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ARMY SUSTAINMENT

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Reinvigorating the Army's Deployment Readiness

Plus:

The Expeditionary Sustainment Advantage

Training a Brigade Support Battalion at Home Station

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ON THE COVER

An 18th Combat Sustainment Support Battalion Soldier provides security during training on supporting logistics convoy security operations May 14, 2014. (Photo by 1st Lt. Henry Chan)

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The Expeditionary Sustainment Advantage

■ By Maj. Gen. Larry D. Wyche

> "We must ensure we create and retain the lean and agile sustainment capabilities that the warfighter requires."

The Army has become adept in recent years at deploying on a predetermined Army Force Generation (ARFORGEN) cycle in order to support ongoing operations. Institutional knowledge of the theaters and defined missions, along with mature lines of communication, has made movements in and out of theater almost routine.

However, challenges will arise as we prepare to move from an Army at war to an Army of preparation. The Army must regain the skills and techniques of rapidly deploying an operationally significant force to an austere theater while conducting and sustaining unified land operations.

The Future Army

The chief of staff of the Army's future vision includes forces that are tailorable, scalable, rapidly deployable, and able to respond to contingencies and conduct forcible entry operations anywhere in the world on short notice. The Army will accomplish this through an effective mix of Total Army Force capabilities, a network of installations at home and abroad, and Army pre-positioned stocks.

We must reinvigorate our core deployment and sustainment competencies. Force 2025—regionally aligned and based in the continental United States (CONUS)—must be prepared for surprise contingencies that will continue to test our ability to deploy and conduct operations in order to prevent, shape, and win in a complex environment.

What We Must Do

To accomplish this, we must better define our sustainment requirements by echelon and type of operation. Our plans must be updated and validated to ensure we account for the latest organizational and doctrinal changes. Once the demand is known, we must match our capabilities to meet the requirement.

If there are gaps, we must pursue technologies that allow us to reduce the demand. We must ensure we create and retain the lean and agile sustainment capabilities that the warfighter requires.

Army pre-positioned stocks compose one leg of our strategic mobility triad and enable the rapid air deployment of Army forces. Units that do not deploy their unit equipment and supplies will be required to draw pre-positioned stocks. The location and composition of these stocks must be validated to ensure they best support the operational commander. Army units must relearn how to fall in on this equipment and transition to decisive action operations.

Lastly, we must ensure that our strategic mobility capabilities provide the extended operational reach, freedom of action, and prolonged endurance the Army needs to execute unified land operations.

Finding Support Solutions

The Army sustainment community has done an excellent job of aligning its formations and capabilities to support the combatant commanders. The Global Response Force continues to evolve as units rotate into the mission.

The Combined Arms Support Command (CASCOM) has partnered with the Global Response Force and regionally aligned forces to determine the capabilities needed to support forcible entry operations. We are also capturing their requirements for mobility and a lean sustainment tail and working to develop solutions. The CASCOM team is using unit input to develop long-term solutions that will help all Army units deploy rapidly to an austere environment.

I have visited our special operations forces (SOF) and listened to their les-

sons learned. These regionally aligned Soldiers are operating in very austere locations with little or no outside sustainment support. I have seen their ability to reduce their sustainment equipment to the bare essentials in order to maximize their mobility. Our team will use solutions that SOF units have developed and will try to apply them to minimize sustainment requirements for the entire sustainment community.

REDI

CASCOM is supporting the chief of staff of the Army's priority for a globally responsive Army with the Rapid Expeditionary Deployment Initiative (REDI), which is designed to improve unit and installation deployment readiness. In contrast to the deliberately planned and executed deployments to Iraq and Afghanistan, REDI refocuses our Army with an expeditionary mindset that makes it capable of conducting a full range of military operations with little to no notice.

In partnership with the Headquarters, Department of the Army, (HQDA) G–3 and G–4, CASCOM is improving the Army's deployment processes, policies, doctrine, and training. We are assisting HQDA in updating Army Regulation (AR) 525–93, Army Deployment and Redeployment, which will be published this fiscal year. A key component of AR 525–93 is the establishment of a command deployment discipline program (CDDP), which sets deployment standards for units at all echelons.

Annually, units at the company level and above will be required to conduct a CDDP inspection to certify that their knowledge is current and units are prepared. This will help units identify deployment readiness deficiencies, improve both unit and installation deployment skills associated with moving units from fort to port, and ensure proper collection, transfer, and use of deployment data.

The Deployment Readiness Exercise

Another key component to improving efficiency and effectiveness for deployment and redeployment operations is a reinvigorated deployment readiness exercise (DRE) program.

The purposes of the DRE program are to conduct realistic training, have units perform their deployment mission in a scenario to test what they have learned, and allow them to experience the pressures of a live operation. Each unit will have an annual requirement to conduct a DRE tailored to the level of the unit and its current ARFORGEN cycle status.

Units in the ARFORGEN reset pool will conduct at least one level 1 DRE annually. A level 1 DRE is designed to evaluate a unit's ability to alert, assemble, and conduct Soldier readiness tasks. It also ensures that appropriate deployment certifications, appointment orders, standard operating procedures, movement requests, and other documents are in place for a no-notice deployment.

Units in the train/ready pool will conduct a minimum of one level 2 DRE annually, which includes all level 1 DRE activities plus enacting plans and testing systems and processes. This is designed to evaluate a unit's ability to complete load-out operations and installation turn-in activities that support a limited no-notice deployment.

Units should actually pack a representative sample of unit equipment onto transportation platforms, but installation turn-in can be simulated. Transportation mock-ups may be used.

Units in the available pool will conduct a minimum of one level 2 DRE annually and be prepared to participate in a level 3 DRE. In a level 3 DRE, a unit will be evaluated on its ability to conduct strategic movement by air or surface in support of a limited no-notice deployment.

Units will be expected to deploy personnel and equipment to a designated site, execute their training mission, and redeploy assets to home station. Their unit deployment list will be followed, and their unit deployment readiness will be validated.

Finally, the units must confirm the installation's ability to support the deployment load out and validate that the force projection infrastructure is sufficient and maintained.

DPMO

To assist units in becoming better prepared to rapidly deploy, the Deployment Process Modernization Office (DPMO) has taken deployment readiness to the next level by "operationalizing" REDI. DPMO is accomplishing this mission through multiple efforts, including a one-stop repository website for deployment planners called the REDI Toolbox.

The REDI Toolbox is a deployment assistance team program in which subject matter experts use the REDI lessons learned strategy to collect, analyze, and act on deployment-related findings from the field.

DPMO is making products as user-friendly as possible by using technology, including web and mobile apps, to support the warfighter.

Additionally, the DPMO staff regularly participates in the Combined Arms Support Command (CASCOM) Command Engagement Program to discuss current deployment initiatives, raise awareness of REDI products, and encourage participation across the deployment community.

Expeditionary sustainment will play a key role as we posture ourselves to be a CONUS-based Army. The Army is developing tools and initiatives to regain the advantage that expeditionary sustainment provides the Army over its adversaries.

Readers desiring additional information about REDI are encouraged to log in to the REDI Toolbox at https://www.us.army.mil/suite/page/689011. I also encourage you to visit the Sustainment Unit One Stop located at http://www.cascom.army.mil/g_staff/g3/SUOS/.

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Mission Command: Differentiation and Integration

■ By Dr. Christopher R. Paparone and George L. Topic Jr.

We believe the concept of mission command has profound implications for the future of military logistics. While the term mission command is relatively new, discussions on its key precepts have been ongoing for many years. An organizational study entitled "Differentiation and Integration in Complex Organizations" is a key academic treatise that undergirds the mission command concept. The study was conducted by Paul R. Lawrence and Jay W. Lorsch and published in the June 1967 issue of *Administrative Science Quarterly*.

In short, the study found that as the environments of organizations increase in complexity, so does the need for differentiation in organizational structures, such as adding new departments and specialized jobs and staffs. As organizations become more differentiated, paradoxically, the need for integration strategies also grows. Conversely, if environments remain relatively stable, so will the standardization of structures and their integration within organizations.

As we examine the Army's recent history in organizing logistics—now under the more integrative term "sustainment"—we see evidence that these findings hold true. We witnessed the differentiation of the Army's sustainment skill identifiers, while at the same time, the advent of the Army Logistics Corps created integration among multifunctional logisticians.

But has individual multifunctionality gone too far? As the brigade combat team's (BCT's) logistics needs became more complex, so did the brigade support battalion's structure, which is integrated into the BCT. Above the BCT level, we have purposefully differentiated sustainment headquarters by moving them outside the operational chain of command—referred to as breaking the habitual support relationships. Hence, we are experiencing integration issues and must pursue new integration strategies.

At the joint force command level, the environment is decidedly more complex, especially as we work across services and with interagency, intergovernmental, and multinational organizations at the operational level. We are trying to cope with this extensive differentiation by creating coordinating structures, such as executive agencies, boards, centers, cells, and offices.

We are facing similar issues with the joint logistics enterprise that increases the differentiation even further at the strategic level. The irony is that the proliferation of entities, both formal and ad hoc, makes integration even more confounding.

We offer for consideration several ideas for dealing with differentiation and integration. First, organizations should consider how to cope with conflict resolution as they try to integrate a growing variety of organizational actors that have different values and perspectives. Our joint doctrine attempts to address this by finding common values and perspectives, which can be expressed broadly in terms of "unity of effort" or "unified action."

Although our military education and training systems have tried to ensure that a diverse group of actors participates in classes and scenarios, we are not convinced that we are enabling students to learn and practice conflict resolution strategies adequately, particularly in time-critical, -constrained, or -sensitive situations.

Second, in the face of highly complex environments, forms of participative decision-making are important. Lawrence and Lorsch called this "high influence at lower levels of the organization." The chairman of the Joint Chiefs of Staff has proclaimed that the military solution to this challenge is mission command—devolving disciplined action to lower levels based on commander's intent and mission type orders.

But, in the joint logistics enterprise, the mission command strategy is limited. The consensus-building and negotiating skills required of our logisticians is a more comprehensive, participative form of decision-making than our current mission command doctrine encompasses.

Third, organizations must be able to identify and reward talented integrators. Integrators are difficult to reward because many of our personnel management tools are oriented toward achieving objectives inside our organizations. The ability to integrate across organizational boundaries is hard to measure, as the performance of the greater enterprise rides on variables that the integrator's home organization cannot control.

We hope to generate at least some interesting spinoff discussions on the organizational issues of differentiation and integration as these relate to mission command.

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The motor pool of the 1483rd Transportation Company in Walbridge, Ohio, boasts many pieces of equipment that are signed down to the operator level. Company commanders must maintain accountability of all equipment and provide training to all Soldiers on property accountability procedures.

The "So What" of Army Audit Readiness for Company Commanders

■ By Capt. Robert M.W. Ahlers

"Out with the old" is a mistake commonly made by new commanders and staffs—even me as a National Guard company commander—when it comes to documents. In an effort to reduce the unnecessary clutter after assuming command of a unit, commanders declare that the outdated assumption of command memos, the "old" Department of the Army (DA) 1687s (signature cards), property book officer appointment memos, and other such documents can simply be shredded.

And what do we do with standard operating procedures (SOPs)? We glance at them and then declare that we meet the requirement for when the inspector general or battalion staff comes to inspect the unit. Never mind that the SOP still refers to the Unit Level Logistics System–Ground and Unit Level Logistics System S–4, still addresses reports of survey, and does not mention the Central Issue Facility–Installation Support Module or Property Book Unit Supply Enhanced (PBUSE).

What about the Command Supply Discipline Program (CSDP)? I have that in my unit because I did an additional duty appointment and my brand new second lieutenant is the CSDP monitor, so I can check that box.

In reality, these actions have done

more harm than good, becoming road blocks for the Army's ability to receive a clean audit opinion, which congress has mandated the Department of Defense achieve by fiscal year 2017.

It is imperative that all Army personnel understand the impact that they have on the Army's financial statements, what they can do to assist, and why it is important to be a part of the solution and not the problem.

At the company level, I think most Soldiers fail to realize that every time a supply sergeant orders a piece of equipment, a property book officer laterally transfers equipment, or DA fields a new piece of equipment, it affects the Army's financial statements. I honestly never thought of it that way. My supply sergeant has my assumption of command memo, he has a valid signature card on file, and when it is time, the unit will have a brand new humvee on its books.

Before accepting a job with Headquarters, Department of the Army (HQDA), I would never have thought about document retention and the fact that my assumption of command memo was so important in the grand scheme of things.

G–4 Commitment

As the senior logistician on the Army staff, Lt. Gen. Raymond V. Mason's intent is to ensure sustained accountability and auditability in order to meet the congressional mandate that the Army receive a clean audit opinion by fiscal year 2017. To help ensure this goal is achieved, he has tasked the Logistics Innovation Agency (LIA), the field operating agency of the Army G–4, with helping the Army logistics community achieve auditability.

LIA provides support and assistance to all levels of command and has three mission areas: audit compliance, logistics enterprise integration, and performance review. The Performance Review Group at LIA helps the Army prepare for auditability and supports institutionalizing Army audit readiness through each of its mission areas.

Audit Compliance

Audit compliance benefits include improved property accountability and enhanced supply discipline. The business functionality team in the Performance Review Group has the primary mission of ensuring audit compliance through existence and completeness (E&C) follow-on testing. The team's purpose is to ensure units comply with controls and are prepared in the event of an actual audit.

E&C testing is the most visible aspect of audit readiness for company-level units. The Office of the Assistant Secretary of the Army for Financial Management and Comptroller (ASA[FM&C]) requests audit samples from units. If a unit fails to produce proper supporting documentation or fails to respond altogether, LIA conducts a follow-on test to assist the unit with the necessary corrective action.

Follow-on testing is a great opportunity for units because LIA assigns each command a specific point of contact who knows and understands that command's nuances and intricacies. It becomes one-on-one assistance from HQDA to a supply sergeant or property book officer in the field.

One of the biggest issues that the business functionality team faces is nonresponse—units failing to reply to the ASA(FM&C) audit sample request and to the follow-on testing. To get a clear view of why it is so important to reply, let's run through a quick scenario.

The way the audit works in simple terms is as follows:

- X equals the number of units that pass an audit (let's say 925).
- Y equals the number of units that had an audit sample request (let's say 1000).
- Z equals the percentage of units that passed the audit.
- The equation for the audit is X (925) ÷ Y (1000) = Z (.925 or 92.5 percent).
- Z must be equal to or greater than a certain percentage to pass the audit (95 percent for this example, which is the official Army pass rate).

Let's say that 30 units submitted passing sample requests, but they were a day late, after the testing window closed. If those units had met the deadline, the percentage would have been 95.5 percent and the Army would have passed.

Every unit that fails to reply on time or fails to reply at all automatically counts as a failure and could keep the Army from passing an audit. If the units would at least reply on time, even if they do not have all the documents and know that they will fail, LIA can assist them in passing the audit during the follow-on testing cycles.

Logistics Enterprise Integration

The second Performance Review Group mission area is logistics enterprise integration—synchronizing logistics information to meet auditability, portfolio data, and Army business management strategies. The enterprise integration team conducts "map recon" and coordinates "interlocking fires."

Map recon looks at the logistics processes and systems and identifies where risks or gaps in capabilities may be. Coordinating interlocking fires ensures that the right information is accessible from the General Fund Enterprise Business System (GFEBS) and that the Global Combat Support System–Army (GCSS–Army) and PBUSE are sharing the right information with GFEBS.

The logistics enterprise integration team takes a disciplined approach to identifying activities, manual or automated, that require evidence that successfully demonstrates traceability and assures an auditor that the financial statements are free of material misstatements.

The team works with partner organizations, such as the ASA(FM&C), Office of Business Transformation, and the Program Executive Office for Enterprise Information Systems, looking at the logistics enterprise resource planning systems (ERPs) and helping to identify the evidence needed to pass an audit.

ERPs are very large, single systems, such as GCSS–Army and the Logistics Modernization Program (LMP), that consolidate the functions of several legacy systems, such as PBUSE and the Standard Army Maintenance System–Enhanced.

Logistics Performance Review

The Performance Review Group's third mission area is logistics performance review. This mission area is intended to be the sustainment component of audit readiness and has two primary purposes:

- ☐ To monitor field units for compliance with CSDP and command maintenance discipline program (CMDP) requirements.
- ☐ To collect and respond to command logistics concerns that are beyond the ability of the Army commands (ACOMs), Army service component commands (ASCCs), and direct reporting units (DRUs) to resolve.

The performance review team assists the ACOMs, ASCCs, and DRUs with the CSDP and the CMDP and identifies trends and issues across the broader Army. It gathers data from the E&C follow-on testing team, the reverse collection and analysis team program, the property accountability task force, CSDP results, and CMDP results to look for trends, issues, and gaps and reports them to the appropriate Army staff directorate.

Expected outputs could include bringing policies and procedures in line with each other, identifying requirements and regulations that disagree, providing interactive tools for commanders to use for the CSDP and CMDP, and providing the staff support to update G–4 regulations, pamphlets, and all Army activities messages (ALARACTs). The performance review team is also an active part of the Army staff team charged with working the government-furnished property issues related to auditability.

Recommendations

All Army leaders (especially logisticians) can help the Army achieve financial auditability by adhering to and applying the tenets of the CSDP and the CMDP at the unit level. Furthermore, it is the commander's duty to create a command climate that fosters property accountability and fiscal responsibility from the top down.

Here are a few quick recommendations from the DA level to assist you in passing an audit:

- ☐ Retain all documentation such as DA Form 1687s, assumptions of command documents, duty appointment memorandums, and DA Form 3161s (Request for Issue or Turn-In), for six years and three months.
- ☐ Ensure that the assumption of command documents follow Army Regulation (AR) 600–20, Army Command Policy; they must include complete unit designation, unit identification code (UIC), any derivative UICs, and the effective date and time.
- ☐ Review and update each SOP annually and then sign and date to show that it was reviewed.
- ☐ Ensure primary and sub hand receipts are reviewed at the proper intervals per AR 710–2, Supply Policy Below the National Level, including property on loan using a DA Form 3161 or DA Form 2062 (Hand Receipt/Annex Number).
- ☐ Appoint a CSDP and CMDP monitor using an additional duty appointment memorandum.
- ☐ Have signature cards on file that contain a wet signature and a digital signature. This can be done on the same form for everything except ammunition transactions or on two separate 1687s, one digitally signed and one wet signed, for each authorization.
- ☐ Provide a 1687 with the same signature type as the document being requested in an audit sample so the auditor can use the 1687 to verify the signature on the transaction.
- ☐ Keep the PBUSE user role up to date and remove personnel from the role as they transition out of the unit.
- ☐ Ensure additional duty appointments are updated as Soldiers rotate in and out of the unit.
- ☐ Review the appointment documents annually to ensure that all additional duties are still held by Soldiers in the command. (It is usually best to do this while reviewing the SOPs.)

An interactive audit guide found on the LIA website, https://lia.army.mil/, provides a more detailed demonstration of "what right looks like" by E&C test type. Questions for the E&C follow-on testing team can be emailed to usarmy.ncr.hqda-dcs-g-4.mbx.arfollowontesting@mail.mil.

If you need assistance creating and fostering a climate of logistics audit readiness, contact the LIA Performance Review Group at usarmy.ncr.hqda-dcs-g-4.mbx.loia-pg@mail.mil.

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Rethinking Legacy and Functional Logistics

■ By Richard E. Killblane and Col. (Ret.) Larry D. McColpin

A lot of thought has been given recently to the concept of multifunctional logistics, but not necessarily to functional logistics. Many assume that functional logistics comprises the three separate logistics branches—Ordnance, Quartermaster, and Transportation. But those titles represent legacy more than function. In this context, function is an activity reflected in the three branches by differences in technologies, scope of activities, and thought processes.

As the Army has expanded, so has the need for specialization and functional expertise. But did the branches evolve efficiently, and if not, what is a more efficient organization of logistics?

Ordnance Branch Legacy

The Ordnance Corps was created first in 1812 for the procurement, research, and maintenance of ordnance materiel. Then named the Ordnance Department, it managed armories and arsenals and eventually gained responsibility for handling ammunition. With the introduction of trucks into the Army's inventory during World War I, the branch picked up the maintenance function since it already performed maintenance and repair on artillery pieces and carriages.

After World War II, Ordnance gained responsibility for ordnance disposal, which evolved into explosive ordnance disposal (EOD). In 1962, the Army Materiel Command assumed responsibility for many Ordnance Branch functions, such as research, development, procurement, production, storage, and technical intelligence, leaving the branch with the responsibility for only ammunition, maintenance, and EOD.

Quartermaster Branch Legacy

The Quartermaster Department existed during the American Revolution and managed supplies, billeting, and transportation. Line officers were detailed to duties as quartermasters until Quartermaster became a separate branch of the Army in 1912.

Its current service functions except for parachute rigging and mortuary affairs were acquired by the time of the Civil War. After the Civil War, the branch received responsibility for graves registration, which evolved into mortuary affairs. During World War II, it received responsibility for parachute rigging. So both Quartermaster and Ordnance involved managing supplies and providing services to the line.

Transportation Branch Legacy

Before 1942, military transportation was managed by two branches. The Quartermaster Department handled wheeled vehicles, water transportation, and ports of embarkation and debarkation, and the Engineer Corps managed rail and harbor craft. Supplies, services, and transportation were managed separately by class of supply, individual service, and mode of transportation.

In 1899, after the invasion of Cuba, the Army created the Army Transportation Service to operate ports of embarkation and debarkation and manage the sea-going fleet—the beginning of a new thought process. Almost 20 years later, the expansion and complexity of transportation during World War I revealed the need for a single manager to synchronize all military transportation. This was a radical way of thinking. Instead of managing transportation by mode, the Army would connect the dots from end to end.

The Transportation Corps was created in 1942 primarily to manage traffic, and it picked up the railroad and harbor craft units from the Engineer Corps but not the assault landing craft units. It took over responsibility for the port units and ships of the Army Transportation Service from the Quartermaster Corps but not the trucks and amphibious truck units.

Basically, the Engineer and Quartermaster Corps kept the more interesting modes of transportation and gave up what they did not want. So the Transportation Corps was created to manage transportation from the point of origin to the final destination. But, to effectively synchronize transportation from end to end, the Army needed to turn over the remaining modes of transportation to the new branch.

In 1946, after World War II, the Quartermaster Corps was directed to turn over the truck and amphibious truck units to the Transportation Corps, and in 1954, after the Korean War, the Engineer Corps was directed to turn over its landing craft. So the synchronizer of transportation also controlled almost all modes of theater-level transportation.

Army aviation had a stint under the Transportation Corps from 1950 to 1983, but the addition of machine guns and rockets on helicopters changed the Army's perception of helicopters from flying trucks to weapon platforms, which led to the creation of the Army

Aviation Branch.

By 1983 the three logistics branches had evolved into the functions they provide today, each reflecting its individual legacy. The scope of activity for supplies was divided into 10 classes spread out among Quartermaster, Ordnance, and the Medical Corps. The scope of services included the same branches but also included the Finance and Adjutant General Corps. The Transportation Corps seemed the only logistics branch aligned along a single function.

Multifunctional Theater Logistics

Multifunctional theater logistics organizations originated in World War I and evolved into permanent commands during the Korean War. The Services of Supply provided theater logistics for the American Expeditionary Forces during World War I, but World War II saw the greatest proliferation of logistics units in the history of the Army.

