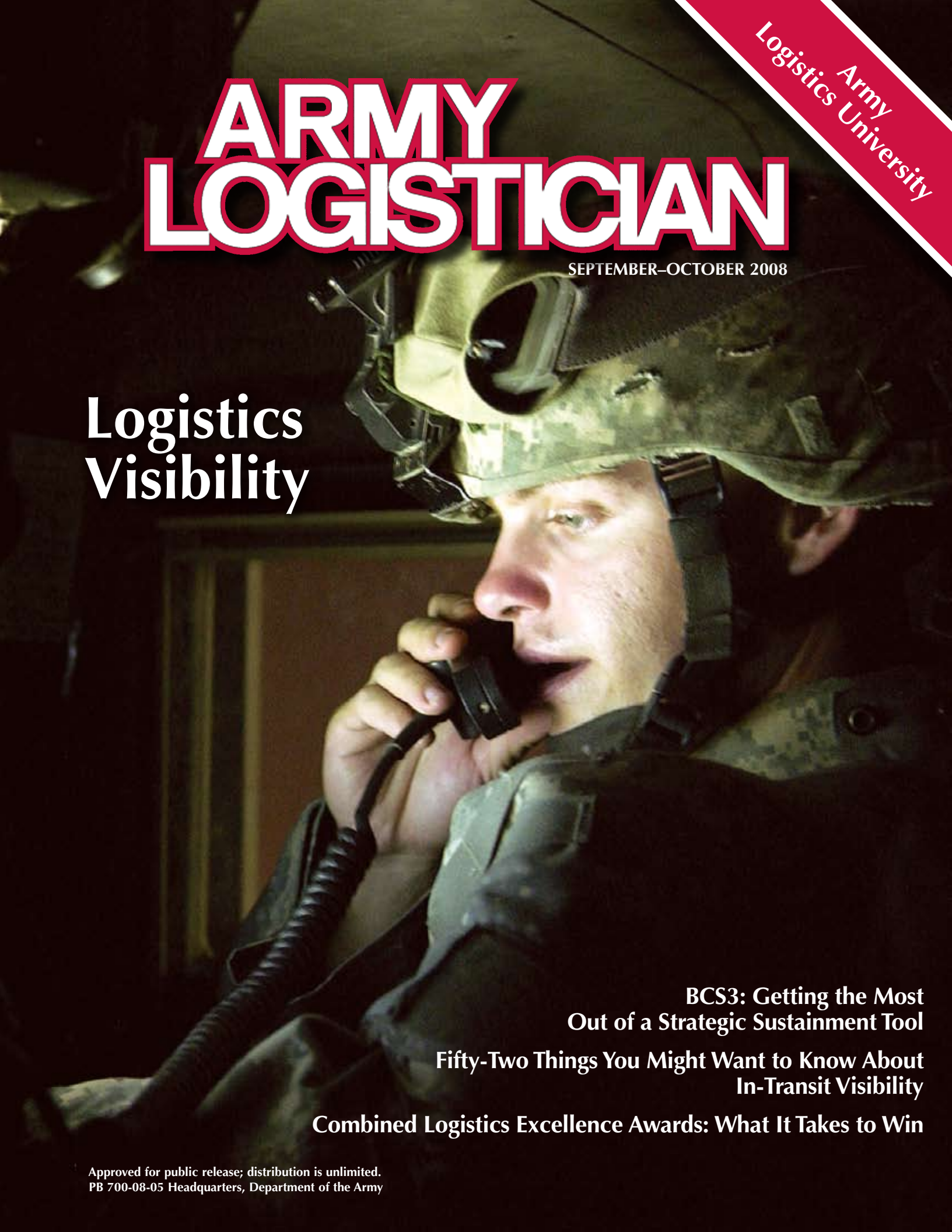
Army Logistics University

ARMY LOGISTICIAN

SEPTEMBER–OCTOBER 2008



Logistics Visibility

BCS3: Getting the Most Out of a Strategic Sustainment Tool

Fifty-Two Things You Might Want to Know About In-Transit Visibility

Combined Logistics Excellence Awards: What It Takes to Win

ARMY LOGISTICIAN

PROFESSIONAL BULLETIN OF UNITED STATES ARMY LOGISTICS

PB 700–08–05
VOLUME 40, ISSUE 5
SEPTEMBER–OCTOBER 2008

Cover: Earlier this year, General Norton A. Schwartz designated 2008 as the U.S. Transportation Command's "Year of Visibility." The articles beginning on pages **2, 4, 6,** and **10** focus on asset visibility and in-transit visibility, which are critical to Army logistics operations. To maintain communication and in-transit visibility, Soldiers in the field use radios and systems like Blue Force Tracker, Force XXI Battle Command Brigade and Below, and Movement Control System. In the cover photo, a Soldier watches his Blue Force Tracker while communicating with other Soldiers in his convoy.

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

By Order of the Secretary of the Army:

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REPLY TO
ATTENTION OF

June 30, 2008

Dear *Army Logistician* Readers:

The establishment of the Logistics branch at the beginning of this year confirms what has become obvious in the transformation to a modular force: The Army has an increasing requirement for multifunctional logisticians. While the need for Soldiers skilled in single functional areas remains strong at all levels, the demands of the modern battlefield require logistics warriors who have an integrated view across the spectrum of sustainment and can ensure that our warfighters have what they need, when they need it—every time.

The transition to a multifunctional logistics world is intellectually challenging for all members of the Army logistics community. It requires that all logisticians—Soldiers, civilians, and contractors—know what is happening in Army and joint logistics, learn from the experiences of others, share their experiences with their peers, and engage in a continuing process of professional development.

I believe that *Army Logistician*—the Army's professional bulletin for multifunctional logistics—can make a significant contribution to the process of developing multifunctional expertise. As the new commander of the Army Combined Arms Support Command and Fort Lee, I also serve as the chairman of the *Army Logistician* Board of Directors. In this position, and as a career logistician myself, I encourage you to support and make use of *Army Logistician*. Read it and write for it. It is not only a medium for providing information to the Army logistics community—it is also a forum for logisticians to discuss issues, communicate lessons learned, and suggest better ways to do things.

The *Army Logistician* website at www.almc.army.mil/alog allows you access to the current issue as well as all past issues. If you have written a research paper on a logistics topic that you think will be of interest to your fellow logisticians, consider submitting it for publication in the bulletin's Spectrum department. If you want to comment on an article in *Army Logistician*, you can post your thoughts on LOGNet, where *Army Logistician* has a topic site; you might even open a dialog with your colleagues.

In this time of change and challenge, as the Army transforms even as it prosecutes a war, every logistician must be constantly learning, thinking, and developing. I hope you will see *Army Logistician* as *your* professional journal. Don't just read it—take ownership of it.

James E. Chambers
Major General, US Army
Commanding

An Integrated Enterprise Approach to AIT

BY DAVID L. DIAS AND TIMOTHY P. RINGDAHL

The commanding general of the U.S. Transportation Command has named 2008 the command's "Year of Visibility." The designation highlights Department of Defense efforts to coordinate the use of automatic identification technology throughout the supply chain.

Asset visibility and in-transit visibility are critical enablers to the logistician's support of the warfighter. Military commanders have had a requirement for asset tracking for as long as there have been armies. Various tools have been developed over the years to help logisticians track assets, with the most recent being the Department of Defense's (DOD's) suite of automatic identification technology (AIT) devices and the automated information systems those devices feed.

It is usually the case that new or revised business processes are needed to reap the maximum benefits from emerging technology. Operating new technology under old rules may not best leverage the technology's capability and often results in dual business processes operating simultaneously, to the frustration of the logistician. With that in mind, DOD continues to develop an enterprise-level approach to synchronizing the AIT efforts of its various organizations.

Moving to an Enterprise Approach to AIT

A 2005 Government Accountability Office (GAO) report highlighted many gaps within the DOD AIT community, but much progress has been made since then. Even before that report, DOD was moving toward an enterprise approach. In September 2003, the Secretary of Defense designated the U.S. Transportation Command (TRANSCOM) as the DOD Distribution Process Owner (DPO), chartering TRANSCOM to facilitate DOD's supply-chain management activities and modernization. As a natural follow-on to that action, in 2006 TRANSCOM was appointed the lead proponent for radio frequency identification (RFID) and related AIT implementation in the DOD supply chain. The partnership over the years among the military services, the Defense Logistics Agency (DLA), the Office of the Secretary of Defense, the combatant commands, and TRANSCOM has moved DOD from an agency-centered approach to AIT implementation (each agency acting independently) to a more methodical enterprise approach.

In his 2008 TRANSCOM Commander's Guidance, Air Force General Norton A. Schwartz stated, "In 2007, USTRANSCOM, its Service components and our enterprise partners made significant progress in advancing and maturing the Joint Deployment and Distribution Enterprise." To build on that momentum, General Schwartz designated 2008 as the command's "Year of Visibility," which will bring an even greater focus on enhancing end-to-end visibility throughout the deployment and distribution process. Two new planning documents do just that, providing direction for recently established interdepartmental teams to transform visions into tangible AIT benefits.

AIT Concept of Operations

The first of the planning documents is the DOD Automatic Identification Technology Concept of Operations [CONOPS] for Supply and Distribution Operations. Published in June 2007, the CONOPS codifies DOD's vision for the use of AIT in support of supply and distribution operations.

The CONOPS identifies a primary and backup AIT device for each consolidation layer. "Consolidation layer" refers to the "layers" at which an item is progressively consolidated with other items for shipment as it moves through the distribution pipeline. The item is individually packaged; the package then is consolidated with other packages in a carton or box; the carton is consolidated with other cartons for shipment on a pallet or tri-wall package; the pallet or tri-wall is consolidated with other pallets or tri-walls in an intermodal container; and finally, the container is moved through various supply-chain nodes (truck, train, aircraft, or ship).

The backbone of this process is a blend of two-dimensional symbols, passive RFID tags, and active "license plate" RFID tags; together, they provide

The backbone of this process is a blend of two-dimensional symbols, passive RFID tags, and active "license plate" RFID tags; together, they provide in-the-box visibility by connecting to databases.

in-the-box visibility by connecting to databases. [A passive tag does not contain a battery; power for reading a passive tag is supplied by a reader. An active tag is powered by its own battery. "License plate" refers to active tags that have a unique tag identification number but contain no usable memory.] Current data-rich active tags will still be available and can be used whenever a combatant command or service determines lack of communication connectivity requires their use. [A data-rich tag contains an electronic manifest of the shipment in the tag memory.]

The CONOPS also identifies premium AIT for unique items, such as perishables and temperature-sensitive pharmaceuticals, and for situations where security is a priority, conditions are austere, or real-time visibility is required. Premium AIT includes satellite, cellular, and sensor technology and active data-rich tags.

AIT Implementation Plan

Nine months after the AIT CONOPS document was issued, in March 2008, TRANSCOM followed with the second guiding document, the "DOD Automatic Identification Technology Implementation Plan for Supply and Distribution Operations," which serves as a roadmap for transitioning from the current AIT environment to the 2015 environment envisioned in the CONOPS. The plan will be implemented in three stages, or spirals. Currently, DOD is executing spiral 1 of the AIT Implementation Plan; it will move to spirals 2 and 3 as the spiral 1 milestones are reached.

The DOD AIT Implementation Plan effort hinges on five business process task teams, each consisting of representatives from various DOD activities. The Wholesale Team, led by DLA, will identify gaps in the front end of the supply chain. The In-Theater/Retail Team, led by the Navy, focuses on the tactical level of distribution processes at the delivery end. The Strategic Distribution Team, led by TRANSCOM, will focus on processes at airports, seaports, and Army and Air Force Exchange Service, Navy Exchange Command, Defense Commissary Agency, and DLA prime vendors. The Unit Move Team, led by the U.S. Joint Forces Command, will address unit deployment and redeployment business processes and policies. Pulling it all together is the Global Team, which will integrate the work of all of the other teams. The Global Team is led by TRANSCOM and the Office of the Secretary of Defense, and its membership includes the chairs of the other four teams. The AIT Implementation Plan also establishes an AIT Synchronization Integrated Process Team to act as a forum for sharing information within the broader DOD AIT community.

During the next year, numerous initiatives will move the AIT enterprise forward. Incorporating passive RFID and transitioning the active RFID network are two major efforts. Testing of satellite technologies will also continue. DOD's active RFID network migration from industry-unique, proprietary standards to open, international standards is critical. This migration will enhance the ability of DOD's active RFID infrastructure to provide asset visibility, improve the efficiency with which information is stored on the tags, and align DOD with international agreements on logistics in combined operations. Passive RFID will continue to be tested and implemented where it provides benefits. Integrating passive RFID data with the services' automated information systems using middleware is a challenging but important step. Passive RFID data will link with pertinent supply and transportation data, which can be accessed using DLA's Asset Visibility application.

Although implementing new AIT technologies and refining the use of more mature visibility tools can be a difficult process, DOD continues to expand and reap benefits from AIT use. Undoubtedly, many bumps will occur in the road ahead, but the comprehensive AIT management approach that is unfolding can only result in an even more transparent and efficient supply chain to support the warfighter. **ALOG**

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Timothy P. Ringdahl works for SRA International, Inc., supporting the U.S. Transportation Command Asset Visibility Division. A retired Air Force lieutenant colonel, he has a B.A. degree in mathematics from the College of the Holy Cross and an M.S. degree in operations management from the University of Arkansas.

BCS3: Getting the Most Out of a Strategic Sustainment Tool

BY LIEUTENANT COLONEL S. ERIC STEWART

The Resources and Sustainment Directorate (R&S) of the Multi-National Force-Iraq (MNF–I) is charged with providing unique solutions to the problems that arise between the strategic and operational levels of logistics. As the support operations section for the MNF–I commander, R&S often has to react quickly to a multitude of information requests from the strategic commander in theater. MNF–I is not a traditional joint staff, and R&S does not have the same automated sustainment systems that reside in most joint staffs. Instead, R&S uses the Battle Command Sustainment Support System (BCS3) to develop logistics solutions when doctrine is not sufficient.

BCS3 Capabilities

As a link between strategic logistics organizations and the in-theater warfighter, MNF–I requires awareness of the logistics common operating picture within Iraq and worldwide. BCS3 helps meet this requirement by providing a global view of in-transit visibility (ITV) systems and logistics activities. BCS3 also directly supports MNF–I's ability to analyze trends in existing distribution systems and develop initiatives that help logisticians focus on providing sustainment support to their customer units.

The MNF–I R&S is using BCS3 capabilities to track various strategic initiatives, like the use of private security company convoy escorts, the development of commercial railroad use in Iraq, the expansion of port operations at the Umm Qasr port, and the distribution of lower priority cargo through the border crossings to Jordan and Turkey. BCS3 also allows the R&S Sustainment Fusion Center to evaluate the effectiveness of new lines of communication (LOCs) by providing access to radio frequency identification (RFID) interrogator location information, which mobility planners use to determine how much equipment passes through a port or border crossing.

BCS3 also allows planners to work with the logistics automation staffs to determine the optimal locations for interrogators. All of these are initiatives that benefit the strategic goals of improving the transportation infrastructure of Iraq, adding efficiency to coalition distribution processes, and ensuring that every LOC is available to the commander.

Tracking Commercial Security Escorts

MNF–I has spearheaded the strategic initiative of tracking armed escorts for contracted sustainment convoys. These escorts are provided by private security companies that are registered with the Army Corps of Engineers Gulf Region Division Logistics Movement Control Center (LMCC). BCS3 has allowed MNF–I to determine the routes that best accommodate these commercial security escorts. The ability to pass the information provided by BCS3 to the battlespace owners (generally, the brigade or regimental combat teams) ensures that the commercial escort teams are fully integrated into the route security plan and helps to prevent friendly fire incidents.

The link between the commercial escorts and BCS3 is Tapestry Solutions' Global Distribution Management System (GDMS), located in the LMCC operations center (in Baghdad's International Zone). GDMS

Military personnel observe private security company movements on an unclassified BCS3 display in the Sustainment Fusion Center of the Resources and Sustainment Directorate, Multi-National Force-Iraq.

tracks civilian vehicle transponders that are required for all private security companies operating on behalf of U.S. forces. Like BCS3, GDMS tracks civilian transponders on a graphic interface; however, it lacks the BCS3 capabilities of pulling information from Standard Army Management Information Systems (STAMISs) and gathering ITV information from RFID tags. GDMS, an unclassified system, provides real-time linkage into BCS3 through Tapestry Solutions' servers located in San Diego, California, and those servers push data to the BCS3 servers located at Fort Belvoir, Virginia. GDMS is strictly for civilian use and is not capable of tracking military transponders. GDMS, in conjunction with BCS3, gives battlespace owners a better operating picture of purely civilian convoys moving through their areas of responsibility.

BCS3 Applications

BCS3 has allowed R&S to complete its tasks quickly and efficiently. When R&S mobility planners were seeking new border crossings between Kuwait and Iraq to accommodate the expansion of coalition activities in the southeastern region of Iraq, BCS3 was a valuable asset. Finding potential border crossings could have taken weeks because planners would have had to dig through different maps and wait on requested satellite photos. The BCS3 map option allowed the locations for border crossings to be identified within an hour and different courses of action to be presented to the strategic distribution agencies within a day. The planners were able to determine the routes, distances, and border crossing points without time-consuming requests to geospatial elements and without having to maintain a space-consuming and rarely used map library.

A functional rail system is the lifeblood of any nation, and Iraq is no different. MNF–I has used BCS3 to track rail movements from Baghdad to the Umm Qasr port. The benefit of BCS3 during the rail mission was that the MNF–I mobility staff was no longer entirely reliant on Iraqi Republic Railroad (IRR) reports, which describe a train's progress as it travels into a station. In one instance, the MNF–I R&S rail planning team learned through BCS3 that a train had in fact stopped less than a kilometer from its destination, and the team was able to send out the appropriate queries to the IRR before its staff knew there was a problem.

Classified and Unclassified Versions

BCS3 has both secure and unsecure versions. The secure version connects to the Army Battle Command System, notably Blue Force Tracker. The unsecure version connects directly to STAMISs, such as the Standard Army Maintenance System and the Standard Army Retail Supply System. When information is sent from an unclassified system, it takes about 2 to 4 hours for it to reach a classified system. This means that units must be aware of which type of system they are using and remember that what is on the unclassified version may not always be on the classified version in real time.

Two officers use BCS3 to develop border crossing courses of action.

As with any system, BCS3 has some shortcomings that strategic-level users need to take into consideration. BCS3 does not fully integrate joint information systems. This means that joint staffs do not have complete asset visibility for all of the common commodities that the services have on hand. Also, the information that comes out of BCS3 is only as good as the information that is entered into the system. Not all support units fully understand the powerful capabilities of the BCS3 system, and it takes considerable discipline on the part of commanders to integrate BCS3 fully. The MNF–I R&S experience with BCS3 has been very positive, and the system is used daily to provide immediate answers to questions and to give R&S a full understanding of what is happening on the battlefield. **ALOG**

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Sense and Respond: Military Logistics in a Global Security Environment

BY MAJOR MICHAEL F. HAMMOND

This article, the first in a series of three on sense and respond logistics, focuses on how the current global security environment requires logistics planners to emphasize in-transit visibility, real-time information, and responsive support to the warfighter.

During the Cold War, the U.S. military spent billions of dollars preparing for a conventional land war on the European continent that could occur in response to a Soviet invasion. After the fall of the Soviet Union and its satellite countries, the threat of another world war seemed implausible and U.S. political leaders began to downsize the military.

But the attacks on 11 September 2001 brought a renewed focus on military capabilities to meet a new threat: global terrorism. Military planners then recognized the need for a reconfigured military structure with more expeditionary units, a paradigm shift in training the force, and a general shift in the thought process behind planning, including logistics planning. The recently downsized U.S. Army had to operate jointly with the Marine Corps, Navy, and Air Force to meet the new threat to the Nation's interests. This joint force mentality is crucial to success in today's complex and uncertain security environment—an environment that is global in nature and displays the characteristics of a new set of threats.

New military applications and thought processes continue to change and transform our military forces. One of those concepts is "sense and respond" logistics. Sense and respond logistics is a network-centric concept that enables logistics planners to provide precise logistics support to the warfighter. Soldiers use sense and respond to predict, anticipate, and coordinate a full range of logistics processes, giving the combatant commander numerous options to plan mission support. Military logisticians are using sense and respond to plan logistics support for combat troops who face unknown threats in an insurgent environment.

The Current Global Security Environment

The current global security environment represents a new set of challenges and threats never before faced by our country. These threats and challenges change the way military leaders plan and execute wars. The threats are broader in nature and include global, regional, and even local threats. The enemy is multidimensional in its approach, flexible in nature, politically perceptive, and technologically advanced. This enemy does not fight wars based on the values that guide our fighting forces. This enemy uses primitive yet brutal tactics and inexpensive weaponry to produce large-scale catastrophic results. From a national perspective, the challenges from this emerging global security environment require U.S. military planners to regard their homeland as a potential battlespace and consider the need for logistics support for homeland defense.

Political and military leaders must prepare a diverse, complex set of force capabilities that responds to actual and potential challenges and threats. Moreover, planners must emphasize force projection, including sea and shore warfare, pre-positioned resources, and forcible entry. Planners must also prepare for enemy use of weapons of mass destruction. Military leaders must maintain simultaneous awareness through information technology, integration, and accommodation at the strategic, operational, and tactical levels of war. Most importantly, planners must continuously adapt to the evolving sophistication of enemy threats.

Sense and Respond Logistics

The sense and respond concept is the newest approach to military logistics. This concept challenges logisticians to transform their capabilities to meet the current global security threat.

In past wars, logisticians took the mass approach to logistics by building huge stockpiles of equipment and supplies before the combatant commander began a ground or air war. Instead of sense and respond,

The end for which a soldier is recruited, clothed, armed, and trained, the whole objective of his sleeping, eating, drinking, and marching is simply that he should fight at the right place and the right time.

