobile laboratories allow the Army to bring this valuable capability to the field.

AOAP supplies and equipment are loaded on an Air Force C–5 transport bound for Southwest Asia. The PMO ensures that the labs are stocked with laboratory supplies to maintain continuous operations.

Since Operation Bright Star in Egypt in 1987, the Army Oil Analysis Program (AOAP) has responded to warfighters' needs by deploying mobile laboratories. AOAP's mobile laboratories provide continuous regional support for all deployed units and equipment in tactical environments.

As soon as the Logistics Support Activity's (LOGSA's) AOAP Program Management Office (PMO) at Redstone Arsenal, Alabama, is notified that a new laboratory is needed to support a contingency, the staff immediately gets to work. The labs are deployed on a very short timeline, leaving no room for mistakes. The most recent lab deployment—the deployment of a mobile containerized facility to Camp Marmal in northern Afghanistan last summer—provides a good example of how the AOAP PMO responds quickly and innovatively to support the Army's needs in the field.

AOAP diagnostics are performed by certified evaluators. The oil analysis laboratories in Southwest Asia analyze more than 113,000 Army aviation and combat equipment fluid samples annually.

The first two mobile laboratories in Southwest Asia were configured inside M971 semitrailer vans. In this photo, the first mobile lab rolls off an aircraft on its way to the theater.

What Is Oil Analysis?

Oil analysis is the sampling and analysis of oil for various properties and materials that indicate wear or contamination in an engine, transmission, or hydraulic system. Sampling and analyzing on a regular basis establishes a baseline of normal wear and can indicate when abnormal wear or contamination occurs.

The AOAP was established and implemented by the Department of the Army to monitor component wear and the condition of oil. A detailed analysis of engine, transmission, and hydraulic oils enables the warfighter to avoid potential problems that may result in major repairs and equipment downtime. Oil analysis can reduce the frequency of oil changes and the consumption of oil, producing cost savings for tactical units and promoting conservation of lubrication products.

Performing oil analysis becomes even more critical in the desert environment, where equipment is exposed to much harsher operating conditions and increased operating tempo. The oil analysis, which is performed by certified evaluators, identifies if the drive systems are contaminated with sand or any other elements in the oil that will cause excessive wear on their internal parts.

Laboratories in Southwest Asia

The AOAP PMO supports the operation of 22 oil analysis laboratories around the globe. Five of these labs are currently operating in Southwest Asia supporting Operation New Dawn in Iraq and Operation Enduring Freedom (OEF) in Afghanistan. These laboratories are located at Camp Arifjan, Kuwait; Balad, Iraq; and Bagram, Kandahar, and Camp Marmal, Afghanistan. One lab, operating at Tikrit, Iraq, was deactivated on 30 October 2010 to align with Army drawdown operations in Iraq.

During the early phase of current Southwest Asia operations, oil analysis support was provided by two mobile laboratories configured inside M971 semitrailer vans deployed to the theater. As operations continued, the number of laboratories was increased to five fixed facilities in addition to two mobile units. The latest of these laboratories, at Camp Marmal, was stood up in August 2010 in response to "OEF Plus-up III" requirements.

Supporting Oil Analysis Operations

The oil analysis laboratories in Southwest Asia analyze more than 113,000 Army aviation and combat equipment fluid samples annually. Ensuring that the labs are operating at peak efficiency is critical and is the top priority of the AOAP PMO. The Southwest Asia laboratory site leader collects the readiness status for each lab and provides it to the AOAP PMO field operations staff daily. Major emphasis is placed on ensuring that the labs' diagnostic equipment is well maintained and repaired quickly in the event of a malfunction.

The PMO ensures that the labs are resourced and stocked with enough laboratory supplies to maintain operations 24 hours a day, 7 days a week. Each analytical instrument operating in the laboratory requires chemicals and consumable items to run the required tests. The challenge is to ensure the continuous availability of these items.

The AOAP PMO has an established and efficient process for getting large quantities of lab supplies shipped out. For example, more than 2,500 items were shipped from Redstone Arsenal during a recent 60-day period. To accomplish this, the PMO relied heavily on the responsiveness of Redstone Arsenal's supply and distribution and transportation organizations to process the AOAP shipments.

Working with these organizations, the PMO was the first at Redstone to implement radio frequency identification tag technology to track its shipments of supplies and equipment. The managers and team members working in these organizations understand the importance of getting AOAP shipments on the ground in Southwest Asia as quickly as possible and are very supportive of the AOAP mission.

Deploying the New Laboratory

The deployment of the new lab at Camp Marmal demonstrated once again the challenges of deploying a mobile laboratory to bring oil analysis to a theater and

The new mobile facility was up and running at Camp Marmal on 30 August to support the 4th Combat Aviation Brigade. The PMO configured a mobile containerized facility for the lab.

the AOAP PMO's success in meeting the warfighter's needs.

The process began when the commander of the 4th Combat Aviation Brigade in northern Afghanistan provided advance notice of the need for a new laboratory to support aviation and ground combat equipment analysis requirements for the OEF Plus-Up III buildup. The two AOAP labs that were already operating in Afghanistan could not meet this requirement because the mountainous terrain made it difficult for the brigade to reach them. The Army Materiel Command execution order required the new lab to be in place and fully operational no later than 30 August 2010.

The PMO's first step was to determine the most expeditious and efficient approach to meet the requirement. The PMO worked with the Army Aviation and Missile Command, the National Guard Bureau theater aviation maintenance program, the Navy mobile facility program manager, and the Prototype Integration Facility at Redstone Arsenal to obtain and prepare a mobile containerized facility for deployment.

Getting a virtual "turn key" laboratory to meet the urgent lab requirement was a viable solution. Mobile containers were already configured to meet electrical power and environmental requirements and only needed the installation of analytical equipment and information technology interface wiring. Once the

Shown is the interior of the new AOAP mobile laboratory facility at Camp Marmal, which meets 100 percent of the 4th Combat Aviation Brigade's oil sampling requirements.

facilities were delivered on 15 July, all internal modifications were completed, diagnostics equipment was installed and tested, operating supplies were procured, and the lab was packed up and made ready for air transport to Southwest Asia.

The laboratory was picked up by a commercial air carrier on 9 August and arrived at Camp Marmal on 15 August. An AOAP fielding team also deployed in conjunction with the lab's shipment. Soldiers from the 401st Army Field Support Brigade and the 4th Combat Aviation Brigade assisted the fielding team in standing up the lab at the Camp Marmal site. The new laboratory was operational and analyzing samples on 30 August. This was a great team effort, considering that the laboratory was procured, retrofitted for the AOAP mission, fully tested, shipped from the continental United States, and stood up in Afghanistan to successfully meet the Army's execution order fielding date.

In addition to meeting the commander's urgent need for a new laboratory in Afghanistan, the PMO discovered another very flexible, mobile, deployable option that can be used to satisfy future oil analysis operational needs. Today, the lab is meeting 100 percent of the 4th Combat Aviation Brigade commander's oil sampling requirements and providing brigade personnel confidence in their equipment's ability to successfully accomplish assigned missions.

"Our team is very experienced," explains Joe Sanchez, LOGSA's AOAP program manager. "However, it always requires an exceptional amount of team work and a very intense level of effort to prepare and deploy these mobile labs around the globe to support our military operations." With nine successful global deployments of mobile laboratories over the past 23 years, including the Camp Marmal deployment, the AOAP PMO has established a solid track record for supporting warfighters' needs.

Jackie E. Carney is an Army Oil Analysis Program specialist at the AOAP Program Management Office at the Logistics Support Activity at Redstone Arsenal, Alabama.

Central Power Solution Training Course

BY DANIEL R. GRACHANIN

Soldiers from the 3d Brigade Combat Team, 101st Airborne Division (Air Assault), learn to parallel two AN/MJQ 41B–41 60-kilowatt "B" model generators.

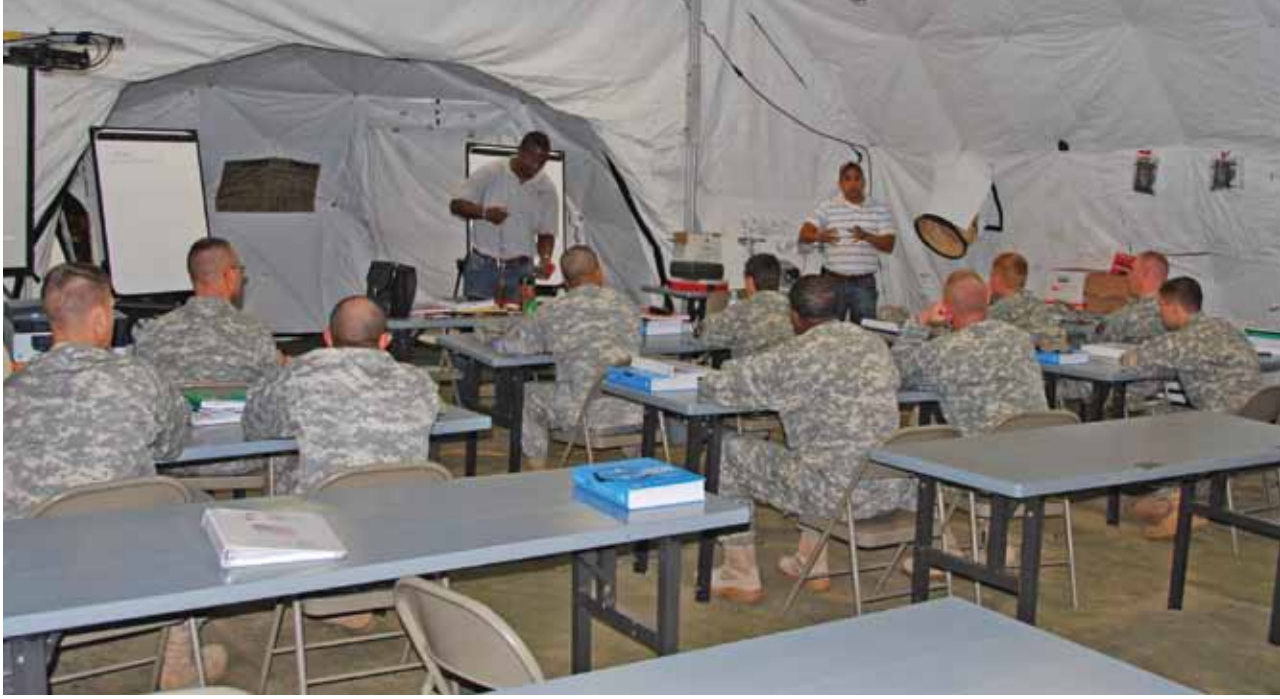
Bullets and bombs are no longer the only risk to being in a war zone. Something as simple as taking a shower or washing a vehicle can claim the life of someone defending our Nation. These routine activities can become life threatening to Soldiers because of overloaded circuits, inadequate extension cords, and improperly emplaced breaker lines in the power system. Several Soldiers have died from electrocution caused by these problems

Many Soldiers believe that since outlets are readily available, sufficient electricity is available. However, as technology continues to advance, the central power solution (CPS) or tactical power grids that supply power to these technologies have remained unchanged. The deaths of several servicemembers as a result is unacceptable, considering the simple safety procedures that could prevent such tragedies.

Addressing the Power Safety Problem

CPS errors led David Aebischer, the Communications-Electronics Command-Life Cycle Management Command (CECOM–LCMC) trail boss with the 101st Airborne Division (Air Assault) at Fort Campbell, Kentucky, to believe that many servicemembers do not know how to emplace power grids properly. Properly installing power grids could save lives and prevent electrical fires.

Aebischer presented an idea to CECOM Information Technology Field Service Branch (IT–FSB) chief Bryan



Students use a trailer-mounted support system tent as a classroom during their CPS TOC training. They learn extensive electrical theories and safety before engaging in the hands-on portion of the training.

Ayer to create a power training course for an infantry brigade combat team (IBCT) CPS tactical operations center (TOC), which would be taught by CECOM IT–FSB power production instructors.

CPS Training

CECOM IT–FSB created the 2-week training course to teach Soldiers to install the CPS properly, based on many years of experience with power generation equipment in the field. Aebischer and Ayer targeted the Soldiers within the TOC for training because CPS installation does not fall under any military occupational specialty.

The American Trade School (ATS) from St. Louis, Missouri, has been contracted to provide training alongside the CECOM instructors during the first week of the course. ATS provides its best instructors for this training. All of the ATS instructors are veterans and truly enjoy training the Soldiers.

The first week consists of instruction in—

- Electrical safety.
- Basic electrical theory, consisting of units of measurement, electrical symbols, electrical theory, Ohm's Law, electrical math, AC (alternating current) and DC (direct current) circuits, single-phase and 3-phase power, computing neutral current, load calculation, and load balancing.
- National Electrical Code introduction.
- Sizing conductors, ampacity, and voltage drop.
- Circuit breakers and fuses, tools, and test equipment (such as multimeter, ammeter, and ground resistance tester).

In the second week of the course, the students receive more hands-on experience with power plants and electrical distribution systems. The week covers—

- Grounding and bonding methods.
- Preventive maintenance checks and services.
- Safety.
- Paralleling procedures. [Paralleling generators creates a backup power supply.]
- Troubleshooting.
- Power plant emplacement.
- Power distribution illumination systems electrical emplacement.
- Connecting the power grid.
- The differences between generator models.

The 1st, 2d, 3d, and 4th Brigade Combat Teams of the 101st Airborne Division (Air Assault) and the 101st Brigade Support Battalion have received the IBCT CPS TOC power training. This training has also been provided to several other units during their Joint Readiness Training Center rotations at Fort Polk, Louisiana. Currently, CECOM IT–FSB is providing all of the training during a unit's Battle Command System of Systems Integration Training Event I.

Any unit can request this training through CECOM IT–FSB by calling (931) 216–9944 or (270) 798–9208 (DSN 635–9208) or by sending an email to bryan.ayer@us.army.mil.

Daniel R. Grachanin is a member of the Communications-Electronics Command Information Technology Field Service Branch power production team at Fort Campbell, Kentucky.

Joint Supply Chain Architecture

BY MARY P. FLETCHER

The Department of Defense has used the Supply Chain Operations Model to develop a method for coordinating and managing supply chain practices across the Department and the services.

On 30 March 2010, the Executive Advisory Committee for the Joint Supply Chain Architecture (JSCA) approved the commencement of phase III of JSCA, a revolutionary program providing enterprise-wide value to the warfighter. The Executive Advisory Committee is chaired by the Principal Deputy Assistant Secretary of Defense for Logistics and Materiel Readiness (L&MR) and the Director for Logistics, J–4, the Joint Staff, and includes representatives of the Office of the Secretary of Defense (OSD), the services, the combatant commands (COCOMs), the Defense agencies, and weapon system program executive offices.

The creation of JSCA resulted from the recognition that the Department of Defense (DOD) needs to improve supply chain effectiveness and efficiencies within the services, COCOMs, and Defense agencies. Senior logistics leaders across the stakeholder community have identified three common issues affecting the supply chain. First, the DOD supply chain is not configured (and the players in the supply chain are not aligned) to achieve "enterprise wide" optimization of the supply chain process. Second, the DOD supply chain lacks common performance metrics that can drive better coordination and alignment. Third, increased emphasis on the DOD supply chain and the need for effectiveness and efficiencies make the timing of JSCA's implementation of great importance.

Organization and funding boundaries are currently hampering the DOD supply chain process. JSCA offers a means to knock down the stovepipes that interfere with effectiveness and efficiency. It attempts to increase visibility of items in transit and in inventory. In short, JSCA is a methodology for logistics that provides DOD with an enterprise-wide, end-to-end perspective for optimizing supply chain processes to maintain and improve materiel readiness at the best value. JSCA has gained the support of the Army's senior logistics leaders.

Origins of JSCA

JSCA is an OSD and J–4 initiative that traces its origins to a major innovation in commercial industry: the Supply Chain Operations Reference (SCOR) Model created by the Supply Chain Council. The SCOR is a process reference model that provides a structured approach to documenting supply chain processes. Its function is to ultimately identify best practices and apply risk management to logistics procedures. The Supply Chain Council, formed in 1996, continues to update and revise the SCOR, now in version 9.0, and provide the widest possible dissemination of the model.

In May 2003, DOD published a revised regulation, DOD 4140.1–R, DOD Supply Chain Materiel Management Regulation, to govern the conduct of joint logistics for the future. DOD Directive 4140.1, Supply Chain Materiel Management Policy, mandated that the regulation would be used to establish the processes for all logistics activity in DOD. The directive and its supporting regulation reflected the thinking of senior leaders that DOD logistics processes had to adapt to changes in the evolving global environment as well as to budget priorities.

Performance (in terms of materiel readiness) and cost are the two recurring themes throughout DOD supply chain publications. They are the indices by which success will be measured in implementing processes and improving supply chain materiel management systems. The goal is to have a responsive, consistent, and reliable supply chain that provides the highest level of materiel readiness at the best value.

In 2007, the J–4 and the OSD L&MR initiated the development of JSCA as a supply chain management framework. They recognized that many benefits could be achieved by successfully coordinating and managing supply chain practices across the department.

The JSCA project was broken down into three phases. Phase I was the development of the architecture itself, in particular the supply chain processes and metrics, and the "buy-in" of the key stakeholders. This phase basically built JSCA based on a consideration of existing processes since the Army, Navy, and Air Force had already implemented some of the existing logistics and financial systems outlined in the SCOR process.

This article expresses the views of the author, not the Department of Defense or any of its agencies.

Phase II was the proof of concept, under which one weapon system was evaluated using JSCA processes and performance measures to validate the efficacy of the JSCA methodology. Phase III is the institutionalization phase: Weapon system diagnostics will be conducted to identify opportunities and courses of action to capitalize on opportunities identified in phase II, along with newly acquired opportunities. The outcome of this phase will determine the future of JSCA across DOD.

The Six Key Tenets for the DOD Supply Chain

The JSCA process is guided by six major tenets:

- Institutionalize the SCOR Model throughout DOD by means of JSCA.
- Establish outcome-based, end-to-end performance measures.
- Approach decisions in a way that optimizes the total DOD budget while improving readiness.
- Do not optimize the functional outputs of the supply chain at the expense of total system effectiveness.
- Create a governance process that can meet the need to facilitate, align, and coordinate the joint, end-to-end supply chain.
- Design policy to establish accountability, responsibility, consistency, and appropriate resources to ensure better decisionmaking for the end-to-end supply chain.

JSCA Processes

JSCA provides DOD with a process by which to model and adopt as normal practice the performance elements of the supply chain. Using the SCOR Model, JSCA is broken down into five level 1 processes: plan, source, maintain and repair, deliver, and return. Each level 1 process has associated process elements that further describe the supply chain in a structured manner.

Plan. Five process elements constitute the plan process of JSCA: forecasting supply and demand, identifying repair and maintenance requirements, planning retrograde and redeployment requirements, defining supply chain resources and outputs, and planning for inventory, warehousing, distribution, and deployment.

Source. The source process is broken down into four process elements: identification of sources of supply, negotiation and selection of suppliers, receipt and verification of materiel and services, and release of payment for materiel and services.

Maintain and repair. This process is defined as "the process of maintaining assets and effecting component repairs at the intermediate and depot levels of the supply chain. [It] includes the utilization and management of contracted repair services." The process is divided into five process elements: finalization of engineering, development of the repair and maintenance schedule, issue of materiel, performance of repair activity, and release of repaired materiel to a user or to a stocking location.