Each branch provided units under the control of a single logistics structure at the theater level and managed its units at the group level. During the Korean War, multifunctional logistics was pushed down to the port level and the 2nd Logistical Command in Pusan, Korea, became the first permanent multifunctional logistics headquarters.

The 1st Logistical Command in Saigon would later provide command and control for all Army logistics units during the Vietnam War and establish subordinate support commands to manage multifunctional logistics at the subordinate ports.

During Operation Desert Storm, the Army created forward support battalions, pushing the multifunctional structure even further inside the combat divisions. This process of managing branch organizations at the battalion level came to fruition with the reorganization to multifunctional organizations during the modular transformation and with the creation of sustainment commands, sustainment brigades, and combat sustainment support battalions.

As the Army embraced modularity in the 21st century, it created sustainment organizations with multifunctional capabilities above the combat brigade level.

Functional Logistics

So what is functional logistics? If we start with the branches, we find that the Ordnance Corps has responsibility for ammunition (a class of supply), maintenance (a service) and EOD (disposal of ammunition).

The Quartermaster Corps has responsibility for managing five of the 10 classes of supply, and service functions such as food service, laundry and bath, parachute rigging, and mortuary affairs.

The Transportation Corps came in late, so it only picked up one function—transportation. It does not control aerial delivery, which still belongs to the Quartermaster Corps. Using the three branches as a rule, Army logistics can be reduced into three basic functions: supply, services, and transportation.

So a difference has evolved between branch and function. Based on the three functions of logistics, the Ordnance and Quartermaster Corps are not aligned by function but instead by legacy. Since they have both service and supply functions, they have more readily embraced multifunctional logistics. Only the Transportation Corps is purely functionally aligned, which has made it more resistant to becoming multifunctional for fear of losing its functional expertise.

Efficiency

While it would be a step in the right direction, realigning logistics along three functional lines is still not the most efficient alignment. For example, the civilian industry aligns logistics horizontally and vertically for better efficiency. In vertical alignment, or supply chain management, a company owns the warehouses as well as the trucks, thus reducing competition, redundancy, and cost. Vertical alignment of logistics in the Army would include distribution.

The Army's current distribution methods consist of 11 functions, three of which belong to Quartermaster and eight that belong to Transportation. To consolidate the functions operationally, the Army has integrated both branches into the Military Surface Deployment and Distribution Command, which has responsibility for door-to-door, strategic-to-operational distribution and deployment.

The Army has also created theater sustainment commands, expeditionary sustainment commands, and sustainment brigades. These organizations are all a combination of the different branches at the company and battalion levels and, therefore, still do not operate with a single, cohesive thought process.

According to supply chain management principles, the participants should work off of each other rather than against each other. Consequently, redundancy exists at the operational level of logistics because of the different thought processes of the separate branches.

For example, a shipping and receiving point was formed at the corps distribution center at Logistics Support Activity Anaconda, Iraq. The Quartermaster-managed supply support activity (SSA) operating the yard focused on accountability and proper requisitions, which resulted in unwanted delays. In 2003, a Transportation-managed cargo transfer company began arranging supplies by destination instead of by supply line number and the result was expedited cargo to the customer.

By 2005, the 1st Corps Support Command inherited and refined the process, coined the term central receiving and shipping point (CRSP) and exported the CRSP concept throughout its subordinate logistics hubs in Iraq.

The SSA and CRSP are similar in function, but they are products of their branch's thought processes. At the end of the day, a quartermaster

wants to see everything accounted for and organized in its proper place, while a transporter wants to see the yard cleared.

A single mindset would reduce redundancy and friction. Like the Military Surface Deployment and Distribution Command at the strategic level, realigning all the distribution functions into a single distribution management structure at the operational level would improve efficiency because materiel could be tracked from the warehouse to the customer. That could reduce logistics to two functions: distribution and services.

The Logistics Corps

The Logistics Corps was created in 2007. Currently the Ordnance, Quartermaster, and Transportation Branches exist only at the enlisted, warrant officer, and lieutenant levels. Under the umbrella of the Logistics Corps, the noncommissioned and warrant officers are considered the functional experts, so their training remains specialized, but officer training focuses on management.

Officers join the Logistics Corps only after completing the Combined Logistics Captains Career Course. But in reality, the Army assigns the vast majority of the lieutenants to multifunctional assignments, and it is not managing the lieutenants by their primary branches.

It would make sense to consolidate the three logistics Basic Officer Leader Courses into a single course with lieutenants separating only for branch-specific training according to their next assignments. Although officer education includes common core logistics, the Army still needs officer education for functional—not branch—specializations.

Integrators and Functional Experts

The evolution of Army logistics has followed a varied path that has adequately sustained the Army throughout two centuries of wars. Although that path has trended more toward multifunctional logistics, the Army cannot afford to fail in certain areas, such as ports of embarkation and debarkation and joint logistics over-the-shore (JLOTS).

A deploying Army cannot afford any problems in the areas where the flow of units and equipment funnels through a small node. Officers have no time to learn JLOTS or port opening during the peak flow into and out of a theater of operations. Any problems would delay deployment, sustainment, and even retrograde. Consequently, some logistics operations do not allow as great a margin of error as others do.

Throughout history, the great logisticians were those who understood how all the pieces fit together. For example, Lt. Gen. Joseph M. Heiser, Jr. was considered the smartest logistician in Vietnam, having commanded the 1st Logistical Command and authored two books on logistics during the Vietnam War. But he needed a functional expert in motor transportation like Col. Joseph Bellino, commander of the 8th Transportation Group, to champion a solution for convoy security. History teaches that while there is a need for great integrators, there also remains a need for functional experts.

The trend with modularity is to do more with less, which demands greater efficiency. It is clear the three original logistics branches are not completely aligned by function; some branches have maintained certain functions purely because of legacy. With the need for multifunctional integrators and functional experts, it would make more sense to realign the original three branches by the functions of service, supply, and transportation.

Out of a sense of self-preservation, however, no branch will likely volunteer to give up any legacy. Restructuring usually results from outside pressure during times of fiscal austerity. In such times, Army logisticians have to rethink the way they do business.

To improve efficiency, the Logistics Corps should realign into two functional areas: distribution and service. Distribution would combine the three quartermaster and eight transportation functions, and the service function could be a catch-all for everything else.

Ordnance should turn EOD over to the engineers, since EOD's main focus has shifted to improvised explosive devices rather than ammunition disposal. Realigning along single, cohesive thought processes would then reduce specialized training to just two functions—unfortunately, at the loss of branch identity.

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Traffic along Main Supply Route (MSR) Tampa in central Iraq flows freely May 15, 2004, under the watchful eyes of Soldiers from C Battery, 1st Battalion, 35th Cavalry Regiment. Secure areas cleared at the beginning of Operation Iraqi Freedom (OIF) were not maintained, later subjecting the MSR to numerous attacks. (Photo by Marine Corps Sgt. M. Trent Lowry)

Linear Operations Still Relevant to Contingency Sustainment

Sustaining contiguous operations and wide-area security along contested lines should be the Army logistician's first priority.

■ By Maj. Armando Kuppinger Velasquez

The Army chief of staff has directed the force to be "globally responsive and regionally engaged" in order to succeed. The current force has had to focus on deliberate planning, rotational combat tours, and combating counterinsurgency; therefore, this directive proves challenging. Becoming globally responsive and regionally engaged requires the Army to reinvigorate what was once called "linear operations."

The term "linear" was officially replaced with the term "contiguous" in Field Manual 3–0, Operations, published in February 2008. A contiguous operation means that a commander's subordinate forces' areas of operations share at least one common boundary.

Contiguous operations have significant logistics challenges, especially during initial-entry and offensive operations. Tomorrow's sustainer will be expected to provide seamless logistics in an immature, possibly austere, and probably contested joint operations area. The Army has not fully experienced the

new modular sustainment structure in a real-world, corps-level, forcible-entry operation.

Recent History

Over the past 12 years of combat in Iraq and Afghanistan, units have operated in large areas while combating counterinsurgency. Wide-area security, an Army core competency, is defined in Army Doctrine Reference Publication 1–02, Operational Terms and Military Symbols, as "the application of the elements of combat power in unified action to protect populations, forces, infrastructure, and activities; to deny the enemy positions of advantage, and to consolidate gains in order to retain the initiative."

Wide-area security is necessary to fight a counterinsurgency. It is a by-product of contiguous operations. So, if the Army does not emphasize contiguous operations, it will be forced to relearn how to employ and sustain a corps or larger force to conduct initial operations.

Before operations in Iraq and Afghanistan, common doctrine taught at Army logistics schools included the scheme of logistics, where sustainment units were found, and which units they supported were.

Since transforming to the modular brigade combat team and the supporting modular sustainment force structures in 2005 while focusing on worldwide contingency operations, Army units have largely ignored the contiguous battlefield. Contiguous operations support has not been the Army's focus. This is concerning because the Army is developing a cadre of leaders who were taught primarily how to fight in noncontiguous environments.

Contiguous Training Relevance

Not all of our adversaries will present terrorist or criminal hybrid threats; there are standing armies trained in maneuver, fires, and combined arms tactics. Combating these threats requires our military to organize, train, equip, and plan for employing forces in an area to wage decisive action on a contiguous battlefield.

Most military operations start out contiguous. The contiguous operation could last hours, days, weeks, or months. Support echelons operating behind the maneuver units provide logistics support for all efforts.

An operation, whether a combat or humanitarian aid and disaster relief mission, can morph into a noncontiguous mission—in most cases from a contiguous operation. So, training sustainment leaders on contiguous operations should be a priority.

Logistics leaders in particular must understand the advantages and limitations of the modular sustainment structure and be able to request the right assets to fulfill the requirements of the maneuver unit regardless of the type of operation—contiguous or noncontiguous. The linear battlefield and contiguous operations should not be thought of as Cold War doctrine; they are as relevant today as they were in past operations.

The sustainment community must focus on supporting a contiguous operation for three primary reasons: logistics mission command is complicated, time and distance limit sustainment capabilities, and risk greatly increases without secure lines of communication.

Logistics Mission Command

The modern battlefield is connected by satellite, multiband radio, intelligence surveillance, radio frequency identification technology, telephone, Internet, business intelligence, human relationships, and even smart phone. Soldiers use platforms such as Blue Force Tracker and the Movement Tracking System to communicate tactically and depict digitally how the battlefield is evolving.

Although communications have made our forces more effective, not all units are created equal. Some sustainment units are not equipped with all of the communications hardware. Each level of sustainment has a different variety of mission command suites and preferred methods of communication, and when one unit lacks that hardware, a logistics blind spot occurs.

Picture the scene on the eve of an invasion with over 200,000 Soldiers and nearly 100,000 pieces of equipment standing ready to cross into enemy territory. In years past, this scene would have been laid out in sequential order: combat units up front, forward support battalions in immediate support, then the division support area and commands, the main support battalions behind them, the combat support battalions in the corps support forward area, and corps support groups forward and rear in support of the corps support forward area. Finally, sustaining the entire theater was the communication zone, with troops positioned hundreds of miles away from where combat was to occur.

Now, picture the same scene today. Combat units are still positioned far forward along with their supporting brigade support battalion. Beyond that level are vague, mission-dependent areas for sustainment units to fall into until a detailed order establishes who supports whom and when that support shifts to another element.

The Army supports echelon-above-brigade units on an area basis designated by orders instead of a habitual and preexisting supporting-to-supported relationship. Today's process works efficiently; however, it relies heavily on complex relationships and orders.

Complicating the sustainment support structure further is the Army's development of modular units designed to operate in many different scenarios and areas on the battlefield. This is good; however, the supporting-to-supported relationship will have to be developed rapidly and be clearly defined throughout all phases of the operation.

There is a saying, "It's better to do a few things well, than to do many things poorly." The modular sus-

tainment units are forced to take on many missions and tactical scenarios and are expected to perform them flawlessly. Performing too many missions can risk sacrificing the basic logistics functions needed to support maneuver brigades.

One can no longer assume that the 1st Sustainment Brigade will support the 1st Infantry Division throughout the entire operation. Rather, the 1st Sustainment Brigade may support the 1st Infantry Division up to a phase line, and then perhaps the division will receive support from a second sustainment brigade or even a smaller logistics unit, such as a combat sustainment support battalion (CSSB).

In the past, combat units moved up the axis of advance with a designated logistics tail supporting it. Now combat units move up the axis of advance, and sustainment units move to establish logistics hubs that then provide support on an area basis. This method of support is very effective, but it requires detailed planning and must be rehearsed extensively. It requires detailed branch and sequel plans, especially if the enemy can still disrupt logistics distribution operations.

Distance and Time

The Army is undergoing another brigade combat team (BCT) restructuring. Restructuring affects how sustainment units support.

The future BCT will have more fighting capability; however, some aspects of support will be relocated to the CSSB. Water purification, fuel storage, and troop movement capabilities will be removed from the BCT. This means that a support relationship with the echelon-above-brigade sustainment unit must be established and coordinated support must take place to fill these functional gaps.

One significant risk the BCT must mitigate in contiguous operations is outrunning its supply tail. Essentially, a CSSB must never be more than 175 kilometers from its supported brigade combat team. This is a crit-

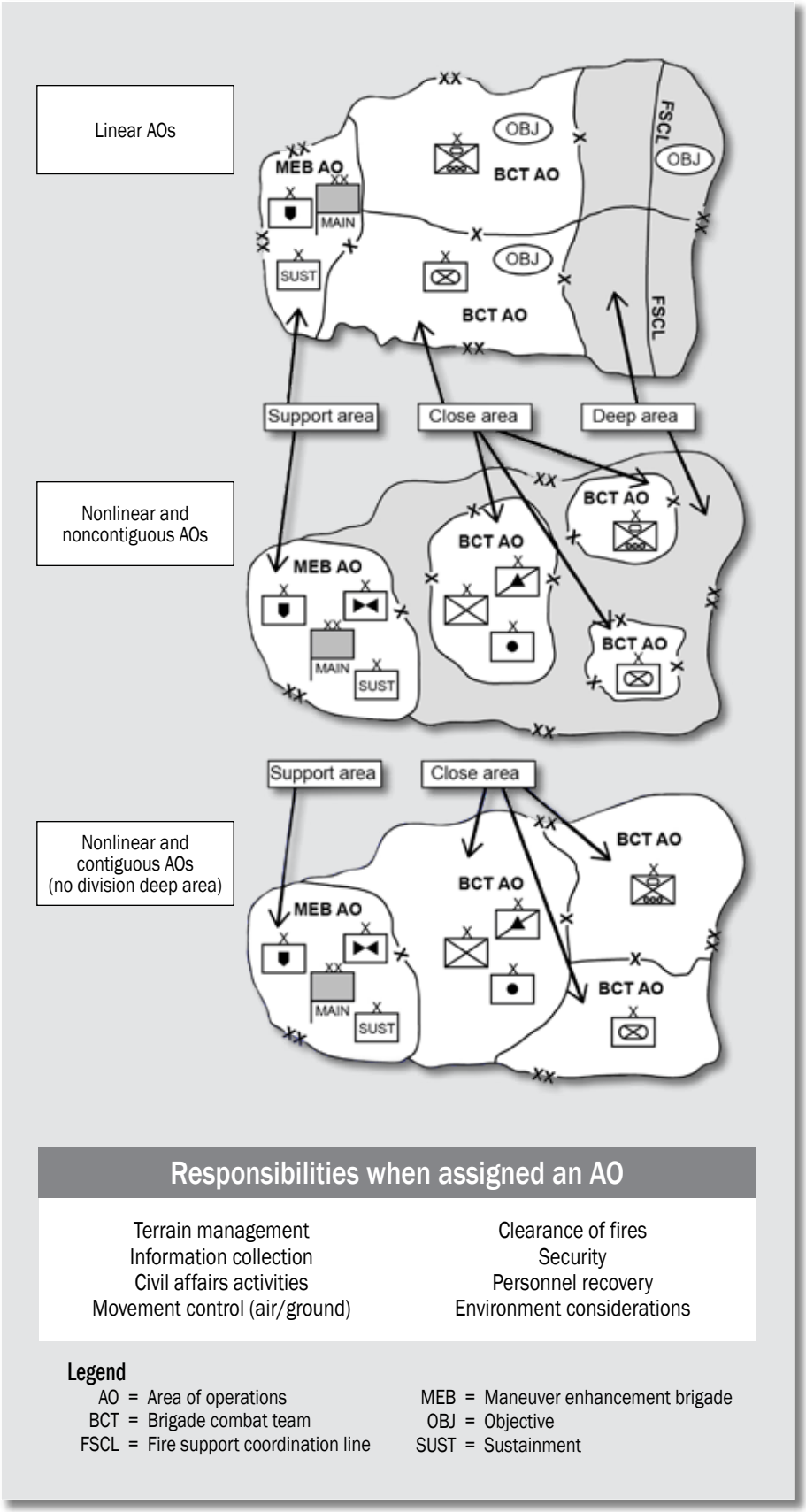
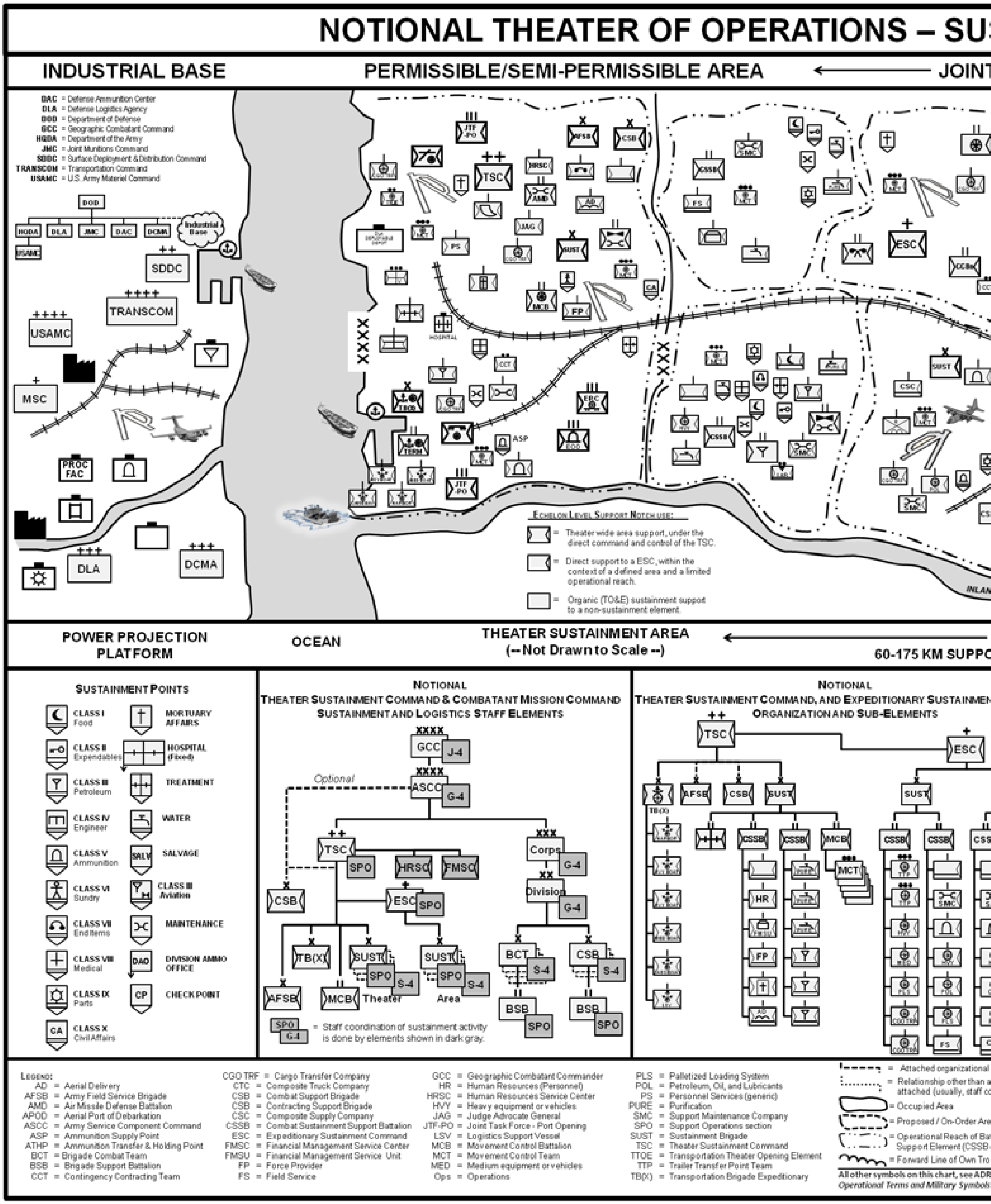


Figure 1. This illustration compares operations in contiguous and noncontiguous environments.