—Major General Carl von Clausewitz
On War, 1832

logisticians used "applied days of supply" as a metric. For Operation Desert Storm, military planners built a 60-day stockpile of supplies before commencing the ground war. During the 2003 invasion of Iraq, logisticians built a 7-day supply for the invasion force. Stockpile logistics may still work in an environment where demand is predictable and stable and the tactical situation permits a significant buildup.

The requirements for a modernized logistics approach to a global security environment include a prioritization for support at the most effective point and a streamlined supply process that includes using civilian contractors on the battlefield. Logisticians should use suppliers that can conduct logistics in an environment that focuses on speed, quality of effects, and adaptability. Logistics planners must provide planning and support that is focused on the commander's intent and that provides a common logistics picture for everyone on the battlefield. Logistics support planning must take into consideration rapid force deployment capabilities, including flexible basing of supplies.

Under these circumstances, what does sense and respond offer the military planner? How does sense and respond fit into the global security environment? What are the strengths of sense and respond logistics? Sense and respond offers an adaptive and responsive approach to logistics. The prime benefits of sense and respond logistics are the speed and quality of its effects on the battlefield. The supply requirement on an insurgent battlefield with no boundaries produces a very unpredictable demand for the planner. The logistician must realize that the commander's intent will change based on the strategic and tactical situation in the field. Likewise, the combatant commander must synchronize his military tasks with support capabilities and recognize the operational risk caused by the logistics situation.

Sense and respond logistics operates as a modularity concept. Logistics support is based on capabilities that are inherent in the modular support units on the ground rather than in the service and organizational elements. Sense and respond logistics requires integrating logistics into the planning processes of the combatant commander. Cohesive support units integrated into a network-centric information-sharing process can provide a common operating picture for the commander and an early awareness and warning of consumption rates on the battlefield.

The Shift Toward Sense and Respond

Although sense and respond logistics is not yet accepted in mainstream military logistics planning, it is critical to the overall success of military operations and must be further investigated and integrated in future military planning. Sense and respond is making its way into planning circles. Operation Desert Storm and Operation Iraqi Freedom (OIF) both saw significant growth in logistics planning at the strategic level.

The changes in logistics planning since Operation Desert Storm depict a shift toward sense and respond logistics. First, stockpiles of supplies were reduced from 60 days of supply during Operation Desert Storm to 5 to 7 days of supply kept on hand during OIF. Second, using the newest technology to improve total asset

Equipment arrives for the 2d Brigade Combat Team, 101st Airborne Division (Air Assault), at Camp Striker, Iraq. In order for sense and respond to work, Soldiers must have real-time visibility of where critical supplies are on the battlefield.

visibility and a joint approach to logistics resupply by every service both point toward a concept resembling sense and respond.

What were the indicators of a shift toward sense and respond logistics in OIF? What went well, and what should the U.S. military focus on while fighting the Global War on Terrorism? First, logistics supply is conducted through a joint approach with the services represented on the ground. Second, support units and their commanders push supplies to forward troops based on the commander's intent. The knowledge of when to conduct modular support is derived from real-time information. Support units are integrated into information networks.

Third, the information requirements for successful sense and respond logistics are present on the battlefield, even in prototype form. Real-time information and a common picture of the logistics situation provide combatant commanders and their support units the information they need to sense supply priorities and respond to critical shortages. Fourth, before this shift toward sense and respond, a throughput metric or satisfied request was used to measure the success of a logistics operation. However, because of the speed of OIF's initial advance and then the shift toward insurgent warfare, the traditional request system failed and logisticians had to push supplies to a location based on unit situation reports.

Benefitting from Sense and Respond

Although the logistics successes of OIF point to a shift to sense and respond, it is important to examine what went wrong during the initial invasion and what sense and respond logistics could have alleviated. Significant communication problems existed among combat units and support units. Logistics planners assumed that combat units would send situational reports and supply requirements to their support units. The speed of the advance toward Baghdad severely strained communications systems and interrupted the flow of

The distribution company of the 526th Brigade Support Battalion conducts a combat replenishment operation. Using sense and respond, Soldiers can resupply units quickly, effectively, and flexibly.

The Blue Force Tracker system gives Soldiers real-time information on troop and unit placement on the battlefield. The system allows vehicle commanders to send real-time reports back to logistics planners about conditions at the destination of a logistics convoy.

information. Sense and respond requires a very robust communications system, which could have solved problems if one had been in place. A joint approach to logistics also would have solved subsequent logistics shortcomings that combat units experienced on the battlefield.

Lacking in-transit visibility of supplies before and during the invasion created problems for logistics planners. Because of an occasional lack of supply visibility and because of the actions taken by support units to compensate for a lack of visibility, 30 percent of supplies transported into theater were "invisible." Some support units resorted to building mountains of supplies for their combat units. Sense and respond logistics and the use of radio frequency identification (RFID) technology would surely have overcome a lack of visibility of supply assets. RFID asset tracking can provide 100-percent visibility of critical supplies in theater and in transit.

Military planners now must understand the global security threat that is facing our Nation. Cold War tactics and planning techniques are no longer effective. The strategic imperative of today's global security environment is the ability to maneuver from strategic distances. With the collapse of the Soviet Union and its satellite countries and the repositioning of globally-stationed U.S. troops and assets to the United States, the ability of our military to project strength in distant areas like the Middle East is much more important. The global security threat will not disappear, and power projection platforms in the United States are necessary and will become increasingly more important. A shift in military policy is critical, and a change in policy would be a good reason to adopt sense and respond logistics.

Military planners should be encouraged to further study and adopt sense and respond principles. The fear of change within the U.S. military must be overcome by the next generation of military logisticians. Cultural barriers that prohibit the adoption of sense and respond in military circles still exist and will be a detriment to future military planning in a global security environment. **ALOG**

Major Michael F. Hammond is the S–3 of the 526th Brigade Support Battalion, 2d Brigade Combat Team, 101st Airborne Division (Air Assault), which is currently deployed to Iraq. He has a master's degree in military logistics from North Dakota State University.

Fifty-Two Things You Might Want to Know About In-Transit Visibility

BY ALEXANDER F. BARNES AND RICHARD K. BOCH

Lately, many military and commercial-sector professional journals have published articles about the applications of automatic identification technology (AIT) and its use in providing in-transit visibility (ITV). These articles are valuable to some readers for the scientific information they provide, but a good number of the articles are so technically focused that they are almost unreadable and unusable for a Soldier who simply wants to know what ITV will do for him. Therefore, we have attempted to pull together a list of important things about ITV use in the U.S. military that you might find useful in sustaining or deploying your unit and maybe even a little interesting.

Facts About ITV Evolution

1. The initial requirement for ITV in the Army came from General Gordon Sullivan, Chief of Staff of the Army from 1991 to 1995. During a logistics exercise at Fort Pickett, Virginia, he said, "ITV . . . That's enough talk. We need to get on with it . . . That's all I'm gonna say."

2. The initial requirement for full data content radio frequency identification (RFID) tags came out of an Operation Desert Storm after-action report and was meant to provide inside-the-box visibility. Although estimates vary about exactly how many of the 50,000 containers that were sent to Saudi Arabia had to be opened to determine contents and destination, most Operation Desert Storm veterans will insist, "All of them—twice."

3. The first seven Army ITV server users were trained at the U.S. Department of Transportation's Volpe National Transportation Systems Center in Cambridge, Massachusetts, and each of them received a system laptop and a password to access the system. Today, *any* Soldier requiring access to the ITV server can use any computer with Internet access and log in with his Army Knowledge Online password or common access card and personal identification number.

4. The first handheld interrogators were powered by battery packs from model airplane engines and had an operational life of 30 minutes between charges.

5. The first long-distance test of active RFID tags with full data content was conducted in January 1993, when 57 ammunition containers in U.S. Army Europe (USAREUR) were tagged and tracked to their destination in Nevada. Almost immediately upon arrival, the tags were collected and returned to Europe to be used in the large joint logistics over-the-shore exercise (JLOTS 93) that would be conducted that summer. As part of this exercise, 440 armored vehicles and containers of excess materiel were tagged for retrograde from USAREUR, transported to Onslow Beach, North Carolina, offloaded, and then moved to depots and organizations in the continental United States (CONUS). The 440 tags used were the entire stock of active tags in the Army.

6. The tags used in JLOTS 93 ended up at a wide variety of destinations, including Marine Corps Air Ground Combat Center, Twentynine Palms, California; Fort Knox, Kentucky; the Department of Energy in Columbus, Ohio; and McAlester Army Ammunition Plant, Oklahoma. Recovering these tags at the end of the operation became a high priority because a request for ITV support from U.S. forces in Somalia had already been received by the Army G–4.

7. In August 1993, the Army Logistics Innovation Agency and the Army Combined Arms Support Command (CASCOM) provided seven prototype satellite tracking units to USAREUR Soldiers deploying to Macedonia on a peacekeeping mission. These tracking units, precursors to the Movement Tracking System (MTS), were meant to be used to monitor the movement of logistics support vehicles, but because of their ease of use and extremely accurate vehicle location reporting capability, they were mounted on border patrol vehicles conducting a surveillance mission. Upon completion of the mission, the tracking devices were packed into a box and sent to USAREUR, where they were lost for almost a year in storage.

8. The first pre-positioned ship to be tagged with active, full data content tags was the *Cape Decision* in December 1993 at the Port of Charleston, South Carolina. A team from the Project Manager for Ammunition Logistics and CASCOM tagged the ammunition containers using the military standard transportation and movement procedures formats for ammunition

documentation. Interestingly enough, the software that was used for burning the tags and for operating a fixed interrogator was simple enough to fit on a single 5¼-inch floppy diskette.

9. On 11 November 1993, the commander of the U.S. Logistics Support Command in Somalia sent the U.S. Central Command a message requesting the immediate deployment of an RFID ITV tracking system for the sustainment and retrograde of U.S. forces deployed there. The message requested 350 RFID tags, 5 fixed interrogators, and 3 handheld interrogators for use in Mogadishu. Within 2 weeks, the U.S. Department of Transportation and CASCOM had assembled the requested equipment and set up a network in sea and aerial ports. This equipment remained in place and provided ITV for the duration of the deployment. When the last troops left, the equipment was torn down and returned to Fort Lee, Virginia, just in time for the U.S. mission in Haiti to begin.

10. Even though it was short-lived, the Somalia RFID ITV network was notable for the unprecedented visibility it provided; even U.S. Transportation Command (TRANSCOM) staff officers at Scott Air Force Base, Illinois, dialed in each morning to see what was moving in and out of Mogadishu.

11. Perhaps because of the successful RF–ITV network in Somalia, in October 1993 TRANSCOM designated 1994 as "the Year of In-Transit Visibility." Later, in December 2004, TRANSCOM reported they were studying Santa Claus's distribution methods in the spirit of Christmas. TRANSCOM was designated the Distribution Process Owner in September 2006.

12. In January 1994, two containers of retrograde materiel from Somalia were accidentally delivered to Defense Depot Susquehanna, Pennsylvania (DDSP), instead of the Army Forces Command (FORSCOM) retrograde site at Fort Polk, Louisiana. Because the containers were tagged, their arrival was seen and reported by the DDSP interrogators. The Defense Logistics Agency (DLA) immediately turned the containers around and delivered them to Fort Polk. This was the first recorded instance of using RFID tag data to correct delivery mistakes.

13. In May 1994, the Army directed the Department of Transportation and FORSCOM to provide in-transit visibility to monitor the movement of Patriot missiles from CONUS to U.S. forces in Korea. This was the first use of satellite communications devices directly on cargo and platforms in a setting outside CONUS. Using the satellite communications devices, the movement of the ship was tracked with reports from the devices through the satellites every 4 hours. After the arrival of the missiles in Pusan, the focus shifted to watching the movement of the trains and trucks that carried the missiles to their destinations. In its after-action report, FORSCOM said, "ITV is overdue in terms of urgency of need. New and evolving technology applied to this area must serve to simplify the documentation and tracking procedures . . . This [headquarters] is committed to the ITV concept . . . resourced with the proper tools and supported by user training."

14. In January 1994, General David M. Maddox, USAREUR commander, visited the Port of Antwerp, Belgium, and later sent a message to the Chief of Staff of the Army, which included the following statement: "We need a way to scan the container to know what's inside . . . RFID tags with read/write capability . . . provide a quantum improvement to the way we do business."

15. The RF–ITV network that was set up to support Operation Restore Democracy in Haiti operated from September 1994 to June 1995. The equipment used to set up the network was previously used in the peacekeeping efforts in Somalia and Macedonia. During this operation, the first Model 410 tags with 128 kilobytes of memory were introduced for ITV use. In addition to the data capacity increase, the Model 410 introduced the ability to replace batteries without requiring any tools or removing the tag cover. When Lieutenant General Johnnie Wilson visited Haiti, he was so impressed with the ITV network and the Soldiers operating it that he wrote to the Chief of Staff of the Army, "This is a real success story as AMC [Army Materiel Command], DLA, CASCOM and the 1st COSCOM [Corps Support Command] worked in a total team effort to give our soldiers the latest technology."

16. At Charleston Air Force Base, South Carolina, in 1995, the information contained on an RFID tag was used 36 times to replace and reconstruct missing paper documents for air pallets being sent to Port-au-Prince, Haiti, from DDSP and Fort Bragg, North Carolina.

17. The daily average number of tags burned by DDSP during the Haiti support operation was 7.4. Currently, on an average day, DDSP burns tags for more than 100 shipments.

18. Soldiers using handheld interrogators were able to locate missing class I (subsistence) containers in the container yard at the Port-au-Prince port facility. By using the "search for content" query capability in the handheld device, they didn't have to open the containers to determine the contents. Several years later, a similar search in Bosnia for containers with meals, ready-to-eat led instead to the discovery of a container filled with barbed wire and engineering stakes because the container was reused but the tag was not rewritten.

19. Seal tag 15597 was used to document cargo into and out of Haiti. The same tag was later tested by the XVIII Airborne Corps on the airdrop of a vehicle—both the tag and the vehicle survived the jump.

A Fort Carson, Colorado, Soldier attaches a radio frequency identification tag to a vehicle in preparation for a unit deployment.

20. Access to power and communications at a desired interrogator site is critical. During early operations in Somalia, Haiti, and Bosnia, power and communications restrictions often led to the installation of interrogators in less than optimal locations. This caused the tags to be overinterrogated, which weakened their batteries. And, at least once during each of these operations, interrogators were knocked off the network by local rats chewing through the wires.

21. The Air Force tested the use of RFID tags and interrogators in the air. In June 1995, as part of Operation Combat Track, the Air Force installed a fixed interrogator inside one of their cargo aircraft and used it to read the tags on the cargo and report the content and pallet information to the destination airport.

22. The G–4 for Task Force Eagle in Tuzla, Bosnia, used the ITV server to monitor air pallets from DDSP arriving at Ramstein Air Base, Germany, and was able to determine his priority list based on the content listings. He then informed personnel at Ramstein of his required order of delivery. Writing about this methodology, Brigadier General Larry Lust said, "Hard to believe there could still be nonbelievers in the value of RF tags and intransit visibility."

23. In Operations Joint Endeavor, Joint Guard, and Joint Forge, over 20,000 RFID tags were used between December 1995 and July 1998. As one 1st Armored Division captain wrote, "Units who understand the benefits of RF technology typically place great confidence in the accuracy of the data that RF provides both in terms of TAV [total asset visibility] and ITV." In one documented incident, a Soldier noticed that something was leaking from a newly arrived container and used a handheld interrogator to determine that the container held potentially hazardous fluids. Soldiers with appropriate hazardous materials protective gear were able to safely unstuff the container and prevent injury to unprotected Soldiers.

24. In Operation Roving Sands '95, a group of Army Reserve Soldiers was trained in tag writing and handheld interrogator operations. Instead of marking their cargo with the tags, they used the tags as route markers for their units. They marked key or potentially confusing intersections with the tags, and thereafter convoy leaders could use their handhelds to read the tag and determine which road to follow out of the intersection. This was the first time tags remained in a fixed location and interrogators moved.

25. Although most of the current research focuses on the effects of hot weather on tags, the Army tested the effects of cold weather on tags and interrogators in exercise Northern Edge while moving from Fort Richardson, Alaska, to Fort Greely, Alaska, in February 1999. In spite of temperatures reaching –38 degrees Fahrenheit, the tags had a 96-percent successful read rate. During this same time period, the Marine Corps tested the tags in a tropical environment: Hawaii. The Marines compared the use of RFID tags to bar codes as a means to provide ITV. They reported dramatic time savings and improvement in reporting accuracy as a result of using the tags.

26. On 30 July 1999, a shipment of 14 M249 squad automatic weapons was reported missing by a materiel manager in USAREUR. The ITV server was queried using the shipment's transportation control number. The server revealed that the shipment was last reported by a fixed interrogator at the Port of Brindisi, Italy. With this information, Soldiers from the 21st Theater Support Command took handheld interrogators to the container storage yard, used their "inside-the-box" search capability, read the content data on the tags, and located the missing weapons.

Nearly 8 years later in Iraq, Soldiers with handheld interrogators were able to use inside-the-box visibility on a large group of misdirected containers. They read the tags, determined the shipping address, and then delivered the containers to the correct destination. And because of recent advances in technology, the memory card in the Model 654 tag (which provides that inside-the-box visibility) only costs about $2.50.

27. The Virginia Army National Guard conducted a prototype test of the Model 412 active tag at Fort Pickett, Virginia, in August 2002 to see if the tan-colored tag would stay in the tag holder during tactical operations. The tags were mounted using lacing wire onto the external bustles of M109A6 155-millimeter Paladin self-propelled howitzers. The tags remained in place and secure throughout all the

movement and firing rotations during a 2-month period. However, after removal, one of these tags was crushed by a forklift when the tag was accidentally left on the ground.

28. In September 2006, the first of the Model 656 container door tags were put into operation. The purpose of the container door tag was to move the main part of the tag inside the container to increase security. Having the tag inside the container prevents people from removing the tag and stealing the battery. Currently, most of these tags are used to provide ITV for containers going to Afghanistan and Iraq.

29. In 2007, the Soldiers in Iraq and Kuwait queried the ITV server over 93,000 times a month. Using the ITV server information, they were able, for example, to locate missing sniper equipment, unmanned aerial vehicle materiel that had been missing for a month, and 10 Harris radios that had been missing for 5 days.

30. In December 2007, distribution vehicles equipped with MTS+ hardware began reporting tags to the ITV server and became "interrogators on the move." Tag reports from MTS+ are easily discerned because they have MTS in the interrogator name. These reports significantly extend the range of the RFID network because they are capable of reporting the shipments they are carrying as well as other shipments that are within range.

31. In response to a request from the U.S. Pacific Command, CASCOM conducted an evaluation (an unscientific test) from November 2007 through January 2008 to determine the life expectancy of the Model 654 tag battery. Results showed that batteries were read (pinged) 187,000 to 375,000 times before dying. One of the tags reported continuously for 85 days before its battery died.

32. The USAREUR network, the oldest continuously active RF–ITV network, started with 3 read interrogator sites to support Major General Thomas Robison's battlefield distribution initiative. By the time the battlefield distribution general officer in-progress review meeting in USAREUR had finished, Brigadier General James Wright had requested that the network be expanded to 15 sites. Today, there are more than 160 fixed read sites in USAREUR alone.

Interesting Facts About ITV Today

33. Active RFID tags are reusable and durable; of the monthly average of 82,151 tags moving through the ITV system during the first 2 quarters of fiscal year 2008, 63.2 percent had been used at least once before. That means nearly two-thirds of the active tags being tracked in the system had previous missions.

34. On tag records for ITV, the "consignor" is the unit sending the shipment and the "consignee" is the unit receiving it. As a hint, remember that the long sound of the "e" in the word "receive" is the same as in "consignee."

35. In response to concerns about tag durability in cold weather operations, the original Model 410 tags received extensive testing. Seven of them were exposed to –30 degrees Fahrenheit for an hour and then frozen solid in a block of ice for 48 hours. After thawing out, the tags were tested again and all were functional.

36. The national stock number (NSN) for the Model 410 tag battery is 6135–01–301–8776, and the NSN for the Model 654 tag battery is 6135–01–524–7621.

37. An article in the Winter 1998 edition of the *Air Force Journal of Logistics* outlined the findings of a study on the effect of RFID tags on transit times for untagged Air Force shipments and tagged Army shipments. The article reported, "Army cargo had a longer transit time from APOE [aerial port of embarkation] to APOD [aerial port of debarkation] than Air Force cargo for Tuzla-bound shipments. Army shipments took 24-percent longer to transit from the APOE (Dover) to the APOD (Tuzla) than Air Force shipments to the same destination." Interestingly, the Air Force controlled the transit time for both Army and Air Force shipments, but for some reason, Army shipments seemed to take longer.

38. Transportation arrival transactions are automatically generated when the consignee Department of Defense activity address code (DODAAC) that is written to a tag matches the supported DODAAC entered on the registration page of the RF–ITV read interrogator.

39. One of the best and most complete articles about using RFID for ITV as part of unit movement and sustainment processes was published in the November–December 2004 issue of *Infantry Magazine*. The author, a former support operations officer in the 13th COSCOM, provided a checklist for units to use when looking for their gear in theater.

40. In the February 2005 edition of *Defense Transportation Journal*, the Marine Corps reported that Marines have tagged "hundreds of containers, thousands of pallets" and experienced read rates of more than 90 percent even "in hostile environments throughout the supply chain." Because of this visibility, they also have been able to reduce their "overall shipments while seeing more materiel get pushed more quickly to the end-user."