Deliver. The deliver process is considered throughout DOD to be part of the source process for materiel delivery from private vendors for stockage in storage depots to be distributed later to DOD customers. However, the requisition and order entry process initiates the issue and delivery process for the supply chain.

Return. In this process, the customer uses the planned policies, business rules, and inspection of product operating conditions as criteria for identifying and confirming that materiel is excess to requirements or defective at specific locations. It also is the process of identifying the appropriate source contact for a return authorization.

JSCA Metrics

Metrics for measuring performance in the respective processes and process elements are essential to the JSCA process. JSCA started with the three categorical imperatives for the Defense Logistics Enterprise: reliability, speed, and efficiency. Supporting metrics were outlined for each of these three top-level metrics. These groups of metrics evolved into a metrics "hierarchy" that encompasses relevant metrics in a comprehensive manner. The purpose of this metrics hierarchy is to measure process outcomes and enable benchmarking within DOD and between DOD and commercial industry. Cross-cutting metrics were also identified to clarify the measurements of performance.

The top three end-to-end metrics are reliability, also called perfect order fulfillment (POF); speed, or customer wait time (CWT); and efficiency, which is equated with total supply chain management costs (TSCMC). All three metrics must be considered in balance when leaders evaluate supply chain performance. They are designed, ultimately, to achieve materiel readiness at the best value.

The effort to develop and validate the metrics was spearheaded by the JSCA team, led by the OSD L&MR and the J–4, and included representatives from each service's materiel command and subject-matter experts from academia and private industry.

Reliability (POF). An order is considered "perfect" if it is delivered in time to meet the "customer commit date," in the full quantity, in the correct condition, and with the correct documentation. POF has several level 2 and level 3 metrics: orders are delivered in full, including item and quantity accuracy; delivery performance meets the customer commit date; documentation is accurate; and delivered items are in perfect condition. POF determines how reliably a customer's order is filled. In SCOR terms, it is a "customer-facing" metric. It provides insight into whether or not the supply chain can fulfill customer needs consistently.

Speed (CWT). The JSCA team selected CWT as the primary metric to measure the DOD supply chain's speed in fulfilling orders. CWT measures the supply chain's ability to quickly respond to customer demand. CWT starts when a customer places a requisition and ends when the customer's requisition is closed. This attribute of responsiveness is also "customer-facing" in SCOR methodology.

CWT determines how quickly the end customer is served. Analysis of CWT is broken into subsegments that enable identification of problem areas. Using CWT enables DOD to benchmark (compare its performance) against industry.

Efficiency (TSCMC). The JSCA team selected TSCMC as the primary efficiency metric. By structuring the supporting metrics to align with the processes, DOD will be able to benchmark both TSCMC and the supporting metrics with commercial results, when applicable. TSCMC includes total acquisition cost, total delivery cost, total maintenance cost, and total return cost. These costs include both personnel costs in each function and materiel costs in each metric. TSCMC enables program managers and other decisionmakers to understand the extent to which adjustments to the supply chain affect costs. Unlike POF and CWT, this attribute is considered to be "internal-facing" in SCOR methodology.

Cross-cutting metrics. To accompany the three proposed top-level performance metrics, the JSCA team identified five cross-cutting metrics: fill rate, percentage of retail orders filled locally, percentage of wholesale orders filled locally, forecast accuracy, and inventory days of supply. The cross-cutting metrics are interconnected and work across the reliability, speed, and efficiency metrics to help identify the root causes of DOD supply chain problems.

JSCA Proof of Concept

The processes, process elements, and metrics constitute the framework for JSCA. During phase I, the team successfully validated JSCA as a valuable methodology for making supply chain decisions with a holistic view of supply chain operations. The EAC supported the results of phase I and gave the go-ahead for phase II, the JSCA proof of concept.

The objective of phase II was to apply JSCA weapon system diagnostics to a cross-service weapon system to see what economies and efficiencies could be gained. These potential improvements were identified as operational opportunities for JSCA.

The H–60 helicopter was chosen for the proof of concept because it is a mature and complex weapon system that is used across the services. The hypothesis of the project is that JSCA provides DOD with an enterprise-wide, end-to-end perspective for optimizing DOD supply chain processes that maintain and improve readiness at the best value.

In addition to being a joint system, multiple variants of the H–60 have a long history of being used for sustainment over several years. As a weapon system with proven success in the supply chain, the H–60 was well suited to evaluate the end-to-end DOD supply chain for the Army and the Navy and the deliver process for the Air Force H–60 programs.

The Army was chosen as the lead agency because it has the overwhelming majority of the H–60 fleet. The Navy has employed a performance-based logistics (PBL) strategy for its sustainment support, so phase II had a limited impact on the Navy because of the duration and structure of the contract.

The phase II process was divided into two segments. The first was the Army detailed assessment, consisting of stakeholder interviews, data collection, process mappings, and inventory of relevant policies. The second, known as the opportunity analysis, was the identification of major opportunities based on evaluation of JSCA metrics. The plan was to look at the Army first and then at the combined services.

Recommendations for Improvements

The opportunity analysis led the JSCA team to make several recommendations for operational improvements. The first is to improve differentiation throughout the supply chain. Initial data collection showed JSCA's potential for identifying certain secondary items as "NMCS [not mission capable supply] driver" items. [These are items in short supply that stop maintenance work and thus prevent systems from performing assigned missions.] The overall objective is to reduce CWT for these NMCS drivers.

The second operational recommendation of JSCA phase II is to improve the class IX (repair parts) national-echelon demand planning forecast. This will result in a more efficient distribution of inventory and will improve materiel availability. As part of this effort, the Army Materiel Systems Analysis Agency is studying commercial demand-forecasting models for potential adaptation by DOD components.

A third recommendation, related to the second, is to improve collaborative demand planning. The Army Materiel Command (AMC) is actively engaged with the Defense Logistics Agency (DLA) in implementing this opportunity. The focus is on improving the accuracy of depot parts support forecasts exchanged through new enterprise resource planning systems deployed within each component.

The fourth and fifth recommendations are to balance repair capacity with the rest of the supply chain and to develop a joint approach to the commercial industrial base. The Army Contracting Command and the AMC G–3 reviewed past procurement and repair programs and identified commercial vendors for potential future strategic-sourcing alliances with the Army. This process is being expanded to include Air Force

and Navy H−60 spending data. Processes developed for these two recommendations are being coordinated with DLA, which has centralized class IX procurement responsibility for all DOD components.

The last operational recommendation is to actively manage the return process. The Army has made a dedicated effort to reduce the turnaround time for unserviceable retrograde items from theater to continental United States repair depots. The Army Logistics Support Activity has been essential in developing and tracking enhanced management metrics for this effort.

One challenge faced during phase II was the quality and consistency of the data obtained. Phase III required one set of authoritative data.

The major output of phase II was to demonstrate that JSCA data collection and evaluation is an approach that can be repeated for other DOD weapon systems.

The findings on the H−60 helicopter highlighted the usefulness and strong potential benefits of the JSCA methodology to DOD. Having implemented JSCA on a broad scale with the first weapon system, it was decided that it would be beneficial to go ahead with the third phase of the project.

JSCA Institutionalization

Phase III—the institutionalization phase—of JSCA is now well underway. Three multiservice weapon systems were chosen for the phase III project: the close-in weapon system (CIWS), the C−130 aircraft, and the Hellfire missile launcher. During this phase, DOD expects to find continued opportunities for improving the supply chain and achieving greater value in the sustainment process.

Three major outcomes were expected during the first year of the institutionalization of JSCA—

- Create a foundation by defining end-to-end performance measures, developing benchmarking methodology and tools, identifying authoritative data sources, and constructing a benchmarking database.
- Establish a collaborative process for the H−60 supply chain and optimize H−60 network inventory levels.
- Identify opportunities and recommend changes to improve supply chain performance and readiness for the Hellfire launcher, CIWS, and C−130.

During phase III, the performance metrics that will be used to measure, benchmark, and analyze the end-to-end DOD supply chain were updated, refined, and validated. The objectives of the validation were to—

- Select the appropriate measures for the near- and mid-term implementation of JSCA.
- Define, with a great deal of specificity, how the measures will be calculated.
- Identify the authoritative data source and specific data elements needed from each organization to calculate the performance measures.

The final actions of this validation workstream include finalizing metrics and definitions, socializing with Executive Advisory Committee members, and preparing metrics for incorporation into the Benchmarking Guide.

Benchmarking

Benchmarking supply chain performance is a key function in phase III and a critical step in continuously driving improvements to DOD's joint supply chain.

Benchmarking is the process of collecting specific supply chain performance data and using them to compare the performance of a supply chain against relatively similar and best-in-class supply chains. To gain an understanding of where the supply chain is achieving excellent results and where improvement opportunities exist, performance data will be collected based on the supply chain's speed, reliability, and efficiency. Data validation is key to the effort.

Standard performance metrics were carefully selected during phase III to enable comparisons among DOD's weapon systems. Performance is benchmarked qualitatively, quantitatively by performance metrics, and by complexity. This three-pronged benchmarking approach enables the collection and analysis of performance information at the business level, detailed level, and operations level. (The operations level analysis will assess factors such as distribution, transportation, and management processes.) This benchmarking approach assists in setting goals and targets as well as developing a "scorecard."

The JSCA metrics underwent a pilot test during the weapon system diagnostic phase of phase III. The measures were refined from April to August 2010, recommendations for end-to-end DOD supply chain measures were provided during June to September, and institutionalization of the performance measures is occurring from September 2010 until a time to be determined.

The Performance Measurement Framework (PMF) Plan consisted of three steps. First was the data collection process, during which a benchmarking questionnaire was also circulated. Second was the analysis process, during which data were normalized and compared with the sample population. Third was the refinement process, in which the JSCA team identified lessons learned and the PMF was revised accordingly.

Ultimately, DOD will be benchmarking against civilian industry. This will also require identification of specific targets for specific items and processes. Does the performance of a given item need to be "adequate," in the top 10 percent, or "best in class?" D-cell batteries, for example, may have different targets than helicopter rotor blades.

Some of the current limiting factors are imperfect benchmarking with commercial entities and lack of authoritative data sources. In the cross-service realm, management processes differ across the services (for example, PBL versus non-PBL), and metrics and data availability also differ. One of the purposes of phase III is to remove these limiting factors.

Joint Approach for the Industrial Base

Another project that emerged from phase II and is being implemented during phase III is the "Joint Approach for the Industrial Base." This innovation has powerful implications for materiel readiness and cost savings in DOD contracting. The key element for success is collaboration among the services, defense agencies, and other supply chain components, including the Supply Chain Executive Steering Committee. Activities underway include an agreement between DLA and the Army to collaborate on the workstream and define the outcomes of this effort. One focus of this effort will be demand planning accuracy.

Joint Sourcing Working Group

The Joint Sourcing Working Group will collaborate to improve weapon system readiness through information sharing, planning, and governance on end-to-end life-cycle sustainment activities. Thus far, the group's member organizations include the Deputy Assistant Secretary of Defense for Supply Chain Integration (SCI); the J–4; the DLA J–3/4; Marine Corps Headquarters Installations and Logistics Department; the Army Contracting Command; AMC's Aviation and Missile Command and Corpus Christi Army Depot; the Army G–4; and Defense Logistics Agency Aviation.

The JSCA Working Group is the supporting and implementing organization. It is cochaired by the SCI and the J–4, and its members are the services, combatant commands, defense agencies, OSD, and systems program management offices, as well as other functional and domain experts.

It is important to note the stakeholder bodies consulted on the JSCA efforts: the Supply Chain Executive Steering Committee, the Product Support Executive Committee, the Distribution Process Owner Governance, and the logistics component organizations of the H–60, C–130, Hellfire launcher, and CIWS.

JSCA adapts a commercially developed and accepted operations reference model for operational use within DOD. Although some significant policy and statutory challenges currently exist in operating a single, joint supply chain across DOD, JSCA helps leaders and practitioners to better define the "trade space" when evaluating the costs and benefits of process or configuration changes.

Phase I of JSCA saw the creation of JSCA and the process model. It also accomplished socialization and buy-in across DOD. Phase II validated the benefits of JSCA and an understanding of some of its limitations. It resulted in development of an approach that can be repeated for weapon system diagnostics. Finally, it provided a summary of recommendations and end-to-end supply-chain tenets.

The weapon system diagnostic phase of phase III will further demonstrate the value of the JSCA methodology and institutionalize processes as well as socialize and validate primary, supporting, and cross-cutting metrics. The goal is to develop a long-term strategy for creating governance of the system.

The JSCA team proved the utility of JSCA by using it to identify areas of inefficiency and opportunities to create an effective supply chain (efficiency, speed, and supply chain reliability). While additional work needs to be done to prescribe specific solutions for the identified issues, JSCA has proven useful in identifying and prioritizing opportunities for improvement. Increased emphasis on the DOD supply chain and the services' need for efficiencies and effectiveness make the timing of JSCA greatly important. Finally, JSCA is directed toward changing the mindset of DOD logisticians.

A proposed end state for the DOD supply chain is an estimated delivery date to the customer within 24 hours of request and delivery of issue priority group (IPG) 1 requisitions anywhere in the world in 5 days with 95-percent reliability, IPG 2 requisitions anywhere in the world in 15 days with 95-percent reliability, and IPG 3 requisitions anywhere in the world in 30 days with 95-percent reliability. JSCA can help make this a reality.

The support of the services, combatant commands, and defense agencies are needed to make the JSCA methodology a reality for DOD. The results of improved materiel readiness at greater value are an imperative effort in the fast-moving, rapidly changing global environment. Best practices are the aim. We owe nothing less to the force.

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Packing the Largest Shipment of the Iraq War

BY CAPTAIN KYLE P. MCNEALY

Members of the 841st Transportation Battalion and 276th Transportation Detachment (Automated Cargo Documentation) loaded and tagged the largest single shipment of the Global War on Terrorism and the Iraq War in late April 2010. Equipment converged on APM Terminals Virginia in Portsmouth, Virginia, by road and rail to prepare for its transfer to the Middle East. The massive shipment, totaling 1,191 pieces of equipment, consisted of containerized cargo and rolling stock of the 2d and 3d Brigade Combat Teams, 101st Airborne Division (Air Assault).

The 276th Transportation Detachment (Automated Cargo Documentation), 11th Transportation Battalion, located at Joint Expeditionary Base Little Creek-Fort Story, Virginia, tracks and documents cargo and provides terminal services in fixed-port or logistics over-the-shore operations.

The Military Surface Deployment and Distribution Command (SDDC) called on the detachment because of its ability to deploy rapidly and its self-sustaining personnel and equipment composition. SDDC also called on the 841st Transportation Battalion, a movement control battalion from Charleston, South Carolina, that is designed to synchronize surface cargo movements and provide traffic management and single port management for the Department of Defense (DOD). The 276th and 841st have worked together on various missions on the eastern seaboard, including movements out of Philadelphia, Pennsylvania; Portsmouth and Norfolk, Virginia; and Charleston.

The 597th Transportation Group at Fort Eustis, Virginia, coordinated the operation, which involved "stuffing" 40-foot shipping containers with smaller quadruple and triple containers and placing intrusion-detection radio frequency identification (RFID) tags on each 40-foot container for shipment.

Setting Up Shop

Soldiers of the 276th Transportation Detachment and 841st Transportation Battalion entered APM Terminals Virginia early on the morning of 26 April and made their way to the receiving point of the Army shipment. Soldiers began to set up their equipment and prep their rosters and technical equipment while they waited for the arrival of the first piece.

The 276th made its deployable operations center (DPOC) the central office and information center for the operation. Key personnel and technical equipment filled the DPOC and provided unity of command and a central location for information gathering and recording. For 15 days straight, equipment poured into the terminal and the 841st and 276th worked together to organize, track, stuff, and tag the equipment for onward movement.

The 841st and 276th use Worldwide Port System (WPS) and in-transit visibility (ITV) technology to track and document equipment. WPS allows ocean terminals to account for and track the movement of cargo through a port and document cargo with manifests, transportation control and movement documents, and customs papers. WPS provides regional commanders with the information needed to manage the movement of ocean cargo.

ITV technology is a network of servers, RFID interrogators, and RFID tags. The ITV network developed for DOD is the world's largest RFID system. The system is designed to increase productivity, reduce cycle times, decrease warfighter wait times, and increase supply confidence while meeting commanders' needs for total asset visibility.

Tracking the Shipment

During this operation, each piece of equipment and container had its own unique RFID tag. The SAVI Sensor Tag ST–675 provides not only ITV of container locations but also the times, details, and locations of when containers are compromised during shipment. A compromise is anything, including unauthorized container openings and cuts, holes, or punctures, that can disrupt the container's integrity. Each tag is equipped with temperature, humidity, shock, intrusion, and light sensors. The tag has a c-shaped clamp that allows the electronic components and sensors to be housed inside of the shipping container while only the small antenna casing is exposed to the elements. This design reduces wear and damage to the tag.

The 40-foot containers had their own unique RFID designations, too, with the same type of tag providing an additional tier of visibility. If any tampering or theft occurred during transit, the SDDC as well as commanders would know which equipment was affected because each smaller container tag corresponded with the tag for its parent 40-foot container.

When fully documented and ready for load out, the shipment consisted of 639 quadruple and triple containers loaded into 40-foot containers, 464 pieces of rolling stock, and eighty-eight 20-foot military-owned demountable containers. At the conclusion of the operation, all cargo was tagged, stuffed, accounted for, and manifested for movement overseas to Operation Iraqi Freedom.

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Vehicle Recovery Training at JMRC

BY MAJOR DEREK W. HOFFMAN

The Joint Multinational Readiness Center has established a program to teach unit personnel to conduct recovery operations in a combat environment.

In 2009 and 2010, the Joint Multinational Readiness Center (JMRC) at Hohenfels, Germany, built a facility where deploying units can gain hands-on experience with tactical recovery operations. At this facility, units revisit the fundamentals of recovery with heavy emphasis on precombat checks and inspections. Soldiers receive hands-on training with damaged vehicles and conduct recovery in a simulated tactical environment. The combat recovery training site developed by the Adler observer-controller trainer (O/C–T) team reflects the JMRC commitment to provide deploying units with a superior training experience.

Recovery operations can play a significant role in unit operations and, in some cases, involve brigade-level attention when they require fires, air, and battlespace coordination. The recovery training program began in recognition of this and in response to the need for recovery crews to gain valuable hands-on experience in a realistic environment.

The recovery facility training philosophy focuses on empowering junior leaders to make critical decisions on the ground in response to various training scenarios. This gives units the competence and confidence to perform these tasks under fire while deployed. Planners can gain valuable experience in mission planning for events outside of the recovery arena and create models to validate the military decisionmaking process.

Training events employ the resources commonly associated with a combat training center: realistic and relevant scenarios, battlefield effects, demanding scenarios, high standards for success, and the assistance of dedicated O/C–T cadre. This article explores the application of these features as they apply to preparing recovery teams and units for deployment.

Vehicle Recovery Models

The JMRC model for training recognizes two basic models for vehicle recovery: tow and platform. Tow recovery involves any method of moving a vehicle in which at least one axle assembly is still in contact with the ground and capable of supporting the vehicle's weight. This may include flat towing if enough of the vehicle's drive train remains intact.