NOTIONAL THEATER OF OPERATIONS – SU
INDUSTRIAL BASE
PERMISSIBLE/SEMI-PERMISSIBLE AREA
JOINT
DAC = Defense Ammunition Center
DLA = Defense Logistics Agency
DOD = Department of Defense
GCC = Geographic Combatant Command
HQDA = Department of the Army
JMC = Joint Munitions Command
SDDC = Surface Deployment & Distribution Command
TRANSCOM = Transportation Command
USAMC = U.S. Army Materiel Command
DOD
HQDA
DLA
JMC
DAC
DCMA
USAMC
Industrial Base
SDDC
TRANSCOM
USAMC
MSC
PROC FAC
DLA
DCMA
XXXX
JTF-PO
AFSB
CSB
TSC
HRSC
AMD
JAG
SUST
MCB
FP
PS
CA
HOSPITAL
CCT
TBOS
TERM
ASP
ERC
DOD
CSSB
FS
SMC
ESC
SUST
CSC
XXX
ECHELON LEVEL SUPPORT NOTCH USE:
= Theater wide area support, under the direct command and control of the TSC.
= Direct support to a ESC, within the context of a defined area and a limited operational reach.
= Organic (TO&E) sustainment support to a non-sustainment element.
INLAN
POWER PROJECTION PLATFORM
OCEAN
THEATER SUSTAINMENT AREA
(-- Not Drawn to Scale --)
60-175 KM SUPPO
SUSTAINMENT POINTS
CLASS I Food
MORTUARY AFFAIRS
CLASS II Expendables
HOSPITAL (Fixed)
CLASS III Petroleum
TREATMENT
CLASS IV Engineer
WATER
CLASS V Ammunition
SALVAGE
CLASS VI Sundry
CLASS III Aviation
CLASS VII End Items
MAINTENANCE
CLASS VIII Medical
DIVISION AMMO OFFICE
CLASS IX Parts
CHECK POINT
CLASS X Civil Affairs
NOTIONAL
THEATER SUSTAINMENT COMMAND & COMBATANT MISSION COMMAND
SUSTAINMENT AND LOGISTICS STAFF ELEMENTS
GCC
J-4
Optional
ASCC
G-4
TSC
SPO
HRSC
FMSC
Corps
G-4
CSB
ESC
SPO
Division
G-4
TB(X)
SUST
SPO
S-4
SUST
SPO
S-4
BCT
S-4
CSB
S-4
AFSB
MCB
Theater
Area
BSB
SPO
BSB
SPO
SPO G-4 = Staff coordination of sustainment activity is done by elements shown in dark gray.
NOTIONAL
THEATER SUSTAINMENT COMMAND, AND EXPEDITIONARY SUSTAINMEN
ORGANIZATION AND SUB-ELEMENTS
TSC
ESC
AFSB
CSB
SUST
SUST
CSSB
CSSB
MCB
CSSB
CSSB
MCT
HR
FP
SMC
FS
LEGEND:
AD = Aerial Delivery
AFSB = Army Field Service Brigade
AMD = Air Missile Defense Battalion
APOD = Aerial Port of Debarkation
ASCC = Army Service Component Command
ASP = Ammunition Supply Point
ATHP = Ammunition Transfer & Holding Point
BCT = Brigade Combat Team
BSB = Brigade Support Battalion
CCT = Contingency Contracting Team
CGO TRF = Cargo Transfer Company
CTC = Composite Truck Company
CSB = Combat Support Brigade
CSB = Contracting Support Brigade
CSC = Composite Supply Company
CSSB = Combat Sustainment Support Battalion
ESC = Expeditionary Sustainment Command
FMSC = Financial Management Service Center
FMSU = Financial Management Service Unit
FP = Force Provider
FS = Field Service
GCC = Geographic Combatant Commander
HR = Human Resources (Personnel)
HRSC = Human Resources Service Center
HVY = Heavy equipment or vehicles
JAG = Judge Advocate General
JTF-PO = Joint Task Force - Port Opening
LSV = Logistics Support Vessel
MCB = Movement Control Battalion
MCT = Movement Control Team
MED = Medium equipment or vehicles
Ops = Operations
PLS = Palletized Loading System
POL = Petroleum, Oil, and Lubricants
PS = Personnel Services (generic)
PURE = Purification
SMC = Support Maintenance Company
SPO = Support Operations section
SUST = Sustainment Brigade
TSC = Theater Sustainment Command
TTOE = Transportation Theater Opening Element
TTP = Trailer Transfer Point Team
TB(X) = Transportation Brigade Expeditionary
= Attached organizational
= Relationship other than a attached (usually, staff c
= Occupied Area
= Proposed / On-Order Are
= Operational Reach of Ba Support Element (CSSB
= Forward Line of Own Tro
All other symbols on this chart, see ADR
Operational Terms and Military Symbols

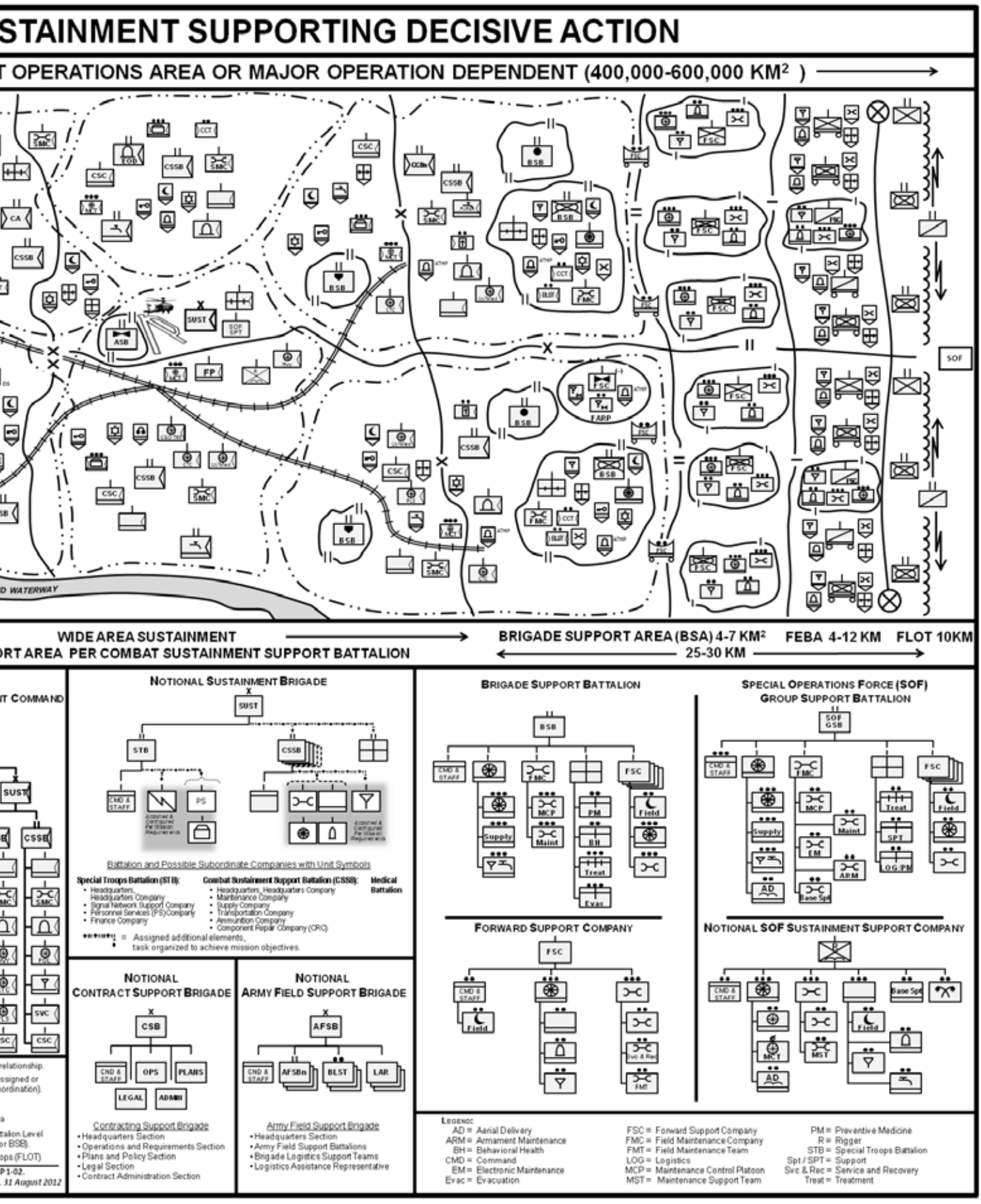


Figure 2. This illustration of a contiguous sustainment theater of operations depicts how today's Army may sustain a corps–led joint area of operations. (Chart design by Charles W. Bissett)

ical number to remember because it is the maximum one-way planning range for a truck to travel and still return to home base to refuel and resupply.

BCTs and theater sustainment planners must ensure that the supply tail (especially fuel, water, and ammunition) does not fall beyond 175 kilometers during operations demanding high operating tempo and movement. This can be extremely critical when conducting offensive operations and maintaining combat power against the enemy.

Although 175 kilometers is the maximum planning range, distance may not be as much of a factor as time. In poor conditions, the BCT could outrun the CSSB by no more than 65 kilometers. (A tank can travel through difficult terrain and is more protected from the enemy than a supply truck.) According to the Theater Sustainment Battle Book, if a truck is limited to a planning speed of 16 kilometers per hour because of poor conditions, then the maximum round-trip range based on an 8-hour driver cycle is 64 kilometers out and 64 kilometers back to the supply base.

It is crucial to plan for time and distance factors. These figures may sound unrealistic today based on the speed that U.S. forces accomplished in their race to Baghdad in 2003, but given a stronger enemy or more difficult terrain, they are conceivable.

Lines of Communication

Without secure lines of communication, constraints and risk greatly increase. In *On War*, Carl Von Clausewitz explained that lines of communication are our arteries from the operational base to the Army; they must never be cut, nor must they be too long or difficult to use. Recent operations, along with modular sustainment structures and complicated diplomatic accommodations, have left sustainment organizations vulnerable.

One benefit of a contiguous operation is that it sets conditions to secure lines of communication and allows logistics assets to travel on main supply routes (MSRs) securely. In Iraq, there were manageable ground lines of communication, most notably MSR Tampa. However, in the beginning stages of the conflict, U.S. forces did not fully maintain secure areas once they were cleared and MSR Tampa was subject to numerous attacks that lasted the entire war.

This is an important lesson for future war planners; the force must be able to seize, retain, and exploit. The objective is not only to secure gained ground but also to secure lines of communication to achieve prolonged endurance.

In Afghanistan, the lines of communication are complicated, unreliable, costly, and subject to political volatility. The Pakistan ground line of communication has often been shut down because of money or social or political unrest. Local nationals employed to deliver goods to our forces may have other loyalties to local warlords or adversaries. The Northern Distribution Network, an alternate line of communication, is a complicated and lengthy distribution pipeline that is expensive and politically sensitive because it traverses several countries.

A U.S. Inspector General report from March 12, 2009, cited that transportation costs in support of operations in both Afghanistan and Iraq totaled more than $5.1 billion in 2007. Logistics is a costly business, and the methods that the Army uses to conduct sustainment are becoming increasingly expensive.

Reducing lines of communication is difficult and may not be possible based on the strategic decisions to wage combat in difficult-to-reach areas. But leaders must assess geopolitical factors and include them in military and political decision-making before waging armed conflict.

The lines of communication will weigh heavily on how effective, fast, and costly an operation will be. If the operation lasts too long, the Army may find itself losing the overall operation based on overspending alone.

The United States is about to embrace a postwar environment in an uncertain world. The world is in a fragile geographic and economic state and will likely remain this way for years to come.

The Army chief of staff has told the force that it must be "globally responsive and regionally engaged" in order to succeed in the future. This may be relatively easy for the Army to embrace because today's warfighters and sustainers are regionally in tune, culturally aware, and tactically proficient.

But where globally will they have to engage? Where should they focus? Not all of the force will be focused on the area they will be required to enter.

In the event that the Army has to act, one should remember that most contingency operations start out contiguous. Leaders at all levels should ask themselves if the modular sustainment structure is trained to support a contiguous operation, if the Army will be ready to execute and sustain this antiquated tactic, and if the modular sustainment structure has become so modular that it violates a critical sustainment principle (simplicity) when supporting a contiguous operation.

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Maj. Velasquez would like to thank the Maneuver Center of Excellence doctrine team and his peers and mentors for reviewing this article.

The rear gunner in a Sikorsky UH–53 helicopter watches the end of the Hairatan-Uzbekistan railroad stretch into the distance. The 47-mile line provides a valuable commercial link between Afghanistan and Uzbekistan across the Amu Darya River. (Photo by Petty Officer 1st Class Mark O'Donald)

Learning From Northern Distribution Network Operations

■ By Col. Kelly J. Lawler

The Northern Distribution Network (NDN) was developed in 2009 to deal with the pressing need to sustain the movement of equipment and supplies during Operation Enduring Freedom (OEF). Prior to the NDN's establishment, the only means of resupply to U.S. and coalition forces in Afghanistan was the Pakistan ground line of communication (PAKGLOC).

The NDN was designed to provide redundancy to the PAKGLOC and to help handle the surge of supplies associated with an increase of 21,000 U.S. troops in Afghanistan in 2009 and an additional 30,000 troops in 2010, according to Andrew C. Kuchins and Thomas M. Sanderson's January 2010 Center for Strategic and International Studies report, "The Northern Distribution Network and Afghanistan Geopolitical Challenges and Opportunities." The NDN has also helped to cultivate U.S. foreign policies for and strategic relationships with the Central Asian states over the past 10 years.

The opening and operation of the NDN had short-term value but also supported strategic regional and bilateral implications for the future. Three main points of discussion highlight the strategic and historical

importance of the NDN:

- How does the NDN affect Central Asian states?
- Did the NDN advance stability in the region?
- What is the possibility of a U.S. policy being formulated to build other networks that require multinational cooperation after the U.S. drawdown of OEF?

The Effect on Central Asian States

The first and most important future implication of the use and possible deactivation of the NDN is the potential effect on Central Asian states, specifically Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. These countries, once members of the former Soviet Union, can count on Russia being interested in their political decisions.

The Central Asian states, by means of the NDN, formed relationships that, in some instances, brought closer cooperation. These relationships have the potential to change the U.S.-Eurasia strategy and overall geopolitical landscape in the region. Although each Central Asian state had its own motives for accepting the NDN, the region had to cooperate to establish and maintain the NDN.

Although the NDN is a physical transportation route, it has the potential to further influence the Central Asian states to forge alliances with their neighbors and increase stability in the region. Cooperative efforts and the Central Asian states' acceptance of replicating or maintaining alliances at the current level are what remain in question.

There are three reasons that the strategic political dimensions of the northern supply routes are important, according to Gregory Gleason's *Connections: The Quarterly Journal* article (Fall 2009), "Political Dimensions of the Northern Afghanistan Resupply Routes."

"First, cooperation involves the realistic, sober assessment of self-interest and common goals that are limited, voluntary, and practical. Second, commitments to cooperate can be reversed. … Third, cooperation necessarily involves mutual understanding regarding specific, particular lines of action."

Gleason continues, "For these reasons, even when all agree that cooperation is important, and all parties are thus motivated to cooperate, it leaves questions as to whether cooperation can be durable or whether commitments will be reversed."

It may be too early to assess the full impact of NDN participation on Central Asian states. The cooperative nature by which these countries supported U.S. logistics requirements shows that they can perform when asked to with some level of cooperation.

Advancing Stability

The Central Asian states have fundamentally different ways of coping with

Steel rebar, imported through Uzbekistan, is guided into place after a crane lifts the rods out of a railroad gondola car at Rail Port 4, Niababad. After offloading the rebar from the railcar and staging on the loading dock, the rebar is then lifted onto trucks for transportation to construction sites around Afghanistan. (Photo by Sgt. 1st Class Timothy Lawn)

their proximity to Afghanistan and each other. Tajikistan maintains a largely porous border and exports some electricity to Afghanistan. By contrast, Uzbekistan has sealed off its border with Afghanistan. With the exception of granting passage along the NDN and providing electricity to Kabul and northern Afghanistan, it allows little cross-border movement of people or trade.

Currently, the Central Asian regimes do not treat their proximity to Afghanistan as a threat worthy of banding together to confront; instead, they see it as an opportunity to justify unilateral policies and reap benefits from supporting international donors who have money to spend on security and development initiatives.

"Washington's exit strategy for Central Asia has focused lately on the so-called New Silk Road [strategy], which would aim to stabilize Afghanistan by putting it at the center of the network of trade routes between Europe and Asia," David Trilling writes in "Northern Distribution Nightmare," a December 2011 *Foreign Policy* article. The New Silk Road is not the physical NDN but more of an alliance of the Central Asian states to ensure trade and partnership in the region and for the future.

For example, as the United States continues to perform retrograde operations from Afghanistan, the potential for bilateral or multinational cooperation along the NDN is substantially increased. However, in order for the cooperation to exist, the United States must use the NDN more than the PAKGLOC for retrograde operations.

Future U.S. Policy

After OEF, will the United States consider adopting policies to create and maintain future distribution networks through multinational cooperation? The U.S. military endeavor to build the NDN was a massive logistics and policy undertaking. The interagency and whole-of-government approach was essential to establishing and maintaining agreements to keep the NDN open and the sustainment flowing into Afghanistan. The magnitude of the logistics improvisation required demonstrates why distribution is so difficult in Afghanistan.

Deployment and distribution capabilities are core functions of joint logistics. These capabilities move forces and logistics support globally and on time, meeting required delivery dates and providing time-definite delivery to combatant commanders. As long as deployment and distribution remain core functions of U.S. joint doctrine, creating a complex distribution network like the NDN is very probable and should be prepared for by studying lessons learned from the NDN operation.

Recommendations

I recommend that the Department of State lead a strategic review to address the past three years of use along the NDN. Post-OEF, the NDN should be the starting point for planners and policymakers to review the New Silk Road strategy. The NDN will help maintain stability for the region if materiel evacuation is maximized along the route during retrograde operations.

Next, I recommend that the Central Asian states and all countries along the NDN come together for a holistic review of policy decisions and lessons learned. This review should include Central Asian leaders and equivalent U.S., Russian, and Chinese representatives. The review, led by the Department of Defense, would focus on the military planning and consequences of the network.

By bringing the NDN countries together in this way, the potential for alliances and cooperation could increase. Transparency and knowledge-sharing could be very powerful for future interaction with the Central Asian states. Other discussion points could include each country's plans post-NDN, the effects of corruption along the routes, and recommendations for improving the NDN in the future.

Finally, I recommend a review, led by the Office of the Undersecretary of Defense for Policy and the Joint Staff J–4, to study decisions made surrounding the NDN. This review will define roles and responsibilities to improve communication with appropriate heads of state and defense ministers who will assist in establishing future policy.

The review will help leaders avoid the redundant actions that occurred during the NDN's establishment. It will also determine where the policymaking process did not fully cover the full spectrum of the logistics effort and identify the situations that made upholding the agreements with the Central Asian states difficult (and at times shut down the NDN). Having this information will help the United States to formulate strategies to mitigate similar situations in the future.

The United States must be prepared to create and maintain strategic lines of communication in order to support major operations. U.S. foreign policies and strategic relationships with the Central Asian states over the past 10 years have improved because of the NDN.

The cooperative efforts of the Central Asian states to establish and connect to the NDN are actions that should be repeatedly referred to for their lessons. This strategic success story can be the starting point to formulate further policy for Central Asian states and the United States after OEF has culminated.

Col. Kelly J. Lawler is a U.S. Army War College Fellow at the George C. Marshall European Center for Security Studies. He holds a master's degree in logistics management from the Florida Institute of Technology and a bachelor's degree in criminal justice from West Chester University of Pennsylvania. He is a graduate of the Quartermaster Officer Basic Course, Airborne School, Quartermaster Officer Advanced Course, Combined Arms and Service Staff School, Aerial Delivery and Materiel Officer Course, Petroleum Officers Course, Logistics Executive Development Course, and the Command and General Staff College.

Disclaimer: The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the U.S. Army War College, the U.S. Army, the Department of Defense, or the U.S. government.

READI

Reinvigorating the Army's Deployment Readiness

■ By Jason Trubenbach

Paratroopers with the 2nd Battalion, 319th Airborne Field Artillery Regiment, 2nd Brigade Combat Team, 82nd Airborne Division, unpack an M119 Howitzer after an airdrop at Camp Mackall, North Carolina, during Joint Operational Access Exercise 13–03. (Photo by Staff Sgt. Jason Hull)

As the 2014 deadline to remove combat forces from Afghanistan approaches, the Army is redefining itself. We are returning to a garrison-based Army with over 90 percent of the force based in the United States. Most of our Soldiers, including current company commanders, platoon sergeants, and even newly promoted majors, have never experienced a steady-state environment.

Our deployments over the past decade have been rotational. We assume that because we have been deploying for more than 11 years, we know how to deploy. The fact is that units have relied on others to do most of the deployment activities for them and have not practiced their own rapid deployment skills during that time.

The Army Power Projection Program (AP3) Rapid Expeditionary Deployment Initiative (REDI) is the catalyst to improve expeditionary deployment readiness and refocus the Army to develop inherent deployment skills to quickly provide forces to meet global combatant commander requirements for the full range of military operations on short notice.

The Assessment

In 2012, the Army validated the assumption that it needs to improve its readiness to deploy quickly. At the direction of the AP3 general officer steering committee, observation teams visited Fort Drum, New York, Fort Benning, Georgia, and Fort Bragg, North Carolina, to assess deployment readiness for the Army's Global Response Force using the XVIII Airborne Corps' Joint Operational Access Exercise as the platform.

Consisting of representatives from across the Army, the observation teams collectively captured 30 issues and insights affecting the deployment process within the domains of doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy. These were the top four issues:

- ☐ The Army needs to delineate deployment roles and missions for the Forces Command, Army Materiel Command, and Installation Management Command.
- ☐ Unit-level deployment tasks have been accomplished not by deploying units but instead by the installations using civilian and contract support.
- ☐ Leaders should emphasize the importance of units training on deployment and redeployment tasks.
- ☐ The Army should resource deployment readiness exercises, such as emergency deployment readiness exercises (EDREs) and sea emergency deployment readiness exercises (SEDREs) so units can renew and maintain their expeditionary deployment skills.

Taking Action

Through the AP3 community, the Army is taking action by updating Army Regulation (AR) 525–93, Army Deployment and Redeployment. AR 525–93 establishes policy, identifies responsibilities, and synchronizes procedures for all commands and agencies responsible for planning, preparing, and supporting deploying and redeploying Army forces.

The War Plans Division at Headquarters, Department of the Army, (HQDA) G–3/5/7, the proponent of AR 525–93, is leading the revision. The updated AR 525–93 will include the logistics readiness center responsibility changes and new sections on the command deployment discipline program (CDDP), the Unit Movement Officer Deployment Planning Course, and the Army Deployment Readiness Exercise (DRE) program.

The CDDP, found in chapter 4 of the latest draft of AR 525–93, is a tool for making the deployment process easier to navigate, especially for commanders, unit movement officers, and mobility officers. It lays out garrison and installation staff roles, responsibilities, and services provided to support deployments.

It also focuses on updating and aligning deployment roles, responsibilities, command relationships, and authorities for deployment readiness exercise planning, execution, and support.

HQDA manages the standardized mission-essential task lists that are the official listings of fundamental tasks brigades and higher units are designed to perform. The AP3 community's Force Projection Task Group championed the inclusion of new key deployment tasks for deployable brigades in standardized mission-essential task lists.

The new task group is called "plan actions associated with force projection" and includes the following subtasks: conduct deployment activities, perform home-station rear detachment activities, and conduct redeployment activities. The new force projection task group (Task: 55–9–4801) is mandatory for all deployable brigades.

HQDA G–4 and the Office of the Assistant Chief of Staff for Installation Management are working together to use the installation status report to automate installation deployment readiness reporting. This collaboration will capture any deficiencies or gaps identified by the installation that affect its ability to conduct deployment operations. It will allow the Army to make more informed programming and resourcing decisions.

Deployment Exercises

Through REDI, the AP3 community reinvigorated the Army DRE program. In January 2013, the Director of Strategy, Plans, and Policy, HQDA G–3/5/7, issued guidance on the prioritization of level III deployment readiness exercises. HQDA-sponsored EDRE and SEDRE exercises will allow units deploying on short notice to renew and maintain their expeditionary deployment skills in support of contingencies and unforeseen crises.

The level III DRE program will exercise rapid deployment skills of the global response force, a unit with a prepare-to-deploy order for a mission outside of the continental United States, and the U.S. Army Pacific (USARPAC) rapid reaction force, each with an EDRE and a heavy battalion task force from the East Coast with a SEDRE.

A paratrooper with the 2nd Brigade Combat Team, 82nd Airborne Division, packs away his parachute after landing on the Luzon Drop Zone during Joint Operational Access Exercise 13–03. (Photo by Staff Sgt. Jason Hull)

The Army G–4's centrally funded level III DRE program is an important part of reviving the Army's expeditionary and rapid deployment capabilities. The Program Objective Memorandum for 2015 to 2019 reflects these priorities and includes three EDREs and one SEDRE.

In September 2013, USARPAC conducted the first Army centrally funded level III EDRE since the invasion of Iraq in 2003 for units not based at Fort Bragg. USARPAC executed two separate level III EDREs with the 25th Infantry Division—one EDRE in Hawaii with the 2nd Stryker Brigade Combat Team, the 25th Combat Aviation Brigade, and division staff and one EDRE in Alaska with the 4th Brigade Combat Team (Airborne).