41. The Army has tested the use of passive RFID technology as another means of providing asset visibility. Initial tests were conducted in an Army National Guard warehouse, in the Army Quartermaster School's training warehouse at Fort Lee, and at the 558th Transportation Company supply support activity (SSA) at Fort Eustis, Virginia. During the fourth quarter of

fiscal year 2008 and through fiscal year 2009, a use-case demonstration of passive RFID will be conducted at the installation SSA at Fort Bragg.

42. On a typical day, the ITV server has location information on over 450,000 shipments. Over 35,000 unique tags report to the server, and the read site operational rate is 98 percent.

Helpful Hints for Using ITV

43. If you are not using your RFID tags, you can put them back into the distribution system as a free issue (condition code B) by sending them to DLA at these addresses—

Defense Distribution Center, Susquehanna
ATTN: DDSP–OMP
Warehousing Branch Bldg 203, Door 12
Mechanicsburg, PA 17055–0789

or

Defense Distribution Center, San Joaquin (DDJC)
ATTN: Transportation Office DDJC–TA, Warehouse 30
25600 S. Crisman Road
Tracy, CA 95376–5000

44. Proper site-naming conventions to use when setting up your site can be found on the documentation page of the RF–ITV tracking portal at https://national.rfitv.army.mil

45. After running a query on the ITV server, you can download your results into a spreadsheet by clicking on the spreadsheet icon on the screen. You can also cut and paste the results into a spreadsheet for further analysis or to email to another location.

46. One of the keys to tracking a unit movement easily is in the use of an operation code in the tag-burning process. Tagging your gear with just "OIF" is not specific enough, but using "OIF-Spearhead" or another similar unit keyword will allow you to segregate all of your unit equipment and track it quickly and easily. However, once you have decided on your operation code, you have to ensure all your troops spell it exactly the same way. On the ITV server, you can see examples of misspellings like "Enduring Feedom" or "Enduring Freeedom." Misspelling will cause these records to be missed when you search by operation code.

47. You can view the current and past 6 editions of the Product Manager, Joint-AIT (PM J–AIT) Operations and Training Newsletter by using your search engine to locate the CASCOM Enterprise Systems Directorate (ESD). Once you are on the CASCOM ESD website, open the ITV tab. You will also find a lot of other useful ITV tools at the same location.

48. To ensure that you receive long-term support from PM J–AIT and their field support engineers, register your read and write sites using a permanent email address, such as your Army Knowledge Online address.

49. The two most common mistakes when creating tag records or when searching tag records on the ITV server are using the number "0" instead of the letter "O" and confusing the number "1" with the letter "I." When you use queries to search for records by port or inland origin and destination codes, this mixup will cause you to miss some of the records you need.

50. The Army (Interim) ITV Policy (All Army Activities 255/2007) supports the Army's "train as you fight" philosophy. It establishes the immediate standard policy, responsibilities, and implementation of RFID capabilities. This policy requires all Standard Army Retail Supply System (SARSS) sites to tag with RFID tags selected items traveling to, from, and among SSAs and maintenance depots for retrograde or repair. RFID tags also are now required for all deployments to and from the National Training Center, the Joint Readiness Training Center, and the combat maneuver training centers. You can view the policy on the CASCOM ESD website in the ITV section called "Latest News."

51. The PM J–AIT Global Help Desk contact information is—

- Toll free telephone: (800) 877–7925.
- Defense Switched Network: (809) 463–3376. (Wait for the dial tone and then dial (800) 877–7925.)
- Commercial telephone: (703) 439–3850.
- Email: help.rfitv@us.army.mil.

52. The ITV Operations and Training Newsletter, which contains useful ITV information and training tips, is distributed monthly to over 9,500 service members and civilians of all services and commands. To be added to the distribution list, email leerfiditv@conus.army.mil or jerry.d.rodgers@us.army.mil. **ALOG**

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Logistics Transformation in Europe: Maintaining Support While Performing Expeditionary Missions

BY COLONEL MARTIN B. PITTS AND MAJOR KENNETH M. LEEDS, JR.

USAREUR's 21st Theater Sustainment Command integrates contract operations with deployable units while in garrison to ensure that Soldiers are properly trained and that support operations will continue uninterrupted when Soldiers deploy.

The U.S. Army Europe (USAREUR) and 7th Army transformation plan has required command structure changes that ensure more effective and efficient command and control for supporting the Modular Force in Europe. This has resulted in a decrease in forces and footprint through rebasing and the inactivation of units. One of the biggest changes has been the conversion of the 21st Theater Support Command to a theater sustainment command (TSC).

Support Structure Changes

Before transforming, V Corps, which is based in Germany, assigned support relationships to separate brigades and other units according to their proximity to corps support battalions that were assigned to corps support groups (CSGs) within their areas of operations. The 7th CSG in Bamberg and the 16th CSG in Hanau provided this support to V Corps units under the 3d Corps Support Command (COSCOM) based in Wiesbaden. The logistics transformation included the inactivation of two CSGs, the 1st Infantry Division Support Command, the 1st Theater Movement Control Agency, the 200th Theater Materiel Management Center, and the 37th Transportation Command. The 3d COSCOM returned to the continental United States.

The 21st TSC provides both deployable and European theater sustainment logistics, enhancing USAREUR's deployment posture and ARFOR capabilities while retaining the ability to continue uninterrupted European theater support operations.

Now USAREUR is considered an Army service component command capable of serving as a four-star joint task force (JTF) or combined JTF headquarters, a combined joint forces land component command (CJFLCC) headquarters, or an Army force (ARFOR) headquarters in any operation. To accomplish this mission, USAREUR headquarters now contains both a deployable operational headquarters capable of acting as an ARFOR and a nondeploying headquarters to continue performing training, logistics, and administrative tasks within the European theater. The 21st TSC provides both deployable and European theater sustainment logistics, enhancing USAREUR's deployment posture and ARFOR capabilities while retaining the ability to continue uninterrupted European theater support operations.

Concept of Support

Joint Publication (JP) 4–0, Logistics Support of Joint Operations, says "logistics must be responsive in and capable of meeting military personnel, equipment, mobility, medical readiness, infrastructure, and sustainment requirements . . . across the full range of military operations." While undergoing transformation and being forward deployed, the 21st TSC has had to analyze changing situations and determine the optimal concept of support for meeting current and future requirements. In doing so, the 21st TSC has gained the ability to provide expeditionary logistics capability to a JTF, CJFLCC, and ARFOR while

Depending on deployment requirements, supported unit relationships in USAREUR can easily shift from the 16th Sustainment Brigade to TLSC–E and the 405th AFSB and 409th CSB.

retaining the ability to support the European theater sustainment base.

Based on Modular Force logistics concepts, all Army echelons-above-brigade logistics formations (except medical) in Europe now fall under the command and control of the 21st TSC. Before modularity, three echelons of support existed above brigade level: the division support command, corps support command, and theater support command. Transformation has compressed these echelons and integrated Army Materiel Command (AMC) support organizations and personnel functions, such as finance, human resources, and the band, into the 21st TSC structure. The TSC now combines three types of logistics organizations: the 16th Sustainment Brigade, Theater Logistics Support Command-Europe (TLSC–E), and the 405th Army Field Support Brigade (AFSB) and the 409th Contracting Support Brigade (CSB) from AMC. Together, these organizations provide the core capabilities to deploy and open a theater; conduct reception, staging, and onward movement; and begin initial distribution operations while supporting the European theater sustainment base. These organizations have distinct, complementary missions and are linked together to support USAREUR.

The first link is between the TLSC–E and AMC's 405th AFSB and 409th CSB. These organizations make up USAREUR's theater sustainment base. TLSC–E's organization consists mostly of German civilians and is nondeployable. Its mission is to provide USAREUR a theater sustainment base consisting of maintenance, supply, ammunition, transportation, and deployment-processing support. Conceptually, TLSC–E is viewed as the 21st TSC's second sustainment brigade, focusing only on the theater sustainment base.

The 405th AFSB and 409th CSB use their capabilities to support TLSC–E. They provide the 21st TSC, and subsequently TLSC–E, with national-level supply and maintenance resources. The 405th AFSB provides acquisition, logistics, and technology integration, and the 409th CSB provides contingency contracting to both the theater sustainment base and expeditionary forces. This coordination maximizes TLSC–E's capabilities for centrally managed programs, such as the National Maintenance Program, reset, recapitalization, application of modification work orders, and other commodity-specific repair programs. Depending on mission requirements, the relationship between supported and supporting units shifts between TLSC–E and the 405th AFSB and the 409th CSB, providing units with the most responsive support.

The second link is between TLSC–E and the 16th Sustainment Brigade. Together, these two organizations allow the 16th Sustainment Brigade to provide the 21st TSC with most of its expeditionary logistics capability at echelons above brigade. The 16th Sustainment Brigade provides maintenance, supply, ammunition, transportation, and deployment-processing support to the 21st TSC and USAREUR—basically the same capability that TLSC–E provides to the theater sustainment base. As a result, when the 16th Sustainment Brigade deploys, the 21st TSC can use TLSC–E to assume support requirements the 16th Sustainment Brigade normally provides. Depending on deployment requirements, supported unit relationships in USAREUR can easily shift from the 16th Sustainment Brigade to TLSC–E and the 405th AFSB and 409th CSB. As the 21st TSC's primary expeditionary capability, the 16th Sustainment Brigade must remain logistically proficient, trained on its warrior tasks, and ready for deployment.

The 21st TSC can have TLSC–E seamlessly assume operations to continue support to units in the area when the 240th QM Company trains and deploys.

Integrating TLSC–E into the Sustainment Brigade

When the 16th Sustainment Brigade is not deployed, it will be incorporated into the daily theater sustainment base support of TLSC–E and the AFSB and the CSB. The TSC is working to achieve this balance by permanently incorporating a few TLSC–E personnel into key positions during daily operations conducted by the sustainment brigade when it is not deployed. This will ensure operational continuity in the theater sustainment base when the sustainment brigade deploys. In this way, the maximum number of Soldiers remain logistically proficient and TLSC–E learns the units' support relationships, policies,

and procedures, resulting in a seamless transition of support units to and from the 16th Sustainment Brigade and TLSC–E. Five support areas benefit from this concept: multiclass retail supply, field maintenance, retail ammunition, theater storage ammunition, and deployment processing.

Drawing logistics capability from its sustainment brigade allows the 21st TSC to have continuous support, minimize contract and labor costs, and provide trained, ready, and proficient logistics Soldiers poised to support expeditionary missions in any operating environment.

The 16th Sustainment Brigade's 240th Quartermaster (QM) Company illustrates the concept for a supply company. This company operates the multiclass retail community supply support activity (SSA) in Bamberg. As a geographical multiclass SSA, it supports customers regardless of their deployment status. The 21st TSC can have TLSC–E seamlessly assume operations to continue support to units in the area when the 240th QM Company trains and deploys. Organizationally, the 240th operates these facilities when it is in garrison in order to keep its Soldiers logistically proficient. Personnel from TLSC–E operate alongside 240th QM Company Soldiers in SSA key positions, such as the accountable officer, Standard Army Retail Supply System operator, and stock controller, allowing TLSC–E to later provide continuity of support. When necessary, TLSC–E assumes command and control of the SSA operation and builds and manages an increased civilian workforce, enabling the Soldiers to deploy and conduct their primary mission.

The concept is similar for maintenance activities. The 317th Maintenance Company in Bamberg provides field maintenance support to units in its geographic area regardless of their deployment status. In order to easily assume operations and continue support to units in the area when the 317th Maintenance Company trains and deploys, TLSC–E's key personnel work alongside the 317th's shop officer, Standard Army Maintenance System-Enhanced operator, and inspectors.

Drawing logistics capability from its sustainment brigade allows the 21st TSC to have continuous support, minimize contract and labor costs, and provide trained, ready, and proficient logistics Soldiers poised to support expeditionary missions in any operating environment. With TLSC–E supporting the 16th Sustainment Brigade mission and assuming command and control when the brigade deploys, unity of command is retained at the 21st TSC level, ensuring quality support and adherence to policies, procedures, and guidelines. This command relationship enables a company to redeploy, reintegrate, and transfer authority of its local support mission under the 21st TSC's command and control, regardless of the deployment status of its battalion or brigade headquarters.

The overall USAREUR transformation plan has required changes to the logistics support framework to ensure forward-deployed combat forces in the U.S. European Command remain trained, ready, and prepared for immediate power projection in order to conduct and support full-spectrum joint and multinational operations. These changes have set new support relationships that have been evolving over the past few years. Transformation has caused the 21st TSC to re-examine how it supports USAREUR to ensure that it can simultaneously conduct expeditionary logistics for combatant commanders and theater sustainment base logistics in USAREUR.

JP 4–0 defines seven principles of logistics. The keystone principle is responsiveness—the right support, in the right quantity, in the right place, at the right time. All else becomes irrelevant if the logistics system cannot support the supported commander's concept of operations. The 21st TSC is clearly at the forefront with providing USAREUR and a JTF, CJFLCC, or ARFOR commander world-class responsive support. **ALOG**

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MDMP: One Tool in the Commander's Tool Chest

BY MAJOR JOHN D. NAWOICHYK

Although it is not the only tool in a leader's kit bag, the military decisionmaking process (MDMP) is an important part of the staff planning process. An effective commander combines a deliberate planning process, such as the MDMP, with the ability to make intuitive, informed, and situation-based decisions rapidly. However, the MDMP's strengths are also the source of its weakness. A deliberate, well-established planning process, the MDMP is designed to cover all aspects of a situation. Because it is deliberate, it takes time.

In today's current operational environment, a leader must be able to make effective decisions rapidly. Intuitive, informed, and situation-based decision models, such as the recognition-primed decision model, provide other tools for the commander to use as appropriate. A commander and his staff must determine the best decisionmaking process to use based on the situation they face.

MDMP

As stated in Field Manual 5–0, Army Planning and Orders Production, the strength of the MDMP process is that it is "an established and proven analytical planning process." The process consists of seven major steps, from mission receipt to orders production, with over 40 substeps. The MDMP entails deliberate planning and development of several courses of action in order to determine the best course of action for a situation.

The first major strength of this process is that it provides a consistent framework, or baseline, throughout the Army for planning. The Army education system ingrains the MDMP process in its leaders, giving everyone common baseline knowledge. Even inexperienced commanders and staffs can apply the seven steps and create well-defined and workable plans. Furthermore, the established process allows a commander to adapt the best decisionmaking model for his unit. When time is not a factor, the well-developed, lockstep planning methodology presented by the MDMP is extremely effective.

MDMP in Use

The deliberate planning process for Operation Iraqi Freedom (OIF) began in the spring of 2002 under the guidance of U.S. Central Command (CENTCOM) and in coordination with Special Operations Command Central, V Corps, Coalition Forces Land Component Command, and many other joint commands. During this planning process, the units used the MDMP.

Before 2002, the Army conducted detailed planning during staff exercises—warfighter exercises to develop contingency plans for their focus areas. For example, during the time I served as a battalion operations officer, company commander, and deputy G–4 planner in the 3d Infantry Division (Mechanized), each of the warfighter exercises was based on an Iraq-like scenario. The National Training Center rotations focused on the same scenario. In each case, every level of staff conducted a version of the MDMP. These exercises established contingency plans, and the wargaming process served as a basis for the actual OIF planning process. General David H. Petraeus said that the deliberate planning process conducted before the start of the war in Iraq served as the "initial cornerstone plans for the 101st [Airborne Division] in OIF," further illustrating the continued worth of the MDMP when time is available. The ability to adapt from an established model is also an MDMP strength.

Every Army unit has developed its own unit-specific standing operating procedure (SOP) for its planning process. In most cases, the SOP developed is based on the MDMP described in FM 5–0. Although a unit's SOP serves as its operating guide, the strong base of the doctrinal MDMP allows other people or units to rapidly understand and participate in the planning process. The common base of understanding will be more important as we continue to transition to the brigade combat team (BCT) model in which BCTs will be task organized under higher headquarters that they have never worked with. In this type of scenario, the MDMP process can serve as a common planning process.

MDMP Weaknesses

The MDMP's greatest weakness is the time it takes to conduct a full mission analysis. Because of its deliberate nature, the time required to conduct an MDMP often makes it ineffective. In the current operating environment, commanders often do not have the time to conduct deliberate planning because of the rapidly changing situation and mission. FM 5–0 states—

> The disadvantage of using the full MDMP is that it is time-consuming. The longer the higher headquarters spends planning, the less time for the subordinates to plan, prepare, and execute operations.

. . . the MDMP's strengths are also the source of its weakness. A deliberate, well-established planning process, the MDMP is designed to cover all aspects of a situation. Because it is deliberate, it takes time.

Although FM 5–0 provides a guideline for conducting planning in a time-constrained environment, it still focuses on a very structured decisionmaking process. Current operations often cannot support a structured decisionmaking process that takes a significant amount of time to conduct.

In the current fight, leaders often are required to make rapid decisions based on their experience, the situation, and the overall understanding of the commander's intent. Today's operations occur in a nonlinear environment. Battalions often conduct operations across the full spectrum of operations within a relatively short timeframe. For example, a battalion may have one platoon conducting base security, another breaking ground for a new soccer field, a company conducting a raid, and another conducting presence patrols. Each mission can require many decisions to be made based on the different situations that arise.

Often, operations must be executed rapidly based on actionable intelligence gained during an ongoing operation. A recent example of this was the successful operation that killed terrorist leader Abu Musab al-Zarqawi. Commanders did not have the luxury of time to conduct a full MDMP. Rather, they were required to execute the operation rapidly so as not to lose the opportunity provided. The recognition-primed decision model (RPDM) is effective in this type of time-constrained operation.

RPDM

Developed by Dr. Gary A. Klein, the RPDM is based on the naturalistic decisionmaking process. This process relies heavily on the experience of the commander and his ability to rapidly formulate plans without the assistance of a deliberate planning process. RPDM is a four-step process in which leaders—

- Identify the mission and conceptualize the course of action (COA).
- Test and operationalize the COA.
- Wargame the COA.
- Develop the orders.

The greatest strength of this model is the rapid decisions that it produces. According to studies conducted by Klein Associates, the RPDM decreases the planning time by over 20 percent over the MDMP. Other RPDM strengths include the maximum use of the leader's experience and the adaptability of the planning process to events on a nonlinear battlefield.

The strengths of the RPDM process are also its weaknesses. First, it is critically dependent on the experience of the commander. Although it is a very effective tool for a commander who has been in his position for an extended amount of time, it does not address all issues. For example, a battalion commander who takes over just before his first rotation to Southwest Asia will not have the experience needed to use the RPDM. In that case, a modified version of the MDMP, as proposed in FM 5–0, is a more effective decision tool until the commander achieves the experience level required for the RPDM.

Another concern with this model is its lack of in-depth analysis. RPDM does not effectively address complex, multifaceted operations. Rather, it is meant for operations requiring quick decisions. CENTCOM planners could not have used the RPDM to plan OIF because of the detailed analysis and massive coordination required for an operation of that magnitude. The detailed order produced from the deliberate MDMP process serves as a basis for future operations, specifically branches and sequels to the original plan. Although the MDMP process is much better suited for those types of operational planning, the RPDM provides the commander an excellent planning tool in a time-constrained nonlinear environment.

As proven during recent operations in the Global War on Terrorism, the MDMP continues to serve as an important planning tool for military operations. The Army must have a standardized process for conducting deliberate planning, which the MDMP provides. This capability can be effectively combined with a more rapid decisionmaking process, such as the RPDM, to provide the commander the appropriate tools for making decisions in all situations. Although the MDMP is not the best tool for every situation, it is still a critical tool and must be maintained as one of many planning tools for a commander and staff to use. **ALOG**

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The Army Logistics University

BY BARBARA G. MROCZKOWSKI

The 2005 Base Realignment and Closure (BRAC) legislation called for the creation of a Sustainment Center of Excellence (SCOE) that consolidates the Army logistics schools from across four installations. The Transportation Center and School at Fort Eustis, Virginia; the Ordnance Mechanical Maintenance School at Aberdeen Proving Ground, Maryland; and the Ordnance Munitions and Electronics School at Redstone Arsenal, Alabama, will soon be relocated to Fort Lee, Virginia, and combined with the Combined Arms Support Command (CASCOM), the Quartermaster Center and School, and the Army Logistics Management College (ALMC), which are already located there. The transition will begin in fiscal year 2009 and will be fully implemented by 2011.

Instead of simply gaining efficiencies by collocating, the SCOE will offer a more effective organization by consolidating education programs and creating synergy across the schools. One of the key initiatives of transforming to the SCOE is the creation of the Army Logistics University (ALU).

Forming the Army Logistics University

ALU, which will be formally established in October 2009, will consolidate over 200 courses that are currently offered by 5 schools and provide training and education to a daily average of over 2,300 U.S. military and civilian students and international officers. Approximately 19,000 students annually will take resident courses through the university.