When a crew only pulls the vehicle, such as during hasty recoveries from engagement areas, it is categorized as tow recovery for the purpose of this discussion. This could include a large vehicle such as an M984 heavy expanded-mobility tactical truck wrecker dragging a damaged M1151 high-mobility multipurpose wheeled vehicle (HMMWV), even if both axles are missing. In such cases, vehicle towing only removes the personnel and equipment from danger, and platform recovery must be performed immediately afterward.

Although tow recoveries may be deliberate or hasty, all platform recovery operations are considered deliberate actions requiring coordination and planning. Coordination and planning may take place before the mission. For example, a unit could include as part of its equipment a palletized load system or load handling system platform and recovery vehicle capable of supporting the recovery of an up-armored HMMWV.

The Adler O/C–T team employs several methods and phased training for units to become proficient in vehicle recovery. The phases include comprehension of recovery methods and equipment familiarization, hands-on recovery competence, and execution of a complete recovery mission.

Leader Development Training

Units usually begin training recovery operations within the first couple of days of arriving at JMRC. The training begins with a leader development phase focused on doctrine and developing subject-matter experts within the unit. Adler maintenance O/C–Ts evaluate leaders' comprehension of recovery methods and their understanding of doctrine by reviewing unit standing operating procedures (SOPs) and observing Soldier training. This method stresses the importance of developing confidence and competence within the unit through foundation building and task repetition.

The unit's SOP must address doctrine and assigned tasks for all personnel involved with recovery operations, to include medical providers and security personnel. The document exists as a template for leaders to plan and execute recovery tasks ranging from simple, hasty operations to complex, deliberate operations while in contact with enemy forces. Unit leaders responsible for training the standards in the SOP must display proficiency through discussion and demonstration with the O/C–Ts.

This phase of training is grounded in the principle that unit leaders are the ones best qualified to train their units and support doctrine and regulations, which

Soldiers prepare to tow a disabled vehicle during recovery training at the Joint Multinational Readiness Center at Hohenfels, Germany. *(Photo by SPC Ricky Lowes, VIPERS Visual Information Personnel Team, JMRC)*

identify the commander of a unit as the primary trainer. Throughout this phase, tactical aspects of recovery, such as precombat checks and inspections, rehearsals, and tactical movement skills, are demonstrated by unit leaders. Unit leaders also train Soldiers on the basic components of organic recovery equipment, including application, maintenance, and safety.

The benefits of initiating training using this model are multifold. Leaders in the unit gain confidence and learn from mistakes in a low-threat environment. Soldiers gain knowledge and appreciation for standards. Learning from their supervisors builds Soldiers' trust and confidence. Occurring early in the training cycle, this model serves as an enabler for units to identify tactics, techniques, and procedures and develop them further during the rotation. The O/C–T team clearly establishes itself as the supporter of Army doctrine and a source of information for units. Monitoring unit leaders through direct observation, safety verification, and mentorship reinforces this relationship.

Units also practice fundamental skills early in the rotation and build habits that will serve them well throughout deployment. This is extremely important in the current environment of rapid turnover and inexperience found at junior levels. Once the unit demonstrates a thorough understanding of the process, it moves to more challenging training in a field environment.

Hands-On Training

In the maneuver training area, recovery crews gain exposure to and proficiency with individual and crew skills. The training aides used include wheeled cargo trucks, "replicate" vehicles, and battle-loss combat vehicles. The first hands-on phase of training allows units to practice the steps necessary to execute safe, deliberate recovery operations in a nontactical environment. The intent of this phase is to provide units with the training aides and terrain needed to successfully assess and perform recovery operations.

The terrain presents multiple challenges, including offset recoveries, a mire pit, and high-angle (up to 45 degrees), long, uneven drag lanes. In this environment, recovery teams can practice until they reach proficiency. The ability to train on these simple tasks can result in units reducing recovery times on actual situational training exercise (STX) lanes by 75 percent or 1½ hours.

JMRC also uses replicate vehicles fabricated by a local vendor from high-grade rolled steel for recovery training. Because even the most durable vehicles will degrade after repeated exposure to rolling and dropping, the replicate vehicles were designed to provide realistic frames for recovery teams to practice in extreme conditions.

The current fleet of replicate vehicles at JMRC includes a mine-resistant ambush-protected (MRAP) vehicle and an M1126 Stryker infantry carrier vehicle. Both are built to general size and weight requirements, with tow points found where they would be on actual vehicles. They are constructed with welded interior bulkheads to withstand repeated abuse. The smooth exterior construction ensures that recovery crews solve

each problem using doctrinal methods and established tow points.

JMRC provides units with the opportunity to work on battle-damaged equipment procured from theaters of operation. This procurement was facilitated with the assistance of project managers and theater transportation agencies. The current inventory includes MRAP variants and a Stryker infantry carrier. The vehicles are not as durable as the replicate systems, but they provide recovery crews with the opportunity to work around authentic systems and evaluate compromised vehicles for improvised recovery methods.

A full day of noncommissioned-officer-led training at the site usually provides units with enough time to ensure that crews reach the necessary level of proficiency to move on to the next phase of training.

Recovery Mission

Phase three of the training is the STX, which provides units with the opportunity to execute recovery operations as a tactical mission. This phase incorporates battlefield effects that include indirect fire, small-arms harassing and direct fire, and ground threats. Mounted and dismounted role players provide the units with the opportunity to exercise escalation of force and rules of engagement procedures.

The unit response to these scenarios drives reciprocal action that may lead to an escalation or de-escalation of the event. When engaged by an identified enemy threat, units may also employ air support and indirect fire support to counter enemy activity. The effects of both of these are reproduced with simulated indirect fire and live aviation assets, including medical evacuation assets. Trained and certified combat lifesavers are also given the opportunity to practice their skills when treating casualties. However, to achieve success in this phase, units must give careful consideration to the planning process long before executing the mission.

Information concerning the operational environment is provided through two methods. First, units receive a relief-in-place in-brief from the JMRC cadre. This initial briefing, given as part of the reception, staging, onward movement, and integration process, provides units with general background information on the enemy situation, adjacent and supporting units, and other operational data.

Subsequent complementary information is fed through a series of fragmentary orders given during the STX. Each fragmentary order directs units to perform specific movement operations with "be prepared to" missions that include recovery operations. At this time, units at the battalion level implement the military decisionmaking process and orders-generating processes while company-level units begin the troop leading procedures process. Both orders generation and troop leading procedures must take into account factors and variables that affect the mission.

Many recovery operations considerations are similar to those for standard movement missions. Recovery operations planners should consider—

- Situational information concerning the terrain, with imagery and enemy situational templates and overlays.
- Mission requirements that identify the recovery type.
- Execution information for the liaison officer to coordinate aviation support.
- Passage of lines, adjacent unit coordination, actions on the objective, and special equipment considerations.
- Timeline information that concerns battlespace owners but prompts the unit to make considerations along the "$^1/_3$ to $^2/_3$" rule and schedule rehearsals.
- Additional support assets that may include heavy-lift assets or security elements.
- Information most often forgotten but very important, including frequency cut sheets for battlespace owners, aviation units, higher headquarters, and mission commanders; reporting requirements; and commander's critical information requirements.

Throughout the operation, staff and mission elements of the unit

JMRC observer-controller trainers instruct units on how to conduct a high-angle rollover recovery. *(Photo by SPC Ricky Lowes, VIPERS Visual Information Personnel Team, JMRC)*

Soldiers use a "replicate" vehicle to practice securing chains for recovering a vehicle. *(Photo by SPC Ricky Lowes, VIPERS Visual Information Personnel Team, JMRC)*

must enforce strict reporting procedures in order to maintain situational awareness for the commander and ensure that all possible battlefield enablers are used for mission success.

As units complete the planning cycle, O/C–Ts closely monitor them at all levels. A unit's ability to manage time and resources in order to execute recovery missions is critical to its success when deployed. Careful consideration of synchronizing expectations and clearly defining roles and responsibilities becomes essential. Commanders cannot overemphasize or enforce too stringently the need for precombat checks and inspections at all levels and at critical times of the operation. Units that master these foundation-building tasks will most likely succeed and excel in recovery tasks.

Future Deployments

Future growth of the JMRC vehicle recovery program includes constructing replicates of other standard wheeled-vehicle platforms (such as the up-armored HMMWV, civilian line-haul tractor, and mobile tactical vehicle) and armored vehicles (such as the MRAP all terrain vehicle). Reasonable fabrication costs make these acquisitions feasible for supporting unit home station training as well.

The use of replicate equipment also represents an environmentally responsible approach that keeps hazardous materials out of training areas. Even cleaned and purged vehicles can damage the environment in training areas. Repeated recovery operations result in broken parts and litter that are not always recovered. Over time, this can lead to unsightly areas and costly remediation. Fabricated replicates provide a clean, durable, affordable, and responsive option.

As a dedicated training facility with a full-time cadre of maintenance experts, the recovery facility also provides a location for units throughout U.S. Army Europe (USAREUR) to practice recovery operations outside of their normal training cycles. Units preparing for deployment or simply desiring to improve their skills can use the facility between major training events. Partnership agreements between JMRC and sustainment units throughout USAREUR are already being established to maximize this training opportunity.

The idea of providing recovery training at JMRC began a few years ago in response to battlefield realities, but the recovery training program went through a period of rapid growth and conceptual development in 2010. It now represents a focused training model grounded in system development for all participants in recovery operations up to the brigade level.

The Adler team continues to develop the recovery operations training facility as the premier training facility in USAREUR and as a concept for other locations to employ and reap benefits from. The facility represents a flexible model of resource requirements and intensity for units to "train to win."

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A French Logistics OMLT in Afghanistan

BY LIEUTENANT COLONEL CHRISTOPHE BARBE, FRENCH ARMY

French operational mentor and liaison teams advise and train Afghan National Army units and help them become more capable of independently securing their nation.

From June to December 2008, I led a French logistics operational mentor and liaison team (OMLT) in advising the 5th Kandak, the Afghan logistics battalion serving the 1st Brigade, 201st Army Corps, Afghan National Army (ANA). The French OMLT replaced a U.S. embedded training team at the beginning of 2008 and retained the focus of the U.S. unit's mission. The OMLT's mission was to perform, sometimes simultaneously, three functions: teach, advise, and train.

In this duty, the French logistician must become a mentor. The key to an OMLT's success lies in choosing men with adequate mental strength to stand alongside Afghan soldiers—not only in training but also in combat. Even if fighting is not the aim of the mission, it is a very probable consequence of the mission of mentoring. Actually, in Afghanistan, French logisticians have been serving as "fighting logisticians" since 2008. Within the OMLT, every member of the French Transportation Corps, from private to colonel, is committed as a fighting logistician.

The French Army deployed its first OMLT (an infantry one) in 2007, and a logistics OMLT was deployed the following year. This logistics team of 30 men (mostly noncommissioned officers and officers) does not support other OMLTs but advises the 5th Kandak every day and for each operation.

The French Transportation Corps has experience in establishing logistics battalions by building mission-tailored units out of various specialties, but the OMLT concept is new. The concept is based on military assistance missions that were carried out in Africa, and today the OMLT is the key element in gradually bringing the ANA to independence in security tasks.

The Choice of Men: The First Criterion of Success

The choice of men is incredibly important to the mission because the members of the team will spend 1 year together (training for the mission for 6 months and carrying it out for another 6 months). The OMLT's cohesion is built during the operational training, which itself must be considered as the first mission.

During these months of training, which are crucial for mission success, the team builds up its moral strength. The qualifications requested from each individual are numerous, and their psychological balance is fundamental. In fact, the ideal French OMLT logistician must demonstrate hardiness, a full spectrum of technical competencies, emotional stability while facing stressful combat situations, an open mind (since Afghan culture is complex), and the ability to speak English since an Afghan translator speaks Dari or Pashto and English but no French at all. These qualities may not exist in one single man.

However, in Afghanistan, the quality of training was evident in the correctness of the advice given daily to the Afghan soldiers and especially in the success of the operational missions. Lessons learned revealed that a person's psychological balance is the most important quality for a commitment in the context of the OMLT, but it is also the most difficult one to judge.

Mentoring: A New Form of Military Assistance

In civilian life, mentoring is an activity called coaching (even in French), meaning "revitalizing an

The 5th Kandak assembles before a major operation with its mentors in Wardak Province.

ailing firm." As part of the OMLT, the mentoring mission is innovative and is based on three tasks:

- Advise ANA units in everyday life, teaching, and training.
- Advise Afghan commanders in planning and using land or air support from coalition forces.
- Provide the necessary means to use command and control assets to allow authority to be implemented and operations to be controlled.

The daily tasks are complicated by the fact that they are intended for a mix of ex-mujahidin, former officers trained by the Soviets in the 1980s, and young people involved in a regular army who have good operational abilities despite lacking basic technology skills.

As a team leader of the logistics OMLT, I directly advised the commanding officer of the Afghan logistics battalion and cooperated with him in training his unit and preparing logistics operations to support his infantry brigade of 3,000 men. Each of the 15 French mentors had an Afghan counterpart in each logistics specialty of the 5th Kandak, which is essential to resupplying the brigade. The brigade secures Highway 1, which stretches over 100 kilometers out of Kabul and is the only logistics supply line linking the capital to Kandahar.

Mentoring is about advising, showing an open mind, proposing, suggesting, guiding, and letting the Afghan officer make the final decision. Trust between the French officer and his Afghan counterpart is fundamental. This takes time to achieve, but this relationship is the only way to success.

The French officer must not be a substitute for Afghan authority, or else the mission will fail. The mentor is an

Above, a soldier in a French armored personnel carrier at the entrance to the Saalar Combat Outpost secures an area near Highway 1 during a refueling mission.

Below, a French light armored personnel carrier and two Afghan fuel tankers proceed in a convoy in the Bamiyan Mountains.

adviser or a trainer but not a surrogate. The first month of the mission was an observation round that determined the result of the mission and its success. Confidence was gained on the ground, particularly after 2 weeks in Afghanistan when the first ambush occurred and our capabilities were successfully tested.

Convoys: The French Transportation Corps at War

The conflict in Afghanistan is a war without a name or front line, and logisticians travel across many uncontrolled areas. The ANA is at war, but the coalition forces, which officially are present only for assistance, are not. The enemies have no front line and attack the logistics convoys throughout the whole area of operations. The notions of front and rear do not exist. It is a modern conflict in which logisticians support the farthest forward operational bases and ensure resupply missions are everywhere.

The current missions of the French OMLTs include accompanying the 5th Kandak when resupplying the ANA infantry battalions that secure Highway 1. The OMLTs and the 5th Kandak deliver fuel, engineering equipment, and food and evacuate the vehicles damaged in combat.

In 6 months, the OMLTs conducted about 100 missions throughout the provinces of Logar, Wardak, and Bamyan. They traveled over 100,000 miles on the trails of Afghanistan. The mission was difficult, and each soldier felt the pressure of each convoy, which turned out to be combined, and sometimes joint, military operations. The duration of such missions varied from 1 day to 1 week, but the enemy threat and the improvised explosive device ambushes were constant. The first enemy that had to be fought was the routine. Everyone had to remain careful from the first day of the mission to the last one and master the tactics, techniques, and procedures.

We showed our Afghan counterparts that each French logistician is a fighter and thus earned their trust. The partnership has been going on for 2 years now. This exciting mission is a great adventure for a soldier. It puts everyone, whether specialist or leader, private or colonel, in the role of a soldier and a fighting logistician. But this mission is dangerous because it means that the French soldier shares the daily mission of the Afghan soldier, who is at war.

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Operational Mentor and Liaison Teams as a Force Multiplier

BY MAJOR JOHN F. JACQUES

The Joint Multinational Readiness Center in Germany provides training for operational mentor and liaison teams from NATO countries working with the Afghan National Army.

Operational mentor and liaison teams (OMLTs) are 20- to 25-Soldier teams created under an agreement among North Atlantic Treaty Organization (NATO) countries to mentor and coach the Afghan National Army (ANA) in using coalition-provided battlefield enablers. The Joint Multinational Readiness Center (JMRC) at Hohenfels, Germany, offers OMLTs from all participating nations the opportunity to practice mentoring and coaching techniques with ANA staff and company representatives. This article describes the basic structure of OMLT training at JMRC and some of the challenges faced during the OMLT training.

OMLT Organization

OMLTs arrive at JMRC as a collection of senior officers and noncommissioned officers structured to plan and execute ANA advisory duties and to assist the ANA staff and combat units in establishing peace and maintaining stability in their assigned areas of operation.

OMLTs are task-organized into company mentors and battalion mentors. OMLT mentors center their efforts on nine mission-essential tasks that are paired with a set of training objectives that are assessed and evaluated during the training exercise. As advisers to Afghan sustainment units, OMLTs play a critical role in training and advising units on how to provide estimates and coordinate resources while executing staff functions. OMLTs also serve as troop mentors to ensure that the effective execution of security measures enables the employment of logistics assets.

Staff Exercises

Staff exercises focus on building a coordinated team to synchronize the resources needed to meet mission requirements that support International Security Assistance Force

A Slovenian operational mentor and liaison team provides security for a medical evacuation site during a situational training exercise at the Joint Multinational Readiness Center at Hohenfels, Germany.

A Greek adviser mentors an Afghan National Army role player in integrating organic security with Afghan National Security Forces during a situational training exercise.

(ISAF) objectives. Each staff element is responsible for collecting data, analyzing requirements, and aligning resources in order to meet mission objectives. OMLT staffs mentor their ANA counterparts to use available assets, coordinate with higher level command and adjacent units, fill voids in sustainment requirements, and synchronize sustainment missions.

Troop-Adviser Training

Troop-adviser training focuses on ensuring that distribution of sustainment requirements can be accomplished effectively. OMLT advisers in this role will advise and mentor their Afghan counterparts on the use of sustainment platforms, effective security measures to take during distribution missions, and battlefield enablers to enhance security. They mentor ANA soldiers on performing medical and casualty evacuation and communicating to ensure synchronization of unit activities within a given area of operations. Theater guidance and current tactics, techniques, and procedures (TTP) employed by ISAF are also discussed and practiced during this training.

Classroom-Based Instruction

OMLT training at JMRC is based on a 5-day period of instruction that solidifies the doctrinally based approach to mission execution and aligns operational procedures with NATO standards and requirements. Classes include the HMMWV [high-mobility multipurpose wheeled vehicle] Egress Assistance Trainer (HEAT), the Engagement Skills Trainer 2000 (EST 2000), the Call for Fire Trainer, and the Virtual Battle Space Simulator (VBS2) simuator.

HEAT. HEAT is offered as a 2-hour block of instruction and practical exercise. OMLT Soldiers are briefed by a subject-matter expert and then permitted to mount the simulated HMMWV chassis as a crew—driver, truck commander, and two dismounts. (No gunner position is on the trainer.) This orientation emphasizes evacuating a vehicle that has rolled over.

EST 2000. EST 2000 is programmed for a 4-hour block of orientation and follow-on exercise. OMLT members are briefed on how to use the trainer and the objectives of employing accurate, coordinated small-arms fire during a simulated squad exercise. OMLT members rotate through each position on the firing line, including the squad leader's position. Team members are tasked during the exercise with directing rates of fire, employing sectors of fire, and managing sustained fire from mounted and dismounted positions.

Call for Fire Trainer. The Call for Fire Trainer is used for 2-hour blocks to train and reinforce the integration and tactical employment of a variety of indirect fire weapons. OMLT members train in an immersive environment as forward observers and are placed in a 360-degree simulated battlespace with a variety of scenarios that enable them to identify and react to simulated threats using the skill sets that must be honed to a fine edge.