The level III EDREs tested the units' expeditionary capabilities to support U.S. Pacific Command and U.S. Northern Command requirements. The EDREs provided valuable experience and feedback to USARPAC on its ability to support the chief of staff of the Army's strategic priorities.

The Army staff is also leading an integrated process team in preparation for a fiscal year 2015 level III SEDRE. The exercise will allow troops to practice deploying a heavy battalion task force in conjunction with a port support activity and a Military Sealift Command vessel to validate unit and vessel capabilities according to approved deployment timelines.

The intent is to partner with the U.S. Transportation Command and the Navy through the turbo activation program, which is used to test the readiness of strategic sealift assets.

The Way Forward

The AP3 community will continue its work to provide updated, integrated, synchronized, and validated policy, processes, regulations, and doctrine.

The Army will use level III EDREs and SEDREs to validate unit readiness to rapidly deploy and will continue to require assessments of force projection capabilities at key installations, depots, and ports to identify gaps in future programming regarding facilities, people, and equipment.

The Army is changing its mindset from advanced notice rotational deployments to a persistent state of expeditionary deployment readiness. REDI is the mechanism that will ensure the Army is inherently expeditionary and able to project power quickly.

The AP3 community is leading this effort by updating policies and doctrine, conducting deployment readiness exercises, and restoring and modernizing the United States-based force projection infrastructure we have invested in during the past 20-plus years.

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Sustainment Rehearsals and Synergizing Efforts:

Must-Haves for the 21st Century

By Dr. O. Shawn Cupp and Maj. Edward K. Woo

Sustainment planners construct plans to ensure expeditious responsiveness to meet the leaders' intent of speed and velocity. (Photo by Maj. Cheryl Sparks)

Sustainment units that make the most of their division sustainment rehearsals will encourage transparency, sharing of information, and synergistic efforts.

Rehearsals are important to every military operation. They confirm tasks, eliminate redundancy, and support collaboration. Nations depend on their militaries to perform at a high level of aptitude. In fact, a nation's survival often depends on this level of competency.

Sustainment planners are no strangers to analyzing armed conflicts and sustaining the force in the face of regional instability. Even the most seasoned sustainer likely will profess that there is no simple formula to solve the intricacies of dynamic unified land operations.

Within the current context of mission command, these types of deliberations often induce an unwieldy and complex planning effort interlaced with ambiguous environments in a variety of logistics ecosystems.

How do we solve this sustainment problem while supporting an infantry division facing a threat in a non-permissive environment? How do we train well with limited means? What is the best type of training that involves leaders and subordinates and integrates sustainment into combat operations? If we look to doctrine, we can answer these questions. The answers to all of them start with rehearsals.

Doctrine

Army doctrine outlines the procedures and types of rehearsals. Chapter 8 of Army Tactics, Techniques, and Procedures (ATTP) 5–0.1,

Command and Staff Officer Guide, provides details for rehearsals. According to the manual, there are four types of rehearsals:

- ☐ Backbrief.
- ☐ Combined arms rehearsal.
- ☐ Support rehearsal.
- ☐ Battle drill or standard operating procedure rehearsal.

Leaders employ these rehearsal types through six basic techniques: network, map, sketch map, terrain model, reduced force, and full dress rehearsal. All of these techniques require different kinds and amounts of resources. Their applicability covers a range of operations and units. Within each of these techniques, planners consider four factors: time, echelons involved, operations security risk, and terrain.

Chapter 8 of ATTP 5–0.1 fully explains the benefits and challenges of the four factors associated with these six techniques. The techniques in figure 1 are depicted in relation to the resources required and the understanding gained.

Which rehearsal to implement usually depends on how much time is available and the level of understanding required. In terms of understanding gained as a function of resources required, the terrain model is in the middle. Therefore, it is not difficult to understand why leaders employ terrain model rehearsals (rehearsal of concept drills) most often. It is the so-called "sweet spot" that provides the most knowledge with limited resources.

Army doctrine recommends rehearsal responsibilities and details the roles of commanders and staff officers. However, two even more significant areas must be considered. One area is the projected outcomes of conducting a rehearsal—what the unit gets out of conducting the rehearsal.

The other area to consider is the "rules of thumb" to determine how leaders should conduct the rehearsal. The outcomes and the rules of thumb are important because rehearsals use significant training resources, such as dollars, time, and space.

Outcomes

Leaders divide outcomes (intangible and tangible) based on how they relate to the members of the unit and their professional development. (See figure 2.)

Leader development is currently the number one priority of Gen. Raymond T. Odierno, the chief of staff of the Army. Therefore, understanding what leader-focused results we will produce is a significant step in planning a rehearsal. In fact, if the time and resources warrant only a quick review within the rehearsal, then leaders, including both officers and enlisted Soldiers, should be the primary audience.

Tangible (measurable) outcomes are possible. They can be qualified and quantified on the battlefield. Synchronizing operations not only increases the effectiveness of the Soldiers and materiel but also provides the opportunity to increase unit support. Deconflicting movements and verifying decision points assist in measurable ways to increase the efficiency of military operations.

Rules of Thumb

There are four rules of thumb that will help leaders to determine if a rehearsal is necessary and to plan for it accordingly.

Rehearse what has not yet happened. Needing to prepare for future operations is usually the primary reason to conduct any type of rehearsal. A rehearsal under these conditions not only assists in executing the operation but also in conducting future rehearsals. Rehearsals provide the opportunity for a commander to guide and direct the execution to a specific level of detail.

Sustainment operations are inherently expensive. In fact, sustainment is accounted for through the expenditure of resources. Numbers of Soldiers, weapon systems, track miles, blade hours, and gallons of fuel are the substance of sustainment operations. Conducting rehearsals for sustainment operations is important for commanders to adequately and judiciously use the resources provided by the taxpaying public.

Rehearse what is forgotten. In recent years, the Army conducted operations primarily from established support bases and into mature forward operating bases (FOBs). The tasks, conditions, and execution of nonpermissive or even permissive reception, staging, onward move-

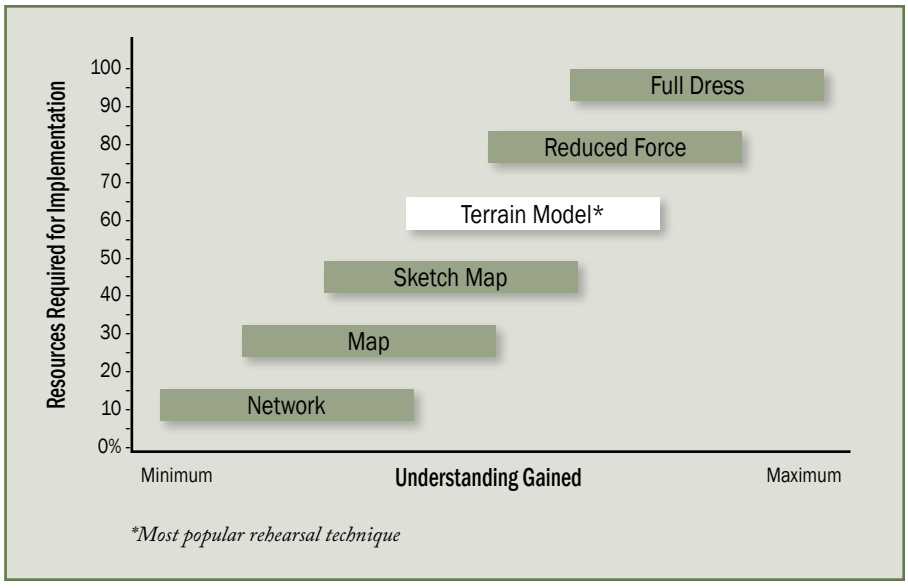

Figure 1. Resources compared to rehearsal types.

ment, and integration are unknown to most Soldiers.

Many senior leaders have performed these tasks, but many junior leaders and Soldiers have not. Rehearsing these forgotten tasks and operations enhances any unit's overall readiness.

Rehearse to empower subordinates. Both friends and foes look at the U.S. Army as outstanding. One of the primary reasons is that it provides guidance and accepts that junior-level leaders make life and death decisions.

Junior-level leaders execute rehearsals to appreciate how sustainment forces execute mission command. Interweaving the many key stakeholders and maximizing participation is important to an effective rehearsal.

Meanwhile, it empowers and challenges junior leaders to observe the bigger sustainment picture. This tenet gives junior leaders the ability to be calm, clear, accurate, succinct, proficient, resourceful, and efficient in nesting their tasks and purposes in the commanding general's intent.

Rehearse the easy and the hard. To engage the audience in the full spectrum of the operational environment, rehearsing the easy and simple is critical. Simply identifying the main supply routes, key terrain, expected weather, and location of cities is imperative to examining and conducting sophisticated and complicated problems. Rehearsing the simple can be resupply operations, for example.

Planners must also rehearse the hard and complex to test the fidelity of the sustainment plan and the proficiency of its planners. Rehearsing the complex requires thinking about the second and third order effects of a trigger, such as the loss of a combat sustainment support battalion (CSSB), a fragmentary order to a defense, and internally displaced persons or detainee overflow.

How a sustainment unit responds to these situations will affect the way customers (maneuver and enabler Soldiers) judge their supporting unit.

Rehearsals in Practice

Chapter 8 of ATTP 5–0.1 provides some specific suggestions for action during a rehearsal. These are the first points of consideration for what should be included in the rehearsal.

Outcome	Type	Audience
Intangible	Professional development	Officers, noncommissioned officers, and Soldiers
	Concepts	Commanders, staffs
Tangible	Synchronize operations	Everyone
	Verify decision points	Commanders, staffs
	Deconflict movements	Commanders, staffs
	Validate overlays and graphics	Staffs

Figure 2. Intangible and tangible outcomes.

Many of these involve describing or depicting points on the ground for various sustainment functions. Other areas to consider are what to do or where to go when operations do not go as planned.

When the initial engagement of the enemy occurs, many plans are no longer relevant. Practicing how to provide contingency locations and support operations is crucial during any sustainment rehearsal.

Not only are sustainment elements important; so are the way they are displayed on the terrain model. The terrain features, man-made objects, control measures, and supply routes should all follow the same naming conventions and color key. (See figure 3.)

Once planners identify the outcomes, rules of thumb for rehearsals, and materials for the terrain model, the next decision should be which type of rehearsal to conduct. The combined arms rehearsal and support (or sustainment) rehearsal include multiple echelons, could help develop synergy, and reach the widest prospective audience.

Combined Arms Rehearsal

During the combined arms rehearsal, as part of the script, each maneuver brigade commander and enablers brief the audience. The combined arms rehearsal does not exclude sustainment considerations. Often the division G–4 and sustainment brigade commander are the main sustainment briefers in the rehearsal.

The experienced division G–4 briefs an overall concept of the sustainment support plan according to each phase of the operation. Depending on the climate of the rehearsal, the division G–4 briefs succinctly and uses a few key points.

While the G–4 briefs, the G–4 subordinate staff records the details of the briefing. The G–4 plans officer usually organizes these records and shares them in subsequent sustainment synchronization meetings.

The other key sustainment briefer is the sustainment brigade commander, who discusses the sustainment brigade's task and purpose, which are nested within the maneuver brigade commander's tactical task and purpose.

This is an opportunity for the sustainment brigade commander to brief the commanding general pri-

marily on the security of the CSSBs and contingency plans in the event of an asymmetric threat compromising a sustainment unit. The seasoned sustainment brigade commander can articulate the plan to replace any compromised capabilities.

Under the principles of unity of command, a sustainment brigade can have a direct support relationship with the division. The division G–3 can update and analyze the decision support template for the division operation and consider any security assets to help secure CSSBs, refuels on-the-move, forward arming and refueling points, and main supply routes.

Division Sustainment Rehearsal

Ideally, the division sustainment rehearsal should follow the combined arms rehearsal because most of the key leaders are already there. This is the venue in which all the key sustainment planners execute the sustainment rehearsal until completion using the same combined arms rehearsal terrain model (such as a hangar, gym floor, or bay).

After reviewing any updated commanding general's direction from the combined arms rehearsal, the G–4 and sustainment brigade commander can better visualize and synchronize the sustainment effort within the commander's intent.

> Transparency is the key to rehearsals because it generates efficiency, flattens complex organizations, and encourages effective collaboration among all warfighting functions.

The sustainment rehearsal's key products include the maneuver synchronization matrix, sustainment synchronization matrix, roll call, sustainment annexes, and functional products.

During execution, the sustainment planners can validate the sustainment concept based on the sustainment principles of anticipation, integration, continuity, responsiveness, economy, survivability, simplicity, and improvisation.

Execution helps all key stakeholders visualize the conditions for actions and triggers for change. Proactive planning and herding all key sustainment planners are important to ensuring a sound sustainment plan for a division-level offensive operation.

Two critical products that should result from the sustainment rehearsal are a validated sustainment annex for division operations and a final sustainment synchronization matrix. This allows all sustainment planners to speak the same language during subsequent sustainment synchronization meetings (usually through voice over Internet protocol or Defense Connect Online).

After the rehearsal is complete, the recorder should restate any changes, adjusted move times, route changes, coordination, or clarifications directed by the commander and provide an estimate for when a written fragmentary order to codify the changes will be complete.

Effective sustainers understand the importance of anticipating changes and adjustments based on the rehearsal's outcomes.

The benefits of a division sustainment rehearsal are multifold. First, all sustainers visualize and adjudicate the sustainment plan in the same way that their division maneuver and enabler brethren have a detailed understanding of a sustainable offensive operation.

Second, division sustainers can identify key events that affect operational sustainment. Third, based on the rehearsal's outcomes, the G–4 can revert to the first decision point in the decision support template with the G–3 and discuss any potential sustainment plan changes resulting from maneuver decisions.

Material	Purpose	Representation
Rope	Outline the operational area	Sides of the terrain model
Engineer tape (white), 5 x 8 cards (white)	Outline control measure symbols	Phase lines, boundaries, engagement areas, assembly areas, main supply route, objectives
5 x 8 cards (blue), wire stands, tape	Represent friendly forces	Friendly unit symbols: division main command post, brigades
5 x 8 cards (red), wire stands, tape	Represent opposing forces	Enemy unit symbols
5 x 8 cards (various)	Represent individuals and organizations	Displaced persons, non-governmental organizations, criminal activities
Surface (either floor or dirt/ sand composition)	Provide context	Hills, buildings, terrain
Camouflage net/felt/tissue paper/tape (green/blue/black)	Represent terrain	Mountains, rivers, ridgelines
Pole, whip antenna, retractable pointer	Used by briefer to point in motion	All

Figure 3. Terrain model materials.

During a rehearsal at Fort Leavenworth, Kansas, a coalition movement and maneuver leader explains actions on the objective upon crossing a phase line while sustainment planners anticipate resupply operations. (Photo by Maj. Cheryl Sparks)

Planners discuss branches and sequels, specifically if they affect throughput operations for fuel and ammunition.

Fourth, the sustainment plan shapes intelligence gathering for the G–2, particularly reverse intelligence preparation of the battlefield and intelligence estimates.

Fifth, the sustainment plan ensures that leaders integrate all the warfighting functions with the responsiveness required to meet the commanding general's intent.

Finally, and perhaps most importantly, the division sustainment rehearsal sets the tone and conditions for brigade-sized units to execute their own sustainment rehearsals.

Rehearsals encourage transparency and sharing of information, which are fundamentals of a proficient organization. Transparency is the key to rehearsals because it generates efficiency, flattens complex organizations, and encourages effective collaboration among all warfighting functions.

We cannot afford to lose time or focus because of stovepiped tendencies that inhibit planners from generating sophisticated solutions. The rehearsal process is a way to encourage synergistic efforts and is every sustainment leader's intrinsic responsibility.

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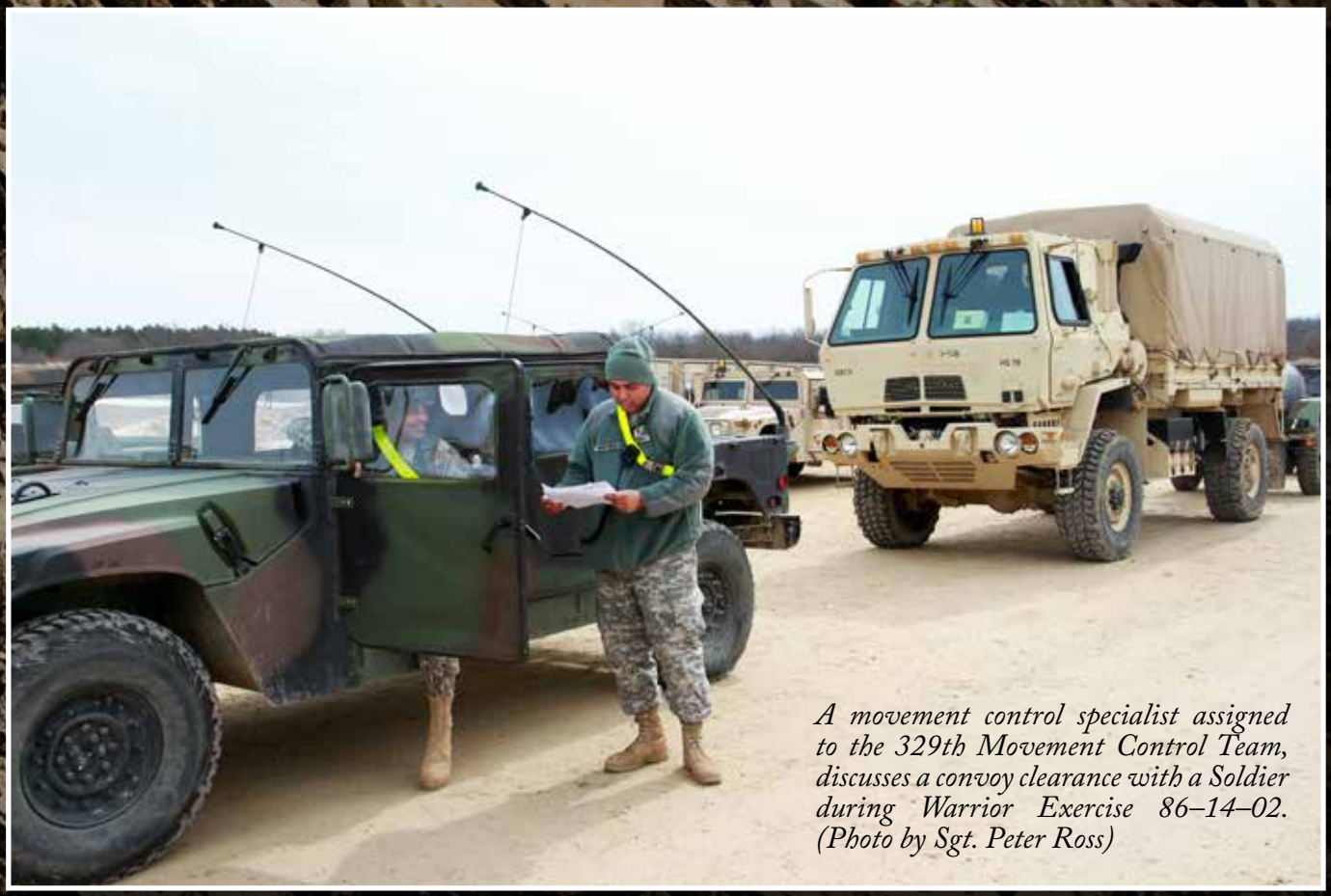
THE MOVEMENT CONTROL BATTALION IN THEATER

Movement control battalions regularly provide mission command for more movement control teams than they are doctrinally capable of leading.

■ By Lt. Col. Joseph D. Blanding



A movement control specialist assigned to the 329th Movement Control Team, discusses a convoy clearance with a Soldier during Warrior Exercise 86–14–02. (Photo by Sgt. Peter Ross)

Movement control is a critical function in both garrison and combat operations; however, its role becomes even more essential during combat. It provides sustainers and warfighters with in-transit visibility (ITV) of cargo, equipment, and personnel along lines of communication into and out of the theater of operations.

The movement control battalion (MCB) provides this capability through its subordinate movement control teams (MCTs). Army Techniques Publication (ATP) 4–16, Movement Control, defines an MCB as a functional transportation battalion that executes movement control by way of four to 10 assigned MCTs over which it provides mission command.

MCT Responsibilities

According to Maj. Michael Ashton, Maj. Daniel Tone, and Dr. Eric Morrison in their case study, "Increase In-Transit Visibility for the 'Last Sustainment Mile,'" which was published in the *Division Transportation Officer & Mobility Officer Newsletter*, Vol. 10 (1), "MCTs are designed to execute the five movement control missions which are intermodal, area, movement regulation, documentation and division support. This includes reporting ITV of personnel and equipment moving through distribution nodes."

Ashton, Tone, and Morrison profess that an "MCB and [its] subordinate MCTs are key components in the distribution pipeline and provide area support for all units in their operational area.

Both units are responsible for pro-

viding ITV to the tactical, operational, [and] strategic levels."

To support a division, the MCT may be attached to the division transportation officer shop. However, typically the MCB, through its MCT, provides ITV support to a specific mode of transportation and provides area support in a theater of operations.

MCB Responsibilities

The MCB is a theater asset normally aligned to a theater sustainment command (TSC) or expeditionary sustainment command (ESC) responsible for regulating Army movement on main supply routes and alternate supply routes using common-user transportation assets.

Additional requirements placed on the MCB by doctrine include the following:

- ☐ Validate or select mode for movement requirements.
- ☐ Coordinate with higher, parallel, adjacent, and subordinate units for transportation support.
- ☐ Coordinate with the Military Surface Deployment and Distribution Command and Joint Deployment Distribution Operations Center when authorized by the TSC.
- ☐ Provide oversight of arrival/departure airfield control group operations.
- ☐ Provide assistance with reception, staging, onward movement, and retrograde of personnel, equipment, and supplies.

These requirements reinforce the criticality of the MCB and MCT during combat operations. Historically, the MCB has been required to perform nondoctrinal functions out of necessity, such as managing large contracts.

Currently, the MCB manages contracts to provide critical transportation support using host-nation trucks, national Afghan trucks (NAT), XE-LESS contractor trucks, and short take-off and landing (STOL) aircraft assets. By modified table of organization and equipment, the MCB is not designed to provide contract management support.

The MCB's requirement to perform nondoctrinal tasks is not unique to operations in Afghanistan. In Operation Iraqi Freedom, it was routinely underresourced for doctrinal and

Lt. Col. Michael S. Knapp, commander of the 39th Joint Movement Control Battalion, and Command Sgt. Maj. Gussie Bernard Bellinger case their battalion's colors during a transfer of authority ceremony at Bagram Air Field, Afghanistan, on Nov. 18, 2013. The battalion, home stationed at Kaiserslautern, Germany, was replaced by the 330th Movement Control Battalion from Fort Bragg, North Carolina. (Photo by Staff Sgt. Wayne Rush)

nondoctrinal missions.

Charles H. Blumenfeld articulates this in his thesis for the Command and General Staff College entitled, "Resourcing Movement Control Battalions During Operation Iraqi Freedom 07–09."

In this thesis, he describes a study in which the MCB was directed to serve as the ESC's support operations transportation section while providing mission command of almost 30 MCTs during combat operations in Iraq.

From this study, Blumenfeld concluded that "the MCB in Iraq was not resourced with a sufficient number of personnel to perform the multiple missions they were required to perform."