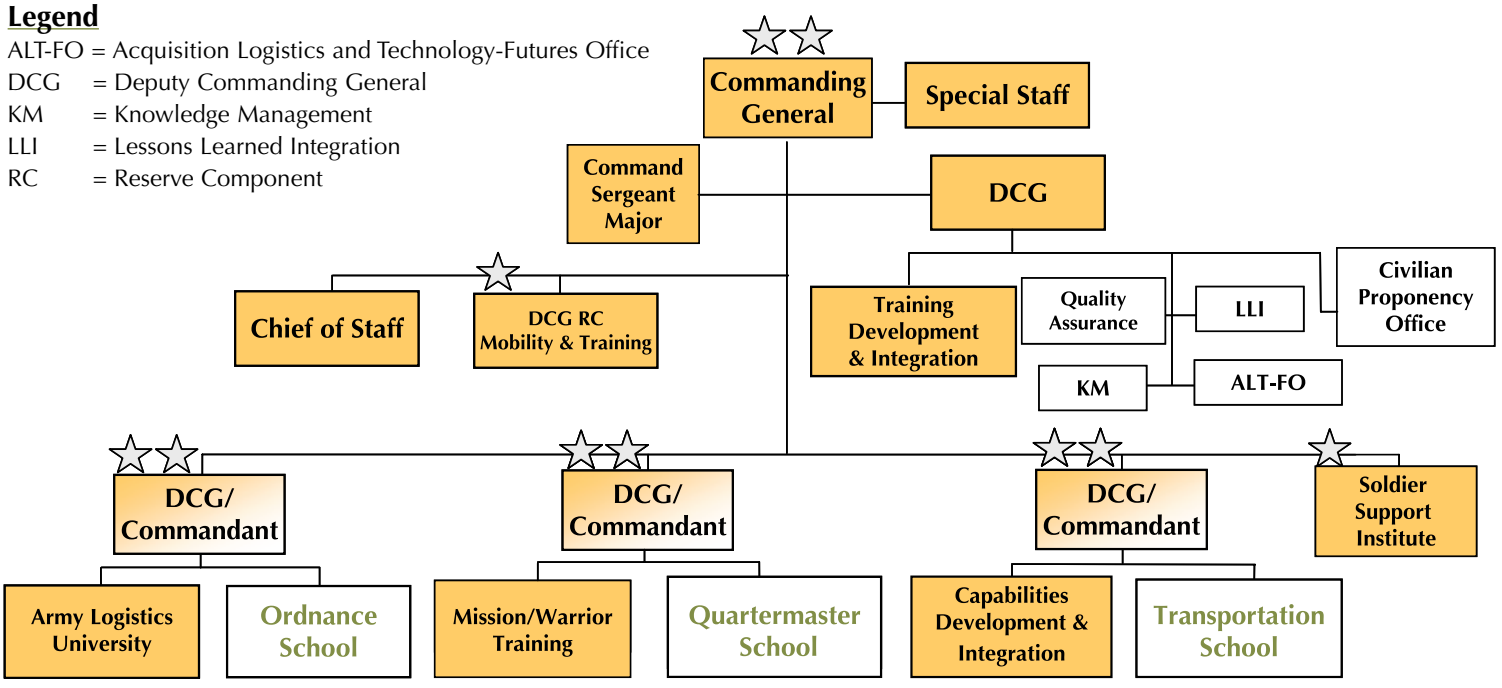
As stated in the SCOE Mission and Functions document, ALU will assume responsibility for the logistics leader education that currently resides in the Quartermaster, Ordnance, and Transportation Schools and will have the mission "to provide Professional Military Education (PME) and other training to the Army's logistics civilians, officers, warrant officers, [and] NCOs [noncommissioned officers] . . . to enhance readiness and sustainability operations through training, education, consulting and research."

The university will comprise four distinct colleges: ALMC, the Logistics Leader College, the Technical Logistics College, and the Logistics NCO Academy. ALMC will exist as it currently stands but without the Combined Logistics Captains Career Course (CLC3). The Logistics Leader College will include CLC3 (which already is attended by all logistics officers), basic officer leader training, and additional courses focused on technical training for officers. The Technical Logistics College will conduct warrant officer education. The fourth school within ALU will be a

The Sustainment Center of Excellence

Legend

ALT-FO = Acquisition Logistics and Technology-Futures Office
DCG = Deputy Commanding General
KM = Knowledge Management
LLI = Lessons Learned Integration
RC = Reserve Component



single Logistics NCO Academy created by consolidating the four current NCO academies. Responsibility for advanced individual training and selected technical courses will remain with the Quartermaster, Ordnance, and Transportation Schools.

ALU will also include an Operations Management Office that, in addition to other functions, will be responsible for staff and faculty development, the new Logistics Library, and the International Military Student Office. For those areas, ALU's Operations Management Office will support the entire SCOE, including all the logistics branch schools. Military students will become part of the 71st Student Battalion, which will be commanded by a lieutenant colonel and made up of four companies. The *Army Logistician* staff will move to ALU under the command group and retain the same structure that it currently has within ALMC.

ALU's Colleges

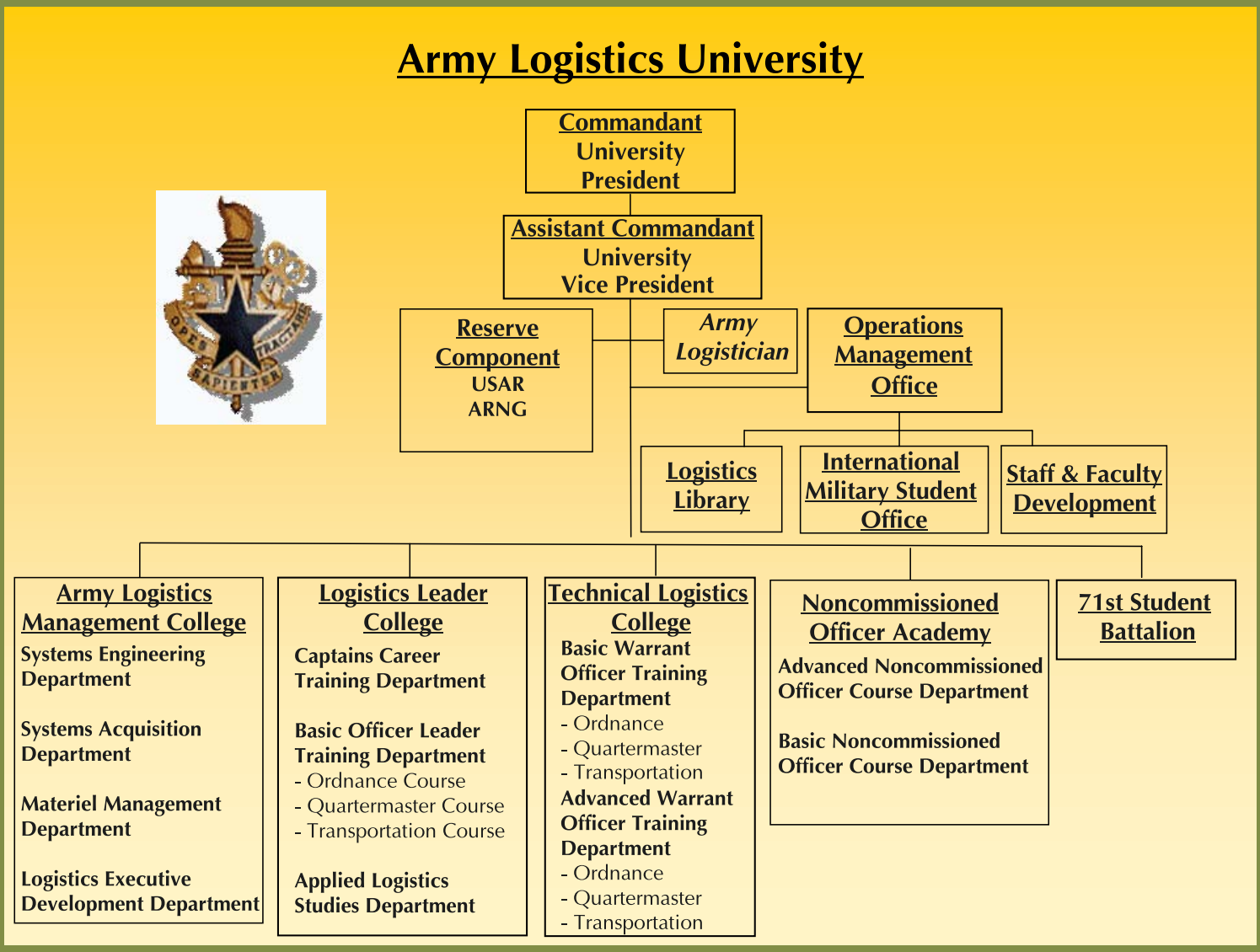
The first school to transition to ALU will be ALMC. The 54 ALMC courses in logistics, acquisition, and operations research will move to ALU as a unit and continue operations with little change. The ALMC commandant will become the assistant commandant of ALU, and the dean of ALMC's current School of Systems and Acquisition Management will become the dean of ALMC.

The Logistics Leader College, under the dean of ALMC's current School of Logistics Science, will be divided into three departments: Captains Career Training, Basic Officer Leader Training, and Applied Logistics Studies. The branch-specific phase of CLC3 for ordnance officers will transfer to ALU in early fiscal year 2009. Transfer of the quartermaster-specific phase will occur in the fourth quarter of fiscal year 2009, and the transfer of the transportation-specific phase will occur at the end of fiscal year 2010. The quartermaster and ordnance basic officer leader courses are scheduled to move to ALU in the fourth quarter of fiscal year 2009, and the transportation program will move in the fourth quarter of fiscal year 2010.

The establishment of the Technical Logistics College will begin with the designation of the dean, a chief warrant officer (W–5), who will lead the planning and transition of the warrant officer courses into the college's two departments: Basic Warrant Officer Training and Advanced Warrant Officer Training. The ordnance and quartermaster technical courses will move to ALU in late fiscal year 2009 and early fiscal year 2010, respectively, and the transportation technical courses will be in place by late fiscal year 2010.

Finally, the Logistics NCO Academy, led by a command sergeant major, will be stood up in late fiscal year 2009, and the quartermaster NCO courses will transition to ALU at the same time. Ordnance will follow early in fiscal year 2010, and transportation will transition by the end of fiscal year 2010. The academy will have two departments: the Basic NCO

Aerial view showing the current Army Logistics Management College (right center) and the construction of the Army Logistics University campus.



Course and the Advanced NCO Course. There will be no branch-specific departments in the academy. Courses from every logistics branch will be integrated into the college with the goal of achieving synergy across the branches.

ALU Staff and Faculty

The university will be led by a general officer selected from among the three commanding generals of the SCOE branch schools. One of these commanding generals will serve as the ALU commandant while simultaneously serving as the commanding general of his school.

The university will include over 450 staff and faculty members with expertise across the logistics spectrum as well as Army acquisition and operations research, which are currently part of the ALMC curriculum. The bulk of the university's civilian staff and faculty will be individuals who are currently performing the same or similar functions in the consolidating schools.

In standing up the SCOE, all positions within the consolidating schools will be abolished and new positions will be created within the SCOE. All civilians currently working in a consolidating school have been guaranteed a position within the SCOE at the same grade and salary and have been asked about their interest in becoming a part of the SCOE through a survey of interest that was conducted between May and July 2008. Based on the results of the survey, employees will be assigned to their duty positions in the SCOE by the end of September.

Most of the employees assigned to ALU will begin moving into the university in April 2009 in preparation for its formal establishment in October. Because courses will be moved to ALU over a 2-year period, the transfer of employees will be synchronized with those moves. During this process, a significant number of civilian positions at all grade levels are expected to become available at Fort Lee as a result of retirements and the availability of competitive jobs from

other BRAC initiatives at the losing locations. Military assignments to ALU will also begin in June 2009 and will continue over the next 2 years as courses transfer to the university. In order to continue the training mission while courses transition to ALU, some programs may divide operations between installations for short periods of time. This would most likely require both military and civilian overhires during that time.

Challenges to the ALU's Conception

The creation of ALU presented a number of challenges. Questions arose about the timeframe, funding, personnel, facilities, and which programs should become part of the university. Some of these issues have been resolved while others are still pending resolution.

The major courses that would become part of ALU (as part of the original plan) included CLC3, the basic officer leader courses, the NCO academies, and the warrant officer basic and advanced courses. Determining which other courses belonged in ALU required significant discussion. The final list of courses to be transferred is now complete, and transfer dates are pending.

New facilities were needed to house the university. The current ALMC building cannot accommodate the threefold increase in staff and eightfold increase in resident students. In 2006, the Army approved funding for a new 400,000-square-foot academic building, which is being built across the street from the current ALMC building. The new building will be the home of the Logistics Leader College and the Logistics NCO Academy as well as the Logistics Library and the ALU command section. To support the training of warrior tasks across the university, a Warrior Training Center is in the design stage and will be created within an existing ALMC building. The two ALU academic buildings, the Warrior Training Center, and a Logistics Simulation Center that will be used by the entire SCOE will constitute the ALU campus. Contracts were awarded for the new academic and simulations buildings in July 2007, and they are scheduled to be complete in April 2009. The buildings will be occupied in July of that year.

Appointing the leaders to plan and implement the creation of each individual college is essential. At present, two of the four deans (the deans of ALMC and the Logistics Leader College) have been designated. Planning for the transfer of courses and personnel is another major initiative currently underway. Since scheduling for Army training is done 2 years in advance, planners are currently establishing workable windows of time for course moves to ensure the least amount of disruption to programs and the education mission. Staff and faculty assignments are also being determined now to ensure that all personnel are in place when and where they are needed.

Another major issue that is currently being tackled is the need to build an automated system to help manage the operation of ALU and the other schools within the SCOE. Presently, the scheduling of students, faculty, classrooms, ranges, and simulation facilities within CASCOM schools is done either manually or with school-unique scheduling systems. Every year, ALU will have to schedule thousands of students, hundreds of instructors and classrooms, large numbers of equipment and special purpose laboratories, and dozens of ranges. Some of these resources will be shared by other SCOE schools, and some will be located at particular schools. Some of the instruction and exercises will be conducted jointly across schools. So, the need to schedule and synchronize facilities efficiently exists not only within ALU but across the entire SCOE. Efforts are underway to create an enterprise-level learning management system for the SCOE or a system that can be used across the Army Training and Doctrine Command's centers of excellence.

The Army Logistics University will provide new opportunities to make Army logistics education not only multifunctional but multi-echelon. It will provide integrated education programs for logistics leaders—commissioned officers, warrant officers, NCOs, and civilians—across the spectrum of logistics as well as in the Army acquisition and operations research analysis fields. ALU will provide the opportunity to integrate education and stimulate thought across the branches and ranks that make up the Army's Logistics Corps. It will offer opportunities for multi-echelon training and exercises. Finally, it will provide a single source for logistics leader education in the Army.

As the university takes shape, additional opportunities for synergy and efficiency resulting from the consolidation of resources will surface. New ways to integrate instruction will evolve. ALU will provide a dynamic environment in which to prepare the Army's logistics leaders for their role in the Army today and in the future. **ALOG**

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Iraqi Truck Company Transformation

When A Company, 168th Brigade Support Battalion (BSB), 1st Sustainment Brigade, took over the management of a commercial Iraqi truck company (ITC) at Camp Liberty, the situation was discouraging. The trucks were in bad shape, the drivers were disheartened, the facilities were archaic, and the company's reliability was unacceptable. With an operational readiness rate of 60 percent, something needed to be done.

This situation created additional challenges for the 168th BSB. When a truck in a convoy breaks down, the entire convoy has to stop. The frequent breakdowns of Iraqi vehicles in 168th BSB convoys left troops vulnerable to attack and delayed missions. Then, additional Soldiers and trucks had to go out to recover the disabled vehicle.

To address the problem, ITC trucks were shifted to on-base missions only while the drivers were trained to operate safely and efficiently. A Company created a four-step plan that would ultimately transform the ITC into a proficient, reliable operation. The four areas they concentrated on were

Trucks are lined up, loaded, and ready to move out when the time arrives. The Iraqi truck company consolidated their selection of vehicles to a few models in an effort to improve operational readiness. By standardizing vehicles, building a bench stock of spare parts, and implementing daily, weekly, and monthly maintenance checks and services, their operational readiness has gone from 60 percent to 98 percent.

Insert:An Iraqi maintainer looks for a part in the maintenance CONEX at the Iraqi truck company. Before the addition of the maintenance section, it took days or weeks to get small parts replaced.

At right: Soldiers with the 168th Brigade Support Battalion enjoy a dinner of typical Iraqi cuisine with their Iraqi truck company counterparts at Camp Liberty. The monthly dinners are a way of developing better relations between Soldiers and Iraqis. Behind them are the new living facilities built for the drivers.

Below: Drivers with the Iraqi truck company (ITC) join in the scheduled training developed by A Company, 168th Brigade Support Battalion. The training is one piece of a four-part plan designed to increase the reliability of the ITC.

cultural awareness, training, improved facilities, and maintenance.

A Company started playing soccer with the drivers, teaching them American football, organizing monthly dinners, and including them in training—anything to break down cultural walls and stereotypes. The Soldiers took this one step further when they decided to integrate the staff into combined facilities. These steps were key in alleviating suspicions between the Iraqi drivers and U.S. Soldiers.

When the 168th arrived, the ITC had no sleeping or shower facilities. The drivers slept in their trucks or in tents. A Company could see that the inclusiveness was helping, but until they dealt with the poor living environment and vehicle maintenance, they would not reduce the high employee turnover rate or the number of downed vehicles. Facility and maintenance improvements needed to be addressed with the ITC management. The A Company commander convinced the ITC management to install five brand-new living trailers, a dinning facility, a shower trailer with hot water, and a maintenance area.

Morale was improving, turnover was dropping, and the A Company Soldiers were determined to improve vehicle reliability, so they helped the ITC implement its own form of the Army Maintenance Management Program. They recommended that the ITC standardize its fleet of vehicles and house common spare parts on site to reduce the need for travel to Baghdad for service.

In an operational environment where results speak louder than concepts, it is evident that A Company's four-step plan is working. Operational readiness rose from 60 percent to 98 percent, and driver turnover dropped dramatically. In 6 months, the ITC had 30 trucks on the road every day, hauled $495 million worth of assets and 6.2 million gallons of fuel, drove over 150,000 miles, and conducted 573 deliberate convoys, which took roughly 7,180 U.S. Soldiers off the road. **ALOG**

ARMY LOGISTICIAN *THANKS STAFF SERGEANT BRYANT MAUDE, 1ST SUSTAINMENT BRIGADE PUBLIC AFFAIRS OFFICER, FOR PROVIDING THE PHOTOS AND STORY FOR THIS FEATURE.*

Field Support Company Maintenance Operations During Deployment

BY CHIEF WARRANT OFFICER (W–5) JOSEPH W. FLORIANO, MIARNG

The 107th Engineer Battalion, Michigan Army National Guard, is structured with a field support company to provide maintenance support during a deployment. The field support company supports the battalion and any external units assigned for support of all classes of supply and field maintenance and is augmented by a supply support activity. The field support company was established in the Reserve components table of organization and equipment (TOE) to enable a battalion to run an autonomous operation with external support required only for sustainment and supply support activity missions. The implementation of the field support company is a step toward full transformation to two-level maintenance (TLM). Although the field support company currently resides only in the Army National Guard and Army Reserve force packages, it is the epitome of the TLM philosophy. The unit is structured and staffed to incorporate the old direct support (DS)-level tasks easily.

The field support company within an engineer battalion is structured differently than in other commands. Line units have small maintenance sections that include a staff sergeant motor sergeant. Their capabilities are restricted since they perform most of the "old" organizational tasks, leaving the "full field" tasks to the field support company. Although very clear lines of responsibility are defined in a theater of operations, home-station tasks have to be adjusted because of geography and command alignments.

Field Support Company Tasks in Theater

The maintenance control (MC) section operates as a liaison between the field support company and all external and internal supported units. All equipment repairs or services by the company are routed through this section, where job orders are prepared. All processes of the field support company operation are defined by the MC section and the battalion maintenance officer (BMO). The MC section operates like an MC office in a support maintenance company. The BMO maintains a record of man-hours, parts installed, quality control, and completed tasks. The MC section also works with the BMO to coordinate contractor support.

The field support company completes all maintenance services for the battalion. It can replace transmissions and engines on various heavy expanded mobility tactical trucks (HEMTTs); engines, transmissions, and transfer cases on high-mobility multipurpose wheeled vehicles; clutches and flywheels on small-equipment excavators; HEMTT retrieval and outrigger cylinders; and cylinder heads on 6.5-liter engines.

The company also repairs single channel ground and airborne radio systems; this radio repair support has been extended to all units in the brigade. Other capabilities include small arms repair and air-conditioner repair.

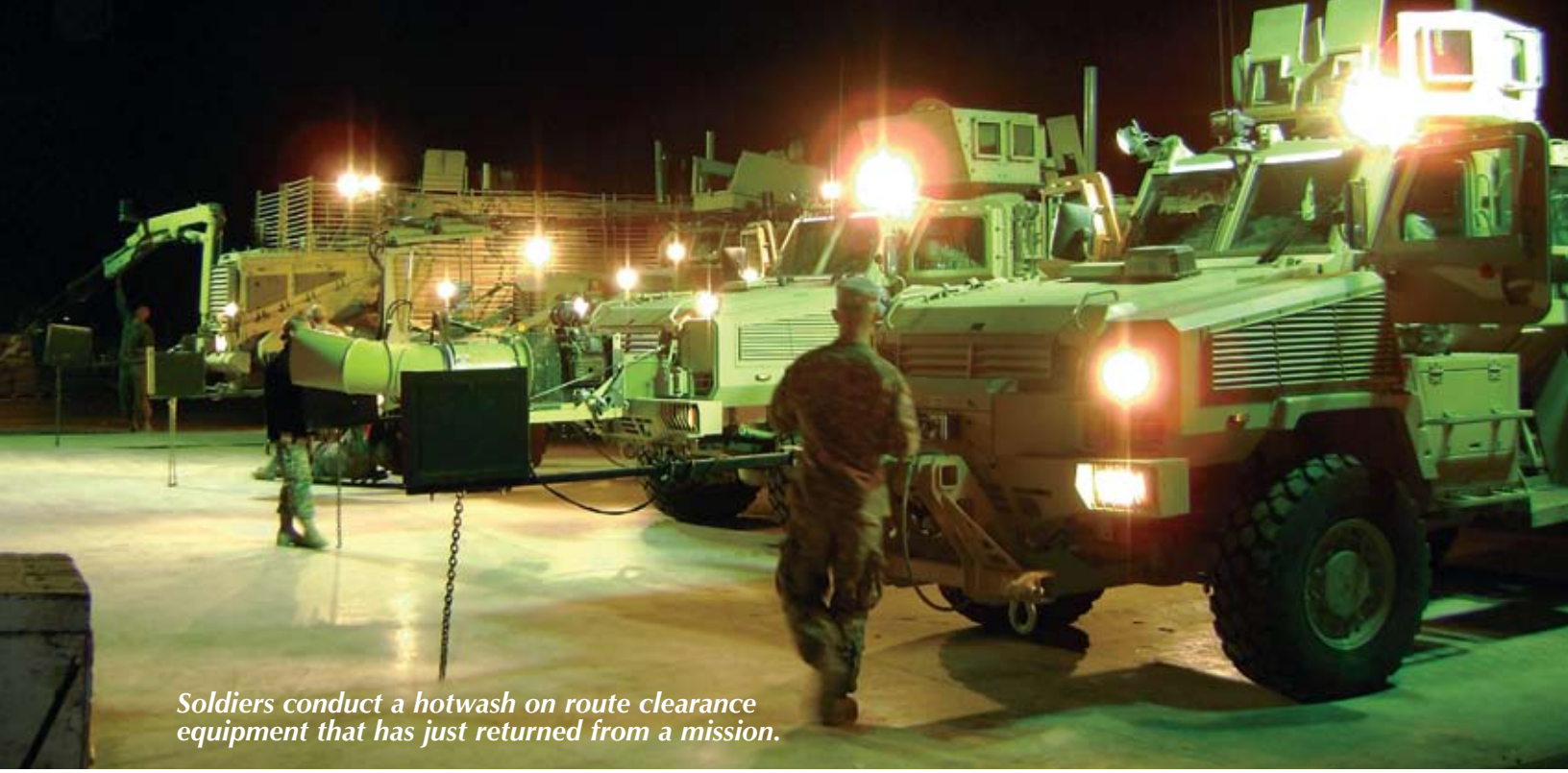
The engineer battalion is authorized unit armorers only within the field support company. Small arms repair also includes performing services. This small arms repair support is extended to all units in the brigade and any external units assigned.