VBS2. VBS2 is normally integrated into a situational training exercise (STX) as a communications and mounted land-navigation reinforcement tool. When OMLTs are not engaged in STX training, OMLT personnel operate the VBS2 as they would their assigned combat platforms and communications equipment, further reinforcing individual roles and communications responsibilities. Terrain can be programmed into the simulator to replicate the environment that OMLTs can expect to encounter either in the training area or while deployed.

During simulation exercises, additional stressors can be added to scenarios that go beyond what can be introduced in the physical training environment. Opposing forces, aviation assets, indirect fire, and complex obstacles are employed by the team of VBS2 technical coordinators, and scenarios are carefully crafted to support specific training objectives.

Tactical Training

Tactical training consists of a 7-day course of evaluation based on current NATO doctrine and TTP from the theater and the planned area of operations. The first 2 days of training are done in a replicated training environment as a tactical exercise without troops, with 1 day of conducting troop-leading procedures and precombat checks and inspections. This exercise is followed by a scaled-down version of the STX training that will be

conducted over the 5 days following observer-controller and trainer evaluation of each OMLT team.

This first look at each OMLT by its assigned observer-controller and trainer team enables an assessment of the OMLT's TTP and subsequent input to the STX planner for the pace and difficulty of training that each OMLT will face during STX training.

OMLTs are first briefed on the training objectives for the particular engagement, focusing on four areas of concern: counter-improvised explosive device (IED) operations, medical rules of engagement (which include medical evacuation procedures), reaction to sustained enemy contact, and set up and operation of effective traffic- and entry-control points.

Engagements are then reset to enable execution at combat speed. Based on the degree of proficiency exhibited, engagements can be reset to enable further emphasis on the basics to reach training objectives or the intensity of the engagement can be elevated incrementally through the use of enablers to build on skills that have been mastered.

Counter-IED operations. OMLTs are given a map indicating enemy activity throughout their planned routes. They conduct enemy activity and terrain analysis while en route to their destination. When traversing an IED "hot spot," OMLTs must take appropriate precautions and locate well-hidden IEDs. When they find an IED emplacement, OMLTs must establish proper standoff distance, set up site security, and submit a properly detailed request for explosive ordnance detachment personnel. They must also alert the battlespace owner of the obstacle and its location.

Medical rules of engagement. Training medical rules of engagement involves a multifaceted approach to interacting with replicated civilian casualties. OMLTs are challenged with an engagement that demands establishing site security, using an interpreter, assessing wounds and triage, and coordinating with battlespace owners to contact additional ANA personnel to supplement site security and provide casualty evacuation.

React to contact. OMLTs are challenged with a multilayered, sustained attack from opposing forces consisting of multiple elements. Initiated by disabling an OMLT vehicle that requires a hasty recovery, this engagement trains many warrior tasks and drills, including shoot, move, communicate, survive, adapt, and associated battle drills. This scenario finishes with requirements to establish landing zones and prepare and execute medical evacuation.

In the practical application of these training and skill sets at the STX, OMLTs prove to be a capable force multiplier. When an OMLT's performance is compared side-by-side to a typical U.S. Army rotational unit, three distinct differences come to light:

- Use of interpreters.
- Mounted navigation skills.
- Employment of troop-leading procedures.

Some differences can be attributed to the seniority of OMLT personnel, their skills, and their ability to quickly analyze situations and integrate available assets. Generally speaking, units coming from NATO countries operate under similar doctrinal guidance and OMLT advisers have taken the time to research ISAF and other theater-related guidance.

When OMLTs are operating optimally, time is spent providing additional training and disseminating information to their ANA counterparts, enabling greater situational awareness and integration of ideas and tactics between units. The seniority of OMLT personnel tends to eliminate reluctance to employ the assigned OMLT interpreter and ANA role players. OMLTs also spend more time and energy during troop-leading procedures than most U.S. units, particularly during orders production and battle-drill rehearsals.

Culmination Exercise

At the conclusion of each OMLT rotation, an integrated culmination exercise takes place that requires OMLTs from each represented branch (maneuver, fires, and effects; operations support; and force sustainment) to perform integrated staff planning in order to reach common mission objectives. Each OMLT is responsible for planning and employing a scheme of maneuver, intelligence preparation of the battlefield, internal security, exploitation of collected intelligence, and sustainment operations.

Sustainment OMLT staffs are tasked with identifying logistics requirements, performing logistics estimates to meet force requirements, and aligning those requirements against available assets (with the implied task of requesting further support if assets on hand do not meet mission requirements). OMLT troop advisers mentor and assist in generating and executing an effective security plan during sustainment operations, ranging from establishing refuel on-the-move sites and medical and casualty evacuation to convoy security of their distribution missions.

The training and employment of each additional OMLT means further success for forward-deployed forces as security and support requirements for Operation Enduring Freedom continue in the future. OMLTs will continue to do their part in ensuring a more ready and capable ANA as they work to train the ANA in the art of sustainable logistics operations.

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Item Unique Identification Technology Improving Asset Management

BY PABLO A. BROWN AND JOHN E. LAUDAN

The Army's web-based property accountability and tracking system, Property Book Unit Supply Enhanced (PBUSE), has augmented its asset visibility process by incorporating an automated tool that can track the unique item identifier of equipment issued to Soldiers. This new traceability measure is called item unique identification (IUID) technology.

What Is Item Unique Identification?

The simplest way to understand IUID is to think of it as a globally unique serial number. Sometimes, one will hear reference to unique item identifier (UII). Technically, IUID is the system or process by which items are marked and registered, while UII is the data contained in the marking. However, it is common to hear IUID used to refer to both the IUID process and the UII data set. Unlike serial numbers that may be the same for identical items manufactured by different companies, no two military items will contain the same UII.

Why Use IUID in PBUSE?

Using PBUSE to capture UII data for new equipment provides the Army overall transparency of that equipment, from initial funding to final equipment delivery. This is a capability that currently is being managed using extensive spreadsheets.

Essentially, IUID provides the capabilities to track critical assets from cradle to grave based on the type of item or its value. IUID is accomplished by marking each qualifying item with a permanent two-dimensional data matrix barcode label. These permanent markings will be used for logistics and financial tracking purposes. The data matrix is encoded with the data elements needed to construct the UII, which is globally unique and unambiguous.

The data elements required to form a UII include the format identifier, the manufacturer's identification (CAGE code), and the item's serial number. If the manufacturer serializes [uses serial numbers] within a part number, that data element will also be encoded. [A commercial and Government entity (CAGE) code is a five-position code that identifies companies that conduct, or want to conduct, business with the U.S. Government.]

What Is the Policy?

Department of Defense (DOD) Directive 8320.03, Unique Identification (UID) Standards for a Net-Centric Department of Defense, dated 23 March 2007, directs that IUID "be used to enhance the capability to gather, organize, and assess information on organizations, materiel assets, people, and places to enable the DoD Components to perform their functions."

All Army Activities Message 340/2009, Item Unique Identification (IUID) Capabilities in Property, dated 14 December 2009, states the "UII will be used as the common data key to support financial, acquisition, supply, maintenance, and property accountability management within our current and future logistics automated information systems (AIS)."

How Is the UII Entered Into PBUSE?

The new functionality to capture IUID does not change any existing PBUSE processes. The UII supplements item information already resident in PBUSE (such as line item number, national stock number [NSN], and serial number) and does not replace any PBUSE data fields.

UII data can currently be entered into PBUSE using three methods. These three methods do not require user input other than scanning the barcode label:

- PBUSE Automatic Transaction Process Interface (ATPI).
- Logistics Support Activity (LOGSA).
- PBUSE hand-held terminal (HHT).

The ATPI process allows for data entry using an extensible markup language (XML) document. This process provides the capability to capture multiple UIIs on the same transaction. The UII is written into the XML document at the same level as serial numbers. This process is commonly used by the product manager for new acquisitions when issuing equipment to a unit. ATPI instructions and XML examples can be found at https://www.us.army.mil/suite/doc/20987941.

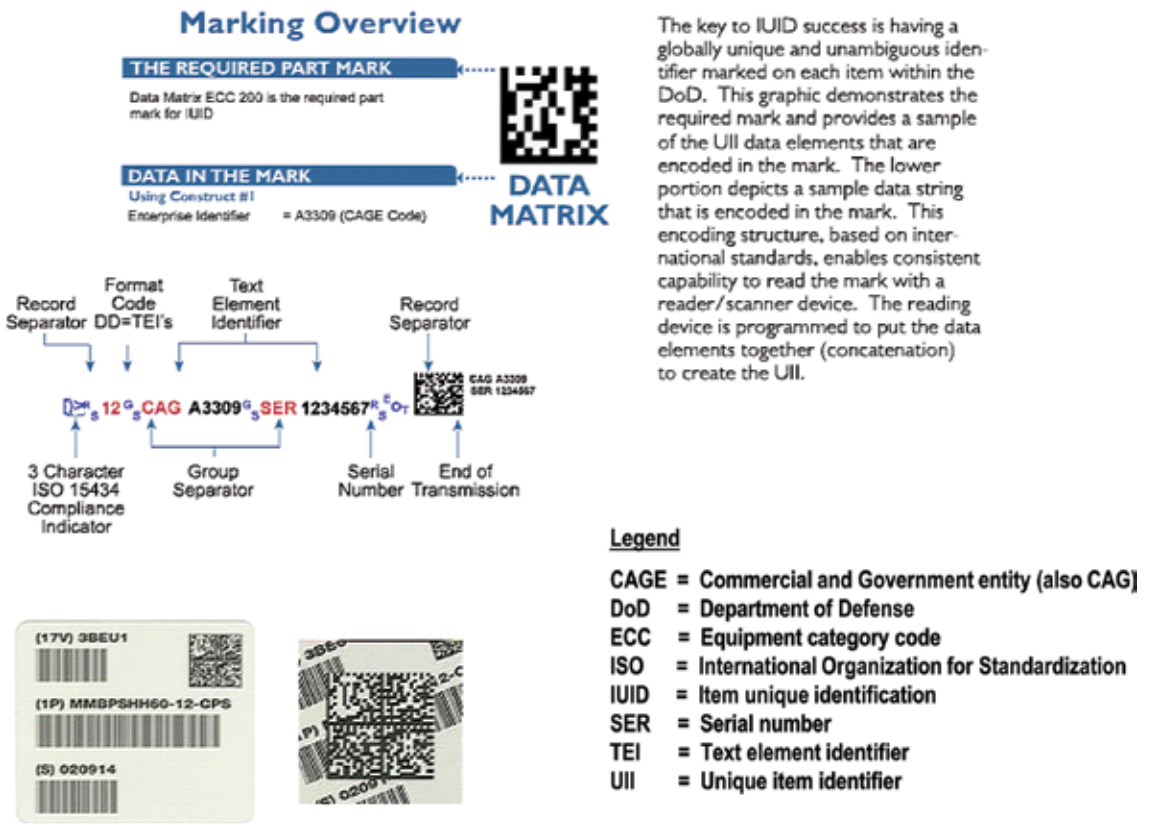
LOGSA extracts the UII, NSN, and serial number for an asset from various sources, including the DOD IUID registry, and then stores this information in its database. A new PBUSE function provides the capability to pull this UII information from the LOGSA IUID Cross Reference File.

The asset NSN and serial number stored in PBUSE must match exactly to the asset record in the LOGSA database. When a match is made, PBUSE is then able to associate the UII to the asset. If no match is made, the record is skipped. Every night, PBUSE will attempt to match existing equipment records with

the LOGSA database. The PBUSE serial number record is not updated if a match to an NSN and serial number is not found or if there is any problem with the UII.

The HHT is a commercial off-the-shelf scanner with specific PBUSE automatic identification technology (AIT) software installed. The HHT interacts with the PBUSE enterprise server through the use of a docking station and the AIT client on the laptop. This AIT function permits users to perform automated inventories and to receive and scan barcodes on incoming equipment.

IUID Marking



The key to IUID success is having a globally unique and unambiguous identifier marked on each item within the DoD. This graphic demonstrates the required mark and provides a sample of the UII data elements that are encoded in the mark. The lower portion depicts a sample data string that is encoded in the mark. This encoding structure, based on international standards, enables consistent capability to read the mark with a reader/scanner device. The reading device is programmed to put the data elements together (concatenation) to create the UII.

PBUSE Document Processing

PBUSE's document processing function enables the user to process receipt transactions, initiate lateral transfers (both gaining and losing units), and initiate asset adjustments by using the HHT to scan an item's IUID marking.

Supply sergeants can now use the HHT to scan UII items, to view the primary hand receipt, and to initiate the process for documenting—

- Military Standard Requisitioning and Issue Procedures (MILSTRIP) receipts.
- Lateral transfers.
- Found-on-installation items.

Once the transactions are initiated on the HHT and are synchronized with the enterprise server, the supply sergeant and property book officer (PBO) can take the appropriate actions for each transaction through the Transaction Suspense List option on the PBUSE AIT menu. Unit supply personnel will review these transactions before sending them to the PBO for processing. Only unit-initiated transactions for property book items will be visible at the PBO level. The PBO then has the option to view, reject, or post them or notify the gaining PBO.

The Defense acquisition system will benefit from the integration of IUID into PBUSE. IUID will enable seamless traceability, financial tracking, and integrity of equipment, thereby improving accuracy and accountability throughout the life-cycle process, which includes funding, distribution, equipment fielding, and asset visibility.

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Enabling the Responsible Drawdown of Forces Through the Theater Provided Equipment Planner

BY KELLIE WADE

A new tool improves the disposition of non-mission-essential equipment by automating the lateral transfer, redistribution, and disposition processes.

Theater Provided Equipment (TPE) Planner is a web-based automation tool that the Army implemented in January 2010 to facilitate rapid disposition of non-mission-essential TPE in the Iraq joint operations area (IJOA). TPE Planner automates the previously time-consuming manual vetting process for theater lateral transfer, redistribution, and turn-in decisions.

TPE is managed and accounted for by the 402d Army Field Support Brigade (AFSB) and hand receipted to units in the IJOA. As part of the responsible drawdown of forces and the correlating responsible reset of equipment, U.S. Forces-Iraq (USF–I) and U.S. Army Central (ARCENT) are releasing TPE for lateral transfer to other units, redistribution to other units in the U.S. Central Command (CENTCOM) area of responsibility, or return to CONUS-based depots for reset.

The Manual Process

Before TPE Planner was implemented, units in Iraq would submit a spreadsheet with their proposed excess equipment to the U.S. division over their area of responsibility. The division would in turn submit the request to USF–I. The USF–I J–4 asset visibility section would compare the proposed equipment lists to existing requirements in Iraq and, if needed, direct the transfer of equipment from other units within Iraq.

If the equipment was not required within Iraq, ARCENT Support Element-Iraq (ASE–I) would check for existing CENTCOM requirements. If there were no CENTCOM requirements for the equipment, Army Materiel Command life cycle management command (LCMC) representatives would provide shipping information for the depot that could repair the equipment.

Unit spreadsheets were processed intact at each level. Once the vetting process was completed to decide whether TPE was mission essential at each level, decisions and directives were published in a USF–I fragmentary order (FRAGO). The FRAGO provided the agreed-to disposition for all items. The unit could then take the equipment to a 402d AFSB retrograde property assistance team (RPAT) yard and begin the process of turning it in.

Setting Up TPE Planner

In the winter of 2008, AMC's Logistics Support Activity (LOGSA) began building the TPE Planner to assist Multi-National Corps-Iraq (which merged with Multi-National Forces-Iraq to form USF–I in November 2009) in automating the nomination, disposition, and turn-in of TPE in order to improve velocity, synchronization, and centralized visibility of the process.

USF–I and ASE–I worked through the summer of 2009 to trim time off this process. Ultimately, disposition time was reduced from 19 days to 7 days, and the FRAGO processing time was reduced from 15 days to 3 days. Processing disposition and building reports from running lists on spreadsheets was very labor intensive, and USF–I leaders were skeptical that the process would support the increased load that would be generated by the responsible drawdown in 2010.

In the fall of 2009, LOGSA placed liaison officers (LNOs) in USF–I and ASE–I, in Baghdad and Kuwait, as part of the AMC responsible reset task force (R2TF). These officers facilitated requirements generation and conducted proof-of-principle testing to demonstrate the initial operational capability, training, and implementation of TPE Planner. TPE Planner was implemented throughout IJOA on 11 January 2010.

The TPE Planner Process

One of the reasons the USF–I J–4 and ASE–I decided to use TPE Planner was to stop working batch requests and get real-time disposition to the units. TPE Planner streamlines this manual process, displays the disposition of each individual item, and posts each

item's status in the reports section of the tool as soon as a decision is made.

The disposition process for TPE Planner begins when units manually conduct their internal vetting to determine non-mission-essential, or excess, equipment. This equipment list is sent to the brigade level manually on a spreadsheet.

The brigade leaders are the initiators in the TPE Planner process. Brigade points of contact log into LOGSA's web portal, access TPE Planner, and view the equipment that is on the unit's derivative unit identification code hand receipt. These data are populated in TPE Planner through a direct feed from Property Book Unit Supply-Enhanced. The user selects the identified excess equipment and hits the submit button, and the data are posted on the division-level screen. The U.S. division G-4 looks across its units and directs a lateral transfer if one of its units needs the equipment or selects "turn-in" if no one needs the equipment.

USF–I and ASE–I then have the same decision points in the tool. When ASE–I determines that the equipment is not needed, it is considered excess to theater needs and the data are sent to both the AMC LCMC and RPAT screens.

LCMCs use TPE Planner to provide the Department of Defense activity address codes needed to ship items that are not essential equipment to theater needs to designated national-level sources of repair. The RPAT yard personnel use TPE Planner to see what non-mission-essential equipment is expected in each yard and to identify equipment entering and exiting the yard. RPAT yard personnel use this information to forecast workloads and to relieve capacity friction points during surge periods.

Unlike the previously manual spreadsheet process, in which visibility of the decisions occurred only after the corps FRAGO was generated, TPE Planner gives visibility of decisions at each step in the vetting process. For items that are pending a decision, users and managers can see at what level the decision is pending and for how long.

The lateral transfer and turn-in directive report in TPE Planner populates immediately after a lateral transfer or redistribution decision is made at any level or after the LCMC representative provides source-of-repair shipping information for items that are theater excess. This gives anyone with basic Logistics Information Warehouse access the ability to view dispositions in the Non-Secure Internet Protocol Router Network tool and receive instructions as the decisions are made instead of waiting for all items to be moved through the system and released in a Secure Internet Protocol Router Network FRAGO.

The online disposition provided through TPE Planner has resulted in a 96-percent reduction in disposition FRAGOs, and units now receive disposition of items in an average of 4 days.

TPE Planner Training and Improvements

Before implementing TPE Planner, LOGSA provided hands-on training to participants from 4 brigades, 16 USF–I Corps separate elements, 3 divisions, the 13th Expeditionary Sustainment Command, and the 402d AFSB's theater property book offices and RPATs. The training consisted of a 2-to-4 hour block of instruction on how to apply for and receive access to TPE Planner and how to operate screens inside of the tool. Desk guides were created and released along with the implementation order in preparation for a go-live date of 11 January 2010.

Since implementation, LOGSA continues to work on emerging requirements from brigade combat teams, U.S. divisions, USF–I, ASE–I, and the 402d AFSB and continues to improve TPE Planner in order to stay current with its users' needs. A "projected turn-in date" is now available that lets units estimate when equipment will become available for turn-in. This allows requirements officers within USF–I and ASE–I to project equipment availability for the sourcing of theater requirements. Another recent feature displays the document associated with either the turn-in or lateral transfer so viewers will see the actual transaction.