Contract Management

In Afghanistan, individuals from other organizations must augment the MCB to perform the contract management mission. These supplements are arranged into a contracting officer representative (COR) cell.

The MCB headquarters is not designed to manage contracts. In spite of this, operational realities demand that the MCB manage the NAT, XELESS, and STOL contracts.

The collective value of these contracts exceeds $1.3 billion. In order to properly manage the contracts, personnel who are not certified contract experts augment the MCB's staff to fulfill the requirement.

The COR cell is responsible for ensuring the performance work statements and statements of work for the NAT contract are fully enforced. In other words, the COR cell is the reach-back element to the Army Contracting Command, which provides oversight of all contracts within the assigned area of operations.

This relationship is invaluable because all penalties, investigations, adjudications, and disputes for poor performance are rectified by the contracting officer through the COR cell.

The XELESS and STOL contracts are an additional challenge that must be assigned to a nonorganic element and an MCT that executes a nondoctrinal role (contract management).

The TMCA

The MCB may report directly to either the TSC or the ESC in accordance with doctrinal procedures. The transportation movement control agency (TMCA) used to be the headquarters element responsible for directly reporting to the TSC and ESC, which allowed the MCB to have uninterrupted oversight of its assigned MCTs.

As early as 1998, the Army began to change its organizational structure to a more expeditionary force capable of rapid deployment. The chief of staff of the Army's guidance was to create a modular brigade-based Army that is more responsive to regional combatant commanders' needs, better employs joint capabilities, facilitates force packaging and rapid deployment, and fights as self-contained units in nonlinear, noncontiguous battlespaces.

As part of the Army's evolution into an agile reactionary force, the TMCA was deactivated and integrated into the mobility sections of the TSC's and ESC's distribution management centers.

The initial transition occurred across several periods of transformation, which included Force XXI (1998 to 2002) and modularity (2003 to present). Force XXI converted the TMCA into the transportation command element, which later evolved into subordinate elements of the TSC and its forward deployable element, the ESC.

The TMCA performed seven main missions:

- Acting as the executive agent for movement control.
- Providing mission planning for strategic deployment, sustainment, and redeployment.
- Providing theater-level liaisons to host nations and for contracted assets (rail, barge, sea, and road).
- Participating with task force staffs to provide a movement control system.
- Assisting corps and division staffs in movement planning and execution.
- Coordinating and interacting with NATO, the United Nations, and nongovernmental organizations.
- Providing movement tracking and ITV for the Army service component command commander.

The TTOE

An important function of the TMCA was to execute mission command of the MCB. Currently, MCBs may align under sustainment brigades but deploy as separate headquarters elements providing mission command of several MCTs.

Because of transformation or the overreliance on contract support, many of the transportation organizations within the Army are either underused or have been realigned. The transportation theater opening element (TTOE) is one example of an organization that is underused because of more than 13 years of constant war within the U.S. Central Command area of responsibility.

According to ATP 4–93, Sustainment Brigade, the TTOE is assigned to a TSC and attached to a sustainment brigade. It is a 54-person element similar to the MCB headquarters and consists of three sections: terminal operations, transportation branch, and movements branch.

The ATP highlights three important functions of the TTOE:

- Establish the initial distribution network and provide support to assigned customers.
- Conduct minimum essential early-entry operations before employing full theater-opening capabilities.
- Provide mission command for employed units.

The TTOE is structured to provide mission command for up to four MCTs until the arrival of an

MCB. According to the Combined Arms Support Command's Army Logistics Quick Reference Book, the Army has 18 TTOEs; all are in the Army Reserve. The TTOE was invaluable in the beginnings of Operations Enduring Freedom and Iraqi Freedom. The military has not needed a TTOE since then.

Contract Support

More and more, the requirement for transportation support during conflict is being contracted to civilian entities, reducing the need for Active and Reserve units that primarily fulfill this requirement according to the Total Force Concept, also known as the Abrams Doctrine.

In his 2013 *Truthout* article, "Troops or Private Contractors: Who Does Better in Supplying Our Troops During War?" Charles M. Smith wrote, "The use of contractor support appears to obviate what has been called the Abrams' [sic] Doctrine. Gen. Creighton Abrams restructured military forces to closely integrate the Army Reserve and National Guard with regular Army units. For example, a combat division could not deploy and operate without a reserve transportation unit to move their supplies and a reserve water unit to produce and transport water."

To a greater extent, civilian agencies have replaced the need for Active and Reserve component transportation Soldiers and units. The Logistics Civil Augmentation Program (LOGCAP) provides much of the Army's transportation support before and during combat operations.

LOGCAP is a Department of the Army regulatory program to augment the force by providing services to meet externally driven operational requirements for rapid contingency augmentation. LOGCAP plans for and executes contracted support services in conjunction with the Army field support brigade and contracting support brigade for deployed forces performing missions directed or supported by the Department of Defense during global contingency operations.

The decision to use contractors instead of Soldiers for logistics support may be driven by cost. In his article, Smith describes a study on the use of contractor support in combat. The study was conducted in 2005 by the Congressional Budget Office (CBO), which concluded that "the cost of troop support would be $78.4 billion for the 20 year period. LOGCAP support is calculated to cost $41.4 billion for this period. Based upon the CBO calculations, the cost difference over a 20-year period would be $37 billion dollars."

According to the CBO, it is more financially responsible to use civilian entities because of the associated costs of training, mobilizing, and deploying military forces. As a military officer currently on active duty in a combat area, I can attest that many problems are associated with relying heavily on contracted support.

Problem Statement

The MCB, contrary to doctrine, has habitually been required to provide mission command for more than 10 MCTs within a specified theater of operations during combat. Doctrinally, an MCB is capable of providing mission command of four to 10 MCTs, in both garrison and combat operations. The MCB is not equipped to provide mission command of more than 10 MCTs.

I posit, in the event that there are more than 10 MCTs, an additional MCB headquarters, and possibly a brigade-level element similar to the headquarters element of the TMCA, must be deployed to that specific theater of operations.

In certain theaters of operations, the MCB's span of control covers the entire area of operations. That span may require the MCB to have mission command of 20 MCTs and a headquarters element.

In such a situation, the challenges of command, such as leader misconduct, Soldier misconduct, sexual harassment, equal opportunity violations, personnel issues, property issues, and maintenance shortfalls, are doubled for the MCB commander and staff. However, the number of personnel on the battalion staff remains consistent with that of an element capable of providing mission command of four to 10 teams and a headquarters element.

I have experienced firsthand several issues related to the challenges of excessive units dispersed over a large area of operations. I assert that many MCTs are necessary in order to provide ITV in any theater of operations.

Furthermore, I believe that in future conflicts, 15 to 30 MCTs will continue to be required, as they were in Operations Iraqi Freedom, New Dawn, and Enduring Freedom.

Many of these MCTs, both Active and Reserve, will be brought into theater from around the world to fall under MCBs with which they have no habitual relationship. Without a habitual relationship, the assigned units do not have a previous working relationship with their higher headquarters.

Personnel and property issues, coupled with the span of control and complexity of the mission, call for the creation of a headquarters element similar to that of a TMCA. This problem deserves further attention because of the criticality of movement control operations in combat.

Recommendations

I recommend that the Army create a brigade headquarters to provide mission command of MCBs within geographic locations. The Army should create two brigade-level commands, one located in the continental United States (CONUS), preferably at Fort Bragg, N.C., and another located in Germany.

The CONUS brigade headquarters would have mission command of three active duty MCBs: the 330th MCB, the 49th MCB, and the 53rd MCB. The brigade headquarters in Germany would have

Soldiers from the 53rd Movement Control Battalion, 7th Sustainment Brigade, prepare a humvee for hook up to a Chinook helicopter during sling-load training at Felker Army Airfield. (Photo by Sgt. 1st Class Brian G. Rhodes)

mission command of the 25th MCB and the 39th MCB. Additional opportunities to fill this role could be available within the Reserve component.

During combat operations, the brigade headquarters would deploy to the theater of operations in the event that it must have mission command of more than 10 MCTs within the theater.

The proposed recommendation does two things for the Army: It provides the MCB with the necessary oversight by a transportation brigade-level organization when the number of MCTs exceeds the MCB's doctrinal capabilities, and it provides aspiring transporters with additional command opportunities and leadership positions at the brigade level.

I realize that if my recommendation were to be approved, a number of other challenges would exist. First, the TMCA no longer exists. Second, the Army would have to create a headquarters element during a period in which the Army is looking to reduce the force.

A possible solution is to employ the underutilized TTOE to serve as a transportation brigade-level command during contingency operations deployments.

I recommend the following positions for this proposed brigade headquarters be allocated to the Active component: brigade commanding officer, brigade deputy commanding officer, brigade command sergeant major, brigade executive officer, and all primary staff officers-in-charge and noncommissioned officers-in-charge. All other positions would belong to the Reserve component.

In summary, MCBs have regularly been required to provide mission command for more MCTs than their doctrinal ceiling of 10. When the theater of operations requires more than 10 MCTs, an additional MCB headquarters should be deployed to provide mission command for the additional units. The Army should create two brigade headquarters to provide mission command of MCBs on a geographic basis.

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Small-Scale Operations Logistics Support

Logistics support of small-scale operations in Africa involves transportation, supply, maintenance, services, host-nation support, and contingency contracting where organic U.S. logistics support is scarce.

■ By Lt. Col. Vincent C. Nwafor

When Soldiers support small-scale operations in an African country, logistics is an adventure. The host nation's stance on foreign military logistics footprints can make support operations challenging.

Knowing local idiosyncrasies and developing sustainable support are important to overcoming those challenges.

Logistics Footprint Diplomacy

Most African partner governments are reluctant to embrace an enduring foreign military presence on their soils. Some see a foreign military presence as an invasion, and some perceive the persistent presence of foreign forces as the pursuit of hegemony over their homeland.

For these reasons, when supporting small-scale operations, U.S. military forces often tone down the employment of traditional U.S. logistics operations. In conjunction with host nations' foreign military footprint stance, U.S. chiefs of mission have the final say on the acceptable force footprint and scope of military mission within their diplomatic territories.

The relationships among Department of Defense (DOD) personnel and country teams are an intricate part of the footprint equation. Amiable relationships among the principal actors matter; they drive a force's footprint, freedom of action, and level of logistics support.

Local Idiosyncrasies

The logistics common operational picture of many African partner nations and their capabilities and processes are hard to come by. Access and knowledge of their logistics common operational picture will help expand the logistics support pool and focus assistance on their internal defense logistics.

It is important to learn partner nations' logistics doctrine, organization, training, materiel, leadership and education, personnel and facilities. Logisticians should use that information to understand a host nation's acquisition and cross-servicing agreement (ACSA) capabilities, tactical-to-strategic logistics posture, and areas where DOD assistance is necessary. As an incentive for action, the DOD may cosponsor the operation with the host country.

The fact that the United States will assist in an operation is expected and invaluable. But any actions, spoken or unspoken, that appear to undermine the partner nations' pride will inadvertently feed the hegemony-pursuit propaganda. One-on-one discussions with key leaders are great way to gain their true perspectives on matters and build relationships and trust.

Command, control, and execution tend to be very centralized in many of these countries. Action officers rarely have decision-making authority, which affects operational and transactional commitments. That is why prolonged talks are common before serious commitment on main topics.

Being aware of these local peculiarities can help eliminate relationship snafus, increase mutual understanding, and improve bilateral logistics agreements.

Balanced and Integrated Support

Combining transportation, supply, maintenance, services, host-nation support, and contingency contracting in order to support small-scale operations where organic U.S. logistics are scarce is like walking a tightrope.

Does the fact that most African partners have a minimal force footprint stance mean that all supplies have to accompany the troops? Does it mean resupply items are to be flown from the United States or a third country? Does it mean in-country subsistence?

The accompanying troop supply concept demands high-volume, initial-lift mobility platforms and elaborate stock storage management. The routine resupply concept from sources other than the host nation entails pricey transportation arrangements with difficulties that include cross-country clearances, overflight rights, and hazardous materials endorsement clearances.

It is no wonder that logistics plan-

ners supporting small-scale operations leverage in-country capabilities as often as they can.

Transportation. Using a combination of commercial and military airlift quickly gets the forces to the frontline. Sustaining them is a different issue. Although commercial flights are a cheaper and less complex option, they cannot be used most of the time.

A special assignment airlift mission is exorbitantly expensive and has significant processing time. Strategic military airlift is great when overflight rights and access can be granted quickly.

Just as airlift is important, sealift of heavier cargo is vital. When cargo reaches the point of debarkation, in-country and cross-border ground line of communication challenges are daunting. Local customs clearance impediments and transshipment or transloading challenges cause problems.

Materials-handling equipment support is precarious, and road network dangers exist. Supplies are lost en route, delivery schedules shift for one reason or another, and funding issues sometimes require legal guidance.

Supply. Typical supply activities are bottled water procurement and fuel support. It can be difficult to meet DOD standards for fuel and water while acquiring them through local vendors. For one thing, preventive medicine personnel must approve the water supply.

The single fuel on the battlefield concept is not always a reality in Africa. Many partner nations' vehicles and aircraft come from various European and Eastern Bloc countries and use different fuels, including gasoline, diesel, and jet fuel.

Whether for self-support or to augment host nations' fuel requirements, U.S. Army logisticians should explore all fuel source options, including direct vendors, the Aviation Into-Plane Reimbursement Card, and blanket purchase agreements. In any case, early planning is important to minimize delays.

Maintenance. Maintenance support for small-scale operations is either do-it-yourself or through local repair shops. Do-it-yourself, a function of a limited logistics footprint, often lacks depth and breadth. However, using local repair shops might take much longer. Patience is a virtue when making repairs locally.

Services. For services, interpreters are invaluable. They will facilitate meetings and, among other things, coordinate for port-a-johns and water delivery for laundry and bath.

Contingency contracting. The number of local commercial vendors that can meet U.S. Federal Acquisition Regulation standards is low. The lack of a contracting officer on the ground adds to the difficulty of employing contingency contracting in many African partner nations.

Logistics planners should be prepared to write performance work statements and gather independent government estimates for contracting officer reach-back support. It is common to have long lead times to complete even an expedited support contract.

In-country micropurchases are executed by the field ordering officer and pay agent. In Africa, the duo should be prepared for price haggling; the actual selling price is normally between 40 and 80 percent of the first quoted price. The field ordering officer and pay agent are potent logistics support enablers when they have generous operational funds allocation. Units should not leave home station to support a small-scale operation without those capabilities.

Host-nation support. Given the small U.S. logistics footprints in many African partner countries, host-nation support is integral. The ACSA is a bilateral international agreement that allows foreign militaries, U.S. forces, and partner-nation ministries of defense to exchange logistics support for training exercises or emerging situations. It must be a factor of the support equation and considered early in the logistics planning process.

ACSA transactions further U.S. interests and enhance partner-nation logistics capabilities. ACSA-eligible countries may conduct transactions in the form of cash reimbursements, replacement in kind, and equal value exchanges.

Sound knowledge of ACSA policies by logistics planners and essential partner-nation ministry of defense personnel will aid in the preemptive identification of commodities and services of common interest.

A lack of adequate knowledge about ACSA can cause Soldiers to underutilize the capability. ACSA training for both partner nations and U.S. logistics planners cannot be overemphasized if leveraging host-nation capability is to be taken seriously.

The Defense Institute of Security Assistance Management offers ACSA courses, including the Security Cooperation Management Action Officer Course and International Program Security Requirements Course, at http://www.disam.dsca.mil.

Understanding host nations' contributions, support parameters, and DOD logistics capabilities is important for successfully supporting small-scale operations in African partner nations. Gaining knowledge of partner nations' logistics processes and capabilities, extensively collaborating with stakeholders, and including the host nation in the support matrix should be priorities.

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Equipment left behind during the Soviet withdrawal lies at Bagram Airfield in 2002.

Gleaning Lessons From the Soviet Retrograde

U.S. logisticians can learn from the Soviets' successes and mistakes in retrograding from Afghanistan.

■ By Lt. Col. Matthew T. Hamilton, Capt. Michael Brent Payne, and Chief Warrant Officer 2 David A. Holcomb Jr.

Logisticians across Afghanistan are preparing for perhaps the most significant retrograde operation in the history of the U.S. Army. At the same time, they are mentoring the Afghan National Army (ANA) as it makes final adjustments to its logistics system. Retrograde is still in the beginning stages, but very soon strategic distribution hubs will be a flurry of activity while Afghan logisticians take on the responsibility of sustaining ANA contingency operations across their nation.

How will we measure our success? What key actions must we accomplish to achieve our desired end state? These questions keep the most visionary logisticians awake at night as they seek to posture their organizations for success.

The United States is not the first to attempt retrograde from Afghanistan while simultaneously mentoring ANA and Ministry of Defense logisticians. In his white paper, "After Ivan: Logistics, Population, Security, and LOCs [lines of communication] in Afghanistan 1989–1992," Dr. Austin Long notes, "The Soviets recognized very early that the war in Afghanistan was one of logistics, and attempted to build the sustainment capabilities of their Democratic Republic of Afghanistan (DRA) allies."

The Soviets enjoyed moderate successes building an ANA logistics system while simultaneously retrograding. Indeed, the system the Soviets built lasted nearly three years after the departure of the Soviet Army. There is value in reviewing the Soviet's logistics experience in Afghanistan and using those lessons to inform our success.

ANA Affinity for the Soviet System

When a U.S. Army mentor asks an ANA logistician why he is doing something a certain way, the response is usually, "That is the way the Russians taught us." The ANA still relies on Soviet logistics doctrine.

Using the Soviet doctrine, ANA logisticians do not analyze consumption factors using Microsoft Excel. In fact, the average ANA logistician does not comprehend the idea of an automated enterprise system. Rather, they conduct all transactions using pen and paper and record the transactions on ledgers. Subordinate organizations receive equal portions of commodities without respect to reorder points or customer wait time, and patronage is a societal norm.

The ANA sustained itself for nearly three years after the Soviet departure and only failed after the withdrawal of Soviet ministerial advisers and foreign aid. The Soviet system spoke to the Afghan workers. They remember it, and it makes sense to them.

The Soviet system lacks efficient accountability, but it can work and may serve as an incremental step in a more mature system. ANA logisticians will first need to begin conducting business practices in a common language and achieve a literacy rate higher than 30 percent in that common language. This will enhance the average ANA logistician's ability to comprehend systems and concepts that bring increased accountability and auditability.

Preparing to Leave

So where should Army logisticians focus their efforts in these final days? Improving readiness in ANA support battalions is important, but perhaps those support battalions should not be the strategic-level objective of our focus. After all, the ANA logisticians have illustrated a resiliency and ability to sustain their organizations when they absolutely have to.

Considering that the Afghan failure came only after the loss of Soviet foreign aid and advisers, U.S. Department of Defense logisticians should seek to place competent logistics advisers at the Afghan Ministry of Defense. Ministerial-level advisers also should be placed at regional logistics support centers across Afghanistan. These individuals must understand receipt and distribution processes from the manufacturer to the user.

Although some of this is already being done, logisticians should recognize the significance of this goal as we move forward. Having the appropriate ministerial advisers, coupled with the appropriate measure of foreign aid, could afford the ANA logistics community the opportunity to continue to grow.

Tactical and Operational Retrograde

Soviet retrograde managers may not have adequately anticipated the effect of reduced LOC security during their retrograde. By 1988, Highway 7 through Nangarhar province had been interdicted by insurgents, and most secondary highways off Highways 1 and 7 were only passable as part of coordinated combat operations.

U.S. Army logisticians must consider the success of insurgents early in the Soviet withdrawal, assume there will be an effort to interdict U.S. LOCs, and focus retrograde and intelligence efforts on provinces like Paktika, Kunar, Khost, and Zabul. Logisticians must assume that retrograde from outposts far from Highway 1 will not necessarily occur before the retrograde of key locations along Highways 1 and 7. (See map of Afghanistan showing major highways at https://core.us.army.mil/content/images/2014/06/18/350544/size0.jpg.)

U.S. logisticians must plan for insurgent-led interdiction of LOCs as we retain more distant locations longer than those in closer proximity to our strategic bases. Logisticians will have to remain aware of ever-evolving operational decisions to leave some bases open longer than others, identify locations that will offer challenging retrograde options once LOCs are interdicted, and take action to mitigate the difficulties associated with the eventual retrograde of those locations.

Retrograding Hard to Remove Items

If U.S. Army logisticians are to leave less equipment in the battlespace than the Soviets did, what actions can they take now to foster a more synchronized retrograde once LOCs are interdicted? First, they must assume LOCs will be interdicted. Second, they must frame the problem through battlefield geometry informed by intelligence estimates that allow them to anticipate emerging hard-to-retrograde but longer lasting and more remote locations. Then, logisticians must start retrograding unneeded outsized cargo items exceeding sling-load weight limits and work with the maneuver community to reduce such places to an expeditionary equipping level.

Logisticians must prepare now for scenarios involving no ground retrograde options at locations with equipment that is over sling-load limits and consider disposition instructions for such equipment. The Army has done this in the past by dismantling outsized items and retrograding them by air in pieces or by staffing such items for destruction. If the goal is to leave no intact equipment like the Soviets did, with the exception of equipment that the Army is passing to the ANA, logisticians must begin planning now.

There is value in reviewing the Soviet logistics experience in Afghanistan. We can use Soviet lessons to identify some of the key tasks we must achieve if we are to avoid some of the failures the Soviets experienced. U.S. Army logisticians have much to accomplish in Afghanistan in a short time. If they are to be successful, they should focus some effort on retaining competent ministerial-level advisers beyond 2014, not only in Kabul but also throughout the country's regional logistics support centers.

The Army must resource intelligence estimates that afford an opportunity to anticipate insurgent-led LOC security interdiction at the tactical level. The soviet retrograde from Afghanistan was celebrated as a Soviet defeat in the American media; we should consider the successes and mistakes the Soviets made as we define our way ahead and shape the story of the U.S. forces' departure from Afghanistan.

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Army Sustainment Online
www.army.mil/armysustainment

A Soldier sews on a U.S. Army service tape for an individual turn-in customer. (Photo by Capt. Michael J. Watkins)

The Post Fabric Renovation and Sewing Shop

The Joint Base Lewis-McChord Post Fabric Renovation and Sewing Shop offers a convenient and cost saving service for units, Soldiers, and Airmen.

■ By Capt. Michael J. Watkins

As the Department of Defense faces difficult fiscal times, every organization must scrutinize its spending regardless of its mission. Many service members are also looking for means to conserve their personal funds. The Joint Base Lewis-McChord, Wash., (JBLM) Post Fabric Renovation and Sewing Shop supports those efforts.

Operated by the 295th Quartermaster Company, 13th Combat Sustainment Support Battalion (CSSB), 593rd Sustainment Brigade, the JBLM Post Fabric Renovation and Sewing Shop comprises military occupational specialty (MOS) 92S (shower, laundry, and clothing repair specialist) Soldiers. MOS 92S Soldiers repair uniforms and sew on ranks, badges, skill identifiers, and name tapes.

This support capability is seldom employed in the Army because of the small size of the 92S MOS and the lack of awareness among service members at each installation. But when it is provided, it proves to be cost effective. This service is especially beneficial for units preparing

to deploy; the differed contract costs that would have been used for fabric renovation and sewing services are freed for training and equipment.