The inspectors determine the condition code of equipment. This includes determining estimated cost of damage, applying maintenance expenditure limits, and identifying equipment candidates for the theater-provided equipment refurbishment program. They also provide quality assurance for small arms repairs to ensure that all parts ordered and installed are audited and recorded.

The field support company's distribution platoon can support all classes of supply. It currently manages class III (petroleum, oils, and lubricants) and the hazardous materials program. The platoon also distributes water to the pad living and maintenance areas and performs missions relocating supplies and equipment outside of the wire.

Route Clearance Equipment Maintenance

In addition to performing field maintenance on the wheeled vehicle fleet, the field support company also supports a route clearance mission. The line units perform the primary route clearance maintenance mission, augmented with field support company personnel. The recovery section of the field support company is directly involved in hotwash operations—the process of conducting a technical inspection of every vehicle returning from a mission—when each patrol returns. When faults are noted at the hotwash, the equipment



Soldiers conduct a hotwash on route clearance equipment that has just returned from a mission.

is sent to the route clearance equipment maintenance section for repair. When arriving patrols overload the route clearance equipment maintenance section, the field support company provides additional personnel to help keep the fleet rolling. These missions are performed 24 hours a day, 7 days a week.

Many modifications to route clearance equipment require cutting and welding. The field support company is authorized three welders, but it usually has limited manpower when supporting the route clearance equipment mission.

When the 107th Engineer Battalion deployed to Iraq, the route clearance maintenance mission was new to the field support company. The mobilization station had no tasks in place that gave the field support company any missions preparing it for deployment. The only supporting tasks identified by the Army Training and Evaluation Program were recovery operations. Selected Soldiers went to Fort Leonard Wood, Missouri, for a 40-hour training block on recovery operations before mobilization.

Contracted maintenance for the route clearance equipment worked well in the beginning but slowly deteriorated, making it necessary for the field support company to perform more of it. The unit initially struggled with the mission but improved as it gained experience. As the unit became more self-reliant, it took on additional route clearance equipment maintenance tasks. The mission capable rate, which started around 80 percent, climbed and leveled off in the mid 90s.

The publishing of route clearance equipment training manuals (TMs) in the fall of 2007 helped greatly. Most part numbers did not correspond to those listed in the civilian manuals that had been available previously. Parts supply from the contractor was adequate but expensive. The BMO established service sheets and initiated a service schedule for route clearance equipment, so the company now can order most service parts through the supply support activity. The field support company expects to complete all equipment services before it redeploys.

The field support company could become a self-supporting, autonomous operation except for one drawback: the availability of specific diagnostic equipment. I recommend that small arms positions and equipment be added to the field support company TOE to enhance its mission. A further review of the TOE structure to fully support the TLM transitions also is needed.

I highly recommend that the route clearance equipment maintenance mission be given to the ordnance Soldier, where it belongs. Route clearance equipment maintenance also should be integrated into the Army Training and Evaluation Program for premobilization training, integrating and using the civilian contractor for initial maintenance training. This would establish the necessary skill set needed to perform this mission easily. **ALOG**

Chief Warrant Officer (W–5) Joseph W. Floriano, MIARNG, is the ordnance actions policy officer for the State of Michigan. He was deployed to Iraq as the battalion maintenance officer for the 107th Engineer Battalion, Michigan Army National Guard, when he wrote this article.

BSB Support to Advisory Teams in Iraq

BY MAJOR ANDREW HOTALING AND MAJOR JASON MCGUIRE

The experiences of the 27th Brigade Support Battalion serve as a model for supporting advisory teams and partnering with Iraqi units.

How effective is the logistics structure of the modular heavy brigade combat team (BCT), and how well can its brigade support battalion (BSB) support the customer units within the brigade? A reverse collection and analysis team (R–CAAT), hosted by the Army Combined Arms Support Command at Fort Lee, Virginia, in May 2008, considered these questions when it examined the experiences of the 27th BSB, 4th BCT, 1st Armored Division, in Iraq. The R–CAATs concluded that the 27th BSB proved that modularity does indeed work, but it also demonstrated that the BCT can provide the command and control and nondoctrinal area support required in the Iraqi theater without creating a separate brigade-level logistics headquarters to direct logistics functions at the tactical level.

Throughout the R–CAAT, the leaders of the 27th BSB stated that their way was only "a way" and that other units may have worked out different, or even superior, logistics methods for supporting both the BCT and the tenant units in its sector. ["Tenant units" are those units that reside within the BCT's area of responsibility but may or may not be directly controlled by the BCT.] However, we believe that the 27th BSB's way was sufficient and provides an outstanding model for both supporting advisory teams in Iraq and assisting the Iraqi forces. The BSB's experience also opens the door for further discussion about future force structures in both BSBs and advisory teams as the counterinsurgency fight in Iraq develops over time.

Supporting a Force Double the Normal Size

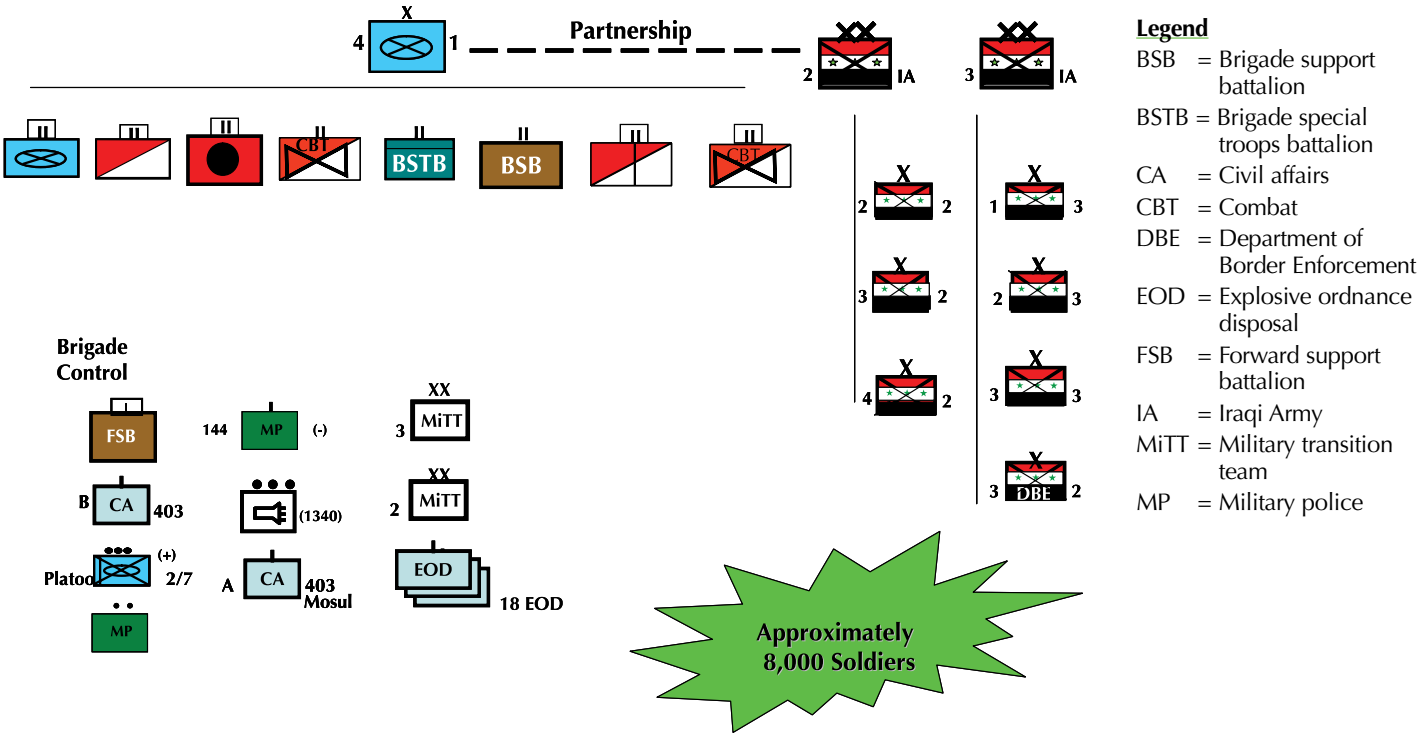
When the 27th BSB arrived in Mosul, Iraq, the support operations officer (SPO) quickly realized that, although his unit was at around 100 percent of its modification table of organization and equipment fill, his area of responsibility and the number of units he would be supporting greatly exceeded what the BSB was designed to support. The BCT's area of operations was roughly the size of West Virginia and included forward operating bases and combat outposts up to 120 kilometers away. Distance was just one of the challenges, however.

As shown in the chart on page 30, the BSB was also responsible for providing support to an organization with approximately 8,000 Soldiers. This was twice the size of the organization it was designed to support (approximately 4,000 Soldiers in two combined arms battalions, a fires battalion, a reconnaissance squadron, a brigade special troops battalion, and a BSB). Large contingents of those "extra forces" were the advisory teams assigned to the Iraqi Assistance Group and operating in Multi-National Division-North.

Sustaining Advisory Teams

When the 27th BSB arrived in theater, it assumed support responsibility for more than 40 advisory teams. These teams were spread out among the Iraqi forces in the region and were responsible for providing "coach, teach, and advise" support to the Iraqi Army, Iraqi Police, Iraqi Border Forces, and National Police. The military transition teams (MiTTs), National Police transition teams, and border transition teams were accustomed to receiving support by what was called the "drive by." In other words, when an advisory team required support, it would convoy to the nearest BSB location (a forward support company or the BSB itself).

Although the requirements of these small units did not significantly affect the BSB's ability to support its other units, the SPO immediately recognized several weaknesses in the drive-by system. One weakness—forecasting support needs—affected both the BSB and the advisory teams. Because the teams were not forecasting their requirements, they could not be certain that the BSB would be able to continuously fill their requests. By initiating a system called "request for support" (RFS), the BSB was able to provide the advisory teams with a usable tool (borrowed from the Special Forces community) for requesting supplies and tracking ongoing requirements. At the BSB, the RFS forms were cataloged by team and location and historical data were collected. When needed, stockage adjustments (across all classes of supply) could be justified to meet the demands of the additional forces within the BCT's area of responsibility.



The 27th Brigade Support Battalion supported a task organization with twice as many Soldiers as it was designed to support.

Perhaps the most important result of implementing the RFS system was that the BSB assumed the responsibility of supporting the advisory teams. The BSB incorporated the RFS requirements into its existing convoy schedules and delivered needed supplies to the supporting forward support company for issue to the customer rather than requiring the advisers to leave their counterparts and conduct their own independent supply convoys.

The RFS system allowed the advisory teams to request all classes of supply and submit maintenance, transportation, and nonemergency combat health care requests. The requests were categorized as routine, priority, and emergency. Routine requests would be filled as early as the next scheduled convoy if the commodity was on hand or with the next convoy scheduled after the commodity arrived at the BSB. Priority requests would be filled by rerouting existing convoys. Emergency requests would generate a dedicated convoy to the advisory team immediately on receipt of the request.

The RFS system required some level of connectivity. Data connectivity by email was preferred, but voice connectivity would suffice if necessary. Most requests were sent to the 27th BSB by email using a very small aperture terminal.

To ensure that the advisory teams were requesting support in a responsible fashion and to achieve visibility within the advisory team structure, the BSB required that most requests be processed from the battalion-level advisers through their brigade and division advisory teams. Because the border transition teams did not have higher echelons, their requests were sent directly to the BSB. This process is depicted at right.

Supporting Iraqi Army Units

The BCT was "partnered" with both the 2d and 3d Iraqi Army Divisions. Partnership is a relatively new term that has yet to be doctrinally developed; however, for our purposes, partnering occurs when coalition forces form a synergistic relationship with their corresponding host nation units. This relationship develops over time and depends on the efforts of both commanders and their superiors. These partnerships harness the strengths of both coalition and host nation forces.

One of the strengths of the U.S. Army is the BCT's extremely capable logistics support system. As those of us who have deployed to the Iraqi theater know, working with Iraqis can mean supporting them logistically. This logistics support, which is provided in accordance with local command policies, the availability of Iraqi logistics resources, and the operational urgency of the need, can also strain the BSB's ability to provide the doctrinal support required to its supported BCT.

A stated mission of the 27th BSB was to provide class IIIB (bulk petroleum, oils, and lubricants [POL]), class IV (construction and barrier materials), class IX (repair parts), on-order medical, and maintenance support to the Iraqi Army. The 27th BSB also provided contingent class I (subsistence), class IIIP (packaged POL), class VIII (medical materiel), transportation, medical, and mortuary affairs support to the Iraqi

Army. The BSB fixed more than 400 Iraqi Army high-mobility multipurpose wheeled vehicles, delivered more than 3 million gallons of fuel, and responded to more than 10 major tactical incidents (such as vehicle-borne improvised explosive devices and suicide bombers) with food, water, medical, and other recovery support during its 14-month deployment.

As with the advisory teams, the 27th BSB found it necessary to track and maintain historical data for the support given to the host nation forces. Because the mission of the advisory team is to develop the Iraqi forces' capabilities and systems, the BSB determined that Iraqi Army Form 101 was the best system for the Iraqi Army and other Iraqi forces to use for requesting and receiving logistics support. The form provided a simple process for communicating requirements to the BSB though the existing advisory team structure.

Requiring the Iraqi forces to use this process not only reinforced their existing supply procedures but also allowed advisory teams to oversee and validate Iraqi requests, provided a "paper trail" to use in reducing corruption and inventory shrinkage, and developed the needed historical documentation that allowed logistics planners to predict commodity usage according to the pace of operations and seasonal changes.

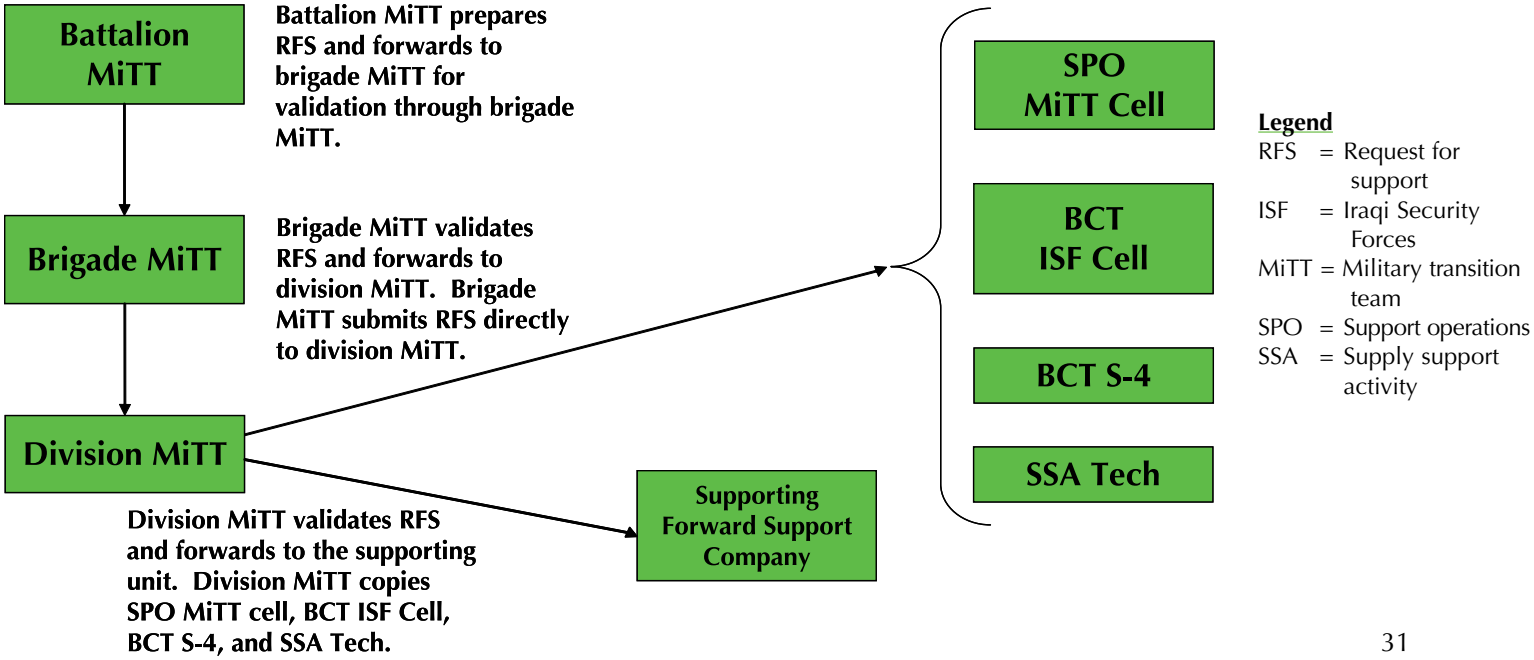
Learning From the 27th BSB's Experience

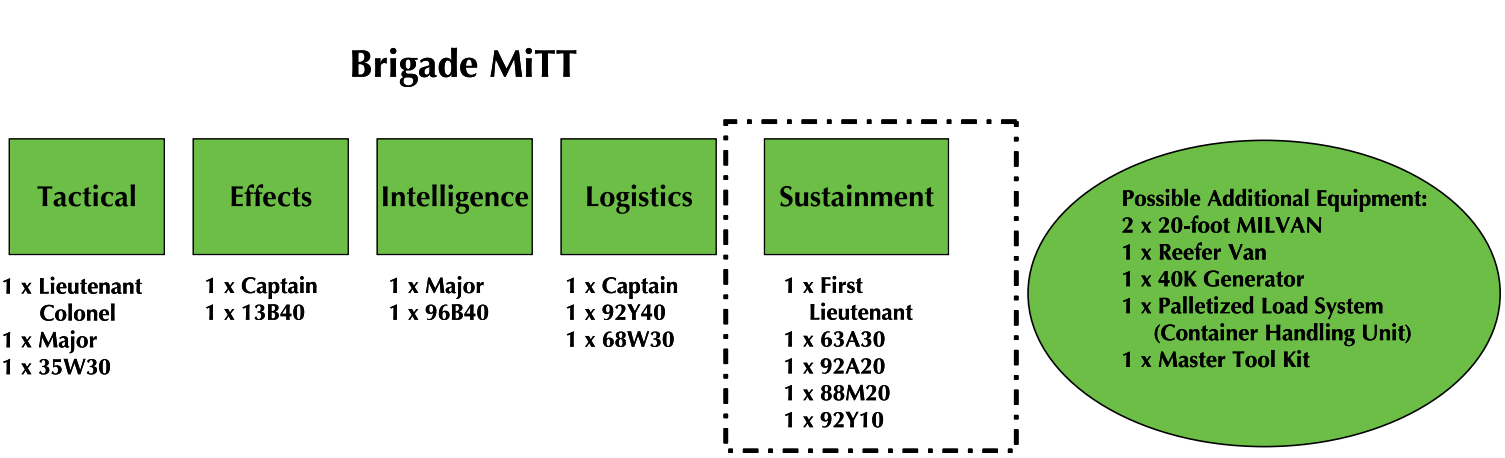
Beyond the results that the 27th BSB achieved in theater, the BSB's way provides logistics planners with a model for what the future may hold. The BSB's experiences and lessons learned offer several areas for Army logistics planners to consider for possible changes.

Doctrinally, the sustainment brigade provides area support and backup direct support for units within a given area. The BSB requests backup support once it is unable to meet the support demands of its BCT units. In northern Iraq, the sustainment brigade supporting the 27th BSB was almost completely committed to ongoing operations and had very limited assets available to provide to BSBs (especially transportation assets). This limitation pushed nondoctrinal responsibilities to the 27th BSB. For 14 months, the 27th BSB had to provide nondoctrinal area support with limited line-haul transportation from its sustainment brigade. The BSB's successful efforts to sustain advisory teams provide insights into the challenges that may lie ahead for sustainment units as the political and tactical landscape in Iraq evolves.