TPE Planner has streamlined the disposition process in order to facilitate rapid processing of disposition instructions within 72 hours for equipment that is declared non-mission-essential. It provides value to the Army by automating the theater's currently manual process used to vet lateral transfer, redistribution, and disposition decisions for non-mission-essential TPE. TPE Planner improves process velocity, synchronizes actions at all levels, centralizes visibility by documenting decisions and directives at all levels in tailored reports, and provides visibility of the equipment that is due into, at, and leaving the RPAT yards. These improvements assist in forecasting workload, capacity, and transportation requirements.

LOGSA's next step is to export this tool to Operation Enduring Freedom for use in the combined joint operational area.

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Now Hiring: Quality NCOs Needed to Lead Soldiers

BY LIEUTENANT COLONEL SEAN M. HERRON

The Army Ordnance School uses the Army Training and Doctrine Command's Cadre Resilience Program to ensure its cadre members are the best they can be.

Soldiers are the lifeblood of the Army, and Army Training and Doctrine Command (TRADOC) units are the heart that provides Soldiers to the Army. The training battalions throughout TRADOC are essential to sustaining the Army's ability to fight. They do this by taking America's sons and daughters and making them Soldiers who are tactically and technically proficient, instilled with the Army values and warrior ethos, and ready to contribute to their first assigned units.

Training Soldiers is not an easy task and requires much dedication from a cadre of top-notch Soldiers, primarily noncommissioned officers (NCOs). To meet the unique demands placed on the cadre, TRADOC has implemented the Cadre Resilience Program to ensure that the core training base remains strong.

A Strong Training Base

The mission of TRADOC training battalions is to provide the Army with trained Soldiers. The process to get them there is not quick or easy. After 10 weeks of basic combat training, Soldiers go to advanced individual training (AIT), where they learn their military occupational specialties (MOSs). Once they have demonstrated their skills by meeting MOS qualification standards, passing a recorded Army physical fitness test, and demonstrating the behavior and discipline expected of a Soldier, they graduate and move to their first unit of assignment.

This process is successful because of the dedication and determination of the cadre that trains these Soldiers from wake-up to lights-out every training day. TRADOC is not a place where leaders can "take a knee" from the pace of the operational Army. The hours are long, the requirements are many, and the workload is heavy. However, TRADOC assignments offer the best and brightest leaders the opportunity for challenging, important, and rewarding jobs that have a lasting impact on the future of the Army.

Just as the heart must be strong to pump blood to the extremities, the training base must be strong to ensure an uninterrupted flow of Soldiers to the operational Army. In order to remain strong, the training base must have quality NCOs as drill sergeants, AIT platoon sergeants, and course instructors. The quality of the NCO has a direct correlation with the quality of the Soldier arriving at the first unit of assignment.

The NCOs who have spent time in TRADOC assignments often find that the job is personally and professionally rewarding. This leadership experience is directly linked to higher performance in future assignments and the ability to use creative and adaptive solutions to future problems in the tactical environment. After completing their TRADOC assignments, these NCOs return to the operational Army with honed leadership skills, better time-management and administrative skills to be more effective and efficient in their future positions, and a new level of pride in the professionalism of the Army and the NCO corps.

Ordnance Cadre

Ordnance School cadre members have the opportunity to work in world-class training facilities and labs with state-of-the-art equipment while training future ordnance Soldiers. The 2005 Base Closure and Realignment Commission Report mandated that the Ordnance School move to Fort Lee, Virginia. That decision allowed the Ordnance Corps to bring its school into the 21st Century.

The Ordnance School campus, now part of the Sustainment Center of Excellence, is designed to create a comprehensive learning and training environment. It combines both technical and tactical training to ensure that the graduating Soldiers have earned the right to wear the Ordnance regimental crest and are truly ready to make a positive contribution when they join their first units.

The Cadre Resilience Program

In early 2010, training battalions transitioned from using the Cadre Wellness Program to the Cadre Resilience Program, which is in line with the Army's five

dimensions of strength: physical, emotional, social, spiritual, and family. TRADOC capitalized on its recently graduated Master Resilience Trainer Course platoon sergeants to guide the development of the program.

While each TRADOC location offers unique challenges, the 143d Ordnance Battalion successfully implemented the components of the Cadre Resilience Program at the Ordnance School by focusing on the Army's five dimensions of strength.

Physical. The physical dimension deals with performing and excelling in physical activities that require aerobic fitness, endurance, strength, healthy body composition, and flexibility derived through exercise, nutrition, and training. In this dimension, the cadre are afforded time to conduct physical readiness training on their own and any injured cadre member is given time and resources to rehabilitate from an injury.

Emotional. The emotional dimension is about approaching life's challenges in a positive, optimistic way by demonstrating self-control, stamina, and good character through personal choices and actions. The Ordnance School ensures that it provides the cadre with workload predictability, flexibility for time off, and minimal disruption to family life.

To improve and maintain the cadre members' emotional well-being, the battalion command sergeant major continually reviews duty rosters to eliminate redundant duties. NCOs in the retirement process and who no longer directly contact Soldiers are the primary staff duty NCOs. The battalion also conducts quarterly sensing sessions with the cadre and uses command climate and equal opportunity surveys to look for areas that need improvement. The battalion also encourages cadre members' attendance at professional military education courses to ensure that they follow their optimal professional development timelines.

Social. The social dimension involves developing and maintaining trusted, valued relationships and friendships that are personally fulfilling and fostering good communication, including a comfortable exchange of ideas, views, and experiences. The 143d Ordnance Battalion differs little from operational units when it comes to social activities. Each unit holds holiday and team-building functions as well as hail and farewells. Single cadre members also have the opportunity to attend events geared toward single Soldiers.

Spiritual. The spiritual dimension focuses on strengthening a set of beliefs, principles, or values that sustain an individual beyond family, institutional, and societal sources of strength. The unit ministry teams (UMTs) in the training base are engaged in attending to the needs of the trainees and the cadre and are a cornerstone of the Cadre Resilience Program.

The 143d Ordnance Battalion UMT develops activities using elements of Army culture, such as physical fitness, esprit de corps, and competition, to draw Soldiers into the garrison chapel program and encourage spiritual growth. The UMT regularly holds the Spiritual Fitness Challenge, which is a series of arduous physical fitness events with a focus on spiritual strength and endurance.

Ordnance School cadre members are also given the opportunity to attend prayer breakfasts and luncheons conducted by the battalion and garrison UMT. These events remind Soldiers of shared faith and spiritual values. As is the tradition, Soldiers of all faiths break bread and pray together.

Family. The family dimension is about being part of a family unit that is safe, supportive, and loving and that provides the resources needed for all family members to live in a healthy and secure environment. The care of cadre includes caring for their families. The 143d Ordnance Battalion strives to ensure that all cadre members and their families have access to family readiness groups.

The battalion also offers annual retreats for married couples and single Soldiers. In the summer of 2010, the UMT conducted a married couples and single Soldier retreat at the Turf Valley Resort in Ellicot, Maryland. The curriculum was based on comprehensive wellness and focused on developing spiritual discipline, physical fitness and health, and mental balance and wellness. This event included cadre members and their spouses.

The Cadre Resilience Program is one of the most important initiatives that battalion and company leaders can offer to promote the cadre's ability to grow and thrive in the face of challenges and to bounce back from adversity. The Ordnance School training battalions remain committed to improving Soldier and family resilience throughout this era of persistent conflict.

It takes a special type of leader to do a job where the challenges are new and exciting every day. Being able to train new Soldiers and personally have an impact on the Army is exactly what many training unit cadre members have wanted for their careers.

The Ordnance School is committed to nurturing well-trained, disciplined, and physically fit Soldiers who live the Army values and warrior ethos. The Ordnance School is a great place to serve and a great place to be an Ordnance Soldier. Please contact the school through the Sustainment Knowledge Network for more information about how to join the Ordnance School ranks or to ask questions about how we can better serve you.

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Training Ammunition Supply Soldiers While Deployed

BY CAPTAIN THEODORE L. ZAGRANISKI
AND CHIEF WARRANT OFFICER 2 GARY N. CARR

One of the biggest challenges facing company-level leaders is military occupational specialty (MOS) training. With the increases in operating tempo (OPTEMPO) brought about by the rapid deployment and redeployment of sustainment forces, company commanders, first sergeants, and their warrant officer experts often have a great deal to teach their junior Soldiers and officers and not enough time to teach it.

Training distractions are a constant reality when a logistics company of any sort must balance vital garrison-support missions, essential training, and the many day-to-day tasks and requirements that face any Army unit. Inevitably, each company's leadership team must make tough decisions about when to train, what to teach their Soldiers, and how to teach it.

Very few sustainment units in today's Army have the luxury of conducting methodical and deliberate MOS training with sufficient resources to meet all training objectives in detail. Logistics companies across the Army often lack the time, internal experience, and tangible resources needed to conduct comprehensive individual and collective training. Companies in combat sustainment support battalions (CSSBs) in particular lack all of these essential training components while at home station because they are designed to provide support at the wholesale level. These companies are so highly specialized and operate at such elevated echelons that a corps consisting of more than 100,000 Soldiers usually contains only 1 CSSB consisting of 5 to 7 companies.

Many logistics companies also face a challenge in locating expert instructors to train the skills and tasks relevant to their Soldiers' MOSs. While the Army suffers no shortage of sustainment experts, most of the individuals who would be ideal MOS teachers are currently serving in Iraq or Afghanistan or at other hazardous locations.

This article is both a summary and a guide. On one hand, we intend to provide detailed explanations of the MOS training methods used by the 664th Ordnance Company during Operation Iraqi Freedom 09–10. The company's intent was to build well-rounded MOS 89B ammunition specialists. To accomplish this, the company's leaders designed an MOS training program to train Soldiers and NCOs to safely and consistently complete every individual and collective task of their MOS and skill level. The company's methods may not be revolutionary when taken individually, but as far as we know, they have not been simultaneously implemented within a single Army company during a combat deployment.

On the other hand, this article is offered to all current and future logistics company leaders (officer, warrant officer, and enlisted) in the sincere hope that by applying similar methods, their companies can build well-rounded sustainment Soldiers throughout the force. Although the ammunition specialist's job may not seem to have much in common with that of a shower/laundry and clothing repair specialist, the methods we outline can be modified to provide all force sustainment Soldiers with the MOS training they demand and deserve, even if the only place to do so is in a combat environment.

Ammunition Supply Training Challenges

For a number of reasons, MOS training problems are exacerbated in the area of ammunition supply support. First, ammunition supply is a very small MOS; there are fewer than 10 ammunition supply companies on active duty, and fewer than 130 warrant officers are assigned MOS 890A, ammunition technician.

Second, ammunition supply Soldiers and noncommissioned officers (NCOs) possess certain skills in high density that are hard to find in maneuver, fires, and effects and operations support units (for example, forklift and rough-terrain container handler operator qualifications). At home station, the vehicle operator skills of the average ammunition supply Soldier are in high

Soldiers assigned to the 664th Ordnance Company demonstrate proper repackaging of munitions in an austere environment at the receiving pad of the Contingency Operating Base Adder-Tallil ammunition supply point near An Nasiriyah, Iraq. The photo shows Soldiers assembling and marking makeshift storage crates (background), wrapping and protecting munitions for storage (left and center), packing munitions into crates to protect them from the elements (right), and banding the crates to prevent pilferage and make handling less dangerous.

demand, making it particularly challenging for company leaders to "protect" their time for MOS training.

Third, although many sustainment units have experienced adjustments to their mission sets while at home station, few units have experienced the widespread changes that have affected ammunition supply companies. Many facilities inside the United States that were run by ammunition supply companies before the Global War on Terrorism have been transferred to civilian contractors. While this practice has guaranteed continuity of home-station operations when an ammunition supply company deploys, it has also hindered MOS training by separating ammunition Soldiers from the most natural places and situations in which to conduct that training.

The highly complex nature of the wars in Iraq and Afghanistan has created a situation in which an ordnance company can find itself doing the job of a totally different sort of unit. Ammunition supply companies have served in both Afghanistan and Iraq in a wide variety of jobs outside of their MOSs, including roles traditionally set aside for the military police, motorized infantry, transporters, and mechanics. In a few cases, companies have even received changes to their primary wartime missions while in transit to Southwest Asia or during their final precombat training in Kuwait. For the 664th Ordnance Company, the only ammunition supply company based at Fort Hood, Texas, only our arrival at our final deployed destination near An Nasiriyah, Iraq, ended our discussions about the nature of our wartime mission.

Taking into consideration all of these disparate factors, the average ammunition supply Soldier or NCO probably does not have enough MOS training before deploying into combat. In the 664th Ordnance Company, for example, the company leaders recognized early on that a collective deficit in predeployment MOS training could not be made up solely through on-the-job training (OJT). By combining the principles of OJT with some unique methods, however, it became possible to give most company personnel the breadth and depth of MOS training they would need to be successful during their current deployment and in future ammunition supply assignments.

Training Internally

At the end of January 2009, the 664th Ordnance Company assumed responsibility of the Contingency Operating Base (COB) Adder-Tallil ammunition supply point (ASP) at COB Adder. The COB Adder ASP is among the largest ammunition supply activities in Iraq. It directly supports nearly 100 customer units through a network of associated ammunition transfer and holding points throughout southern Iraq. The ASP also receives ammunition from and ships ammunition to other ammunition supply activities throughout Iraq, Kuwait, and Afghanistan.

A sustainment operation of such remarkable scope demands a significant amount of technical knowledge, MOS skills, agility, and stamina from the Soldiers and leaders charged with running it. Upon arriving at COB Adder, the 664th had plenty of agility and stamina, but it needed MOS training in order to build technical knowledge and skills.

To bridge the gap in knowledge and skills, we created an innovative cross-training program for all MOS 89B Soldiers and NCOs in the company. The primary purpose of this program was to share and teach as much knowledge as possible among all of our Soldiers across all five areas of ASP operations: stock control, movement control, shipping, receiving, and storage. To administer this program to the lowest possible level, the full support and engagement of our NCOs would be required, especially at the platoon and section levels.

The company was fortunate to have a handful of staff sergeants (and one seasoned sergeant) with previous ammunition experience when it arrived at COB Adder. We spread their experience out by assigning them to positions of responsibility in each of the five areas of ASP operations. Consequently, each staff sergeant position was immediately filled by someone who was

An ammunition specialist assigned to 664th Ordnance Company conducts an ammunition inventory and updates an ammunition stores slip in a storage container at the COB Adder-Tallil ammunition supply point.

generally familiar with that area's job. In some cases, the ASP even had an expert in the slot with a wealth of experience to share. These personnel were more or less permanently assigned to their specific area throughout the company's deployment.

Thus, no matter where Soldiers worked in the ASP, a resident expert would always be supervising them and would be responsible for teaching them the skills needed for that particular area.

At this point, a casual observer could argue that, thus far, the cross-training program appears to be a simple application of OJT. The real innovation of the company's cross-training system, however, came when we recognized that even well-educated Soldiers can fall victim to complacency by working in the same job day in and day out. To combat that possibility, we decided to rotate our junior NCOs and Soldiers on an offset schedule among three of the five areas of the ASP, namely shipping, receiving, and storage. The other two areas, stock control and movement control, would also see Soldier rotation but of a different sort, as we will explain below.

Shipping, receiving, and storage training. In shipping, receiving, and storage, a team of Soldiers and sergeants worked directly under the guidance of their staff sergeant for approximately 3 months. During each rotation, the staff sergeant taught his Soldiers and sergeants through example, informal instruction, guidance, and formal professional development classes. All of the instruction from each staff sergeant focused exclusively on his area of expertise and included a large amount of hands-on training working with ammunition and the tools of the trade. When it came time to rotate, the staff sergeants remained in place and everyone else under them was shifted to a new area in the ASP. The entire training cycle then began again.

This shift of personnel was carried out three times during the company's 12-month deployment. This amounted to one complete round-robin rotation for every 89B Soldier and sergeant in the ASP. The ASP's accountable officer anticipated that moving everyone at the same time would have a negative impact on the mission, so he decided before the first personnel shift to stagger the rotation schedule for sergeants and Soldiers.

After approximately 2 months and 3 weeks in a particular area, the sergeants rotated in a round-robin fashion to another area. This was a critical and challenging time for our sergeants because they were still responsible for the actions and accomplishments of their Soldiers at their previous station, but they were also expected to become familiar with the supervisory responsibilities at their new stations. This transition period also allowed the sergeants to learn what was expected of their Soldiers from the junior enlisted and staff sergeant already working at their new station.

By staggering the rotation of NCOs and Soldiers, the company also allowed its junior NCOs to build their own knowledge base before being expected to supervise and instruct their personnel. After about a week of the sergeants learning on their own, it was time for the rest of the Soldiers to rotate.

In general, this staggered rotation scheme worked well. The accountable officer received positive feedback from both Soldiers and NCOs. The only drawback to moving NCOs without their Soldiers was that some sergeants felt they lost touch with the Soldiers for whom they were responsible. This was particularly felt in the area of "Soldier issues"—a blanket term for the many administrative, financial, personal, medical, and other problems (large and small) that every individual has to work through from time to time.

In hindsight, we believe that the benefits of staggered rotation outweighed the costs. In the future, other units might be able to mitigate the "Soldier issues" friction by setting aside a portion of the day (30 to 60 minutes) or week (3 to 6 hours) for NCOs who are learning away from their formations to meet with their Soldiers and catch up on the issues.

Stock control and movement control training. Meanwhile, we decided to minimize Soldier turnover in stock control and movement control and reduce rotations in those areas. At the COB Adder ASP, success in stock control and movement control required

patience. It took a long time to master complex tasks and build strong working relationships with a wide variety of people outside the company. So, to reduce the friction inherent in the turnover of complex, extremely critical, low-density jobs, the company decided that exposing MOS 89B Soldiers to stock control and movement control was a secondary concern.

The company also decided early on to maintain a one-to-one student-instructor ratio when selecting individuals for stock control and movement control cross-training. Since the stock control NCO-in-charge had 6 years of stock control experience in both the Army and the Navy, the company's senior leaders wanted to ensure that our MOS 89B sergeants received as much instruction and personal attention as possible during their limited stays in the stock control office. So we brought in our best junior ammunition sergeants one at a time to work alongside our four MOS 89A (ammunition stock control) Soldiers.

For similar reasons, each of the two permanently assigned NCOs in movement control (both staff sergeants) received one junior Soldier at a time to work for them. This likewise preserved a one-to-one ratio. It also allowed company leaders to handpick those NCOs and Soldiers who would cross-train outside their MOS. Most rotations through stock control lasted about 2 months; movement control (with a somewhat lower OPTEMPO) saw rotations lasting 3 to 4 months each.

The minimum number of people detailed to cross-train in stock control and movement control minimized disruption of regular ASP operations since the company first and foremost had to maintain its ability to accomplish the mission. This was by no means due to any deficiency on the part of our MOSs 89B Soldiers. Although many of them would have had no problem learning the stock control or movement control jobs, we kept in mind that MOS 89A and MOS 88N (movement control) do not have the exact same skill sets as MOS 89B. That meant that rotating personnel through stock control or movement control would actually reduce the amount of MOS training those Soldiers received. In all, about a dozen of our most adaptable Soldiers and sergeants learned about either stock control or movement control during our deployment.