Establishing the Shop

In 2012, the leaders of the 593rd Sustainment Brigade and 13th CSSB formulated a plan to take advantage of the MOS 92S Soldiers within the brigade and use their skills to provide no-cost fabric renovation and sewing services to all service members and units of I Corps and JBLM. The result of this initiative was the first-ever fabric renovation and sewing shop at JBLM.

The 295th Quartermaster Company established the Post Fabric Renovation and Sewing Shop on North Fort Lewis in March 2012 inside a 1,200-square-foot facility.

The shop staff consists of one lieutenant, one noncommissioned officer (NCO), and 15 MOS 92S Soldiers. The mission of the shop is to provide quality fabric renovation and sewing services to Soldiers, Airmen, and units of I Corps and JBLM on an individual or bulk turn-in basis.

The intent established by the 295th Quartermaster Company's leaders is to allow units and individual service members to save money that they would normally spend on tailoring services off the installation or through the Army and Air Force Exchange Service. To set up the shop, the 295th Quartermaster Company and its higher headquarters completed four critical tasks in order to execute the mission and meet its intent.

Critical Task 1: Select the Facility

While selecting the most conducive location for the fabric renovation and sewing shop, the 295th Quartermaster Company identified the following criteria as necessary:

- ☐ Easy access to the facility.
- ☐ A parking area.
- ☐ Visibility from primary roads.
- ☐ Enough square footage to accommodate multiple sewing and embroidery machines.
- ☐ Separate customer service and work areas.
- ☐ A secure storage space.

Critical Task 2: Acquire Equipment

The JBLM Post Fabric Renovation and Sewing Shop needed embroidery and sewing machines to produce and sew military name tapes on uniforms and military professional gear. The sewing machines were easy to purchase because they were already authorized on the 295th Quartermaster Company's modified table of organization and equipment.

Acquiring the embroidery machines proved to be more challenging. The 593rd Sustainment Brigade and 13th CSSB support operations cells conducted joint research and analysis to determine which specific type of embroidery machine would satisfy renovation requirements.

Once both support operations cells determined the choice of vendor and the specific embroidery machine, the 593rd Sustainment Brigade S–4 section forwarded the request to the I Corps G–8 contracting office for procurement.

The two embroidery machines cost roughly $30,000 total and provided a 600-percent return on investment during the shop's first 14 months of operation.

Critical Task 3: Acquire Supplies

The 295th Quartermaster Company leaders wanted the Post Fabric Renovation and Sewing Shop to have a year's worth of supplies and materials for its initial shop stock. The company also wanted to establish a system to replenish supplies and materials when levels reached a designated reordering point.

These two goals were achieved by the 295th Quartermaster Company through the installation Defense Logistics Agency (DLA) representative and the General Services Administration (GSA) vendor.

Both the DLA representative and the GSA vendor played critical roles in overcoming the challenges the unit faced when obtaining materials and supplies for the shop. One challenge that the unit experienced with acquiring supplies was that certain materials had outdated national stock numbers (NSNs) or no NSNs at all.

Another problem was that the unit supply sergeant could not requisition some of the supplies through the Army supply system. For those items, the supply sergeant had to use a government purchase card to buy from local vendors online. To overcome some of the challenges with obtaining materials and supplies, the company followed certain practices.

> The concept of establishing a functional fabric renovation and sewing shop is not complex, and the benefits far outweigh the risks if supported and resourced properly.

Identify all required materials and supplies. The main supplies and materials needed by the Post Fabric and Renovation and Sewing Shop were needles, bobbins, MultiCam and Army combat uniform (ACU) digital name tape rolls, hook and pile, and foliage green, black, and tan thread.

Create NSNs for supplies and materials. The main supplies that were the most difficult to obtain through the unit supply sergeant were the MultiCam and ACU digital name tape rolls, hook and pile, and foliage fabric because those items did not have NSNs and the amount needed by the shop could not be purchased on the company's government purchase card because of spending limits. The only way to obtain large amounts of these materials is through the Standard Army Retail Supply System.

The GSA vendor and the senior supply systems technician worked together to establish NSNs or part

numbers so that the materials could be ordered. The unit supply sergeant provided the supply support activity with the NSNs created by the GSA vendor and the senior supply systems technician. Once the unit's supply support activity received the established NSNs, the materials were placed on requisition.

Contact the DLA representative. Once the unit's supply support activity placed the needed materials and supplies on requisition, it forwarded the corresponding document numbers to the installation DLA representative to track and expedite the requisition.

This method assisted the process immensely. The representative ensured that the supplies and materials were purchased and received by the unit in a timely manner.

Critical Task 4: Advertise

When the JBLM Post Fabric Renovation and Sewing Shop initially opened, many service members and units at JBLM were unaware of the shop and its services.

The 295th Quartermaster Company created a flyer that was distributed by the company's Soldiers, NCOs, and officers and the 13th CSSB support operations cell.

Flyers were posted at the JBLM in-processing center, post exchange, dining facilities, and post education centers. Additionally, during logistics synchronization meetings, the 13th CSSB and 593rd Sustainment Brigade support operations cells sought out units that would benefit from fabric renovation and sewing services.

Executing Operations

The JBLM Post Fabric Renovation and Sewing Shop receives orders or requests in two ways. The most common way is through individual service member walk-ins. These orders have a turnaround time of between 48 and 72 hours.

For an individual turn-in, uniforms or gear are brought directly to the shop's customer service counter during hours of operation. A Soldier working at the customer service desk greets each customer who enters the facility. The customer's request is annotated on a service request form, and the items are labeled and processed for the specific service

Soldiers work at their sewing machines at the Joint Base Lewis-McChord, Wash., Post Fabric Renovation and Sewing Shop. (Photo by Capt. Michael J. Watkins)

requested. The shop averages more than 100 individual service member requests weekly.

While an average work order would cost more than $30 off the installation, the JBLM shop provides a quality product at no cost to the service member.

The second method is unit bulk turn-ins coordinated by the 13th CSSB support operations cell and customer units. Once a customer unit makes a request, the cell schedules a synchronization meeting with the customer, the shop officer-in-charge and NCO-in-charge, and both the 295th Quartermaster Company first sergeant and commander.

The purpose of this meeting is to schedule unit bulk turn-ins and to specify all terms of the order. The customer units, the 295th Quartermaster Company leaders, and the shop officer-in-charge and NCO-in-charge must have a clear understanding of what to expect.

Specific topics of discussion at the synchronization meeting include the number of personnel, priority of units, turn-in and pick-up dates, procedures for lost items, and specific services required. Depending on the size of the fabric renovation and sewing mission, a synchronization meeting can occur regularly until the project is complete.

Within a 14-month period, the Post Fabric and Renovation and Sewing Shop provided services on a bulk turn-in basis to 11 deploying units ranging in size from a Stryker brigade to a finance detachment. Those units avoided having to contract for the same services and saw a combined cost savings of $120,000.

Long-Arm Sewing Machine Services

Not only does the JBLM Post Fabric Renovation and Sewing Shop perform sewing services on uniforms and military gear; the shop also repairs tears in the seams of the windows of humvee doors and rips in tents. The machine used to make these repairs is the long-arm sewing machine. Repairing the tears provides an alternative to ordering brand new humvee doors and tents.

A Soldier repairs tears on a humvee door using a long-arm sewing machine. (Photo by Capt. Michael J. Watkins)

Without realizing the cost, many units requisition new humvee doors and tents because of slight window tears that are found during preventive maintenance checks. Such requisitions are not cheap: A front left or right door of an M998 humvee costs $93.55 for tan, $82.27 for camouflage, and $66.55 for green. An A-frame tent that is requisitioned costs $2,635.85 and a lightweight maintenance enclosure costs $15,920.62.

The Post Fabric Renovation and Sewing Shop can repair tears in the seams around the humvee windows or replace the entire zipper of the door in less than 15 minutes and with no more than 10 cents' worth of thread. The shop can also repair tears in the A-frame tents and lightweight maintenance enclosures in less than one hour with no more than 75 cents' worth of thread.

The JBLM Post Fabric Renovation and Sewing Shop provides MOS 92S Soldiers with a rare opportunity to remain trained and proficient at fabric renovation and sewing. The shop also provides quality, free services that units and individual service members at JBLM can request on a daily basis.

The shop and the 92S Soldiers responsible for its success are incredibly valuable. The concept of establishing a functional fabric renovation and sewing shop is not complex, and the benefits far outweigh the risks if supported and resourced properly.

Capt. Michael J. Watkins is an observer-coach/trainer at the National Training Center. He is a graduate of Virginia State University, where he received a bachelor's degree in health and physical education K–12. He is a graduate of the Transportation Officer Basic Course, Support Operations Course Phase II, and the Contracting Officer Representative Course.

Soldiers moor a landing craft utility 2000 and a landing craft mechanized to the trident pier.

The 7th Transportation Brigade (Expeditionary)

The Army has established a transportation brigade whose function is to provide port, terminal, and watercraft operations, including logistics over-the-shore.

■ By Maj. Mike Harris and Col. Randy Nelson

Demand for Army watercraft is increasing across the combatant commands (COCOMs). To meet this increased demand, the 7th Sustainment Brigade transformed into the Army's first and only Transportation Brigade Expeditionary (TB[X]) on Jan.16, 2014.

The 7th Transportation Brigade's transformation aligns with the guidance of the 38th Army chief of staff's strategic priorities, U.S. Code Title 10, and Sustaining U.S. Global Leadership: Priorities for 21st Century Defense. These documents spearheaded the brigade's transformation and commitment to provide seamless support to the Army and its joint partners with worldwide ship-to-shore support.

Another document, the Aug. 30, 2013, Combined Arms Support Command's Army 2020 and Beyond Sustainment White Paper states, "The pivot to the Asia-Pacific region will require different organizational structures, greater integration of the institutional Army with the operating force,

differing vehicles and protection and reinvestment in capabilities ignored over the past 10 years such as joint logistics over-the-shore (JLOTS) and watercraft."

Background

The 7th TB(X) "Resolute!" has a rich history of operational accomplishments. The brigade, previously flagged as the 7th Transportation Group, 7th Medium Port Brigade, participated in numerous operations and exercises, including World War II, the Korean War, the Vietnam War, Operation Just Cause, Operations Desert Shield and Desert Storm, Operation Iraqi Freedom, and Operation Enduring Freedom. This brigade, sometimes known as the Army's Navy, is the only Active component Army unit that exclusively executes logistics over-the-shore (LOTS) operations.

The brigade hopes to build itself by refocusing on port, terminal, and watercraft operations going forward. The brigade is unique because of its ability to operate common-user seaports, travel coastal and inland waterway main supply routes, and conduct ship-to-shore operations in hostile and austere environments. The brigade is the Army's voice for LOTS tactics, techniques, and procedures and capabilities in the JLOTS community.

In August 2010, the director of the Army Capabilities Integration Center (ARCIC) validated the Army terminal operations' functional solutions analysis (FSA). Subsequent analysis included in the doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) integrated capabilities recommendation (DICR) identified an organizational solution for a structure that provides responsive access to terminal operating forces in support of full-spectrum decisive action operations.

Augmenting the published FSA and DOTMLPF change recommendation, the April 2011 ARCIC initial capabilities document lists the following initial capabilities gaps:

- Army terminal operations forces lack the ability to meet current and emerging requirements.
- Army forces lack a sufficient combination of speed, range, and payload to rapidly shift combat ready maneuver forces within a theater of operations.
- The future force lacks sufficient surface (waterway and roadway) intratheater lift.
- Army terminal organizations lack sufficient ability to conduct simultaneous maneuver, support, and sustainment operations.
- Army forces lack the ability to rapidly close, employ, support, and sustain joint expeditionary forces.
- Army terminal organizations lack sufficient ability to operate in degraded or austere terminals.
- Army terminal units lack the capability to provide efficient throughput of cargo in degraded or austere ports where external cargo-handling equipment and materials-handling equipment is limited or unavailable.
- Army forces lack sufficient command, control, communications, computers, intelligence, surveillance, and reconnaissance capabilities to provide mission command while performing watercraft operations in joint, combined, coalition, or multinational environments.

Based on the gaps identified in the FSA, DICR, and the initial capabilities document, the following base documents were used to develop the operational and organizational capabilities concept for the new TB(X):

- The ARCIC-approved Army Watercraft Capabilities-Based Assessment (CBA).
- The Training and Doctrine Command ARCIC-approved Army Terminal Operations CBA.
- The Combined Arms Support Command-approved Army expeditionary intermodal operations DICR.

Using these documents, the February 2012 ARCIC organizational design paper outlined the way ahead for the new brigade. According to the document, the Army Watercraft CBA supports a single command for all water terminal and watercraft missions and capabilities.

The Army Watercraft CBA also indicates that future Army watercraft operations must be developed in conjunction with the Army terminal operations concept since tactical port and waterborne main supply routes are directly related. As a result, the TB(X) is the new brigade command and the single Army expeditionary command for watercraft and terminal operations. It is capable of providing mission command and conducting port operations.

The brigade is unique because of its ability to operate common-user seaports, travel coastal and inland waterway main supply routes, and conduct ship-to-shore operations in hostile and austere environments.

Why the TB(X)

Before establishing the TB(X), the watercraft and terminal operations concept of support and

force design employed a sustainment brigade and a transportation theater-opening element as the early-entry force to establish seaport and LOTS operations. This worked, and a deliberate decision was made during the modular force development process not to designate a theater-opening brigade.

The continued requirement for sustainment brigade rotations to Iraq and Afghanistan and the lack of senior watercraft warrant officers on sustainment brigade staffs prevented any sustainment brigade from becoming an expert in port opening and watercraft operations.

The TB(X) is focused on port, terminal, and watercraft operations and is staffed with senior watercraft warrant officers—experts dedicated to early-entry port operations. With the brigade's sole focus on watercraft and terminal operations, its training is not divided among resources and cyclic rotations to support a broader range of sustainment operations.

The 7th TB(X) executes maritime operations everywhere. It has crews in the U.S. Pacific Command, the U.S. Southern Command, and the U.S. Central Command areas of operations. Shifting from a sustainment brigade has really allowed the brigade to focus and refine its tactics, techniques, and procedures in order to provide the best support to the COCOMs.

The TB(X) headquarters' responsibilities are to rapidly deploy; establish and maintain port operations; establish and coordinate terminal protection operations; conduct waterborne distribution and LOTS operations; conduct joint reception, staging, and onward movement of cargo; establish and coordinate life support services and contract management for terminal operations; conduct container management; and provide oversight of joint documentation.

The TB(X)'s shallow draft vessels provide early-entry capability in degraded ports or austere environments. This is conducted in a manner that meets COCOM operational priorities, expedites the flow of cargo, creates an accurate common operational picture, and maintains in-transit visibility.

The brigade can conduct many different types of missions. However, its primary strategic mission is to conduct LOTS operations, which include loading and off-loading watercraft in austere environments where ports are unavailable, damaged, or without adequate fixed port facilities. The TB(X) transports the equipment and supplies from the deep water ship across the beach, using its maneuver-enhancing shallow draft platforms, floating causeways, and

A landing craft utility establishes a waterborne main supply route at a degraded port, simulating the delivery of vehicles and humanitarian aid to those affected by an earthquake and tsunami during JLOTS 2014. (Photo by Maj. Mike Harris)

An Army small tug pulls alongside a landing craft utility to assist in a beach landing and cargo delivery despite strong currents, ice flows, and tidal variances during JLOTS 2014 in the Gulf of Alaska. (Photo by Maj. Mike Harris)

tugboats to clear obstructions. This is accomplished by applying one of three mission profiles: bare beach, degraded port, or augmentation of a fixed port.

The TB(X) provides a brigade headquarters capable of conducting mission command for modified table of organization and equipment (MTOE) and table of distribution and allowances (TDA) transportation units. It also provides expertise to conduct this mission at inland waterway, bare beach, degraded, and improved sea terminals in support of COCOM theater-opening operations, the joint task force commander, and relief agencies.

During early-entry operations, the TB(X)'s movement control battalion manages the bulk of the cargo as it flows through sea bases to reach the points of effect. During these operations, the first critical step is to set up efficient methods of cargo flow through the terminal site. Without movement control teams managing efficient cargo flow, the commander may experience off-load delays caused by bottlenecks of deploying equipment or cargo.

As a mission command headquarters, the TB(X) must create and foster close relationships with expeditionary sustainment commands, theater sustainment commands, the U.S. Transportation Command, the Military Surface Deployment and Distribution Command, the single port manager, and the port commanders. Establishing close mission coordination ensures a seamless strategic-to-tactical transition from port opening to distribution operations.

The 7th TB(X) is a direct reporting unit to the XVIII Airborne Corps and maintains a critical link to its strategic partners across the U.S. Transportation Command, the COCOMs, the Army Materiel Command (pre-positioned stocks), and its total force maritime partners.

Port Opening Synchronization Cell

The sustainment brigade's transformation to the TB(X) centered on dissolving the special troops battalion and replacing the large support operations section with a much leaner port opening synchronization cell (POSC). The POSC provides situational awareness of port and terminal capabilities and operations.

The POSC engages each COCOM, analyzes capabilities versus requirements, and recommends courses of action on contingency plans involving terminal and watercraft operations. The POSC synchronizes its recommendations to the COCOM commanders with joint and unified partners.

The POSC comprises three sections: the training and readiness branch, the materiel readiness branch, and the force modernization branch.

A logistics support vessel slowly approaches the Port of Anchorage through an ice flow after its voyage from Hawaii to participate in JLOTS 2014. (Photo by Maj. Mike Harris)

The training readiness branch monitors the training status of water terminal and watercraft organizations. It makes recommendations on training plans and programs, and it facilitates synchronized training agencies for all Army watercraft and terminal operations units.

The materiel readiness branch monitors the materiel readiness status of water terminal and watercraft organization and equipment. It also makes recommendations on equipment readiness plans and programs for all Army watercraft and terminal operations units.

The force modernization branch provides expertise to key stakeholders on all matters related to modernization of Army water terminal and watercraft capabilities. It assists key stakeholders in modernizing current capabilities and developing future capabilities across DOTMLPF domains.

The TB(X) continues to build the POSC as it operates. The cell is basically a renamed SPO shop connecting with the external customers. The POSC's keys to success are rooted in developing relationships and communication with the Active and Reserve Army water terminal and watercraft units and Army pre-positioned stocks sites.

The data collected and analyzed through these relationships is essential for situational awareness. The data analysis must provide the following information:

- ☐ The capabilities and statuses of Army water terminal and watercraft units.
- ☐ The capabilities of water port complexes.
- ☐ The initial requirements for water terminal and watercraft capabilities identified by COCOMs.
- ☐ Advice for COCOMs on determining actual requirements in terminal and watercraft operations.
- ☐ The available assets and capabilities that match the requirements.

Operational Agility

According to its February 2012 organizational design paper, the TB(X) is

the organic Army capability designed for moving, maneuvering, and supporting sustained land operations. It supports unified land operations by providing operational agility through the delivery and sustainment of operational forces to the point of employment. The COCOM commander can use the capability provided by the TB(X) to gain operational agility.

The use of watercraft expands the warfighters' operational agility and reach, exploits the littoral boundaries to expand access, and mitigates anti-access and area-denial challenges. The TB(X) is a combat enabler that bridges strategic deployment with operational and tactical employment of ground combat forces. It provides land forces with operational agility through tactically synchronized movement of combat-ready, tailored formations dispersed across the depth of the operational environment.

The initial test of the TB(X) concept was very successful when it deployed this past spring to Anchorage, Alaska, to execute a U.S. Northern Command JLOTS operation in support of a defense support to civilian agencies scenario. A 550-person joint task force from the Army, Navy, Marines, and Coast Guard participated in the exercise.

The 7th TB(X) is working hard to successfully accomplish its mission and meet the intent of a changing Army. It will remain the Army's expert in watercraft and water terminal operations and act as a voice for LOTS tactics, techniques, and procedures, and capabilities to the JLOTS and maritime communities.

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A Company, 704th Brigade Support Battalion, Soldiers prepare sling-load equipment for an upcoming pickup and delivery of rations.

Preparing to Succeed at the National Training Center

This article outlines how the 704th Brigade Support Battalion planned and trained to make the most of its National Training Center rotation.

■ By Maj. John M. Ruths

Some of the Army's most important unit training takes place at the National Training Center (NTC) at Fort Irwin, California, and the Joint Readiness Training Center (JRTC) at Fort Polk, Louisiana. A combat training center (CTC) rotation is based on the rotational training unit (RTU) commander's training objectives and requires a great deal of effort from the training center's staff and the RTU.

Rotations typically closely replicate the RTU's future deployed mission set. A single rotation can cost up to $25 million, and NTC normally schedules 10 each year. However, the benefits of a rotation at NTC and the way the experience helps units prepare for deployment make it worth the cost.

The 704th Brigade Support Battalion (BSB), 4th Brigade Combat Team, 4th Infantry Division (4–4 IBCT), at Fort Carson, Colorado, trained for an upcoming Operation Enduring Freedom deployment by participating in an NTC rotation.

The 4–4 IBCT comprises six battalions and various advise and assist

teams. Each organization has a mission that contributes to the overall brigade mission. The BSB provides the IBCT with logistics support.

As the 704th BSB discovered during its rotation, a trip to NTC can be daunting. It is certainly a major, but not insurmountable, task. Lt. Col. Michael D. Egan, the 704th BSB's commander who had previous NTC experience said, "A unit should leave their NTC rotation competent in their duties, confident in their unit, and ready to deploy."

Planning

An NTC rotation requires significant planning. It is important for the BSB to keep pace with the brigade's planners, and sometimes that means working slightly ahead of them.

Some initial planning at the battalion level is necessary. It is vital for the BSB to begin planning for its upcoming rotation about 180 days out. Investing more time in planning provides better understanding and better results.

Scheduling sufficient time for the initial military decisionmaking process allows the BSB to develop an understanding of the rotation from a "problem set" perspective, ensure the battalion commander is in the know, and share information across the BSB staff. The military decisionmaking process prompts the creation of the mission statement.

CTCs offer training and logistics conferences to help RTUs prepare for rotations. The conferences can be at the RTU's home station or the CTC location, and they can even be conducted virtually by video teleconference. For the 14–02 NTC rotation, all conferences were conducted using video teleconferences, and these were adequate.

Reconnaissance Visit

The brigade conducted a logistics reconnaissance visit in June 2013, about three months before its rotation. Attendees included the assistant brigade S–4, an officer from the 704th BSB's support operations (SPO) section, and the 704th BSB executive officer (XO), who was attending in place of the SPO officer-in-charge (OIC). Using past CTC experiences, the three traveled as a group, visiting all NTC offices that were significant to logistics operations.

During a logistics reconnaissance visit, the key facility to visit is NTC's sustainment operations center (SOC). The SOC is subordinate to the 916th Sustainment Brigade and serves as the logistics hub for NTC rotations and Fort Irwin itself. Key items available to visitors include a specially designed logistics map and a point-of-contact list that covers everything of logistics significance to any rotation.

The 704th BSB's logistics reconnaissance group made many visits to the SOC and met with rotational managers to arrange other visits. Rotational managers at the SOC assist RTUs with all manner of logistics needs. They possess extensive knowledge and proved very helpful to both the 704th BSB and the 4–4 IBCT S–4 section.