As we achieve more and more success in Iraq and Iraqi forces continue to improve and take responsibility for the security of more of their own cities, it is not unreasonable to expect that the number of advisory teams will increase and the number of combat forces will decrease. As BCTs are rotated out of the theater and are not replaced, we will see the role of the remaining BSBs expand to support the advisory teams and other tenant units. As the role of the BSB changes, the composition of the BSB might also change so that it can better support the additional forces and meet the other logistics requirements of supporting areas significantly larger than those of a doctrinal BCT's area of responsibility. The addition of line-haul assets (such as heavy equipment transporters and M915 tractor trucks) and additional local-haul assets (such as palletized load systems), quartermaster and maintenance Soldiers, and nondoctrinal logistics equipment (such as cranes and sewage-pumping trucks) seems to be a minimum requirement, especially if the tactical situation prevents

Requests for support were routed from battalion advisory teams through brigade- and division-level teams.





A reinforced brigade military transition team (MiTT) might look like this. Such a team would support all MiTTs at the brigade level and make them less dependent on BSBs for support.

the effective use of Logistics Civil Augmentation Program personnel.

Another subject for consideration is the structure of the advisory teams themselves. Currently, the teams are designed to support tactical, coalition effects, intelligence, and logistics requirements. [The coalition effects provided ranged from indirect fires to assistance with information operations campaigning, medical operations, school and humanitarian assistance drops, and access to aviation (combat, medical evacuation, and unmanned intelligence, surveillance, and reconnaissance assets).] All logisticians on an advisory team wear two "hats," one when advising and the other when logistically supporting the Iraqi forces and their team. The addition of more logistics Soldiers, with limited equipment additions (for materials handling, storage, and maintenance), to create reinforced teams at the brigade or division level could greatly enhance the ability of the advisory teams to be more self-sustaining. These Soldiers and equipment could be pulled from the Army National Guard or Army Reserve or from a BCT. The equipment requirements could be met by reallocating theater-provided equipment as BCTs leave the Iraqi theater.

Planners would need to consider the location of the advisory teams that will be supported by a reinforced team when determining which level (brigade or division) to reinforce. For example, if the entire division MiTT structure is collocated, perhaps only one reinforced team is required. If the teams are separated along brigade lines, then a reinforced team may be required at the brigade MiTT level. Another consideration is the likelihood that the Iraqi forces will remain in their current configurations and locations for the foreseeable future. An example of a brigade MiTT with this reinforced structure is shown above.

A final area for exploration is the option of receiving life support and limited maintenance and transportation support from the Iraqi forces. Discussing a drawdown of conventional U.S. forces and increasing the number of advisory teams assume up front that the Iraqi forces will be at a significantly more capable state of readiness, with the logistics systems and infrastructure in place to sustain themselves (and their U.S. advisers). Combat health care would remain a U.S. responsibility, at least until the Iraqi health care system is capable of providing adequate care that meets U.S. standards.

The 27th BSB's tactics, techniques, and procedures serve as a model and provide a way that U.S. forces can use to support the existing advisory team structure. The BSB's success also provides logistics planners with a model that can be used to make decisions as the force structure in Iraq shifts from 15 BCTs, with approximately 250 externally sourced advisory teams, to fewer BCTs with a greater number of tenant units. Most importantly, however, is that the success of the 27th BSB in supporting a task force twice as large as it was designed to support, and over a much larger geographic area, is a testament to the outstanding logistics Soldiers who made it happen. **ALOG**

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Flexible Support for the Heavy BCT

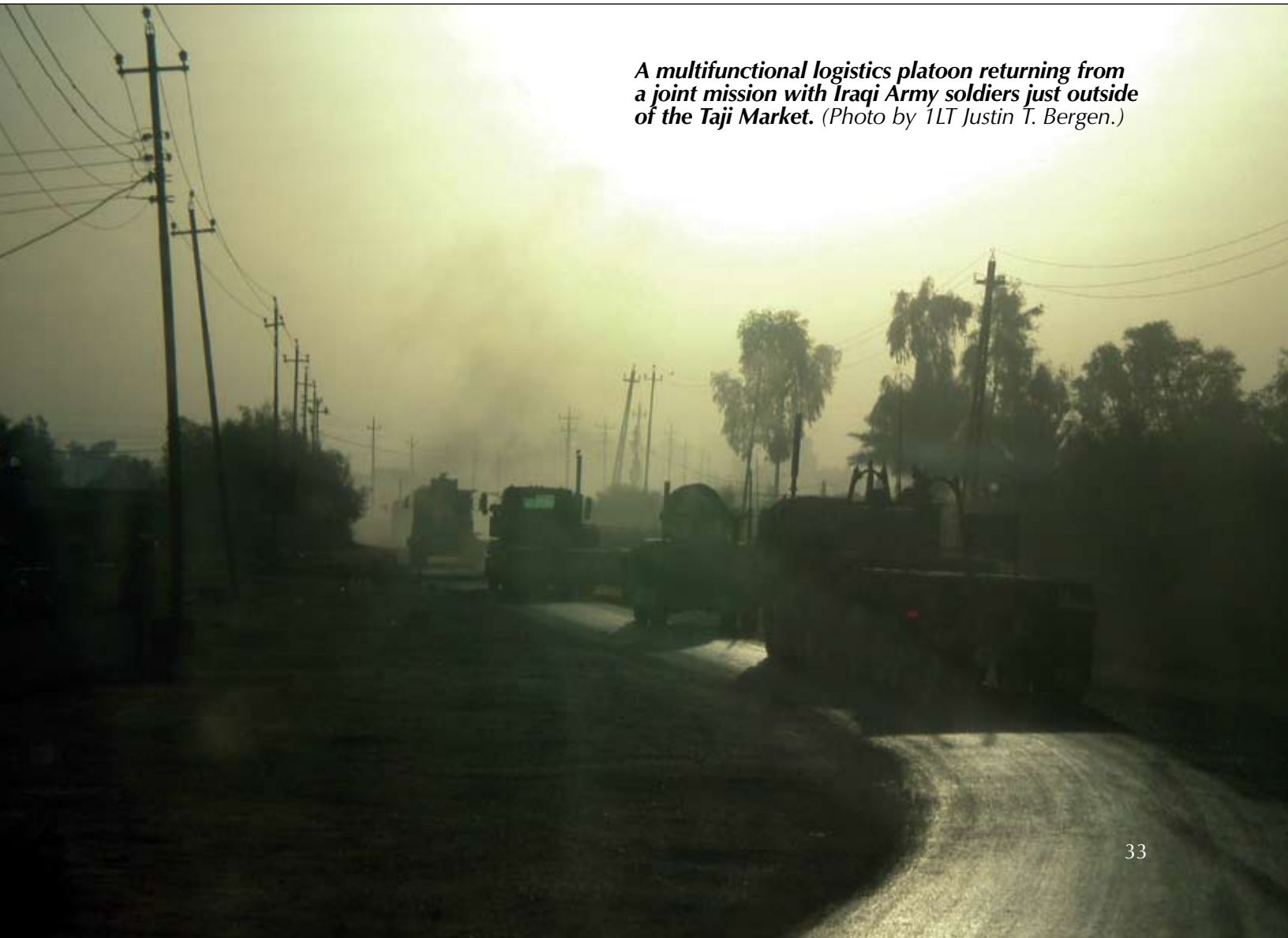
by Captain John F. Jacques, First Lieutenant Justin T. Bergen, First Lieutenant Sonya S. Standefer, and First Lieutenant Carl S. Miller

The 115th Brigade Support Battalion created multifunctional platoon-sized elements to provide more flexible support to a brigade combat team in Iraq.

In order to provide the highest possible level of logistics support to the 1st Brigade Combat Team (BCT), 1st Cavalry Division, the 115th Brigade Support Battalion (BSB) successfully experimented with a radical deviation in task organization from the structure outlined in doctrine. Soldiers from A Company (distribution), B Company (maintenance), and C Company (medical) were combined into three platoon-sized multifunctional elements within the distribution company, with each platoon having the resources and flexibility needed to accomplish any mission assigned to the battalion.

With this force structure, A Company was equipped to conduct a variety of complex and diverse missions. For example, less than a month into Operation Iraqi Freedom 06–08, the company was tasked to assist with the recovery of a wrecked Air Force F–16 fighter from a crash site west of Camp Taji. After the aircraft was recovered and the unit responsible for the sector where the crash occurred remained at the site to search for the remains of the pilot, the platoons effectively transitioned from wreckage recovery to logistics support operations.

Later in the deployment, A Company assisted the 2d Battalion, 8th Regiment (Combined Arms Battalion), in relocating a combat outpost in Tarmiyah after the original combat outpost was destroyed by a series of vehicle-borne improvised explosive devices (IEDs).



A multifunctional logistics platoon returning from a joint mission with Iraqi Army soldiers just outside of the Taji Market. *(Photo by 1LT Justin T. Bergen.)*

A Company performed multifunctional logistics missions, recovering 26 not-mission-capable Iraqi Police vehicles from Tarmiyah to Forward Operating Base (FOB) Taji while hauling and emplacing over 300 tons of barrier material to harden the new combat outpost.

When the mission required a reconfiguration of the 1st BCT's area of responsibility, A Company supported the change by building multiple checkpoints and emplacing lookout towers, traffic control points, and serpentines, thus greatly enhancing the security posture of the land-owning units. Throughout the deployment, patrols delivered fuel to Iraqi Police stations, escorted detainees to the division holding area, transported graduates of the Iraqi Police Academy to their assigned police stations, and escorted provincial reconstruction teams to multiple meetings with key Iraqi leaders throughout the Green Zone and Baghdad.

This brief synopsis of missions highlights only a few of those the 115th BSB conducted using the multifunctional platoon configuration.

Organizing the Platoons

The task organization of the platoons allowed any platoon of the 115th BSB to conduct the range of missions assigned to the battalion. Each platoon included transportation specialists, quartermaster water treatment specialists and petroleum supply specialists, wheeled vehicle mechanics, and medics. Similarly, the logistics platforms available throughout the 115th BSB were reallocated to better assist the platoons in their missions. Each platoon had an M1000 heavy equipment transporter system, five M1074/1075 palletized load systems, M871 trailers, an M969 5,000-gallon fuel tanker, and M931 bobtail tractors. Equipment in limited quantities, such as the single M172 lowboy trailer and the reverse osmosis water purification unit, were assigned to a specific platoon for maintenance but remained available to the other platoons and were used as missions dictated.

Task-organizing the platoons into integrated teams ensured cohesive bonding of personnel and arranged complementary skill sets for missions throughout the deployment, providing Soldiers with a single chain of command for all missions both on and off FOB Taji. Instead of drawing Soldiers from around the battalion to accomplish a mission, the 115th BSB rotated the platoons according to a schedule that provided each platoon with time for maintenance, service on the quick reaction force (QRF), and mission performance. By assigning a mission to one of these platoons, the battalion reduced its coordination requirements and expedited mission accomplishment. Working together daily brought the Soldiers together and allowed them to develop a high level of esprit de corps.

Each platoon had the personnel needed to complete a wide variety of missions. For example, during Operation Rapid Honor, A Company was tasked to provide class IIIB (bulk petroleum, oils, and lubricants) resupply and to retrograde three not-mission-capable vehicles from an Iraqi Police station back to FOB Taji. Under the system generally used in the Army today to perform these missions, a fuel platoon would have sent a fuel element, a transportation platoon would have sent three vehicles to load the not-mission-capable vehicles, a medical company would have sent medics, a maintenance company would have sent mechanics and a heavy expanded mobility tactical truck (HEMTT) wrecker, and a separate security element would have been tasked to provide an escort. By using a task-organized multifunctional platoon structure, the mission could be given to a single, integrated platoon. No other coordination was needed, and the mission could be conducted by a team that had spent weeks developing and implementing a single set of tactics, techniques, and procedures (TTP) and standing operating procedures.

Platoon Soldiers were provided with an array of tools to complete their broad mission set. Their assigned weapon systems ranged from the M4 carbine to the M2 machinegun. Security platforms assigned to platoons used counter-IED equipment and TTP to mitigate the IED threats along the routes. To maintain communication and in-transit visibility, the platoons were outfitted with Harris radios, Blue Force Tracker, Force XXI Battle Command Brigade and Below (FBCB2) system, Movement Control System (MCS), multiband inter/intra team radios, and the single channel ground and airborne radio system (SINCGARS). Platoon security platforms were outfitted with an assortment of other tools that provided personnel with further preparation for unforeseen situations.

Developing Multiskilled Personnel

Cross-training was an important benefit of the multifunctional platoon system. The merging of personnel with different military occupational specialties (MOSs) created a pool of knowledge and experience that could easily be disseminated during sergeant's time training or during more formal training. Throughout the deployment, Soldiers of the 115th BSB received extensive training on their TTP in a classroom setting and, using a hands-on approach, learned how to operate their equipment. These methods of teaching greatly increased the Soldiers' survivability on the road. Cross-training enabled A Company personnel to achieve 100-percent tactical combat casualty care (TC3) qualification and become familiar with equipment recovery techniques; assigned mechanics and operators were able

A multifunctional logistics platoon returning to Forward Operating Base (FOB) Taji following a barrier mission during the construction of FOB Condor. *(Photo by 1LT Justin T. Bergen.)*

to continually review preventive maintenance checks and services procedures for equipment. Soldiers were cross-trained on vehicles they normally would not operate. Cross-training also instilled in the Soldiers a deeper appreciation and understanding of the tasks performed by Soldiers with other MOSs.

The 115th BSB also looked for sources outside the unit to increase the knowledge and skills of platoon Soldiers. The Engagement Skills Trainer 2000, the high-mobility multipurpose wheeled vehicle egress assistance trainer (HEAT), counter-IED training, fire team training, small kill team training, TC3 training, recovery training, jaws of life training, combatives, and enemy prisoner-of-war team training were just a few of the training events and resources that increased Soldiers' survivability awareness and flexibility so they could meet the requirements of the mission-essential task list. While in theater, A Company also provided firefighting support for FOB Taji using nonstandard firefighting equipment. Regular, specialized training ensured that well-trained Soldiers were always on hand in the event of an emergency.

Forming for Movements

A Company not only had an unusual task organization, it used a unique movement formation for a logistics unit. Because the enemy situation was unknown and contact was likely, the 115th BSB settled on a movement-to-contact formation drawn from Field Manual 3–90, Tactics. A forward security element was formed within each convoy. The forward security element's assigned task was to provide route clearance and security in advance of the convoy's main body, thereby allowing for the safest possible passage of the main body.

The forward security element would move forward of the main body as far as 3 kilometers. Having a forward security element far in advance gave the patrol commander time to make decisions before the main body of the convoy was decisively engaged by the enemy or met an obstacle. Noncommissioned officers (NCOs) with combat experience were charged with operating in the forward security element and ensuring that accurate information was relayed to the patrol commander. The formation relied on the forward security element to accurately determine the security of the route before the main body arrived. The distance between the forward security element and the main body depended on METT–TC (mission, enemy, terrain and weather, troops and support available, time available, and civil considerations) factors.

Directly behind the forward security element was the convoy's main body, which included all logistics platforms and the integrated security element. The task of the main body was to get to and from the objective as safely and expeditiously as possible and to conduct actions on the objective at the direction of the patrol commander. The largest and slowest vehicles were located as far forward as possible to reduce the likelihood of large gaps in the convoy caused by a slow vehicle's inability to keep up or a large vehicle's inability to navigate around an obstacle that would not stop smaller vehicles. The patrol commander was also located within the main body to provide centralized command and control. For accountability and rear security purposes, the assistant patrol commander rode in the trail vehicle. Having the patrol commander close to the front and the assistant patrol commander located at the rear guaranteed that if a convoy was separated for any reason, a senior leader remained with both elements.

The assistant patrol commander was responsible for the rear security element of the convoy. The task of the rear security element was to provide security to the rear and alert the patrol commander of any changes to the situation in the rear of the convoy, such as a vehicle breakdown.

For many missions, convoys traveled with an additional maneuver platform located between the patrol commander and the assistant patrol commander. This

"flex security element" was available for use at the discretion of the patrol commander. If the forward security element needed reinforcement, the patrol commander had the option to call on the flex security element.

During movement, the assistant patrol commander aided the patrol commander by enforcing standards, guided by established TTP and the patrol commander's established plan. At the objective, the patrol commander integrated his security platforms with those of the unit in command of the sector; this left the assistant patrol commander in command of his convoy's security platforms while the patrol commander was overseeing the actions on the objective. This arrangement was key because command of security platforms during movement remained with the patrol commander but shifted at the objective to the assistant patrol commander.

Providing a QRF

The adaptability and potential of the multifunctional platoon system were quickly recognized by the 1st BCT. Shortly after arriving in theater, the 115th BSB was tasked with providing a QRF for FOB Taji. Using the maneuver and recovery elements assigned to each platoon, A Company was able to meet this requirement, completing 75 QRF missions over the course of the deployment. The BSB was especially well suited to provide a QRF because the platoon Soldiers were traveling throughout the BCT's entire footprint providing logistics support. This made them familiar with all major routes in the 1st BCT's area of operations.

The company's three platoons were put on a 3-day rotation: QRF on day 1, missions on day 2, and maintenance on day 3. The availability of a QRF enabled the 1st BCT to use its combat power more effectively because it did not have to fix vital maneuver assets at static locations. The platoons performed the role of a FOB QRF by adjusting their TTP in preparation for a wide variety of missions, including escorting VIPs, establishing traffic control points, securing perimeters, and performing riot response and crowd control.

The strength of the multifunctional platoons lay in their inherent flexibility and the continuity provided by their structure. The task-organization of platoon personnel and equipment ensured increased flexibility to the 115th BSB and to its parent 1st BCT, 1st Cavalry Division. The continuity of the platoons enhanced unity of command and provided Soldiers a single, recurrent chain of command, which increased their peace of mind and their familiarity with their leaders' expectations. Leaders were able to work more closely with their Soldiers, which helped them to better understand their Soldiers' capabilities and how to employ the members of their team best. By working together as teams, each platoon was able to establish, rehearse, and implement drills and TTP. The teams formed tight bonds and developed a high degree of esprit de corps.

Task-organizing the battalion into multifunctional platoons also made tactical sense. Cohesive teams work together efficiently and confidently. A team with regularly rehearsed TTP is more effective than a team thrown together to accomplish a single mission.

Although the multifunctional platoon system offers many benefits, it also has some weaknesses. Junior enlisted Soldiers may not get the same mentorship and training in their MOSs that they might receive in an MOS-specific platoon. To minimize this problem, the 115th BSB took steps to ensure that each platoon had experienced NCOs from a range of MOS backgrounds. Mentorship and junior leader development were stressed throughout the deployment.

The multifunctional platoon system was extremely successful for the 115th BSB during Operation Iraqi Freedom 06–08. By the end of the deployment, platoon Soldiers were able to easily complete a wide variety of missions, due in large part to the innovative task organization of the logistics patrols. **ALOG**

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Combined Logistics Excellence Awards: What It Takes to Win

Is your unit or agency trying to decide if it should enter the 2009 Chief of Staff of the Army's Combined Logistics Excellence Awards (CLEA) competition? The awards recognize organizational achievement in the areas of deployment, maintenance, and supply operations for all components—Active Army, Army National Guard, and Army Reserve. The CLEA competition shines the spotlight on logisticians and recognizes the critical role they play in supporting the warfighter.

Entering the 2009 CLEA competition is an excellent training opportunity for the personnel of your unit or agency. It will also have a positive effect on the overall combat readiness of your organization. Competing for a CLEA might just be one of the best investments of time and effort your agency or unit makes all year. When a team of blue ribbon panel experts declares your work to be among the "best of the best" of the Army's logistics activities, that honor will speak volumes about your organization's expertise, professionalism, dedication to duty, and contributions to Army success.

Is competing for CLEA challenging? Absolutely. Is winning an award achievable? You bet.

But what does it take to win an award? What distinguishes the best organizations in deployment, maintenance, and supply? The experiences of winning units can offer your organization some guidance as it ponders entering the competition. Here are some "best practice" tips provided by the winning and runner-up units of the 2008 competition. These high-performing organizations attribute their success in the CLEA competition to focusing on these practices. [A complete list of winners of the 2008 awards is on page 47.]

Deployment

1. Understand the deployment process. Key leaders and operators in the unit must understand the process and its impact on the unit and the importance of reception, staging, onward movement, and integration (RSO&I). Conduct deployment exercises that take leaders and operators through the installation deployment process, and develop an RSO&I plan.

2. Plan for deployment. Deployments are based on operational requirements and should be inextricably linked to how the unit will be employed.

3. Develop a set of procedures for deployment. Invest time in developing and updating deployment standing operating procedures (SOPs).

4. Maintain equipment. Equipment readiness is crucial, particularly for short-notice deployments.

A mechanic from Maintenance Activity Kaiserslautern, Germany, works on a high-mobility multipurpose wheeled vehicle. The activity won a 2008 Army Award for Maintenance Excellence. *(Photo by PFC Michael Syner.)*

5. Maintain Soldiers. Ensure that Soldier readiness processing is scheduled regularly. Pay special attention to medical and dental readiness.

6. Maintain data. Unit movement officers should update organizational equipment data regularly. They should ensure that military shipping labels and radio frequency identification tags are correct and properly affixed to vehicles and containers.

7. Coordinate with deployment support. Nurture a close relationship with the installation staff, the unit movement coordinator in particular. Leverage the skills and knowledge of the mobility officer and the mobility support element.

8. Train deployment skills. Treat individual and team deployment skills as critical elements of the unit's overall skill set and readiness standard. Integrate deployment training into other collective training. Develop a unit deployment list for all training activities, validate load plans, and process them through the installation staging activity.

9. Prepare for change. Missions, personnel, and schedules change. Build in redundancy in deployment skills.

10. Ensure command involvement. Command emphasis and presence pay dividends during deployment and training operations.

Maintenance

1. Ensure that Army Materiel Status System readiness reports and all other phase I submission data are accurate and are verified during phase II.