The aggregate affect of our entire cross-training program on the knowledge and skill level of our Soldiers and junior NCOs was pronounced. Company members without any previous ammunition supply support experience left COB Adder with a wide variety of practical expertise and lessons learned. Rather than seeing only a very narrow lane over the course of a 12-month deployment, each individual left the ASP with enough knowledge and skills to do all MOS 89B jobs at his skill level. The company's MOS training program met the original intent and built well-rounded MOS 89B ammunition specialists.

Training Externally

Rather than satisfying ourselves with training only our own personnel, we also applied our rotational method to MOS 89A and 89B personnel from other units. Providing training opportunities to ammunition specialists and sergeants from other formations was more than just a perfect chance to improve relations between the company and our customer units; it also helped MOS 89A and 89B personnel capitalize on a rich training environment with lots of expertise at their fingertips. Some of the company's "students" from outside units had been in the ammunition supply field for years without having ever worked in an ammunition supply activity at any level. Providing MOS training to those Soldiers was especially rewarding. After all, where else but at an ASP could they receive it?

Through regular business contacts throughout the southern half of Iraq, logistics leaders in other formations began to hear about the cross-training program at the COB Adder ASP. Unlike the 664th Ordnance

An ammunition specialist from the 664th Ordnance Company receives hands-on rough-terrain container handler operator's training at the COB Adder-Tallil ammunition supply point.

Company, most units have an exceptionally low density of the ammunition supply MOS. Most brigade combat teams, in fact, are authorized only a single section of MOS 89B personnel (6 to 12 individuals).

Before long, units outside our battalion were contacting us to request assistance in training their MOS 89A and 89B personnel. These requests presented their own challenges because no two units wanted to gain exactly the same knowledge or skills.

Generally speaking, the ASP accountable officer would maintain contact with the officer or NCO requesting the training. The requestor specified what skills should be emphasized during his unit's training. One unit wanted to know more about the paperwork required to process ammunition; another wanted to expose its personnel to the hands-on tasks inherent in their MOS; others wanted to gain as much knowledge of shipping as possible. The only way to execute a training plan to satisfy the requestor was to customize the experience, so that is what the 664th did.

Our external training program accepted up to four MOS 89A or 89B personnel at a time. Most of our visiting personnel were MOS 89B. Each group of four visitors spent a total of 2 weeks at the ASP. The visitors were split up and rotated through four areas: stock control, shipping, receiving, and storage. The students spent about 3 days at each station, but they were not simply sent out on their own. Each student was paired with a 664th Ordnance Company Soldier or NCO of equal rank and shadowed that person until it was time to move on to the next station.

For example, a visiting sergeant would be paired with a series of squad leaders at each station in order to learn what was expected of an ammunition sergeant during each type of operation. An ammunition specialist, on the other hand, was assigned as a member of the squad at each station, and he would be taught what our junior Soldiers were doing at each spot. Sometimes, rotations were even tailored to fit the specific requests of a particular group of visitors, adding or subtracting time at particular stations.

Through this creative approach, MOS 89B Soldiers who had never worked in an ASP received full-immersion ammunition supply training. The visitors were not expected to meet concrete learning objectives; the external training program was all about raising their awareness about their own MOS and showing them the basics of how the tasks of their MOS and skill level were conducted at our ASP. Although it admittedly takes much more than 3 days per station to learn the details of the job, our external training program offered these Soldiers and NCOs the foundation of what should be an ongoing learning process.

The time spent by our visitors at the COB Adder ASP provided real-life experience in ammunition supply operations. We also exposed small groups of our own customers to real-world ammunition supply support in a combat environment at the ASP level. Our visitors left with first-hand knowledge of how certain processes must be streamlined (but not by taking shortcuts) to meet the time standards set by the Army and the realities of combat sustainment in Iraq.

Some of our students who were somewhat familiar with ammunition supply operations at their home stations even learned that, although an ASP in Iraq cannot be a perfect match to ammunition supply operations back in the United States, it is possible to closely replicate the most essential safety and accountability practices required by Army regulations at any ASP, regardless of its location.

Perhaps most importantly, we were able to expose MOS 89B Soldiers and NCOs to the way that ASP operations are accomplished in a forward-deployed location. The responses of individuals who had the time and opportunity to shadow us at the COB Adder ASP were overwhelmingly positive.

Training in combat cannot fully replace training at home. By training in combat with the resources and expertise that were available at the company level and below, the 664th Ordnance Company built an agile team of ammunition supply professionals who were capable of running a highly dynamic and complex ASP in an extremely tough environment. The company also brought each of its enlisted members up to a level of MOS competence that they could not have reached by remaining in only one job for the entire deployment. Rather than only training one person on shipping and another person on storage, the company taught both areas, and more, to both people.

The company thus used a 12-month deployment to southern Iraq to prepare MOS 89B Soldiers and NCOs for any ammunition supply support job at their skill level, regardless of which part of an ASP they might be assigned to next. Through similar training methods applied by dedicated company and platoon leaders during future deployments, it will be possible to create a valuable and versatile force of sustainment Soldiers for the benefit of the entire Army.

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Cleaning Up Contingency Operating Base Adder

BY SERGEANT JAMES KENNEDY BENJAMIN, USAR

A 15-week mission turned an uncontrolled dumping ground at Contingency Operating Base Adder into a functioning scrap separation area.

The combined efforts of U.S. Soldiers and two local national contractors at Contingency Operating Base (COB) Adder led to the early completion of the COB's scrap metal separation and segregation mission. The mission required personnel at COB Adder to separate and sort about 75 acres of scrap metal and other debris. The metal was the accumulation of items dating as far back as the Persian Gulf War of 1990 to 1991.

Breaking Down the Mission

The project was broken down into three phases. In the first phase, the team identified and sorted the different materials at the site. In the second phase, the team removed all steel, and in the third phase, the remaining debris was hauled offsite to designated locations.

The project involved approximately 60 personnel working on a daily basis. The team was made up of U.S. Soldiers and contract workers from Al Zaidi Company and Rawa'a Company, who worked from Monday to Friday. "Toward the end of the project, Soldiers would come in on Saturdays and Sundays to accomplish the mission," said Sergeant First Class Jason Hellstrom, the engineer operations noncommissioned officer for the 1st Infantry Division and U.S. Division-South. "None of the Soldiers complained one bit. They wanted to get it done."

Cleaning Up the Scrap Metal

According to Major Tewanna Marks, an engineer with U.S. Division-South in Iraq, "The original projection to clean up Adder was from February to July [2010]." Soldiers completed the mission on 25 May 2010, reducing the mission's completion time by 60 days.

Marks said the first time she visited the site, stacks of scrap metal were piled more than 12 feet high. During the initial phase of the project, she checked on the site a couple of times a week to ensure the operation was going well.

As the project progressed, the personnel and the operation became more efficient. "Toward the end, there was a 2-week period where I did not go to [COB] Adder," Marks said. "When I returned after those 2 weeks, I was amazed to see that the area was flat desert."

Hellstrom said that once the project was underway, progress took place rapidly. "When it started, the project moved a little slow," Hellstrom said. "About mid[way] to the end of February is when the project really began to pick up."

What Soldiers Left for Iraqis

It took 15 weeks for U.S. Soldiers deployed to the base and the two local contractors to sort the materials in the COB Adder scrap yard into a functioning scrap separation and segregation area.

The COB also has a scrap segregation and recycling center that Iraqis can use to employ locals and earn revenue.

"Personnel on [COB] Adder can bring their scrap to the center and have it segregated instead of just dumping it all together," Marks said. "It is a legitimate operation. It functions well." When the base is returned to the Iraqis, this project will continue to run and will help ease the transition.

With the guidance and support from U.S. Division-South leaders (specifically Brigadier General Randal Dragon, the deputy commanding general for support, 1st Infantry Division), the mission was completed faster than expected. At the end of the project, the project team leader reported that the team had removed approximately 333 tons of wood, 8,353 tons of trash, and 11,088 tons of scrap metal.

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MRAP's Future With the Army

BY MAJOR DALE B. WOODHOUSE

The mine-resistant ambush-protected vehicle has proven its worth in Iraq and Afghanistan, prompting leaders to include it in brigade combat team modernization plans.

Since fiscal year 2006, the Department of Defense (DOD) has spent significant funds on the mine-resistant ambush-protected (MRAP) vehicle program. Despite this investment, DOD originally was not considering this vehicle as part of its plan for brigade combat team (BCT) modernization. Budget constraints and the MRAP's proven success in Iraq and Afghanistan have prompted DOD to take a harder look at how this vehicle fits into the services' future.

The Future Combat System

The Future Combat System (FCS) program, launched in 2003, was a vision for modernizing BCTs with an array of vehicles and intelligence, surveillance, and reconnaissance platforms. FCS was described as being a "system of systems" capable of full-spectrum operations.

The MRAP vehicle was not part of the original FCS program. According to a Congressional Research Service report by Andrew Feickert, "Mine-Resistant, Ambush-Protected (MRAP) Vehicles: Background and Issues for Congress," in 2009, Secretary of Defense Robert Gates directed the Army to include the MRAP in its FCS plans.

The pricetag of FCS, over $160 billion, was hard for the Army to reconcile under budget constraints, so several alternative plans were proposed to replace it.

These alternatives were revealed to Congress in a June 2009 Congressional Budget Office study, "An Analysis of the Army's Transformation Programs and Possible Alternatives." Most of the alternative plans sought to decrease the cost of the program by incorporating upgraded combat vehicles and platforms in the current fleet in lieu of funding the high-priced FCS vehicles.

FCS Transitions to Army BCT Modernization

According to a DOD press release dated 23 June 2009, during the budgetary process for fiscal year 2010, Secretary Gates expressed concerns "that the portion of the FCS program to field new manned combat vehicles did not adequately reflect the lessons of counterinsurgency and close quarters combat in Iraq and Afghanistan."

An acquisition decision memorandum canceled the FCS BCT program and replaced it with "a modernization plan consisting of a number of separate but integrated acquisition programs" called the Brigade Combat Team Modernization Plan.

Incorporating the MRAP

Including the MRAP in the FCS BCT program and now the Brigade Combat Team Modernization Plan was a sound move on the part of DOD both from the budgetary perspective and from a practical perspective within the domains of doctrine, organization, training, materiel, leadership and education, personnel, and facilities.

According to Feickert's report, more than 15,000 MRAPs are being used in Iraq and Afghanistan. The MRAP's success in operations and its survivability from attacks from mines and improvised explosive devices (IEDs) are due mainly to its unique v-shaped hull design and armor plating. This design is neither radical nor new since the South African Defense Force has been using it for years, but incorporating this vehicle into U.S. operations is new and continues to be a developmental process.

Staff members at the Center for Army Lessons Learned at Fort Leavenworth, Kansas, are supporting doctrine development related to the MRAP. The center's staff is responsible for capturing lessons learned in the field and producing written products that assist deployed Soldiers and those training for deployment in incorporating tactics, techniques, and procedures. This doctrine also helps units to adjust their organization in preparation for deployment and incorporate the MRAP into their formations.

More Vehicles Equals More Training

As units return from deployment and begin the process of resetting for the next possible mission, the use of MRAP vehicles in unit-level training and qualifications will become standard.

According to Feickert, "The Army plans on allocating 702 MRAPs for training in addition to the 50 MRAPs already designated for training drivers." This increase in available vehicles for training will ensure that new Soldiers arriving at units that are preparing to deploy will train in the basic skill sets needed to maintain and operate MRAP vehicles.

The increase in vehicles available for training will also allow MRAP training to be incorporated into leader training programs, such as officer basic and career courses and branch-specific noncommissioned officer courses.

Mine-resistant ambush-protected (MRAP) vehicles are prepared in an Army Materiel Command fielding area in Afghanistan before they are delivered to Polish forces. MRAPs have been in the Army's inventory since fiscal year 2006 but have only recently become a part of brigade combat team modernization plans. *(Photo by Sharon L. Strickland, 401st AFSB)*

The next generation of warriors and leaders will train on MRAPs returning from the operational fleet. The only difference at the training centers is the addition of a new simulator developed to address the shortfall in the number of vehicles available for training. Now MRAP simulators that were used in lieu of vehicle training will instead be used to prepare students before they get behind the wheel. We have the personnel; we just have to get them trained.

Future Plans for the MRAP

In an August 2009 Congressional Research Service report on the MRAP, Feickert laid out the U.S. Army's plan for the MRAP:

> As U.S. forces begin drawing down in Iraq, the Army and Marines plan to put the majority of MRAPs into prepositioned stocks at various overseas locations, ship a number back to the United States for training, and place a number into logistics and route clearance units. Out of the Army's eventual 12,000 Iraq-based MRAPs, the Army plans to use only 2,675 in operational units.

It would seem that the Army has an abundance of the materiel and facilities needed to incorporate the MRAP into future plans. The problem arising now is that Secretary Gates is directing an increase in the number of MRAPs slated to replace planned FCS vehicles in operational units and a decrease in the number of MRAPs going into pre-positioned stocks.

The Army and the Marine Corps are working to balance this guidance with their current plans. According to Feickert, Secretary Gates is "concerned that the FCS program did not include a role for MRAPs and implied that there needed to be a greater role for MRAPs in the Army's vehicle modernization plan."

To address these issues, the Army has replaced the FCS program with the Army Brigade Combat Team Modernization Plan and included MRAP. Just as existing systems, such as the Stryker, could be used to replace the aging M113 fleet in the BCTs, MRAPs could be used to replace highly vulnerable vehicles. As part of the new plan, the MRAP will replace vehicles, like the military police up-armored high-mobility multipurpose wheeled vehicle and multipurpose transport vehicles used for logistics convoys.

DOD has spent $26.815 billion on the MRAP program since fiscal year 2006. This significant investment in a vehicle family should be incorporated into the Army's Brigade Combat Team Modernization Plan. Although the MRAP was not part of the original FCS program, its design bridges a capabilities gap in Iraq and Afghanistan. Placing MRAPs in storage would be like parking all the tanks after Operation Desert Storm and then pulling them out 12 years later for Operation Iraqi Freedom—it would decrease the vehicles' effectiveness. Secretary Gates is moving the Army in the right direction by insisting on incorporating MRAPs into future Army plans to upgrade BCTs.

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Rivers of Life, Rivers of Death: The World War I Mesopotamian Campaign

BY MICHAEL YARBOROUGH

Geographic factors such as mountains, rivers, and climate can help or hinder military operations. A good example of this is the World War I conflict between the British and the Ottoman Turks in what is now Iraq, where rivers in the desert limited offensive flexibility but provided channels for support.

The importance of rivers and waterways in world history cannot be ignored. They have provided water for drinking and agriculture, acted as highways, and formed natural boundaries. In Mesopotamia (modern-day Iraq), the Tigris, the Euphrates, and the Shatt al-Arab (which flows from the confluence of the Tigris and Euphrates to the Persian Gulf) are the primary rivers. During the Mesopotamian Campaign in World War I, these rivers provided drinking water, facilitated logistics and fire support activities, and directly affected troop movements.

During the campaign from 1914 to 1918, British and Ottoman Turkish forces used new technology to augment traditional ways of operating within the region. River steamers, railroads, and motorized vehicles operated side by side with traditional watercraft and land conveyances, forming a link between the past and the present.

Basra

The ancient port of Basra, home of the legendary Sinbad, has long been an important access point into Mesopotamia. Sitting astride the Shatt al-Arab, it provides easy access to the Persian Gulf from the interior and to the Tigris and Euphrates rivers from the Persian Gulf. During World War I, for Ottomans in Iraq and for locals, Basra acted as a point of entry, where supplies from the outside world were unloaded from oceangoing ships and sent upriver on local watercraft.

For the British, the city controlled oil exports from the Gulf region. In 1914, the oilfields of southern Mesopotamia provided the bulk of the oil for the Royal Navy. To protect this resource, a small British force, consisting mostly of units from the British Indian Army, captured the fort at Al Fao on 6 November 1914. Two weeks later, the British captured Basra. After that, there was a hiatus in major actions.

Sinbad would have found Basra in 1914 little changed from the days of the medieval Abbasid Empire. The city consisted mostly of small patches of high, dry ground surrounded by low-lying muddy areas and the Shatt itself. In the rainy season, though, even the raised areas flooded. Even in ideal conditions, movement within the city was difficult.

The dearth of motorized river craft complicated movement. Oceangoing ships were forced to anchor in the middle of the river and await unloading by a couple of Arab lighters that regularly serviced only two ships every 3 weeks. Wharfs, warehouses, and all the other necessary infrastructure of a modern port were completely lacking.

In short, given its condition in 1914, Basra could not have been a worse place for the British to base an army. However, with the British Army's initial limited objectives of protecting the oil fields, the small force was sufficient. No preparation or even thought was given to supporting a larger force. As a result, when the British Mesopotamian Expeditionary Force began major operations later in the war, it suffered many logistics handicaps.

Drinking Water

Needless to say, the desert conditions of Iraq make military operations more difficult because of the need to stay near freshwater sources. Today, the presence of motorized vehicles and airplanes enables forces to be supplied virtually anywhere. That was not the case in 1914. Although cars and trucks were used extensively in every theater during World War I, they never formed more than half of the total supply train in even the best supplied areas.

In Mesopotamia, where everything was always in short supply (for both sides), motor vehicles were not even a remote option. Historian A.J. Barker, in his 1967 book *The Bastard War: The Mesopotamian Campaign of 1914–1918*, notes that British planners in India gave little consideration to the need for water carts to Mesopotamia. Ottoman forces also lacked sufficient means to transport water over large distances.

As a result, both the British and Ottoman land forces were forced to follow the madly winding Tigris and Euphrates, except where a loop in the river could be avoided by a short march. The need to stay near the rivers is one explanation for why most of the battles were fought near the rivers. Barker's book is peppered with examples of thirst becoming an issue when soldiers strayed from the river.

During engagements, the concern for staying close to water sources was particularly serious. At the battle of Es Sinn on 28 September 1915, which led to the capture

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of Kut, British Major General Sir Charles Vere Ferrers Townshend sent some of his men 5 to 10 miles away from the Tigris to flank the Turkish positions. (Kut al Amara was a town located 100 miles southeast of Baghdad in a bend of the Tigris.)

After a night march and a day of fighting, the troops were exhausted, having gone without water except for the contents of their water bottles since the night before. Barker notes, "Like the men, the animals were nearly mad with thirst," and consequentially "a number of mules made a dash for the closest marsh, became bogged down in the mud, and were quickly sniped by the Turks."

Because of the inability to transport sufficient water far from the rivers, most operations were not able to take full advantage of tactical situations for diversionary and flanking maneuvers.

Transportation

Rivers have traditionally been the easiest and most efficient means of transporting bulky shipments. Martin Van Creveld, in *Supplying War: Logistics from Wallerstein to Patton*, makes the point that in 17th century Europe strategic mobility was severely limited by rivers—not because of difficulties in crossing them but because they were the principal highways for heavy goods. The obvious fact that rivers do not go everywhere a commander might wish meant freedom of action was severely curtailed.

The Tigris and the Euphrates were no exception to this fact, and the presence of muddy, marshy terrain outside the rivers' immediate vicinities only increased the challenge of moving armies (as well as the challenge of obtaining sufficient drinking water). Except during the worst periods of the rainy and flood seasons, these marshes could be negotiated by men and horses, but hauling heavy equipment was out of the question throughout the year. In this respect, the British and Ottoman armies merely adopted long established means of moving heavy equipment in the region.