The team also visited the contracting office, bulk fuel site, ammunition supply point, installation Department of Defense activity address code manager, troop issue subsistence activity, central issue facility, Northrop Grumman contractors (who control much of the equipment issued to the RTU), and the Yermo Annex of the Marine Corps Logistics Base Barstow (a rail-haul node). The group also took the opportunity to meet with the "Goldminer" logistics observer-coach/trainers (OC/Ts) who would later evaluate the 704th BSB during its rotation.

Leadership Training Program

Planning culminates in the execution of the rotational leadership training program (LTP). This event normally lasts five to six days, during which the brigade receives the operations order (OPORD) from its higher headquarters—the notional 52nd Infantry Division—then develops and issues its own OPORD. Battalion staffs also attend the LTP, and parallel planning is expected. The week ends with the brigade issuing its OPORD to battalions. The LTP week features planning instruction from civilian coaches who are typically retired senior Soldiers who are planning experts.

One recommendation for any BSB attending an NTC rotation is to be sure to take enough staff from the SPO section to the LTP. Initially, the 704th BSB was given the same number of personnel slots for the LTP as the other battalions. However, since a BSB has both a primary staff (S–1, S–2, S–3, S–4, S–6) and a SPO staff, additional coordination was needed to ensure SPO staff attendance. This enabled SPO staff, other than the OIC and noncommissioned OIC, to attend. Having SPO staff attend the LTP enabled the development of a detailed initial concept of support. Members of the 704th SPO occupied the Army Knowledge Online lab at the LTP building at Fort Irwin, turning it into the de facto SPO shop. This worked well and facilitated the completion of a great deal of planning and products.

The takeaway for the BSB was to be sure to take enough leaders to develop the concept of support and brief it to the 916th Sustainment Brigade during the LTP week. Ensuring that the 916th Sustainment Brigade and the SOC know the concept of support was crucial. Since they normally see 10 rotations each year, they are keenly aware of what works and what does not.

Completing the LTP marked a significant turn in events and was a watershed event for the SPO section. The SPO OIC, Maj. Jeffrey Scott, remarked, "By day three of [the] LTP, I sensed the SPO shop coming together. I knew this was the team that would see us through the rotation."

Forecasting Draw Materiel

The NTC will make information available that enables the RTU to forecast both draw equipment and

The battalion movement rehearsal prior to the tactical road march out to Forward Operating Base Denver was large enough to enable vehicle crews to take part in the rehearsal and both hear and see the staff and convoy leaders conduct the briefing.

commodities. The RTU S–4s and S–3s should take this seriously and see forecasting as a line of effort. Probably the two most critical items to forecast are vehicles and ammunition.

Northrop Grumman publishes a comprehensive matrix (known as the draw grid) showing equipment that is available well before the rotation. Northrop Grumman maintains the fleet, but it is owned by Forces Command. If equipment is available on the draw grid, the RTUs are expected to use it. In other words, units should only rail-haul what they must. This ensures the use of the NTC fleet and saves money by preventing unnecessary transportation.

Although vehicles and ammunition are the most important, other items must be forecast. These include weapons, multiple integrated laser engagement system gear, communications equipment, counter radio-controlled improvised explosive device electronic warfare (CREW) systems, and class IV (construction and barrier materials).

The RTUs are required to bring 30 days of supply for class II (clothing and individual equipment) and class IIIP (packaged petroleum, oils, and lubricants). Units can obtain these at NTC but typically only on a "fill or kill" basis. Planning for equipment and commodities also should be conducted as early as possible.

Starting With Baby Steps

An NTC or JRTC rotation is as important as the follow-on deployment. Training does not necessarily have to be complex, but the more units train and practice, the better they will do during deployments.

A unit's personnel stability will also be a factor. Units that are between deployments may not yet have all their leaders, but Soldiers with previous CTC experience will help mitigate this. The 704th BSB found itself in this situation after returning from Afghanistan in December 2012. When collective training began about 180 days after its return, the battalion was missing many of the leaders and Soldiers that had helped it succeed during deployment.

This situation compels units to start with baby steps. In other words, start smaller and less complex and build from there. With few of the

key personnel available from the last deployment, many tasks have to be retrained from the start. Well established standard operating procedures (SOPs) will help, but SOPs used on deployment often differ significantly from those used in other environments.

Primarily because of personnel turbulence, leaders in the 704th BSB saw the need for the unit to train on its own for its first collective training event. The battalion leaders perceived the need to work out kinks and establish procedures without the added pressure of training during a brigade-level field training exercise (FTX).

In July 2013, the 704th BSB conducted a homegrown battalion FTX. The main goal of this FTX was to establish mission command by validating both the battalion tactical operations center (TOC) and company command posts (CPs). Companies were given latitude to conduct any training they needed.

The FTX lasted only four days, but this was enough to ensure that the TOC and CPs were operational and determine how the battalion needed to improve. At the battalion level, needed improvements stood out more than successes.

Even though the week was painful in many ways, having the BSB train on its own proved a great choice. It also helped Soldiers revisit their basic fieldcraft. These skills were very different and more expeditionary compared to the BSB's last deployment to a forward operating base (FOB).

The next FTX saw a steady rise in overall proficiency. In late July 2013, the 704th BSB took part in a brigade-level command post exercise (CPX). The earlier lessons learned and emphasis put on the battalion TOC paid off and made the CPX seem easy.

In late August 2013, the 704th BSB trained and supported the 4–4 IBCT during the 10-day Mountain Strike FTX. Other critical training also took place, including tactical convoy operations lanes, mass casualty (MASCAL) operations, vehicle recovery training, maintenance work orders, and vehicle services, all executed in a field environment.

Staff integration also enhanced training. A staff-initiated indirect-fire drill drove a battalionwide duty status-whereabouts unknown (DUSTWUN) drill and ended in a MASCAL exercise executed by C Company. This exercise also featured increasing levels of proficiency, and at the end, it was clear that the 704th BSB was ready to support and train at the NTC.

The Rotation—One Part at a Time

Most CTC rotations are executed in these phases:

- Early rotation setup and coordination are executed by the torch and advanced echelon (ADVON) elements, just as in actual deployments.
- Reception, staging, onward movement, and integration (RSO&I) at the NTC builds the combat power needed to move from the RTU bivouac area (RUBA) to the training area, known as the "box."
- Execution of 14 training days in the maneuver box represents the actual mission on deployment and is typically broken down into two parts: situational training exercise (STX) lanes that include live fires and a force-on-force exercise.
- Regeneration represents redeployment and the final days leading up to it. At a CTC rotation, this is the clearing of the installation and involves the turn-in of all equipment and commodities drawn.

All phases are compressed; there are only a few days available to accomplish a great deal. This provides an obvious training effect and is yet another area where sound planning will reap great benefits.

A CTC rotation, from the departure of the torch party to the arrival of the trail party back at home station, can take approximately six weeks. For most Soldiers, it will be about a four-week rotation. No matter how long Soldiers are there, it often feels like more time has gone by. Rotations also can cross over one another. An outgoing unit conducting regeneration will see the arrival of the torch, ADVON, and even some main body elements of the incoming rotation. This crossover is a great chance to observe and get advice from the outbound unit.

Early Rotation Elements and Actions

Selecting early arriving personnel for the torch and ADVON elements and understanding the tasks for each makes for a smooth start. The main task and purpose for the torch element is to open all accounts, but since many other things must be done, the BSB will likely send more Soldiers on the torch party than any other battalion will. The 704th BSB erred on the side of caution and brought a very large element. The general idea was, "Go early and go big."

Who is really needed? Rotational managers at the SOC will readily provide advice on who to bring. Figure 1 shows the personnel that a BSB can take as their torch element. The matrix closely matches whom the 704th BSB actually took.

To gain access to everything needed, the 704th BSB took all necessary Department of the Army Form 1687 signature cards and assumption of command orders. Preparing these at home station a few weeks before the rotation paid off. These items were taken to the SOC, where rotational managers coordinated a meeting of all the NTC offices and personnel who needed the documentation.

The ADVON element has two main tasks. One is to conduct rail download operations at Yermo Annex then convoy that equipment to Fort Irwin. The size of a BCT's ADVON element may correlate with the number of vehicle crews needed. The battalion tasked to run railhead operations at Yermo Annex will also need to bring the Soldiers and lead-

ers to make it all work.

The other main task is to prepare for the arrival of main body elements. Important tasks include the beginning of food service operations in the RUBA, a logistics information systems gunnery, initial motor pool setup, initial maintenance operations, barracks preparation, and early vehicle draw. Each task requires specific Soldiers.

Early vehicle draw enables the RTU to draw vehicles, but only those truly needed. This includes ambulances, forklifts, water trailers, fuel tankers, and cargo trucks that will be necessary to support activities such as rail download operations, early equipment draws, and the main vehicle draw. Early draw is important, and since it is essentially a miniature version of the main vehicle draw, units should treat it as the rehearsal for the main draw.

RSO&I

If the early arriving elements have performed their missions well, the arrival of main body will be smooth. Main body arrivals signal that the RSO&I is about to begin along with its three main lines of effort to build combat power.

Equipment and commodities. This is the main vehicle draw and also the draw of everything else from contractors needed to roll out to the

Unit	Who	Purpose	PAX #(s)
HHC	Battalion executive officer (XO)	Lead/supervise torch and advanced echelon (ADVON) efforts.	1
HHC	S–1, preferably a noncommissioned officer (NCO)	Start the personnel status process early, receive personnel manifests from home station, receive follow on personnel.	1
HHC	S–3, assistant S–3 or S–3 NCO-in-charge (NCOIC)	Ensure major tasks are completed, liaise with brigade S–3 reps, learn training locations for reception, staging, onward movement and integration.	1
HHC	S–4 officer-in-charge (OIC)	Oversee the opening of all internal brigade support battalion (BSB) accounts, work with supply sergeants and company XOs and oversee all draws.	1
HHC	Unit movement officer	Receive line-haul items (primarily containers) and coordinate the movement of rail-haul equipment.	1
HHC	S–6	Send representatives who are knowledgeable on computers and connectivity to receive line-haul communications equipment and prepare for the upcoming communications exercise.	3 to 5
HHC	Support operations (SPO) OIC	Begin work with the sustainment operations center's (SOC's) rotational manager.	1
HHC	SPO maintenance technician (tech)	Start working with Northrop Grumman concerning vehicle draws.	1
HHC	Transportation SPO	Coordinate with SOC leaders on how the BSB's transportation will be augmented by 916th Sustainment Brigade (or rotation-assigned combat sustainment support battalion).	1
HHC	SPO general supply officer	Oversee all commodities, oversee the inventory and draw of the authorized stockage list (ASL) by supply support activity (SSA) Soldiers and ensure rotational Department of Defense activity address codes are opened.	1
HHC	SPO class IIIB NCOIC	Coordinate for class IIIB, especially how to properly forecast to avoid having excess bulk fuel at the end of the rotation.	1
HHC	SPO Sustainment Automation Support Management Office	Prepare for the critical logistics information systems "gunnery" that begins before the main body arrives.	4 to 5
Brigade HHC *	Food service technician	Start class I and food service efforts, and supervise the signing for an opening of mess pads in the rotational unit bivouac area (RUBA). ** In 4–4 IBCT, the food service section works as part of the SPO section in the BSB.*	1
A Company	Ammunition tech and 89B Soldier	Coordinate class V with both the Fort Irwin ammunition supply point and the brigade S–3.	2
A Company	SSA tech and six-to-seven 92A Soldiers	Account for and sign for the ASL used for the exercise.	7 to 8
A Company	92F Soldier	Monitor bulk fuel issued from the Fort Irwin bulk fuel point for the entire rotation.	1
B Company	Maintenance control section Soldier, preferably the NCOIC	Design the setup of the BSB motor pool in the RUBA.	1
C Company	Brigade Medical Supply Office representative, preferably an NCO	Open class VIII account with the class VIII representative at Weed Army Community Hospital on Fort Irwin.	1
All Companies	Supply sergeants and/or company XOs	Open a large number of various accounts—the 704th took only supply sergeants and no company XOs, and this worked well.	4 to 8

Figure 1. The brigade support battalion needs to take specific individuals as part of their training center rotation torch party.

maneuver box. Some items, such as multiple integrated laser engagement systems, radios, and CREW devices, will be installed and checked before rolling out to the box.

The BSB will already have some commodities on hand, such as class IIIB (bulk petroleum, oils, and lubricants), class IV, class V (ammunition), and the authorized stockage list that it will issue down to the battalion level. This includes equipment for a brigade S–6-led communications exercise that will consume the BSB S–6 section's time and efforts.

Training. The S–3 section will coordinate the training for the BSB, including when and where it takes place. The NTC has a rich menu of classes to familiarize Soldiers with equipment and reinforce skills. An effective S–3 section knows and can track locations, times, and who should attend.

Preparing for movement. RTUs must prepare for movement by designing convoy elements, identifying convoy commanders, writing a movement order, creating a large terrain model, conducting convoy drills, and ensuring CREW systems work and are loaded with the appropriate threat load.

Executing RSO&I

The 704th BSB took the time to learn from its early equipment draw, making the main draw smoother. Soldiers arrived already knowing their NTC vehicle bumper numbers and showed up prepared to conduct preventive maintenance checks and services (PMCS). Maintenance leaders from B Company were the on-site lead mechanics who validated PMCS. Unit leaders from each company and the battalion were present.

The battalion was not the first unit to get trucks signed for and out of the motor pool, which was okay; often the first unit out of the blocks executes a mediocre PMCS process. Thoroughness at this stage paid off later during regeneration with an easier turn-in process.

Medics from C Company, 704th Brigade Support Battalion, position a simulated wounded Soldier during a mass casualty drill at the National Training Center.

Training during RSO&I started with a couple of hiccups with some Soldiers missing their appointed locations on day one. Rather than pointing fingers, the battalion's S–3 section reacted immediately by forming up groups of Soldiers approximately 60 minutes before classes would begin. This consolidated efforts across the battalion and meant no more missed opportunities.

BCTs and their subordinate battalions spend time and energy during the RSO&I tracking progress and reporting to the notional 52nd Infantry Division. RSO&I is a multifaceted and sometimes frustrating week. Any RTU will find results come only from effort, leader emphasis, and synchronization. Do not be surprised if the brigade staff requires multiple daily updates. RTUs also see an increased OC/T presence during RSO&I as they get to know the unit and vice versa.

The BSB also briefs its concept of support to the Goldminers. The good news for units who prepare well is that if things go well from the arrival of the torch element through the conclusion of RSO&I, they will continue to benefit from this point through to the end of regeneration.

Execution in the Box

OC/Ts escort all tactical movements beginning with the initial movement from the staging area to the box. Well-prepared and organized units may enjoy an uncontested movement. A unit that does not have CREW systems filled and switched on may find major issues even departing the main post. That is only one of the issues that a convoy element may encounter.

During the STX part of the rotation, A, B, and C Companies trained on their mission sets. This training included tactical convoy operations (including a live fire), aircraft integration, sling-load operations, vehicle recovery, and medical training with MASCAL operations. Although this was the focus of the STX portion, other operations, including bulk fuel, bulk water, the supply support activity, maintenance operations, security operations at a nearby entry control point, sick-call treatment, and medical resupply, also commenced and provided training.

The headquarters and headquarters company emphasis was on the TOC, where the staff worked daily to support the brigade, provide mission control to the companies, track

Inputs (Location)	Outputs/Benefits
Initial Planning (Home station)	• Get information about the rotation out to everyone on the primary staff and in the support operations (SPO) shop to enable equal emphasis within all sections. • Normal military decisionmaking process (MDMP) outputs that include: —Understanding the problem/mission (facts/assumptions, limitations/constraints, unit/staff tasks, issues, and requests for information). —Ensuring the staff and the battalion commander have a common picture. —Working the mission statement. • Highlight the importance of the rotation—the more time you put into this the more important it becomes and takes on a life of its own.
Planning Conferences (On site at the National Training Center, at home station, or virtual)	• Obtain overall requirements, namely what you need to do to succeed, from various offices at the NTC. • Gain valuable input on anything your unit wants to do and how feasible it is from the NTC's perspective. • Meet the folks your unit will work with during your rotation and obtain their contact information.
Logistics Reconnaissance (On site)	• Make face-to-face contact with logistics leaders and key personnel at the NTC, and trade contact information. • Link up with your observer-coach/trainers (OC/Ts), exchange contact information, and meet the folks who will evaluate the brigade support battalion. • Learn about the NTC and how it operates to support each rotation. • Learn the requirements for obtaining and clearing the equipment and commodities you will need.
Leadership Training Program (LTP) (On site)	• LTP coaches provide superb training on MDMP. • Attendees receive valuable planning products and examples. • Develop the concept of support and complete your unit's plan for the rotation. • 916th Sustainment Brigade coordination includes: —SPO staff linking up with the staff and rotational manager at the sustainment operations center. —Briefing the concept of support to the 916th Sustainment Brigade. • The ability to get out to the maneuver box for route and forward operating base reconnaissance. • Formally meet with the Goldminer OC/Ts.
Draw Grids and Commodity Forecasting (Home Station)	• Stimulates planning and encourages units to plan out what they will need. • Helps units learn the NTC since each type of equipment and commodity has its own point of contact. • Provides a certain sense of logistics confidence. Units that properly forecast can deploy with the assurance that they will receive the equipment and commodities needed to be successful.

Figure 2. The benefits and outputs of planning for a National Training Center rotation.

missions, and refine systems and practices. Goldminer OC/Ts were there, carefully noting what worked what did not.

The Goldminers proved to be observant and patient training multipliers. As the STX days progressed, they programmed scenarios to intensify operations across the staff. OC/Ts were also in constant communication, and it was clear that their scenarios were carefully and impressively synchronized. Probably the greatest asset that the Goldminers delivered to the 704th BSB was their constant attention that helped the unit see itself more clearly.

The Goldminers led two midrotation after-action reviews (AARs). One midrotation AAR covered overall sustainment with the addition of non-BSB attendees, including the brigade XO and the other battalions' XOs, S–4s, and maintenance technicians. The other midrotation AAR, specifically for the BSB, identified areas in which the BSB needed to improve for the rest of the rotation.

As the force-on-force exercise began, scenarios intensified. Mission support continued, but everyone was available since the STX had concluded. The 704th BSB also benefited from what it encountered during training days one through eight, making days nine through 14 more beneficial. Lessons learned during the STX were applied, and the staff and companies noticed these improvements:

- ☐ Reacting to indirect fire—along with establishing personnel accountability—became routine.
- ☐ The entry control point steadily improved, and Soldiers became better at security procedures.
- ☐ The exact number of battalion personnel on the FOB was always known and anyone off the FOB was identified.
- ☐ Various medical providers and other medical specialties (such as the preventive medicine section) used aviation to make opportunity visits to other FOBs

across the brigade's area of support.

- ☐ Communications went down less frequently and for less time.
- ☐ Medical supplies were moved seemingly effortlessly in rotary wing flights to other FOBs.
- ☐ CP operations improved in each company.
- ☐ Daily logistics synchronization meetings became effective and efficient.
- ☐ The methods the SPO section devised to capture the logistics status of each unit provided what was current and required the SPO to forecast 24 hours out.

As force-on-force operations progressed, the efficiencies gained across the battalion were evident. Fourteen days is a short time to train, so each day must count. Fieldcraft skills peaked because of the earlier training on them that began during the battalion FTX. By the time training day 13 arrived, the Soldiers of the 704th BSB felt like they had accomplished something special.

XO Meetings

During training days in the box, XO meetings were conducted daily as part of the battalion's battle rhythm. These meetings were chaired by the battalion XO, and attendees included company XOs, the battalion S–4, the unit movement officer, and leaders from the B Company maintenance control section.

Centralized regeneration planning through XO meetings enabled decentralized execution through company XOs once regeneration began. Discussing regeneration provided an early familiarization and helped establish priorities.

The greatest benefit was the development of an internal regeneration tool. This ended up as an easy-to-produce two-slide presentation that served as the battalion's instructions to crews for regeneration and concentrated on vehicle turn-in. These instructions started from the final convoy movement from the FOB and ended with the final steps of vehicle turn-in.

Regeneration

Regeneration, much like RSO&I, is very busy. All units feel challenged with a great deal to do and to turn in before being cleared to return to home station. The 704th BSB attended its Goldminer-hosted end of rotation AARs soon after arriving back in the RUBA and another the next day. These final two AARs provided the last chance to receive OC/T input.

For equipment, regeneration is in many ways the reverse of RSO&I and the early rotation days leading up to it. The main effort, just like in RSO&I, involves the NTC vehicle fleet. Additionally, other NTC equipment is cleaned, hand receipts are cleared, and home station equipment is moved back to the Yermo Annex and loaded onto railcars.

Although the emphasis is not on training as it is in RSO&I, there are more tasks. A large brigade-level detail goes out daily and polices all areas used during training days. Clearing all of the hand receipts used to sign for equipment just two or three weeks earlier resembles clearing a theater-provided equipment hand receipt at the end of a deployment. If you do not have the equipment, or if it was damaged, you must be prepared to conduct a short financial liability investigation for property loss.

Smart units listen carefully before and during the various equipment draws. What the 704th BSB experienced is that most contractors were very straightforward about turn-in standards. This is another area in which planning will pay off well for the prepared unit.

The most complicated equipment to turn in was the vehicle fleet. There is an exact procedure for this, and large poster versions of each step are located in multiple locations in the RTU field maintenance area.

An emphasis on maintenance and dispatch during RSO&I and training days paid off handsomely during turn-in. Just as during equipment issue, mechanics performed PMCS. They also conducted various repairs and even supervised vehicle cleanliness. If a vehicle was not clean enough, it was not allowed to be inspected by Northrop Grumman contractors.

The SPO maintenance technician led turn-in efforts across the brigade; this was the most critical logistics effort during regeneration. Making maintenance a priority benefited the 704th BSB during regeneration because they stayed ahead of the process until the end.

Through substantial effort and planning, the 704th BSB enjoyed a successful NTC rotation. It came as the result of hard work across the battalion's units and staff during the collective training leading up to the rotation.

It is important to identify any deficiencies and to work on them, even after the rotation. For the TOC, this meant follow-on training at the Mission Training Complex at Fort Carson, Colorado, to refine things that still needed improvement. These included TOC battle drills and the unit's overall convoy process. This training enabled those few areas still in need of sharpening to be addressed before deployment.

Maj. John M. Ruths was the executive officer for the 704th Brigade Support Battalion, 4th Infantry Brigade Combat Team, from May 2012 to April 2014. He holds an MBA with a concentration in logistics management from Trident University and is currently attending Intermediate Level Education.

Soldiers from A Company, 115th Brigade Support Battalion, prepare to sling load a water blivet using a CH–47 Chinook helicopter. (Photo by Staff Sgt. John Couffer)

Training a Brigade Support Battalion at Home Station

■ By Lt. Col. J. Bradley Swift

The brigade combat team's (BCT's) current mission set involves operating in a complex environment with simultaneous requirements ranging from stability to decisive action operations. Supporting these operations in expeditionary conditions requires a well-trained brigade support battalion (BSB). In order for a BSB to be truly ready, it must be trained on brigade-level sustainment systems.

Training Resources and Structure

In addition to the relevant training doctrine outlined in Army doctrine publications (ADPs) and Army doctrine reference publications (ADRPs), a home-station training strategy and a combined arms training strategy (CATS) are useful tools.