2. Verify that all equipment is mission capable. Report all not-mission-capable equipment properly during phase II evaluation.

3. Initiate innovative procedures that improve existing systems.

4. Ensure that SOPs are well written and—very importantly—are followed.

5. Establish and maintain excellent quality control and safety programs.

6. Ensure that all modification table of organization and equipment or table of distribution and allowances shortages are justified or replacements are on order. Properly dispose of excesses.

7. Verify that prescribed load list, shop stock, and bench stock items and all pertinent regulations and publications are on order or on request.

8. Establish a unit-level approach to maintenance. *Everyone* must be involved. Command involvement and emphasis are mandatory.

9. Maintain excellent maintenance and training records.

10. Perform scheduled maintenance the entire year, not just in preparation for the maintenance awards evaluation.

Supply

1. Ensure that SOPs are properly established, well formulated, and enforced by all levels of command.

2. Establish and maintain the Command Supply Discipline Program (CSDP). Appoint senior logisticians as CSDP monitors. Deliberately formulate checklists. Complete inspections at the required frequency, and conduct followups to correct deficiencies.

3. Property book officers should take a "whole view" approach to accountability in managing each aspect of their property books. Train and develop subordinate managers and give them proper guidance and follow-up.

4. Post all documents that support changes to the property book in a timely manner. Properly file documents for quick reference.

5. Ensure that the latest supply catalogs and technical manuals are in use at the unit. Review the Logistics Support Activity (LOGSA) webpage at www.logsa.army.mil to verify that the unit possesses the latest references.

6. Make sure that clothing records are complete and properly maintained and contain all required documents.

7. Complete required periodic, cyclic, and annual inventories. Manage sensitive items, arms, and ammunition inventories in accordance with all applicable regulations.

8. Supply support activities (SSAs) should properly transfer the stock record accounts from the losing stock records officers (SROs) to the gaining SROs and maintain the proper supporting documentation. Appoint the gaining SROs properly.

9. All SSAs must meet or exceed established Department of the Army goals for location surveys, inventory accuracy, inventory adjustments, denial rates, request and receipt processing, and zero balance rates.

10. Establish a continuity of operations plan (COOP). SSAs must have a COOP in place that is tested annually and is modified and updated as required.

These steps have been demonstrated in each category by successful CLEA competitors and have proven to be effective in achieving the desired goal of winning an award. Study and put them into practice, and at the 2009 CLEA ceremony your unit or agency may be honored. Good luck. **ALOG**

ARMY LOGISTICIAN *thanks Willie Miller-Walker of the Army Combined Arms Support Command at Fort Lee, Virginia; Henry H. Johnson of the Deployment Process Modernization Office at Fort Eustis, Virginia; Chief Warrant Officer (CW–4) David F. Gorman of the Army Quartermaster Center and School at Fort Lee; and Michael E. Burch of the Army Ordnance Center and School at Aberdeen Proving Ground, Maryland, for their contributions to this article.*

The Distribution Dilemma:
That Last Tactical Mile

BY MAJOR KEVIN F. DANIELS, USAR

The mountain of unopened containers and stockpiled supplies left in the wake of Operations Desert Shield and Desert Storm (ODS) in 1990 and 1991 proved that our antiquated logistics systems required a complete overhaul. The economic conditions and the downsized military structures of the post-Cold War period required a refined and more responsive logistics architecture to serve the next generation of military operations more efficiently. Army leaders looked at successful commercial enterprises—companies such as Federal Express (FedEx), United Parcel Service (UPS), and a host of others—for potential answers. Catchy business phrases like "just in time logistics," "logistics pipeline," and "end-to-end distribution" rapidly surfaced during the 1990s. But did commercial practices offer suitable models for military operations? While many believed so, the daunting logistics failures in Operation Iraqi Freedom (OIF) demonstrated the limitations of end-to-end distribution in the military, particularly in that portion of the process we call "the last tactical mile."

The purpose of this article is to examine the application of commercial business models to military operations, identify some key shortfalls, and recommend potential solutions to resolving the last tactical mile dilemma Army logistics forces faced in OIF and will likely face again unless the Army changes its processes.

The Problem: Desert Storm's Iron Mountains

We must first look at the catalyst for change in Army logistics. We need to conduct a brief background examination of logistics problems revealed by ODS and the solutions the Army applied in its wake that proved to be inadequate.

Our country has always answered the call and flexed its industrial might when faced with global, and even internal, conflicts. In times of war, the Nation's capacity to produce, ship, and build incredible stockpiles of wartime goods has been unprecedented and unmatched anywhere in the world. We have relied on our ability to produce and stockpile mountains of materiel to overwhelm any enemy.

Despite General Norman Schwarzkopf's intent to do things differently, ODS was no exception. Schwarzkopf wanted to avoid creating the large "rear area log bases like the ones at Long Binh and Qui Nhon that he remembered from Vietnam."[1] He believed that large logistics bases limited operational flexibility and reach and subjected long logistics tails to the risk of interdiction. Yet the decisions Schwarzkopf and other operational commanders made in planning and sourcing ODS did exactly that. Their sequencing of combat elements before combat service support elements on the time-phased force deployment document (TPFDD) meant that large quantities of equipment and supplies arrived in theater with only a small logistics support infrastructure on the ground to process and distribute them in theater.[2]

By the end of September 1990, in the early stages of Desert Shield, "some 17,450 tracked and wheeled vehicles, 450 aircraft and 1,521 sea land containers had been discharged at air and sea ports."[3] But appropriate cargo documentation teams and logistics organizations had yet to deploy. Without the ability to document items coming into the theater or to push them forward, backlogged airports and seaports became massive holding areas for cargo, with little room for more. Schwarzkopf made this already problematic logistics infrastructure worse when he ordered that a 60-day supply of ammunition be available in theater.[4] The "iron mountain" so often used to describe logistics in ODS was formed.

These decisions significantly affected the ability of anyone to account for what was actually on the ground in theater or to determine what was not there but should have been. Many units believed the supply system had failed and reordered supplies until, at some point, they arrived. These requisitions created additional burdens on an already bogged down logistics and distribution system. "Once logistical support units began to arrive in theater and the supply system graduated from a 'push' to a sustainment mode the supply units began to get some visibility of the supplies being stored at the ports."[5]

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1 Robert Scales, *Certain Victory*: *The US Army in the Gulf War* (Fort Leavenworth: U.S. Army Command and General Staff College Press, 1994), p. 58.
2 U.S. General Accounting Office Report Number NSIAD-92-20, *Desert Storm Supply Distribution* (Washington: U.S. General Accounting Office, 1991), p. 8.
3 Scales, p. 75.
4 Ibid., p. 81.
5 GAO Report, *Desert Storm Supply Distribution*, p. 4.

But the iron mountain obstacle endured. After the war, it took Army logisticians over a year to sort through the chaos and identify the contents of the containers stacked at the ports. The costs associated with shipping, storing, accounting for, and returning this mountain of unused supplies and equipment warranted investigation by the General Accounting Office (GAO) and served as a change engine to prevent such waste in the future.

The Perceived Solution: Velocity Management

Once the Army recognized it had a logistics problem requiring serious attention, it sought the best mechanisms for change. Army leaders looked to the RAND Corporation to assess its logistics failures and recommend potential solutions.[6] According to the GAO report on ODS distribution, the Army's problems did not stem from an inability to get supplies to the theater; they resulted from an inability to capture visibility of incoming supplies and from difficulties in distributing supplies to units arriving in theater. The RAND study agreed. Army organizational structures lacked the cargo classification assets, transportation, and distribution management resources to receive and keep supplies and equipment flowing forward. Large stockpiles of materiel meant little if they could not be delivered to their intended users. The Army logistics system was "unreliable, inefficient, unresponsive to changing customer needs, and expensive."[7]

The RAND study concluded that commercial distribution processes used by FedEx and UPS appeared to be likely models for resolving the Army's distribution woes. These companies operated efficient distribution centers that routed and tracked a constant flow of parcels in a process termed "velocity management." This modern business model could improve the efficiency and accuracy of receiving centers to facilitate timely distribution forward. Streamlined, just-in-time logistics with interconnected distribution centers would replace cumbersome, costly stockpiles.

The Army believed that RAND's velocity management model was the answer to the issues raised by ODS, and it accordingly implemented change in selected organizations.

Testing the Solution: Early Success

The test organizations appeared to validate the velocity management initiative as it "succeeded beyond all expectation."[8] Costs of storage dropped dramatically as supplies stayed in motion through this perceived logistics pipeline from depot-level centers to supply support activities and end-users. A subsequent RAND study showed significant increases in readiness levels and repair times because order accuracy and fulfillment increased, allowing parts to arrive in half the time it had taken using the Army's antiquated distribution mechanisms.[9] The increase in performance, efficiency, quality, and reduced costs warranted application of velocity management principles Army-wide. Before the end of the 1990s, the business terminology and techniques associated with velocity management had permeated the service and "brought a new way of doing business to the Army."[10]

Could this business model endure the challenges of combat operations? At first, it appeared so, as operations in Kosovo benefited from streamlined, responsive logistics.[11] However, the conditions in the Balkans, such as the presence of adequate airfields and infrastructure and short lines of communication (LOCs), more readily facilitated the application of just-in-time logistics than would be possible in less developed theaters.[12] The true challenge for velocity management came in Afghanistan during Operation Enduring Freedom. Afghanistan presented the worst conditions for logisticians and velocity management. The limited infrastructure and poor LOCs of Afghanistan could strain even the best logistics system, but surprisingly, they did not. It appeared velocity management had endured combat conditions.

Iraq: Velocity Management Fails

Why, then, did the principles of velocity management fail so miserably just 1 year later in OIF? Did the size and scope of the conflict and the forces on the ground in Iraq, compared to the limited specialized forces deployed to Afghanistan, make that much of a difference? Undeniably yes, but the technologies the Army developed over the last decade should have eliminated the mass quantities of supplies and containers that paralyzed logistics in ODS. Despite the successes of the previous decade, the Iraqi theater almost immediately experienced "a backlog of hundreds of pallets and containers of materiel at various distribution points due to transportation constraints and inadequate asset visibility."[13]

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[6] Paul W. Rodgers, Major, USA, "Battlefield Distribution: A Systems Thinking Perspective." (Fort Leavenworth, KS: Army Command and General Staff College, May 2005), p. 13.
[7] John Dumond et al., *Velocity Management: The Business Paradigm That Has Transformed U.S. Army Logistics* (Santa Monica: RAND, 2001), available on line at http://www.rand.org/pubs/monograph_reports/MR1108/MR1108.sum.pdf), p. ix.
[8] Ibid., p. iii.
[9] Ibid.
[10] Ibid.
[11] Rodgers, p. 14.
[12] Ibid., p. 15.
[13] U.S. General Accounting Office Report Number Report 04-305R, *Defense Logistics ((*Washington, D.C.: U.S. General Accounting Office, 2003), p. 2.

Even more disturbing, the same force-sequencing issues that plagued Schwarzkopf in ODS immediately overwhelmed logistics under General Tommy Franks in OIF. The studies and doctrine developed in the wake of ODS addressed the importance of having logistics organizations and architecture on the ground at key ports and nodes early on, but they were widely ignored at the beginning of OIF and the technologies we had developed were used ineffectively. Again, our credibility as professionals came under scrutiny as Congress lost confidence in the military's ability to provide logistics on the modern battlefield. These failures were so obvious that immediate measures were necessary to correct the problem. However, the proposed solutions likely will not resolve the problems encountered in OIF (which, remarkably, were identical to those encountered in ODS).

On 18 December 2003, GAO concluded that the "failure to effectively apply lessons learned from Operations Desert Shield and Desert Storm and other military operations may have contributed to the logistics support problems encountered during OIF."[14] The report cited inadequate communications, data system incompatibility, and a lack of training for military personnel as the major contributors to poor asset visibility. The report also cited insufficient transportation and cargo-handling assets to move materials from ports and distribution centers and additional delays resulting from separating and repacking containers and pallets several times for delivery to multiple units in theater.[15] The most startling finding of the report was the cold fact that "logistics personnel and equipment did not deploy to the theater until after combat troops arrived, and, in fact, most Army [logistics] personnel did not arrive until after major combat operations were underway."[16] Sadly, these were almost identical to the major logistics failures in ODS.

Another Solution: Expanding TRANSCOM's Role

GAO indicated that the Department of Defense (DOD) concurred with its findings and was "already taking a number of actions that address some of them."[17] Of particular interest is the role of the U.S. Transportation Command (TRANSCOM) in resolving the problems in distribution management. "The Secretary of Defense designated the U.S. Transportation Command as a single distribution process owner [DPO] to address problems with the distribution process that hampered DOD's ability to optimally support deployed forces."[18]

Is TRANSCOM the right agency to resolve the logistics issues that plagued the U.S. military in OIF? At first, it would appear so given TRANSCOM's lead over the agencies responsible for moving defense materials across the globe. TRANSCOM's arsenal of services to facilitate distribution includes the Air Force's Air Mobility Command, the Navy's Military Sealift Command, and the Army's Military Surface Deployment and Distribution Command. On 17 August 2007, TRANSCOM also added the commercial carrier services of Menlo Worldwide Government Services, LLC, in a lucrative long-term contract "to increase the effectiveness and efficiency of DOD freight movements in the continental United States."[19]

As the agency that provides "air, land and sea transportation for the Department of Defense, both in time of peace and time of war,"[20] it makes sense for TRANSCOM to manage the distribution networks that support combatant commanders throughout the world. However, as the DPO, TRANSCOM has become DOD's supply chain manager and thus responsible "for the entire distribution process," not just their old "fort to port" portion. TRANSCOM is "expanding supply chain visibility and . . . crafting a true sense-and-respond logistics reach all the way back to suppliers and forward to the point of the spear in combat."[21] The idea that TRANSCOM serves as the supply chain manager fails to address the actual problem with end-to-end distribution. Aside from generating a new buzzword, "sense-and-respond logistics," its newly touted "factory to foxhole" service does not resolve the distribution issue faced in OIF, of "hundreds of pallets, containers, and boxes of excess supplies and equipment" stuck at the ports and distribution centers in Kuwait and Iraq.[22]

Identifying the Problem: Theater Distribution

To achieve a real solution to the Army's battlefield distribution woes, we must look at the real issues that created them. Of all the inquiries, reports, studies, and conclusions drawn from logistics operations in OIF, not one identified strategic distribution as the problem in getting the warfighter his critical needs. Yet TRANSCOM, a strategic-level DOD agency, became responsible for fixing the OIF logistics problem. Based on the observations of leaders in theater and on GAO's assessment described above, the key logistics deficiencies requiring a solution were—

- Poor asset visibility.
- Insufficient and ineffective theater distribution capability.

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14 Ibid., p. 4.
15 Ibid., p. 3.
16 Ibid.
17 Ibid., p. 6.
18 Ibid.
19 U.S. Transportation Command News Service, "USTRANSCOM Announces Award of Defense Transportation Coordination Initiative Contract," available at http://www.transcom.mil/pa/body.cfm?relnumber=070817-1.
20 U.S. Transportation Command Website, Mission, http://www.transcom.mil/organization.cfm, accessed 3 October 2007.
21 Ibid.
22 GAO Report, *Defense Logistics*, p. 2.

• Failure to apply "lessons learned" from prior operations.

• Other logistics issues (outside the scope of this paper).

Of all of these issues, the one TRANSCOM could influence most is poor asset visibility, but only from a systems standardization and integration perspective. As seen in the many references to a disconnect in the "seams" between the strategic, operational, and tactical levels of logistics, TRANSCOM management of the Global Transportation Network and integration of data from existing Standard Army Management Information Systems could provide effective locality information on supplies and equipment (and personnel) moving through the theater. TRANSCOM's value in systems integration has proven valid.

However, the real asset visibility issue experienced in OIF was the inability of Soldiers to use available systems effectively. Basic operator training at the critical user level was limited at best, or even nonexistent for most Reserve component Soldiers (who constitute much of our sustainment force structure). This lack of training directly affected data input at the basic (tactical) level, which prevented logisticians at the operational level from obtaining an accurate picture of items in or moving through the theater. A strategic-level agency cannot possibly resolve basic training skills for Soldiers at the tactical level. DOD has unfortunately fixated on the asset visibility problem. More and better technology will not resolve the actual asset visibility issue.

Surprisingly, "insufficient and ineffective theater distribution capability" is the problem TRANSCOM is least likely to resolve. The presence of theater distribution problems following an operation was not new for the Army. Immediately following ODS, reports quickly pointed to a lack of transportation assets to move supplies and equipment on the battlefield. Despite the Army's overwhelming improvements in velocity management in the 1990s, it had still failed to address the problem of not having enough trucks in the force structure to move equipment and supplies on the battlefield. "Lack of transportation was one of the major reasons that distribution was such a challenge in OIF."[23] GAO concurred with this view when it concluded that "adequate transportation assets, such as cargo trucks and materiel handling equipment, were not available within the theater of operations."[24] The commercial business practices the Army adopted with RAND by its side proved prudent in garrison, but they did little to fix this continuing problem in combat operations.

As if it were not obvious enough, the Army failed as an organization to fix what it knew had been amiss since ODS. GAO concluded that many of the issues observed following ODS appeared to recur in OIF. Combat forces, supplies, and equipment arrived in theater before adequate logistics forces and infrastructure were in place; forces lacked sufficient transportation assets to move materials; and despite great improvements (and expense), the military ineffectively used automation to orchestrate the movement of materials in theater.

In August 2005, GAO completed another report on DOD logistics. It listed logistics problems encountered in ODS and OIF side by side for comparison. The deficiencies were almost identical. GAO concluded—

> Long-standing problems in DOD's distribution system have continued to impede its ability to provide effective and timely logistics support to the warfighter during recent operations. Such problems occurred during Operations Desert Shield/Desert Storm in 1991, and DOD after action reports, as well as studies by our office and other organizations, have documented similar supply distribution problems during Operation Iraqi Freedom.[25]

The Army's "lessons learned from logistics were noted and never corrected."[26]

Real Solutions: Bridging the Last Tactical Mile

The Army temporarily resolved many of the logistics issues experienced during the initial stages of OIF, but only because the theater settled into a relatively stable environment with established distribution nodes and ample contractors to resolve organizational deficiencies. However, the Army and DOD must face the reality of problems they encountered and invoke real solutions before the next major military operation. The following recommendations are not all-inclusive, but they do address the major logistics issues described above and offer a logical opportunity for correction at the appropriate organizational level.

Issues with asset visibility will not go away with more systems or radio frequency identification tags on the battlefield. Existing technologies are appropriate for their intended use. DOD should allow technology to evolve naturally and not force the continual integration of the latest invention before operators fully understand the capabilities of the last. Doing so creates inconsistencies and incompatibilities in equipment; it also creates differences in experience using available systems between forces rotating in and out of theater and between Active and Reserve Component units.

In its role as the DPO, TRANSCOM should establish one asset visibility standard for all of the armed services

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[23] Rodgers, p. 36.
[24] GAO Report, Defense Logistics, p. 3.
[25] U.S. General Accounting Office Report Number 05-775, *DOD Has Begun to Improve Supply Distribution Operations, but Further Actions Are Needed to Sustain These Efforts*, (Washington, D.C.: U.S. General Accounting Office, August 2005), p. 6.
[26] Eric P. Shirley, Major, USA, "Army Battlefield Distribution Through the Lens of OIF: Logistical Failures and the Way Ahead," (Fort Leavenworth, KS: U.S. Army Command and General Staff College Press, January 2005), p. 59.

to adopt, including systems, use of technology, marking, processing, and handling of items moving through the logistics pipeline. The current pure-pallet procedures used at Defense Depot Susquehanna, Pennsylvania, are well suited for accurate asset visibility and should continue to be used for all Defense Logistics Agency (DLA) services. In their Title 10 role as force trainers, the armed services should educate their personnel and leaders across all components on this TRANSCOM-designated single asset visibility system, including marking, processing, and handling of items.

Resolving issues with insufficient and ineffective theater distribution capability requires two separate actions. The first action is providing more trucks. In OIF, "there simply were not enough cargo trucks to meet all of the demands."[27] More contractors on the battlefield are only a temporary solution, and in many cases they are unreliable.[28] Current Army modularity initiatives will not resolve the shortage of trucks, nor will moving forces on and off existing transportation platforms. Although it is an effective piece of equipment, the palletized load system, with its flat-rack distribution capability, does not add more trucks to the inventory. The theater sustainment commands must have additional trucks and truck companies to facilitate the movement of commodities through the theater, and they must have them on the ground much earlier. Combatant commanders should arrange the TPFDD so distribution assets arrive in theater before major combat forces and their accouterments. All evidence from OIF indicates that combat forces would have been more effective earlier if their supplies and equipment had been received and distributed in theater more effectively.

The second action requires the Army to change its distribution force structure at the lowest level possible. Current DLA initiatives to establish theater distribution centers facilitate movement from the strategic and operational levels to the tactical, but they fall short once commodities enter the tactical distribution channels, at the "seam" between entities commonly called "the last tactical mile." Movement control teams (MCTs) do not actually "control" the movement of forces along LOCs. Another oddity in distribution force structure is that the Army does not have a table of organization and equipment (TOE) for convoy support centers (CSCs), yet it builds such centers in every conflict to facilitate movement along long LOCs.

CSCs should become doctrinal organizations; they should be established at points along LOCs and include MCTs that maintain electronic visibility of commodities moving through the CSCs, thereby creating battlefield distribution centers.[29] "We might term the core set of battlefield distribution tasks 'physical distribution management.' It is about running the DC [distribution center] rather than planning what is in it and where it is, more tactical and operational than strategic."[30] Satellite systems track convoys through the Movement Tracking System (MTS) but do not facilitate the movement of commodities through the logistics pipeline. Active management of convoys at CSCs with MCTs would.