In using the rivers, both sides adapted modern technology to the natural conditions. Native craft, whose designs had remained virtually unchanged for centuries, were supplemented with oil- and steam-powered craft whenever possible for moving men and equipment.

Powered gunboats also formed an integral part of the campaign. Gunboats not only protected supplies but went on the offensive: Since operations were confined to the river banks, they frequently provided fire support for infantry operations. British gunboats such as the HMS *Espiegle* and HMS *Firefly* participated in many offensive actions, but they were often delayed by hidden sandbars and Ottoman-laid river obstructions.

The major restricting element for both sides was a chronic shortage of modern boats of every kind. This shortage became painfully evident as the Mesopotamian Expeditionary Force attempted to mount a relief of General Townshend's forces besieged at Kut in early 1916. The lack of river craft meant that the British relief was unable to rapidly pit an overwhelming force of men and equipment against the Ottoman besiegers.

Despite several valiant attempts to break through Ottoman lines, Townshend, with his men starving, surrendered nearly 10,000 British and Indian soldiers on 29 April 1916 after a 5-month siege. The majority of these captives died of starvation, exhaustion, disease, or cruelty by their Turkish captors.

The fall of Kut finally spurred the British to address their transportation problems in the Mesopotamian theater. Additional motorized gunboats and supply boats were added to the fleet, and alternatives were sought—primarily a railroad from Basra to the front. The Ottomans were unable to supply new boats and their only available railroad ended in Baghdad, so they could not replace their losses. The most modern transportation technologies of the time—automobiles and airplanes—were mostly used for reconnaissance and played little to no role in logistics. So river transportation remained the primary means of conveyance.

Once the British resolved their transportation problems, they were able to bring superior numbers against their Ottoman adversaries, whom they pushed back into northern Iraq by November 1918.

Rivers as Tactical Barriers

The Tigris and the Euphrates also were tactical barriers to movement. The shortage of river craft and bridges meant commanders had to pay careful attention to how they deployed their forces because, in the heat of battle, shifting forces across the rivers was difficult and time consuming. As a result, commanders faced challenges in capitalizing on tactical opportunities and repositioning forces to meet unexpected contingencies. Although only separated by a river—and a shallow one at that—forces on opposite sides of the Tigris during combat might as well have been separated by an ocean.

During the battle of Es Sinn, General Townshend successfully deceived the Turks into thinking he would attack on the right side of the river while he actually planned to attack on the left. After the Turks had taken the bait and transferred the bulk of their reserves to the right and were unable to speedily cross them back over, Townshend launched his main attack on the left. This forced the main Turkish force to retreat to prevent being surrounded. These games of deception characterized much of the fighting in Mesopotamia during World War I.

The Tigris, Euphrates, and Shatt al-Arab waterways defined the battlespace for the British and Ottoman forces during the Mesopotamian Campaign of World War I. The need for water and transportation meant that battles were also fought near these rivers. They were, quite literally, both rivers of life and rivers of death for the British, Indian, and Ottoman soldiers involved.

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Creating a Knowledge Management Culture at the Army Soldier Support Institute

BY STEPHAN D. WILCOX

The Army Soldier Support Institute recognized that it needed to improve its knowledge management processes and made the changes necessary to start sharing information more efficiently and effectively.

The creation of a knowledge management culture, from the inception to the delivery of a working, results-oriented system, requires leader involvement, customer buy-in and support, and support from the Army Enterprise Architecture. It also requires a distinct cultural shift and the abandonment of the technology comfort zone in which most people are ensconced.

The creation of the Army Soldier Support Institute's (SSI's) knowledge management culture was no exception. While SSI's various organizations worked hard to develop products for their constituents and innovative ways to do business, information and processes were not being shared throughout the command. SSI was also plagued with redundancies and incompatibilities (both internal and external). And not everyone saw the need to change.

Identifying Knowledge Management Needs

SSI's leaders were critical to instituting a knowledge management culture. Senior leaders took a broad look across the command and recognized the need for a collaborative environment of both explicit and tacit knowledge for Soldiers and civilians. The SSI commanding general, who was directly involved in the effort, identified the qualifications he wanted in SSI's knowledge management chief. He looked for someone with experience in information technology, software applications, and the Army Training and Doctrine Command (TRADOC) training model.

Once the knowledge management team was in place, its first assignment was to assess current systems, processes, and tracking methods. The objective was to eliminate redundancies and increase productivity. The rapid assessment, which took approximately 30 days, uncovered multiple issues that affected day-to-day functions, the integrity of the educational system, and organizational efficiency. Among the issues were—

- Systems and processes that were individual solutions instead of SSI standard equipment, applications, or procedures.
- A public website that offered visitors only general information and no other benefits.
- Several systems for the delivery of distributive learning that did not always track students' official credits for course completions.
- A shared local area network drive that had reached its storage limit and could not be accessed from off post.
- Uncertainty about whether instructors were using the same course materials (caused by the use of various storage methods instead of one common repository).
- The pervasive use of manual processes, including printing paper copies to submit work and administrative actions.
- A failure to share good systems among the individual schools and directorates.
- A lack of methods for collecting tacit knowledge.

Creating the Knowledge Management Culture

After careful consideration, SSI's leaders decided to use Army Enterprise Architecture systems to consolidate the knowledge management aspects of all SSI units. By choosing an enterprise approach, SSI lowered costs and eliminated certain resource requirements. Most importantly, it created a single portal accessible by all SSI organizations. This consolidation has paid tremendous dividends in recent months.

The knowledge management team started by converting SSI's public websites to match the Army standard and making them portals to all SSI systems and processes. The command then selected Blackboard as the medium to deliver course testing materials and report on institutional training. The command chose the Army Learning Management System for all distributed learning.

The knowledge management team implemented the TRADOC SharePoint system as the medium for collaboration. This one change had the largest impact on the command and the inculcation of a knowledge management culture. By creating a central repository for instructional materials that is accessible to all personnel, SSI

can ensure that instructors are teaching the same information. Course developers can field updates in weeks instead of months, and Sharepoint's workflow capability reduces approval time from weeks to days. Even users who are away from the office can keep projects moving forward.

Perhaps most important in an era of constant operations, SSI can now easily tap people worldwide to collaborate on lessons learned—an essential factor in keeping course materials and training relevant. Because graduates can reach back to SSI, small units have begun using the system as a training resource while in the field.

SharePoint also helped the command to refine its processes. For instance, through InfoPath, SSI has automated common actions and requests. A G–3 task site now allows real-time input. The command also added an information technology help desk and taught self-help steps to reduce work orders and improve individual performance. Personnel attend quarterly knowledge management working groups to share ideas and solutions throughout SSI.

The SharePoint site was created in March 2009, and initial training was completed in April. (Training for new personnel or new techniques occurs quarterly and is provided by in-house subject-matter experts.) Each directorate has administrator rights and is responsible for its own site. Today, SharePoint is thoroughly integrated into SSI operations, and knowledge management is integrated into the SSI mindset.

Knowledge management is never static. SSI is currently assessing its knowledge management plan against the Army Learning Concept 2015 and will modify it as necessary. SSI also is conducting an across-the-board evaluation to improve designs and functions. The command will soon deploy on SharePoint a tacit knowledge system that is currently used at Fort Bragg, North Carolina.

Best Practices and Lessons Learned

Based on SSI's experience, the best path for instituting a successful knowledge management culture follows these steps: leadership acknowledgement and buy-in, assessment of current status and needs, design of a holistic solution, development of a solution, implementation, and evaluation and refinement. Taking a step out of order—say, developing a solution without having conducted a thorough assessment—increases the chances for an incomplete or failed effort.

When establishing a knowledge management culture, knowledge management managers and proponents should—

- Make sure their leaders understand the purpose of knowledge management, and be prepared to show tangible benefits from knowledge management initiatives and processes.
- Produce policy letters that demonstrate the leaders' interest in the project, and get the whole organization on board.
- Decide on core systems, and become expert at them. (New tools are a blessing, but the training and acceptance time for end-users can defeat the purpose.)
- Leverage Army enterprise solutions because they involve no cost to the organization, make modifications much easier to execute, and streamline assistance from other agencies. The enterprise often can provide training and support packages, as well.
- Build the model knowing that the requirements will change, and use the Army Learning Concept 2015 as an example.
- Include not only knowledge management training but also software application training in the Soldier and civilian training plan.
- Assign tasks, responsibilities, and ownership at the lowest level.
- Include everyone in the effort so that good ideas are shared and poor processes are eliminated before they become common.
- Get the support of G–6 knowledge management champions to ensure that the knowledge management culture is deployed in a timely manner.
- Attend as many training seminars as possible, in person or on line. Seeing other methods and practices can only benefit the organization.
- Use the feedback mechanisms that are available in every system to identify the refinements that are needed.
- Create a tracking system for modifications so that the commander has accurate data to use in making decisions.
- Be prepared for push back (change is difficult), and be prepared to show "bright spots" of success.
- Recognize knowledge management champions. Tangible results deserve tangible rewards and acknowledgement. Many people are competitive; take advantage of this fact.

The metamorphosis into a knowledge management culture has been fairly quick and is due in part to leader emphasis (including a command policy memorandum) and the staff's recognition of the potential benefits.

Knowledge management is not a fad. It is here to stay, and it is an extremely powerful tool. SSI is more effective and efficient than ever before, and it has not yet maximized the benefits of knowledge management. Every level of the Army and the Department of Defense must embrace knowledge management. We owe it to the Soldiers, Sailors, Airmen, Marines, and taxpayers to get the most out of our organizations.

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Raising Mechanic Skills to Industry Standards

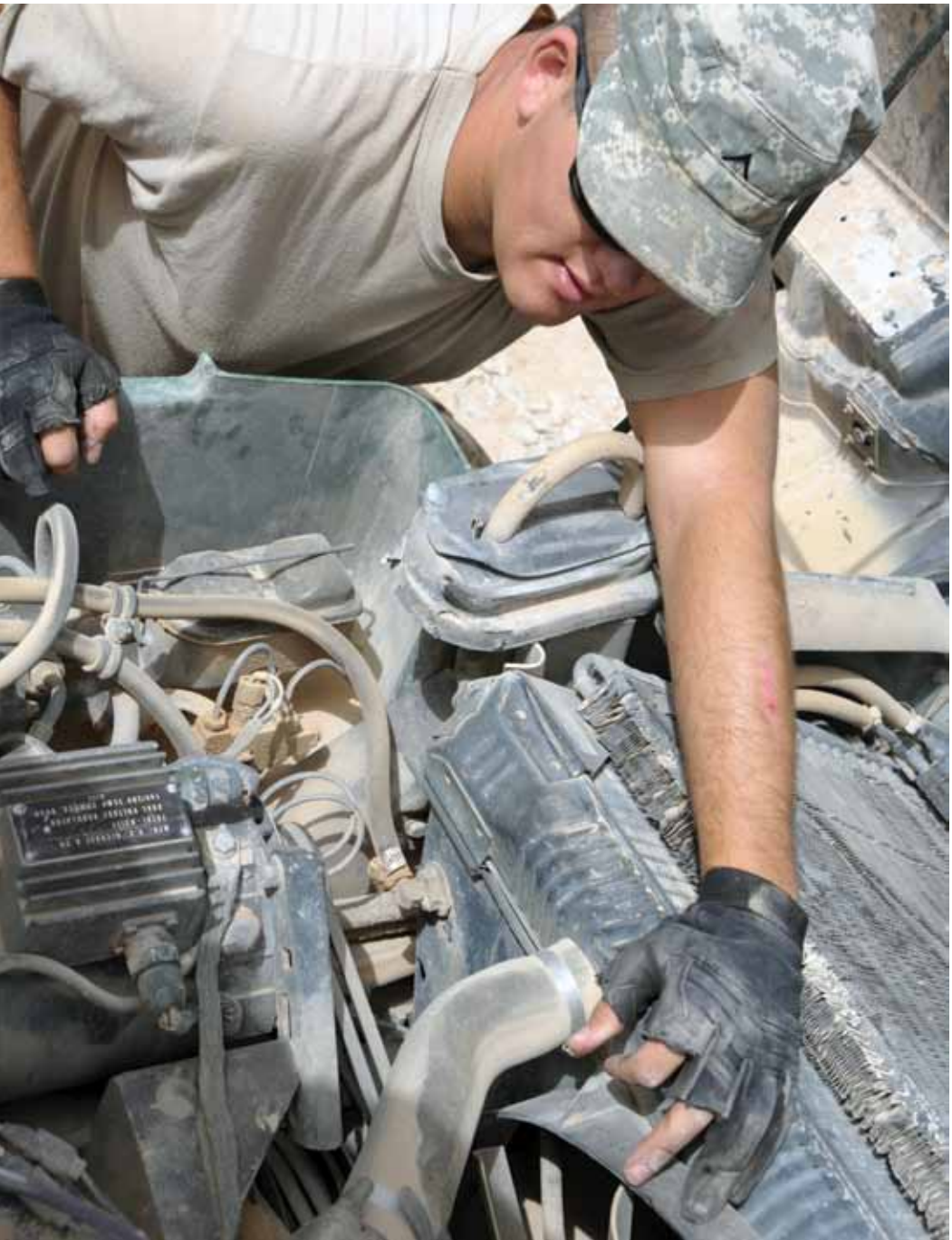
BY CHIEF WARRANT OFFICER 2 MATTHEW R. MCCASLIN

The Army needs mechanics with skills beyond those taught in advanced individual training. Private-sector certification programs offer a solution.

In critical situations when combat equipment must be returned to the fight, waiting on parts can be detrimental to a commander's ability to maneuver on the battlefield and win in combat; it can even cost the lives of U.S. Soldiers. The Army's current operational environment often results in mechanics being constrained by a limited or overburdened distribution network, which has led to shortfalls caused by long leadtimes in receiving replacement parts. With the Army spread around the world, unit-level parts procurement is not always as easy as stopping at the nearest supply support activity. Sometimes maintainers must focus on repairing major assemblies and place a strong emphasis on proper fault diagnosis.

During the past 10 years of conflict, the Army has learned how important warrior tasks and drills are and has reacted by emphasizing that all Soldiers are riflemen first. We are learning from current operations that technical proficiency may be just as important. However, mechanics arriving at units today often are not competent technicians prepared to tackle advanced diagnostics, and units do not have the resources and time required to train to this level.

Modern computerized diesel engines are not just in trucks. They are the driving force behind the Army. Computer-controlled engines power our generators, transportation equipment, fighting vehicles, materials-handling equipment, and marine equipment. Diesel engines



An Army mechanic assigned to the 1st Battalion, 101st Combat Aviation Brigade, checks the engine fan on a high-mobility multipurpose wheeled vehicle while working in the motor-pool vehicle maintenance section at Multinational Base Tarin Kowt, Afghanistan. *(Photo by TSgt Michele A. Desrochers, USAF)*

move the Army. These engines are not the black smoke puffers of a generation ago.

Many of the Army's current engines have advanced mechanisms like stacked piezoelectric wafers in their injection systems, variable geometry turbochargers, and accelerometer pilot control units. These modern engines are computer-controlled monsters with significant capability. But they require a technician who is well trained to service, maintain, and troubleshoot them.

> THE ARMY MECHANIC HAS BECOME A MULTICAPABLE MAINTAINER WHO IS REQUIRED TO TROUBLESHOOT USING ADVANCED ONBOARD DIAGNOSTICS AND INCREASINGLY COMPLEX, INTERCONNECTED VEHICLE SYSTEMS.

The Need to Increase Proficiency

As the Army settles into the modular force structure, mechanics from several military occupational specialties (MOSs) have been streamlined into a "super" mechanic called the 91B, wheeled vehicle mechanic (MOS 91B). The Army mechanic has become a multicapable maintainer who is required to troubleshoot using advanced onboard diagnostics and increasingly complex, interconnected vehicle systems.

Years ago, a Soldier with a basic understanding of engine theory could repair a high-mobility multipurpose wheeled vehicle. With today's equipment, a Soldier must be a proficient technician who understands how information is being fed into the computer from several sensors and who is familiar with the different vehicle systems that could create the symptom he is diagnosing.

Modern vehicles can have as many as 50 microprocessors on board. The modern maintainer must be able to use sophisticated diagnostic trouble-code scanners and then interpret and apply the data generated by the scanners to repair the equipment. On the battlefield, maintenance Soldiers without these skills limit operations in austere conditions by extending down-times caused by improperly diagnosed faults. This is a severe detriment to commanders who need their state-of-the-art equipment returned to the fight quickly.

Civilian trade schools for mechanics are 1 to 2 years; the Army is graduating mechanics every 13 weeks. It is time for the Army to revolutionize technical training to meet the needs of the combatant commander.

Army Vocational Training

During fiscal year 2009, the Army conducted the Army Vocational Training Program (AVOTEC). Through AVOTEC, a Soldier could attend training at a civilian vocational or technical school and pursue a non-degree-related certification. AVOTEC could be used as a model for a future multicapable, "maintainer-warrior" advanced individual training (AIT).

Many of the certifications offered through AVOTEC were in the automotive technical field. These civilian programs use a building-block approach that starts with the fundamental principles of system operation and progresses gradually to complex diagnostic and service procedures. The courses cover the latest developments in the automotive field, including an onboard diagnostics system (OBD II), enhanced emissions testing, misfire monitoring, and antilock braking systems.

AVOTEC also offered diesel certification that covered indepth instruction on diesel engine theory and design, engine performance, lubrication systems, induction exhaust and after-treatment systems, hydrostatic transmissions, heavy-duty torque converters, power train principles, antilock braking air systems, and much more.

Automotive Service Excellence

The National Institute for Automotive Service Excellence (ASE) is a nonprofit organization that administers exams that stress knowledge of job-related skills. ASE's tests are industry-driven and are grouped into specialties that cover virtually every on-highway vehicle service segment.

Although ASE certification is available to Soldiers, it is not widely used or pursued, even though the Army pays for most of the credentialing costs. ASE tests are designed to guarantee a mechanic is competent to perform to specific standards established by the entire automotive industry. Soldiers who work on the same level of complicated equipment as civilian technicians should meet that minimum standard. However, most Soldier mechanics, if forced to take the tests, would not be able to pass.

AVOTEC was organized around the ASE automobile test areas and correlated directly with standards set by the National Automotive Technicians Education Foundation (NATEF). The AVOTEC curriculum was designed to educate a mechanic to the competency level required to be able to efficiently and accurately diagnose modern equipment. Upon completion, students received nationally recognized certification from community colleges and technical trade schools.

AVOTEC Possibilities

While AVOTEC lasted, it was very successful and many Army mechanics received certification in their field. The program lost funding from Congress in fiscal year 2009, but the lesson learned was that this type of

trade school training should be integrated fully into the Army's training program for mechanics. This would benefit the Army in several ways:

- Soldier recruiting incentives for technical fields would be increased because, while in the Army, the Soldiers would receive accreditation that would correlate directly to the civilian world.
- The Army could rely less on contractors to provide maintenance since their own mechanics would have the expertise needed to repair modern equipment.
- Commanders would enjoy increased readiness rates because of proper fault diagnosis.
- Maintenance costs would be reduced as a result of increased troubleshooting accuracy.

The additional costs for the specialized training could be offset using a distance-learning program. Traditional trade school in the automotive field is at least 1 year long and often 2 years. The Army could reduce this time by using an online classroom. Students of distance learning have comparable test scores to classroom students, and the student-to-instructor ratio can be increased greatly on line. By using a distance learning program, in-class time could be reduced by as much as 50 percent.