Finally, the issue of failing to act on lessons learned is a difficult one to acknowledge, but it is the easiest to resolve. The studies of the critical logistics failures are recorded in history and available for review. Of particular interest is the August 2005 GAO report that lists ODS and OIF logistics shortfalls side by side for comparison. The initiatives taken in the decade following ODS and the failures in OIF demonstrated that commercial business models, while efficient in garrison, were not as effective on the battlefield. RAND, despite its direct involvement in the business initiatives of the 1990s that failed on the battlefield, provided a detailed analysis of shortfalls with viable solutions in their 2005 study, *Sustainment of Army Forces in Operation Iraqi Freedom*.

The Army's use of commercial business models improved logistics significantly over the "iron mountain" inefficiencies of Operations Desert Shield and Desert Storm. However, these initiatives did not produce the force structure and assets needed to prevent recurrence of ODS-type problems in subsequent operations, as shown by the repeat of many of the same logistics failures in OIF. The limitations of end-to-end distribution, particularly in the "last tactical mile," have been demonstrated. If the Army does not address the shortfalls identified in ODS and again in OIF and institute changes below the strategic level, its logistics forces may well face the distribution dilemma of the last tactical mile again. **ALOG**

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[27] Eric Peltz, Marc Robbins, Kenneth Girardini, et al., *Sustainment of Army Forces in Operation Iraqi Freedom* (Santa Monica, CA: RAND, 2005), p. xiii.

[28] GAO Report, *Defense Logistics*, p. 5.

[29] RAND concluded that the Army needed distribution center units and battlefield distribution centers to improve theater distribution. The recommended CSCs would meet the requirements of their finding at the lowest level possible. See RAND study, *Sustainment of Army Forces in Operation Iraqi Freedom*, p. xvii and 10.

[30] Eric Peltz, "Logistics: Supply Based or Distribution Based?" *Army Logistician*, March-April 2007, accessed on line at http://www.almc.army.mil/alog/issues/Mar-Apr07/supply_vs_dist.html

Exchange Pricing Improves Reparable Item Management

The Assistant Secretary of the Army for Financial Management and Comptroller has created a business process improvement tool to mitigate financial problems the Army has experienced by granting additional credit for secondary items through its current logistics systems. The program, known as Exchange Pricing, began in April 2008.

Exchange Pricing requires a one-for-one relationship. When an item identified for the Exchange Pricing program is issued, the Exchange Pricing tracking system will ensure that a similar, unserviceable item, as defined by Order of Use file item relationships, is returned to the supply system within an established time period.

Exchange Pricing is designed to provide a more disciplined system for returning reparable items to the supply system, provide greater national-level visibility of reparable items (which will enable the National Maintenance Program to more accurately compute requirements), and reduce the number of financial transactions currently involved in the issue and turn-in process (by not granting credit for the return of unserviceable items). Ultimately, Exchange Pricing will allow commanders to manage their budgets more effectively by eliminating the waiting period for expected credit for unserviceable items.

The Army began implementing the program by tracking issues and turn-ins against the established delay days period (DDP) for transactions of items identified for the program. ["Delay days period" is the specified time allotted that an issue is available to be matched to a turn in. The initial period is 60 days.] Three new data elements—the exchange price value, the delta bill value, and the serviceable exchange pricing return (SEPR) credit value—were added to the Army Master Data File (AMDF) of the Federal Logistics Data (FED LOG) catalog entries for those items. This initial implementation period will give logistics and resource managers opportunities to familiarize themselves with management information reports and assess the potential financial impact of the program when later phases are implemented.

In October, the Army will begin using a one-for-one credit policy for reparable items. Credit originally granted will be reversed if the turn-in transaction cannot be matched to an issue within the DDP. The Army Materiel Command G–8 will receive a monthly report of all unmatched serviceable and unserviceable turn-ins exceeding the DDP. The turn-in transactions included on the report will serve as candidates for credit reversal.

Recoverable Items Tracking is another segment of the October implementation. Under this initiative, the issue and turn-in of recoverable items, other than items already included in the Exchange Pricing process, will be tracked using the same logic employed for tracking Exchange Pricing items. There are no financial implications to Recoverable Item Tracking. The recoverable items reports displayed in Logistics Information Warehouse will take the place of the current Standard Army Retail Supply System overage reparable item list, providing the Army with one information source to manage the recoverable item turn-in process.

Ultimately, Exchange Pricing will allow commanders to manage their budgets more effectively by eliminating the waiting period for expected credit for unserviceable items.

The Exchange Pricing program is expected to be fully functional in May 2009. If an Exchange Pricing item is issued and a similar unserviceable item is not returned within the DDP, an additional obligation adjustment will be created and processed to charge the customer the difference between the standard price and the exchange price value. No unserviceable turn-in credit will be granted for an exchange price-designated stock number. For a serviceable turn-in, SEPR credit originally granted can be reversed for a turn-in that is not matched to an issue within the DDP.

The Exchange Pricing processes will eventually migrate to the future Enterprise Resource Planning systems of the Global Combat Service Support-Army and the Logistics Modernization Program. Business rules and other information on Exchange Pricing are available on line at www.ssf.army.mil.

ARMY LOGISTICIAN *THANKS DAWN LAFALCE, CHIEF OF THE TRANSFORMATION INTEGRATION DIVISION, ARMY MATERIEL COMMAND, AT FORT BELVOIR, VIRGINIA, FOR HER CONTRIBUTION TO THIS NEWS ARTICLE.*

ALOG NEWS

NEW ARMY KNOWLEDGE ONLINE SUSTAINMENT FORUM INTRODUCED

Logisticians across the Army can now meet online to discuss issues and exchange ideas at a new Sustain Warfighting Forum (Sustain WfF) hosted by Army Knowledge Online through the Army Combined Arms Center Battle Command Knowledge System. The portal is a collaboration established by the Army Forces Command, Army Materiel Command, and Army Training and Doctrine Command in an effort to get sustainment Soldiers and logisticians in all Army components talking about their experiences, exchanging knowledge, and working as a total Army sustainment team. The portal is new, so Soldiers are invited to check out online tools, look around, and provide feedback. Soldiers can visit the website at https://forums.bcks.army.mil/secure/CommunityBrowser.aspx?id=555510.

NEW SYSTEM UPGRADES SAMS INSTALLATION FUNCTIONS

A new application of the Standard Army Maintenance System (SAMS) will improve support to maintenance personnel at installations. SAMS-Installation Enhancement (SAMS–IE) will replace the existing SAMS-Installation/Table of Distribution and Allowances (SAMS–I/TDA) at installation maintenance activities, directorates of logistics, and reset activities. It also will provide enhancements to tactical users of SAMS-Enhanced (SAMS–E). Fielding of SAMS–IE, which was developed by the Project Office for Logistics Information Systems, began in June at Fort Hood, Texas.

SAMS–IE eliminates duplicate processes for some functions and provides functions to verify operator qualifications, dispatch equipment, conduct preventive maintenance checks and services, maintain service information and fault records, conduct the Army Oil Analysis Program, and run Army Materiel Status System reporting. The new program will enhance other systems in use to provide unit-level maintenance; supply and readiness reporting; maintenance-related repair part information; and direct support- and general support-level maintenance activities management functions. SAMS–IE also eliminates the manual process previously required to interface with other tactical systems.

Information papers, upgraded quick start guides, and tutorials are available through the SAMS–E webpage at https://www.us.army.mil/suite/page/143642. Users must log into Army Knowledge Online before the page will be displayed.

[Information for this article was provided by Colonel Eugene W. Skinner, Jr., the Project Manager for Logistics Information Systems.]

PRESIDENT NOMINATES DUNWOODY TO BE AMC COMMANDER

Lieutenant General Ann E. Dunwoody has been nominated for promotion to general and assignment as the commanding general of the Army Materiel Command (AMC) at Fort Belvoir, Virginia. She was named deputy commander of AMC in June.

Once confirmed by the Senate, Dunwoody, who has 33 years of military experience, will become the first woman to hold the rank of general in the U.S. Armed Forces. Dunwoody has previously served as the Deputy Chief of Staff, G–4, Department of the Army, and as commander of the Army Combined Arms Support Command at Fort Lee, Virginia.

RETIRING J–4 GRADES ARMY LOGISTICS AT AUSA LOGISTICS SYMPOSIUM

The Association of the United States Army's Logistics Symposium and Exposition, held 13 to 15 May in Richmond, Virginia, brought leaders and Soldiers together from across the sustainment field to talk about lessons learned and emerging technology in logistics. The focus of the conference was "enterprise" logistics—the integration of strategic partners, resources, systems, and processes to improve interoperability in the Army and among joint, interagency, multinational, and industry partners.

On the eve of his retirement, Lieutenant General C.V. Christianson, the Director for Logistics (J–4) on the Joint Staff, graded the Army's performance in meeting the logistics imperatives he had set forth in 2003 when he was serving as the Army G–4. [See *Army Logistician*, July–August 2004.] To sustain combat power, the imperatives stated that the Army needs—

- The ability to connect logisticians so they can see requirements on demand through a logistics information network.
- A responsive and reliable theater distribution system enabled by in-transit and total asset visibility

and managed by a single owner that has positive end-to-end control.

• A robust, modular force-reception capability, with a dedicated and trained organization able to quickly open a theater and support flexible, continuous sustainment throughout the joint operations area.

• An integrated supply chain that allows the Army to effectively leverage all sustainment resources in a joint, interagency, and multinational theater.

Lieutenant General Christianson gave the Army a B+ in connecting logisticians, saying that "enterprise" solutions are needed instead of "point" solutions to give customers visibility. Point solutions have improved the situation, but visibility could be better. The lack of real-time information availability has resulted in low customer confidence and some disconnects in asset visibility. While all of the services are able to track assets within their own systems, there is no joint solution that allows all services to see and track the same information. Logisticians filling orders cannot always see the requirements needed on the battlefield, and the result is the "push" of supplies that created the "iron mountains" of Operation Desert Storm. To earn an A+, the Army must deliver visibility of all requirements, resources, and logistics processes; provide access to real-time, authoritative, shared information 24 hours a day, 7 days a week; include all sustainment functions (logistics, personnel, medical, and engineering); and use an enterprise solution that allows the joint force to see exactly what the Army sees.

The Army received a C– in modernizing theater distribution because it still needs a single control element for surface distribution and end-to-end visibility. Christianson said the transportation assets of brigade support battalions are limited in theater, and the Army still needs 16 days to get air shipments into Iraq. Improving the process will require integrating doctrine, force structure, and training. To earn an A+, a single control element for theater distribution will have to be designated. That control element must integrate with the Department of Defense (DOD) distribution process owner (DPO) and manage modal interfaces at surface nodes to ensure 100-percent visibility in the end-to-end process.

The Army received a second C– in improving force reception because deployment and reception are still not equal, with reception performed by ad hoc organizations in theaters with immature capabilities. Christianson said that an integrated joint theater expeditionary reception and sustainment process is needed. To get

Department of Defense logisticians stationed across the globe converged on Camp Arifjan, Kuwait, in May for the first Logistics Synchronization Conference hosted by the 1st Sustainment Command (Theater). The event gave U.S. military logistics leaders a forum to discuss ways to improve supply distribution to troops in Iraq, Afghanistan, Africa, and other countries in the U.S. Central Command area of responsibility. Conference participants focused on improving collaborative relationships between logisticians in the continental United States and forward-deployed logistics planners.
(Photo by SSG W. Watson Martin, 311th Sustainment Command [Expeditionary] Public Affairs Office.)

an A+, that process must enable a seamless transition among joint reception, staging, onward movement, and integration functions and deliver joint capabilities that meet the needs of the joint force commander.

Lieutenant General Christianson gave the Army a D in integrating its supply chain, saying that it is going to require a "unity of effort" from all participants to achieve. Global dispersion and reduced inventory without adequate distribution have contributed to customers not having what they need when they need it. The general suggested that supply chain integration will require a holistic view of the supply chain, a DOD enterprise solution to integration (including a single proponent that will take responsibility for integrating the supply chain), and letting the customer (the Soldier on the ground) drive the performance. To earn an A+, common metrics focused on the Soldier and the warfighter need to be in place, the DOD supply chain needs to be optimized at the best value, and the Army must be able to provide an estimated date of delivery for supplies and reliably meet it.

Lieutenant General Christianson said the Army did not get straight As because it does not control the joint logistics enterprise (although it shapes, influences, and guides it), the environment in which the Army operates constantly changes, the Army has to weigh short- and long-term requirements during this time of war, and the Army has taken "service" views when an enterprise approach was required.

The general said that in the next 5 years the Army needs to optimize the defense supply chain through unity of effort; deliver enterprise-wide visibility through joint requirements, resources, and processes; establish a life-cycle systems approach by linking acquisition and sustainment and managing fleets of equipment; improve joint operational contracting; optimize redeployment; and integrate readiness, reset, and the depots to establish a baseline capacity for life-cycle systems readiness.

Lieutenant General Christianson emphasized that the nature of today's battlefield requires DOD logisticians to "achieve unity of effort without unity of command," working together to get supplies to the military personnel who need them now.

OUTSTANDING UNITS HONORED FOR EXCELLENCE IN LOGISTICS

The Army Chief of Staff honored 85 outstanding Army units for their daily efforts in supply, maintenance, and deployment logistics on 3 June in Alexandria, Virginia, with the Army Combined Logistics Excellence (CLEA) Awards.

The **Deployment Excellence Award** winners are—

Operational Deployment

Small Unit. 66th Engineer Company, 2d Brigade Combat Team, 25th Infantry Division, Schofield Barracks, Hawaii.

Large Unit. 3d Armored Cavalry Regiment, Fort Hood, Texas.

All Army Installations

Fort Stewart, Georgia, and Fort Hood, Texas.

Active Army

Small Unit. 497th Transportation Company, 57th Transportation Battalion, 593d Sustainment Brigade, 1st Corps, Fort Lewis, Washington.

Large Unit. 44th Expeditionary Signal Battalion, 7th Signal Brigade, 5th Signal Command, Mannheim, Germany.

Supporting Unit. 180th Transportation Battalion, 4th Sustainment Brigade, 13th Sustainment Command (Expeditionary), III Corps, Fort Hood, Texas.

Army National Guard

Small Unit. Headquarters and Headquarters Detachment, 730th Quartermaster Battalion, Headquarters 60th Troop Command, Ahoskie, North Carolina.

Large Unit. 41st Infantry Brigade Combat Team, Tigard, Oregon.

Supporting Unit. Joint Forces Headquarters-Minnesota, Little Falls, Minnesota.

Army Reserve

Small Unit. 322d Combat Support Maintenance Company, Arden Hills, Minnesota.

Large Unit. 1185th Transportation Terminal Brigade, Lancaster, Pennsylvania.

Supporting Unit. Headquarters and Headquarters Company, Army Civil Affairs and Psychological Operations Command (Airborne), Fort Bragg, North Carolina.

The **Maintenance Excellence Award** winners are—

Depot

Tobyhanna Army Depot, Pennsylvania.

Active Army

Table of Organization and Equipment (TOE)

Small Category. B Company, 610th Brigade Support Battalion, Fort Riley, Kansas.

Soldiers of the 44th Expeditionary Signal Battalion and German workers load equipment onto barges in Mannheim, Germany, in preparation for the September 2007 deployment that delivered equipment to more than 40 different sites throughout Iraq. The battalion took home a 2008 Army Deployment Excellence Award for skillfully relocating equipment during its movement. *(Photo by SGT Michael Taylor.)*

Medium Category. 101st Forward Support Battalion, Fort Riley, Kansas.

Large Category. 3d Battalion, 43d Air Defense Artillery Regiment, Fort Bliss, Texas.

Active Army
Table of Distribution and Allowances (TDA)

Small Category. 6981st Civilian Support Group, Mannheim, Germany.

Medium Category. Combined Support Maintenance Shop, Eastover, South Carolina.

Large Category. Maintenance Activity Kaiserslautern, Germany.

Army National Guard TOE

Small Category. Headquarters and Headquarters Detachment, 751st Maintenance Battalion, Eastover, South Carolina.

Medium Category. 1221st Transportation Company, Dexter, Michigan.

Army Reserve TOE

Small Category. Headquarters and Headquarters Detachment, 346th Transportation Battalion (Military Transport), Ceiba, Puerto Rico.

Medium Category. 264th Service Company (Command and Control), Salinas, Puerto Rico.

Large Category. 396th Combat Support Hospital, Vancouver, Washington.

The **Supply Excellence Award** winners are—

Active Army

Level I, Unit (Company, Battery, Troop, or Detachment) Modification TOE (MTOE). Headquarters and Headquarters Troop, Regimental Support Squadron, 11th Armored Cavalry Regiment, Fort Irwin, California.

Level I, Unit TDA. Headquarters and Headquarters Company, U.S. Army Garrison, Fort Lewis, Washington.

Level II, Property Book MTOE. Headquarters and Headquarters Detachment, 28th Transportation Battalion, Mannheim, Germany.

Level II, Property Book TDA. University of California at Santa Barbara Army Reserve Officer Training Corps, Santa Barbara, California.

Level III, Parent Level (Battalion or Squadron) MTOE. 28th Transportation Battalion, Mannheim, Germany.

Level III, Parent Level TDA. 527th Military Intelligence Battalion, Camp Humphreys, Korea.

Level IV, Supply Support Activity MTOE. Headquarters and Headquarters Company, 160th

Special Operations Aviation Regiment (Airborne), Fort Campbell, Kentucky.

Level IV, Supply Support Activity TDA. U.S. Army Garrison, Directorate of Logistics, Fort Campbell, Kentucky.

Army National Guard

Level I, Unit MTOE. 292nd Infantry Battalion, Coto Laurel, Puerto Rico.

Level I, Unit TDA. 66th Troop Command, Jackson, Mississippi.

Level II, Property Book MTOE. Joint Forces Headquarters, Carson City, Nevada.

Level II, Property Book TDA. Headquarters and Headquarters Detachment, Joint Forces Headquarters, St. Augustine, Florida.

Level III, Parent Level MTOE. 527th Engineer Battalion, Ruston, Louisiana.

Level III, Parent Level TDA. Joint Forces Headquarters, Madison, Wisconsin.

Level IV, Supply Support Activity TDA. U.S. Property and Fiscal Office, Camp Douglas, Wisconsin.

Army Reserve

Level I, Unit MTOE. 425th Transportation Company, Salina, Kansas.

Level I, Unit TDA. Southern European Task Force Augmentation Unit, Vicenza, Italy.

Level II, Property Book MTOE. 206th Regional Support Group, Springfield, Illinois.

Level II, Property Book TDA. 7th U.S. Army Reserve Command, Schwetzingen, Germany.

Level III, Parent Level TDA. 57th Area Maintenance Support, Belton, Missouri.

Level IV, Supply Support Activity MTOE. Detachment 1, 1011th Quartermaster Company, Pittsburg, Kansas.

UPCOMING EVENTS

MILITARY LOGISTICS SUMMIT 2008

The Institute for Defense and Government Advancement will hold its Military Logistics Summit at the Sheraton Premiere at Tysons Corner in Vienna, Virginia, 22 to 25 September. This fourth annual event will bring logistics leaders and decisionmakers together to discuss strategies and initiatives for the logistics operational readiness of today and tomorrow. The agenda this year focuses on performance-based logistics, asset visibility, supply chain management, and business process modernization.

For more information or to register, visit www.MilitaryLogisticsSummit.com.

DEFENSE LOGISTICS 2008

The eighth annual Defense Logistics conference is coming to the Marriott Crystal Gateway in Arlington, Virginia, 2 to 5 December. This North American cross-service conference is designed to give leaders a better understanding of how to leverage commercial industry expertise to meet customers' changing needs and how to expand possibilities by focusing on future developments that will impact logisticians and Warfighters.

For more information or to register, visit www.defenselog.com.

Army Logistician (ISSN 0004–2528) is a bimonthly professional bulletin published by the Army Logistics Management College, 2401 Quarters Road, Fort Lee, Virginia 23801–1705. Periodicals postage is paid at Petersburg, VA 23804–9998, and at additional mailing offices.

Mission: *Army Logistician* is the Department of the Army's official professional bulletin on logistics. Its mission is to publish timely, authoritative information on Army and Defense logistics plans, programs, policies, operations, procedures, and doctrine for the benefit of all logistics personnel. Its purpose is to provide a forum for the exchange of information and expression of original, creative, innovative thought on logistics functions.

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Distribution: Units may obtain copies through the initial distribution system (DA Form 12 series). Private domestic subscriptions are available at $21.00 per year by writing to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250–7954, or by visiting http://bookstore.gpo.gov on the Web. For credit card orders, call (866) 512–1800. Subscribers should submit address changes directly to *Army Logistician* (see address below). *Army Logistician* also is available on the World Wide Web at http://www.almc.army.mil/alog.

Postmaster: Send address changes to: EDITOR ARMY LOGISTICIAN/ALMC/2401 QUARTERS RD/FT LEE VA 23801–1705.

Coming in Future Issues—

- **United States-United Kingdom Concept Interoperability**
- **Army Reserve Centennial**
- **Sense and Respond Logistics on the Insurgent Battlefield**
- **Integration of Contractors Into BSB Operations**
- **Brigade Logistics Support Team**
- **Delivering by Managing Army Logistics**
- **Improving Materiel Readiness for the Joint Warfighter**
- **LCOP: Taming the Deadly Third Order Effect of Logistics**
- **Brigade Support Battalion S–2**
- **SETAF Mechanics in Botswana**
- **Army Logistics Knowledge Management and SALE**

ISSN 0004–2528
DEPARTMENT OF THE ARMY
ARMY LOGISTICIAN
US ARMY LOGISTICS MANAGEMENT COLLEGE
2401 QUARTERS ROAD
FORT LEE VIRGINIA 23801–1705

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