Daily homework using the virtual classroom to supplement and reinforce training objectives would increase knowledge retention and contribute to reduced training time. A combination of NATEF standards and trade-school-style training, supplemented with homework in an online classroom, could create a 6-month technical school that produces highly qualified mechanics.

Certifying Mechanics as True Technicians

To ensure that mechanics are prepared to repair modern equipment, certification should be an AIT graduation requirement. ASE certification is a third-party, unbiased endorsement that a Soldier has clearly demonstrated proficiency in a subject area. Instructors teach the subject rather than the test, and students grasp a concept rather than test answers because they have no foreknowledge of the test questions. To reach the proficiency level required to pass ASE exams, Soldiers already in the field would use a virtual classroom to take courses like those provided by AVOTEC.

Along with the ASE certification, an apprenticeship program should be developed with the U.S. Department of Labor. With this program, once in the field, mechanics would log their hours working in 16 different areas, such as engines and brakes. Depending on the technical education level and experience, each mechanic would log from 2,000 to 8,000 hours of hands-on work in order to complete the program. Noncommissioned officers would serve as experienced and skilled journeymen who teach the practical skills that are learned on the job.

The schoolhouse training would be followed up in a practical way using a structured, systematic program of supervised on-the-job training. The logged hours would be verified by the supervisor, who would also monitor the Soldiers' proficiency in each area. Upon completion of the program, the Soldier would receive his journeyman mechanic's license from the Department of Labor. This certification is clearly identified and commonly recognized throughout the industry and would validate the Soldier's skill set.

Using third-party accreditation to certify that Soldiers are prepared for what they will face in the field is not a new idea. Army network operators and medics both are required to receive civilian accreditation in order to be MOS certified. It has proven to work well; our medical facilities and system networks continue to be the best of any Army in the world.

One unit, the 551st Inland Cargo Transfer Company in Korea, adapted a certification program at the unit level. The company had 11 Soldiers enroll in technical certification courses and 15 sign up for ASE testing. Using weekly study groups to help them prepare, 20 percent of the mechanics earned ASE certifications. Under the apprenticeship program, 3 Soldiers received Department of Labor certifications and 15 are actively enrolled.

A certification program similar to the one used by the 551st Inland Cargo Transfer Company needs to be phased into AIT. The program would also serve as a rule to measure maintenance collective tasks in support of a unit's mission-essential task list. It would take 2 to 4 years for each mechanic to log the required hands-on hours in each work area and complete the journeyman's certification. These tasks could be tracked and used to gauge the maintenance section's ability to support the unit's mission.

After 10 years of combat, units are learning that their mechanics need to focus as much on MOS skills as they do on warrior tasks and drills. Commanders on the ground need technically competent Soldiers who meet the needs of our very complex current operational environment. The unit-level Army lacks the resources to train to this proficiency level. Maintenance training in the Army needs to be modeled after the industry training system and meet NATEF standards. It is time for a much-needed overhaul of the Army's maintenance training program.

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The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What We Can Do About It. Joshua C. Ramo, Little, Brown and Company, New York, 2009, 279 pages.

Joshua C. Ramo's book, *The Age of the Unthinkable: Why the New World Disorder Constantly Surprises Us and What We Can Do About It*, has been given considerable attention within the Army Training and Doctrine Command for its projection of a global future characterized by accelerating and uncontrollable change, surprise, and unpredictability. Ramo contends that the "Age of the Unthinkable" will be a revolutionary era of surprise and innovation where small events can have momentous consequences for the global community.

To survive this age, Ramo suggests that we will need to think and act like revolutionaries, or else we will become victims of the revolution. Ramo's ideal revolutionaries are quick-thinking and fast-acting insurgents who wage constant war against an array of ever-present threats to their existence. "New world" thinking demands acceptance of the basic unpredictability of the coming global order and "junking" of the traditional noncreative thinking reminiscent of the "old world."

Fundamental to Ramo's new world thinking is the adoption of "deep security," a revolutionary "way of seeing, thinking, and acting that accepts growing complexity and ceaseless newness as givens." Deep security has three elements: nonlinear thinking, context, and resiliency. Nonlinear thinking is the most critical element, since access to the other two (context and resiliency) depends on one's willingness to think in a nonlinear fashion.

While linear thinking derives from the scientific method, critical thinking, and the logical approach that values objectivity, nonlinear thinking is relative to one's point of view and moves in multiple directions from multiple starting points, eschewing the possibility or the necessity of objectivity. Ramo associates linear thinking with hierarchical organizations where decisions and information originate at the top and move downward vertically and nonlinear thinking with diversity, globalization, multiple points of views, and horizontal "flattened organizations."

Ramo contends that there will be "no right final view of the world." Like others caught in the postmodern trap, Ramo leaves his readers with no good reason to believe his view. In fact, this statement constitutes the great paradox of his book. The efficacy of nonlinear thinking decreases in relation to the acceptance of Ramo's linear thought.

In regard to the relationship between the United States and Iran, Ramo maintains that "swarming it with different policies, presents a radically new kind of diplomatic pressure that is both responsive and flexible, that doesn't count on any certainties." Statements like this convince readers that "nonlinearity" is the result of Ramo's desire to draw a crowd rather than a genuine form of psychosocial behavior. If Iranian policies are not after some certainty, why bother? Once the reader blows through the pop psychology, Ramo is simply presenting different strategies, each of which begs for some measure of linear certainty.

Ramo states that resiliency will define security in the 21st century. Instead of the linear approach that tries to anticipate every possible contingency, a resilient nonlinear approach ensures adaptability and survival. Resilient people develop strong "immune system[s]" that enable them to "bounce back" from the chaotic and indeterminate nature of the new age. They are amoral and believe there is no one right way of thinking or doing. Change for them is constant and a waste of energy to resist. They ready themselves for a time when everyone will live by their own rules or be forced to live by the rules of someone else.

If Ramo's nihilistic vision of the future holds true, the nonresilient will become the wreckage of bygone civilizations. For the more hopeful, Ramo fails to substantiate the premise of his book—that there is something uniquely special about the new age. Much of the strength of his argument lies in anecdotal evidence generated to convince readers that he is a wise and tenured world traveler who has talked to the right people.

Linear truth be told, strands of Ramo's thought can be traced back to the intellectual mood at the turn of the 20th century among Social Darwinists like William Graham Sumner who made glib assertions about the "survival of the fittest" and the sappy intent of Congress to interfere with the liberty of mine operators employing 10-year-old boys. Henry Adams, Sumner's more thoughtful contemporary, worried about the "law of acceleration" that was whirling society out of control and causing it to break into an incalculable number of pieces. He thought it might "require a new social mind" to put it all back together, but he saw nothing to suggest the mind would not react. He was certain, however, that "it would need to jump."

The mind did jump, and there is no good reason to believe it will not do so again. Ramo is not the first to experience the confusion and uncertainty of a world in rapid or even unpredictable transition, nor will he be the last.

Stephen E. Bower, Ph.D., is the command historian at the Army Soldier Support Institute at Fort Jackson, South Carolina.

Functional Area 90 Officially Replaced by Logistics Branch as Part of Logistics Officer Changes

On 14 September 2010, the Army G–1 published Notification of Future Change O–1010–02, "Deletion of Functional Area (FA) 90 (Logistics); Establishment of Branch (BR) 90 (Logistics) and Revision of Branch 88 (Transportation Corps), Branch 91 (Ordnance), and Branch 92 (Quartermaster)" to Department of the Army Pamphlet 611–21, Military Occupational Classification and Structure.

This notification officially establishes the documentation of logistician positions and is an ongoing action, continuing from the establishment of the Logistics branch on 1 January 2008.

The significant changes listed in this notification include revising the area of concentration (AOC) specifications for 90A (Logistics). All captain to colonel positions documented in authorization documents as transportation (88A, 88B, 88C, and 88D), ordnance (91A), and quartermaster (92A and 92F) will be transferred to AOC 90A with the current basic functional branch listed as the secondary code effective on and after 1 October 2011. This is for all components.

Personnel in the grade of captain who complete the Combined Logistics Captains Career Courses (CLC3) (Active duty or Reserve component courses) will be transferred to AOC 90A and will retain their basic branch as their secondary AOC.

Transportation personnel in the grade of captain who have not completed CLC3 or any logistics Reserve component captains career course will be reclassified to AOC 88A in the interim and then will be reclassified to AOC 90A with branch 88 as the military occupational specialty code upon completion of one of the two above courses.

Another provision calls for all remaining personnel in the grades of major through colonel who are currently classified as transportation, ordnance, and quartermaster officers to be reclassified to AOC 90A and retain their basic branch as the secondary AOC position of the military occupational specialty code. This action will be completed no later than 30 September 2011 and includes all components.

For the remaining transportation officers in the grade of lieutenant, AOCs 88B (traffic management), 88C (marine and terminal operations), and 88D (motor/rail transportation) are deleted and all officers will be transferred to AOC 88A (transportation general).

Quartermaster officer specifications for 92A (quartermaster general) will also be revised. The notice deletes AOC 92F (petroleum and water) and establishes R8, petroleum and water, as a skill identifier associated with AOC 90A. The already existing skill identifiers R9, aerial delivery and materiel officer (rigger), and 4V, mortuary affairs, will transfer to be associated with AOC 90A as well.

Therefore, effective 1 October 2011, all authorizations for logistics officers in the grades of captain through colonel will appear on authorization documents (tables of organization and equipment or tables of distribution and allowances) as 90A.

Requirements for functional positions will remain. However, a functional billet, such as a maintenance officer, will be listed on the authorization document as 90A91. The authorization for a petroleum operations officer will be documented as 90A92 R8.

For more information, contact Lieutenant Colonel Kimberly Darby at the Logistics Branch Proponency Office, Army Combined Arms Support Command and Sustainment Center of Excellence, by calling (804) 734–0315.

Army Hospital Shelves Paper Processes for Digital Supply System in Afghanistan

In August, the 31st Combat Support Hospital (CSH) at Camp Dwyer, Afghanistan, became the first Army facility in Southwest Asia to use the Defense Medical Logistics Standard Support (DMLSS) system—an automated medical logistics (MEDLOG) system used to support inventory management and property accountability in medical treatment facilities. The system was emplaced with the help of the DMLSS fielding team, composed of representatives from Medical Communications for Combat Casualty Care (MC4) and the 6th Medical Logistics Management Center at Fort Detrick, Maryland.

DMLSS provided the CSH better visibility and management of its medical supplies and supply chain, as well as the capability to process thousands of transactions electronically. With this new system, the 31st CSH improved its business processes and shelved old methods that used paper forms.

Sergeant First Class Enoc Santos, a member of the DMLSS fielding team, said that processes were much different before DMLSS. "Every morning, medical personnel throughout the hospital and remote locations hand-carried orders on paper forms to the medical supply section," Santos said. "Clinicians filled the orders by walking the aisles like they were at a neighborhood grocery store. They pulled the items ordered and additional supplies just in case. If a ward ran low on supplies, someone walked to the medical supply section to restock."

The steady stream of clinicians through the medical supply section made stock management difficult. Interruptions caused delays in reordering supplies,

and MEDLOG personnel regularly walked the aisles to update the levels of provisions on hand.

Before implementing DMLSS, the MC4 team conducted a wall-to-wall inventory that further proved the need for a digital management system. The remote treatment facility had enough medical supplies on hand to fill orders for dozens of treatment facilities throughout Afghanistan.

After the installation of DMLSS, orders were submitted electronically. In one week, the unit digitally processed more than 1,500 transactions, compared to the approximately 900 it had averaged before using DMLSS.

The system enables a new proactive business model that allows customers in remote locations to receive supplies directly. Previously, the CSH received orders and then routed supplies forward to these locations. This change reduced the inventory stored by the CSH.

With DMLSS empowering hospital wards to manage their own stock without visiting the supply section, users can focus more time on patient care. DMLSS also provides ward staff with the capability to search electronically for supplies to borrow from other hospital wards if orders are delayed.

Commanders responsible for supply management and oversight have also gained an advantage through better visibility of the global supply chain. Data entered into DMLSS feeds into the Joint Medical Asset Repository. It serves as the roll-up reporting tool for medical supply management, similar to how the Joint Medical Workstation helps with medical care surveillance.

PROFESSIONAL DEVELOPMENT

New Warfighter Training Support Packages Available From the Army Soldier Support Institute

The Army Soldier Support Institute (SSI) at Fort Jackson, South Carolina, has released its first three warfighter training support packages (WTSPs) on collective tasks: "Plan Theater Postal Support," "Perform Disbursing Operations," and "Conduct Casualty Operations."

The WTSPs are available on S1Net at https://forums.bcks.army.mil/CommunityBrowser.aspx?id=1128699; Financial Management (FM) Net at https://www.us.army.mil/suite/page/622772 (under FM Training); and at the Army Training Network (ATN) website at https://atn.army.mil.

These WTSPs provide basic knowledge of mail delivery, financial disbursing operations, and casualty operations. The training materials within each package include the collective tasks, supporting individual tasks, lesson plans, Microsoft PowerPoint slides, practical exercises and solutions, handouts, and reference materials. Individuals must be Army Knowledge Online account holders in order to access these training materials.

In January 2010, the SSI Training Development Directorate embarked on a mission to develop WTSPs for the Adjutant General (AG) and FM collective tasks, with the objective of providing standardized training products for all AG and FM units to use in conducting section and team training. "Plan Theater Postal Support" and "Perform Disbursing Operations" were selected as the first WTSPs to be developed, based on feedback obtained from field units during the Silver Scimitar training exercise and a December 2009 FM Training Summit.

These WTSPs can be used collectively or individually to assist AG and FM Soldiers in gaining, maintaining, and improving their technical proficiency to perform the individual and collective tasks required to accomplish their wartime mission.

WTSPs are intended to supplement the units' approved combined arms training strategy. Because WTSPs have no set sequence or mandated requirement to the WTSPs, unit trainers and leaders should first assess the training status of their trainees to select the appropriate starting point and topics for training.

One attribute of these WTSPs that is helpful to Reserve component (RC) units is the estimated "academic hours" provided for each lesson plan and allocated by training sessions. Although RC units use the same combined arms training strategy as Active component units, these allocated academic hours can serve as a guideline for scheduling technical training. RC units must acknowledge when they may require several drill periods to complete a specific task.

The SSI staff continues to work on future WTSPs, including "Casualty Liaison Team Activities," "Provide Postal Services," "Perform Transient Personnel Accountability," and "Conduct Commercial Vendor Operations." As the WTSPs become available, they will be posted in both the FM and S1Net and on the ATN network.

For more information on SSI WTSPs, contact Chandra.Coleman@conus.army.mil or call (803) 751–8287.

The 319th Transportation Company non-commissioned officer-in-charge of the mobile redistribution teams for Operation Clean Sweep inspects excess supplies with a chief petty officer from Riverine Squadron 1 in Basra, Iraq, on 4 November. *(Photo by SPC Raymond Quintanilla, 305th MPAD)*

"The use of DMLSS helps senior leadership to better manage the global MEDLOG efforts," Santos said. "Since commanders have visibility of the entire supply chain, they can take action to rectify a variety of issues, ranging from transportation problems to moving critical supplies to another part of theater."

Operation Victory Sweep Continues Efforts To Use Army Resources Wisely

To purge excess equipment from Camp Basra, Iraq, and reallocate it to fill needs elsewhere, the 1st Infantry Division and mobile redistribution teams initiated Operation Victory Sweep on 1 November 2010. Captain David Shaffer, the supply and services officer-in-charge, said the division accomplished the mission by reevaluating units' excess assets and reducing the number of future supply purchases.

"Victory Sweep is a continuation element of Operation Clean Sweep One," Shaffer said. "It's a theater-wide mission comprised of mobile redistribution teams inspecting and consolidating all excess supplies at individual sites, then reintegrating them for forward movement."

According to Schaffer, in less than a week, the redistribution team at Camp Basra was able to clear 45 containers and reintegrated nearly $200,000 worth of supplies.

Redistribution teams began the first Victory Sweep operations in April. "In April, we drew excess property from the entire base and processed several containers full to the brim of [vehicle equipment], ranging from nuts and bolts to axles for tactical vehicles, including a few engines," observed Captain Andrea So, the logistics officer of Headquarters and Headquarters Battalion, 1st Infantry Division. "It returned more than $5 million…to the supply system."

The early 2010 mission and a September mission reentered assets into the supply system valued at nearly $7.5 million, according to So. Items not needed on ground will be shipped to warehouses, which may be

Upcoming Event

AUSA To Host Institute of Land Warfare Sustainment Symposium and Exposition

The Association of the United States Army (AUSA) Institute of Land Warfare Sustainment Symposium and Exposition is scheduled to be held from 10 to 12 May 2011 at the Greater Richmond Convention Center in Richmond, Virginia. For more information or to register, visit the AUSA website at www.ausa.org.

used to fill requisitions elsewhere in Iraq or Afghanistan. Items not serviceable will go for repairs or to the Defense Reutilization and Marketing Office.

Victory Sweep not only re-allocates resources. According to So, Victory Sweep is also preparing the bases in U.S. Division-South for eventual closure and transfer to the Government of Iraq.

Team Aids Camp Bucca Base Closure

A base closure assistance team (BCAT) comprising logisticians trained in base closure projects prepared the 1st Infantry Division to hand over Camp Bucca, Iraq, to the Iraqi government. The BCAT worked with the engineers and logistics shops to answer questions from military units and civilian contractors regarding accountability and equipment and infrastructure.

Tasks included in the closure were movement of troops and civilians; initial, preliminary, and final stage planning by base environmental specialists; a thorough inventory of military- and contractor-owned equipment; and the reduction of food, laundry, and Internet services.

The Camp Bucca base closure began in April 2010 with the transfer of the Theater Internment Facility. The base was completely transferred to the government of Iraq in December.

Writing for *Army Sustainment*

If you are interested in submitting an article to *Army Sustainment*, here are a few suggestions. Before you begin writing, review a past issue of *Army Sustainment*; it will be your best guide. Then follow these rules:

- ❑ Keep your writing simple and straightforward (try reading it back to yourself or to a colleague).
- ❑ Attribute all quotes.
- ❑ Identify all acronyms, technical terms, and publications (for example, Field Manual [FM] 4–0, Sustainment).
- ❑ Do not assume that those reading your article are necessarily Soldiers or that they have background knowledge of your subject; Army Sustainment's readership is broad.
- ❑ Submissions should generally be between 800 and 4,000 words. (The word limit does not apply to Spectrum articles. Spectrum is a department of Army Sustainment intended to present researched, referenced articles typical of a scholarly journal.)

Instructions for Submitting an Article

- ❑ Army Sustainment publishes only original articles, so please do not send your article to other publications.
- ❑ Obtain official clearance for open publication from your public affairs office before submitting your article to Army Sustainment. Include the clearance statement from the public affairs office with your submission. Exceptions to the requirement for public affairs clearance include historical articles and those that reflect a personal opinion or contain a personal suggestion.
- ❑ Submit the article as a simple Microsoft Word document—not in layout format. We will determine layout for publication.
- ❑ Send photos and charts as separate documents. Make sure that all graphics can be opened for editing by the Army Sustainment staff.
- ❑ Send photos as .jpg or .tif files—at least 300 dpi. Photos may be in color or black and white. Photos embedded in Word or PowerPoint will not be used.
- ❑ Include a description of each photo submitted and acronym definitions for charts.
- ❑ Submit your article by email to leeealog@conus.army.mil or by mail to—

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