Most installations use a three-phase training management framework that typically involves quarterly cycles: a support cycle, a crew and low-level collective cycle, and a collective cycle. This construct allows for predictability and structure in training management. (See figure 1.)

There are about 48 common collective tasks resident across the distribution, field maintenance, and medical companies and 63 unique tasks spread across the same units. Over half of CATS collective tasks are the same for the three BSB companies. This generally holds true for the six forward support companies (FSCs) and their CATS task templates.

Given the traditional three-phase training cycle framework, most armored brigade combat teams (ABCTs) conduct live gunnery in the collective training cycle. An ABCT usually needs at least seven weeks to qualify all major combat system crews, especially given the addition of the third combined arms battalion under the latest BCT reorganization.

A typical 12-week collective training cycle includes a gunnery density period of about seven weeks followed by a recovery week and then culminates with a brigade exercise that lasts seven to 10 days followed by another recovery week.

FSC Support to Collective Training

The six FSCs in an ABCT are assigned to the BSB and attached to their supported maneuver units. The FSC maintenance platoons are often further task-organized into company repair teams for the maneuver companies.

The FSCs are very capable organizations. At home station, they can service most of their maneuver battalions' field maintenance and distribution requirements. FSCs provide the following:

- ☐ Bulk water support with M149 trailers.
- ☐ Rations drawn from the troop issue support activity under a battalion account and stored in their own multitemperature refrigeration container system.
- ☐ Bulk fuel draw and issue.
- ☐ Bulk ammunition draw and issue.
- ☐ Organic distribution of virtually every other class of supply.

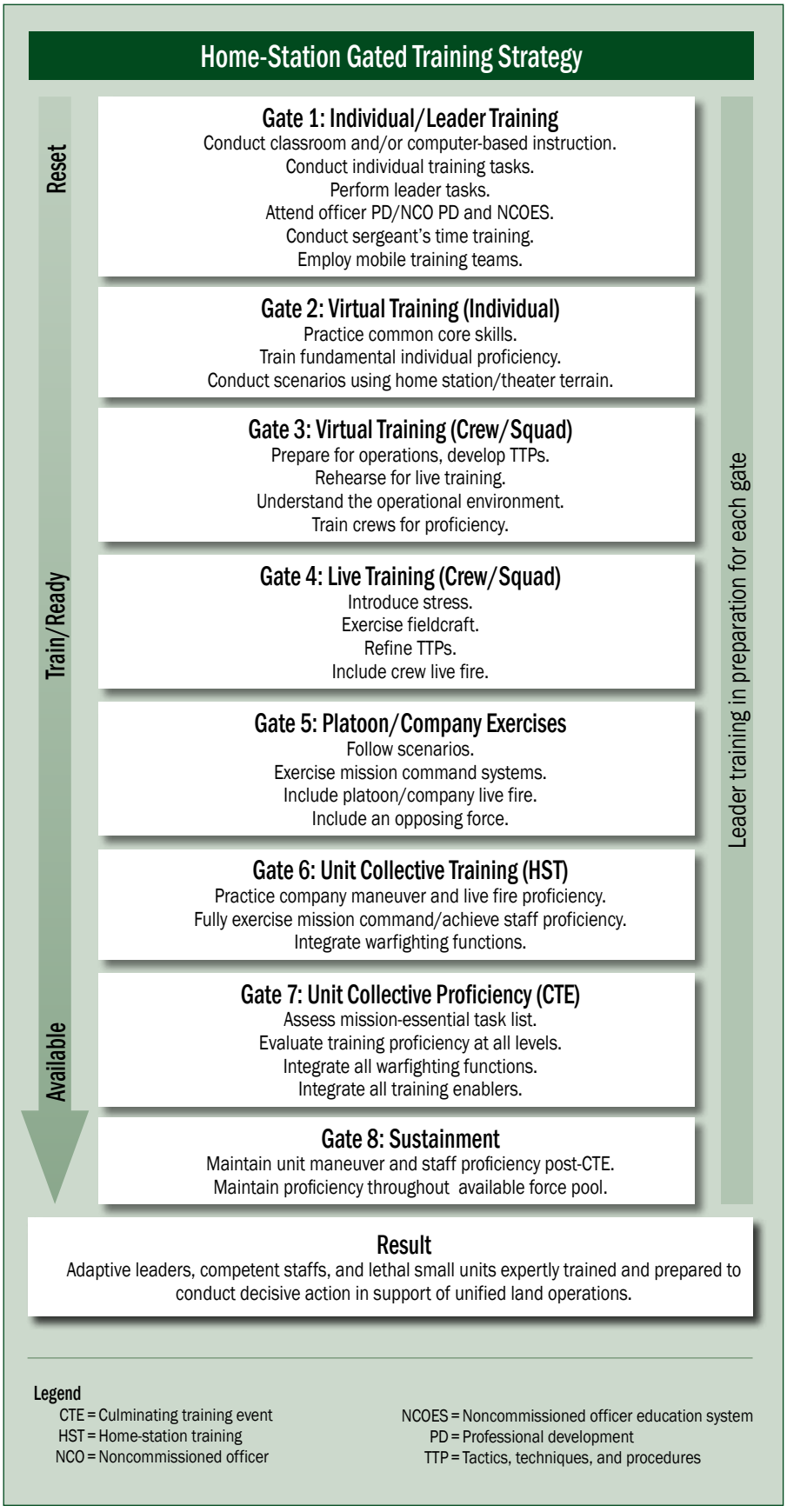

Figure 1. An example of a home-station gated training strategy.

Medics from C Company, 115th Brigade Support Battalion, decontaminate a simulated casualty using their patient decontamination set. (Photo by Staff Sgt. John Couffer)

In short, the FSCs do not require much assistance from the BSB to conduct a typical gunnery cycle. The reality is that the FSCs can support the entire gunnery density with very little help from the BSB. Depending on the construct of the brigade exercise and the maneuver distances, FSCs can even support most of a brigade exercise under a supply point distribution system without much assistance from the BSB.

This creates a false sense of independence in the maneuver battalions and a wholesale disbelief that there would be a need for a controlled supply rate for any commodity administered by the BSB commander, support operations officer, brigade S–4, or brigade executive officer.

Training Brigade-Level Systems

ABCTs that do not train on sustainment systems at the brigade level will be forced to develop their skills hastily either during a combat training center rotation or in a contingency operation. One good way to train on these systems at home station is to establish a phase line just outside the cantonment area that the FSCs cannot cross for the duration of the gunnery cycle.

This means that the BSB will have to establish brigade accounts for bulk fuel, rations, and ammunition while expressly forbidding an FSC to enter the cantonment area while its battalion is in the gunnery window. Establishing brigade accounts for these commodities will be a substantial undertaking but will force the development and execution of systems that naturally drive unit logistics status reporting, logistics synchronization, prioritization, and forecasting. Two examples are rations and ammunition.

Rations. The BSB could establish a brigade troop issue support activity account, draw rations, and break unit rations down for the duration of the gunnery cycle. A unit could still select a menu cycle based on its training schedule and place its containerized kitchen at a location of its choosing.

Ammunition. Even a brigade draw of training ammunition is possible by simply transferring the aggregate unit ammunition forecasts from the Total Ammunition Management Information System to the BSB account. This would require a broader approach to closing out ammunition documents and guarding ammunition at the ammunition supply point, but it would provide ample opportunities for centralized military occupational specialty 89B (ammunition specialist) training that is supervised by the brigade ammunition warrant officer.

BCT reorganization largely preserves the organic maintenance and distribution capability of the ABCT found in the FSCs and the BSB. If left to their own devices, FSCs could support their maneuver units through most home station training without assistance from the BSB.

ABCTs that have neither practiced nor recognized the second and third order effects of forced sustainment prioritization are destined to develop those systems on the fly. Establishing a sustainment phase line outside the cantonment area will force the establishment of those systems before they become critical.

Lt. Col. J. Bradley Swift is the G–4 for the 1st Cavalry Division at Fort Hood, Texas. He wrote this article while commanding the 115th Brigade Support Battalion, 1st Armored Brigade Combat Team, 1st Cavalry Division. He holds graduate degrees from the Florida Institute of Technology and Central Michigan University and a bachelor's degree in biology from Truman State University. He is a graduate of the Joint Forces Staff College, the Command and General Staff College, and the Logistics Executive Development Course.

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Developing Future Supply Chain Professionals

■ By George A. Zsidisin, Elliott "Chip" Minor, Billy Davis, and Jana McQuaid

For both the military and civilian sectors to create efficient and effective supply chains, they must develop leaders who possess and apply well-honed conceptual and analytical skills to address current and future supply chain management challenges.

That is why the Army Logistics University (ALU) and the Virginia Commonwealth University (VCU) School of Business have partnered to offer a cooperative master of supply chain management (MSCM) degree beginning in August 2014. The integrated curriculum is oriented toward developing innovative operational-level logistics planners and supply chain management leaders.

ALU's contribution to this effort is the Theater Logistics Planners Program (TLog), an intensive 19-week course in operational-level logistics planning and execution. Although TLog focuses on theater logistics support, students also must learn about the connections to unified action partners, such as the Defense Logistics Agency and the U.S. Transportation Command.

To meet the changing needs of defense logistics, TLog will transition in the fall of 2016 to the Strategic Enterprise Logistics Course (SELC). SELC will develop "strategic logisticians" who are competent in managing issues dealing with life cycle systems, the defense industrial base, and distribution and supply chain management in the strategic domain of the joint logistics enterprise.

In close collaboration with ALU, the VCU School of Business has developed a 30-credit hour MSCM program in its newly established Department of Supply Chain Management and Analytics. VCU's portion of the program teaches both military and civilian business students to apply advanced concepts and skills to supply chain management.

The MSCM program was developed to provide a foundation of supply chain management concepts, applications, and decision-analysis tools. Foundational courses include Global Supply Chain Management, Operations Management, and two courses that set this program apart from other graduate programs: Enterprise Resource Planning in Supply Chain Management and Supply Chain Innovation.

By including a course in supply chain innovation and leveraging the knowledge and expertise from VCU's da Vinci Center for Innovation, students are taught the tools and flexible approaches to creatively solve real-world supply chain and logistics challenges.

In addition to the foundation courses, Management Science and Analytics for Organizational Decision Making courses provide students with analytical tools for solving complex supply chain and logistics problems.

The MSCM coursework is complemented and grounded by students actively developing and working on an applied research project throughout their curriculum. This project analyzes a supply chain problem or opportunity. The goal of the project is for students to apply their newly found knowledge in supply chain management concepts and analytical tools in a real-world setting while providing a positive return on investment for the military and commercial organizations participating.

TLog students attending VCU's MSCM program will receive nine credit hours toward their degree requirements when they graduate from the TLog course. They will complete their remaining 21 graduate credit hours at VCU. While the Army is working to make this a fully-funded program in fiscal year 2016, in the interim, attendees will fund their own way using the Post-9/11 GI Bill or tuition assistance benefits.

Information on applying to ALU's TLog program is available at http://www.alu.army.mil/ALU_COURSES/ALUCOURSES.htm. For more information on the MSCM program, go to https://crm.orionondemand.com/crm/sites/Virginia_Commonwealth_University,_School_of_Business/gsibmasterofsupplychainmanagement.

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A Tool to Assist With Emplacing Support Units on the Battlefield

■ By Maj. James Henry and Maj. William Smith

When emplacing a support unit, such as a brigade support battalion, on the battlefield, a commander and his staff must consider the mission, enemy, terrain and weather, troops and support available, time available, and civil considerations (METT–TC). They use their experience and training to make sense of the multiple qualitative and quantitative factors that go into evaluating each variable.

This article describes a simple Microsoft Excel spreadsheet model that will assist commanders in determining where to place support units. The goal of the spreadsheet is to minimize distances from the support unit to customer units and higher echelon supply nodes, such as railheads, ports, and transfer points, based on various weights and constraints defined by the user.

The model also includes a constraint to ensure the unit stays outside the range of enemy weapons. This can be calculated automatically in Microsoft Excel by any Soldier once the math behind the tool is established.

The Equations

Our mathematical model can be described using the analogy of balancing a pole. Assuming uniformity of mass throughout, we can balance our pole in the middle. This is analogous to placing our support unit halfway between the upper echelon unit's supply node and the customer unit.

If we place a two-pound weight on one end of the pole, we would have to move our balance point closer to the weight in order to maintain a balance. The takeaway is that to move our unit closer to the customer, we must weigh the customer heavier than the supply node and vice versa.

In a one-dimensional case, we can find our center of mass (the x coordinate) using the following formula, where x_i is the location of a node or customer, w_i is the weight associated with it, and n is the number of available nodes and customers.

$$x = \frac{\sum_{i=1}^{n} w_i x_i}{\sum_{i=1}^{n} w_i}$$

While this is a good mental exercise to get started, our planning occurs on a two-dimensional map with both an x and a y coordinate, and we often have more than two points to consider when emplacing a support unit. Fortunately, this idea of a center of mass can be extrapolated into two dimensions with multiple points to consider.

Our ultimate goal is to choose a location that minimizes the distance from the support unit to various locations while giving greater weight to the priority locations that we want to be closer to. In mathematical parlance, we want to minimize the following function where (x,y) is the location of the support unit and $w_i(x_i,y_i)$ are the weights and locations associated with n, the number of various nodes and customers. You might recognize the distance equation from algebra.

$$d(x,y) = \sum_{i=1}^{n} \sqrt{((x - w_i x_i)^2 + (y - w_i y_i)^2)}$$

Building the Tool

With this mathematical model in mind, we will build our tool in Microsoft Excel. We start building our spreadsheet by entering a nominative starting location for our support unit, along with the locations of the customer units and nodes.

We will use longitudes and latitudes for our x and y coordinates for two reasons: They are universal across the globe and not associated with a given map sheet designator, and we have well-established functions within Microsoft Excel that determine the distance between two locations using latitude and longitude data.

We will further identify customers as the main effort (ME) or supporting effort (SE). Our supply nodes will be identified as being along the main supply route (MSR) or alternate supply route (ASR). Finally, we will list suspected enemy locations and their associated ranges.

The ME/SE and MSR/ASR designations will weigh those locations accordingly to ensure our support unit is closer to the ME and MSR than to the SE and ASR. Our spreadsheet model will also ensure our unit remains outside of the range of enemy fire.

Before moving on to the calculations, we need additional inputs for our spreadsheet model. In our example (figure 1), we have weighted the supported customer units with fractions that add up to one. The ME receives five-eighths (or 0.625) of the overall value, while the SE receives three-eighths (or 0.375). We have used a similar weighting scheme for the MSR and ASR nodes.

Commanders and their staffs can adjust these weights as they see fit. We have assigned values so that the weights add up to one, but the end user can use other values to denote relative importance.

As constraints, we provide the minimum and maximum distances our support unit can be from both a customer unit and support node. We have already supplied the range of the enemy's weapons and will use them as a constraint to ensure we do not place our unit within range.

The spreadsheet model also uses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2	Transportation Nodes						Unit Nodes						Enemy Units		
3	Maximum distance from BSB to a node:				50		Maximum distance from BSB to a unit:				35				
4	Minimum distance from BSB to a node:				1		Minimum distance from BSB to a unit:				5				
5	MSR Weight:	0.625	ASR Weight:	0.375			ME Weight:	0.625	SE Weight:	0.375					
6		Distance	RankWeight	D*RW				Distance	RankWeight	D*RW				Distance	Range
7	Node 1	3.864511871	0.625	2.415319919			Unit 1	17.13916623	0.375	6.427187335			Enemy 1	21.00000001	21
8	Node 2	1.000000236	0.375	0.375000088			Unit 2	15.6205603	0.375	5.857710111			Enemy 2	0	0
9	Node 3	1	0	0			Unit 3	14.89971732	0.625	9.312323326			Enemy 3	0	0
10	Node 4	1	0	0			Unit 4	5	0	0			Enemy 4	0	0
11	Node 5	1	0	0			Unit 5	5	0	0			Enemy 5	0	0
12	Node 6	1	0	0			Unit 6	5	0	0			Enemy 6	0	0
13															
14	Trans Weight	0.5					Unit Weight	0.5							
15															
16															
17															
18															
19				Latitude	Longitude										
20	BSB Recommended Location:			37.24574465	-77.3843										

Figure 1. Spreadsheet model inputs in Microsoft Excel.

global weights for both the supply nodes and customer units; however, in this example we left both equally weighted at 0.5. Global weights affect all supply nodes or customer units equally, regardless of their weights as an MSR, ASR, ME, or SE.

If a unit wishes to move its recommended location closer to either the supply nodes or customer units, they can simply adjust the global weighting. This can also be accomplished by making the constraints more restrictive.

Solver Add-In

Now that we have all the required information in our spreadsheet model, we can use Microsoft Excel's Solver Add-in to determine the optimal location for the support unit based on our input. The Solver Add-in panel uses algorithms to minimize the distance by manipulating the latitude and longitude of our support unit while considering the distance constraints previously mentioned.

For Solver to work, we must ensure that our total distance cell references the distance cells, which in turn reference the unit's location cell that we are manipulating to find our answer.

We must caution that this type of modeling can often result in more than one "optimal" location. This is because the algorithms used will find the closest location near the initial start point, but if you start elsewhere it may find a point whose summed distance is less.

A good analogy would be if you were walking in a mountain range and headed downhill to what you thought was the lowest elevation (the local minimum), but then you realized the next valley over was lower (the global minimum).

To overcome this limitation, future developments for this decision support tool will look at multiple start conditions and provide the best of the found solutions. It is important to realize that an optimal solution may not exist if every location violates one or more constraints, such as minimum distance to a customer. An inability to find a location mathematically will force us to rethink our constraints.

We are working on making the spreadsheet model easier to use while adding functions such as a relational map of all the locations. Our next step is to create a graphical user interface to automate the inputting of data into the spreadsheets. We will also automate the Solver Add-in input and output to alleviate the need for the end user to become familiar with various functions within Excel.

This method uses sound mathematical practices within an easily accessible software package to help commanders and their staffs to optimally emplace a support unit with the intent of minimizing distances. It is not intended to provide the final position. That can only be done by taking into account METT–TC through detailed staff planning.

Our tool simply takes easily identifiable quantitative data and provides a starting location. The famous mathematician George E.P. Box said that "all models are wrong, but some are useful." Anyone interested in obtaining the latest version of the tool can contact the authors by email at james.r.henry.mil@mail.mil and william.t.smith40.mil@mail.mil.

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Maj. William Smith is an operations research and systems analysis instructor at the Army Logistics University. He holds a bachelor's degree in mathematics from Cameron University and a master's degree in mathematics from the Naval Postgraduate School. He is a graduate of the Ordnance Officer Basic Course, Combined Logistics Captains Career Course, Combined Arms and Services Staff School, Defense Language Institute's Russian Basic Course, and the Functional Area 49 Qualification Course.

An unknown American Soldier in front of the Hôtel de Ville in France begins the journey back to the United States, Oct. 24, 1921.

The Beginnings of the Quartermaster Graves Registration Service

Army Chaplain Charles C. Pierce championed the proper handling of Soldiers' remains after the Spanish-American War and established the Quartermaster Graves Registration Service.

■ By Dr. Leo P. Hirrel

Today, properly caring for the human remains of fallen Soldiers is considered one of the military's most important duties. Yet this was not always the case. Standards for care have evolved steadily since the 19th century. During the years between the Spanish-American War and the close of World War I, many dedicated Soldiers, most notably Chaplain Charles C. Pierce, engineered a critical transformation in the Quartermaster mortuary affairs mission and culture.

Early Care for Soldiers' Remains

Before the Civil War, many frontier posts maintained a cemetery for their Soldiers, but they had few provisions for the proper burial of Soldiers who died in a campaign. When the United States created a cemetery for Soldiers who died in the Mexican-American War, procedures were so poor that not a single body was identified.

During the Civil War, attitudes shifted toward providing better care for the war dead. These men had given their lives for the nation, and both Soldiers and civilians believed they deserved a decent burial.

In July 1862, Congress authorized a national cemetery system to be operated by the Quartermaster General. This act is considered the beginning of the quartermaster mortuary affairs mission.

Unfortunately, the act merely authorized the cemeteries. The Army lacked the organization, doctrine, and procedures to identify human remains and provide timely burials.

Only 60 percent of the Union Soldiers who died in hospitals and on the battlefield were identified. A Soldier who died on the battlefield had a much lower chance of being identified, especially if he was on the losing side of an engagement. In fact, so many casualties were left on the battlefields that the Army searched from 1866 to 1870 to find fallen Soldiers and bury them, usually as unidentified.

Procedures Established in Cuba

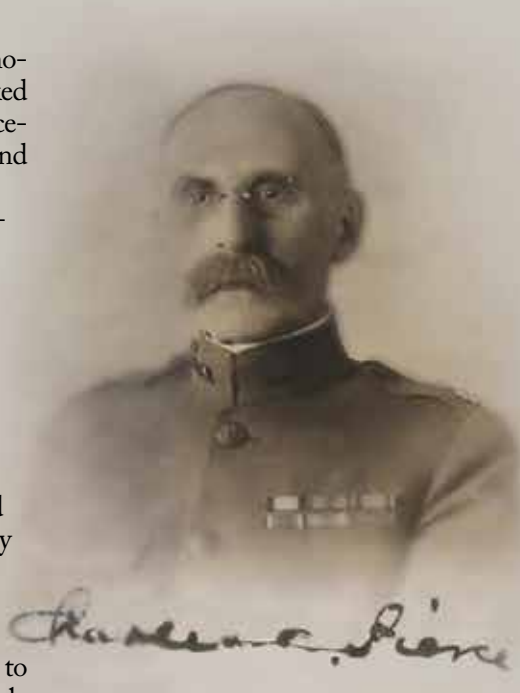
In 1898, the United States went to war with Spain to end Spanish rule over Cuba. As a result of that war, the United States acquired the Philippine Islands and began a prolonged conflict with the Filipinos, who desired independence. The experience of overseas fighting in Cuba and the Philippines produced major changes in the procedures for handling the remains of fallen Soldiers.

In Cuba, Army regulations prescribed some minimal procedures for care of remains by the Soldiers' units. Casualties in Cuba were placed in temporary graves to be exhumed and returned to the United States after the fighting. Procedures specified that the units place identification information in a bottle to be buried with the Soldiers. Timely identification by the unit was essential to the process.

The Quartermaster Department employed a burial corps, consisting of civilian morticians working under contract, to exhume and return the remains of casualties from Cuba. With the new procedures in place, the identification rate rose to 87 percent.

Identifying Human Remains

Although the burial corps also operated in the Philippines under contract with the Quartermaster Department, the most important developments came in the Philippines within the U.S. Army Morgue and Office of Identification in Manila. In response to the commanding general's request, Chaplain Charles C. Pierce took charge of the morgue and instituted procedures that dramatically improved the management of Soldiers' remains.



This photograph of Charles Pierce was taken from his passport application shortly before the inspection trip to Europe that resulted in his death.

When he assumed responsibility for the morgue, Chaplain Pierce faced the problem of identifying human remains scattered in temporary graves around the Philippines. He established a process of collecting all available information regarding the possible identity of these casualties, such as the approximate place of death, the Soldiers' physical characteristics, the nature of the wounds if known, and any other information that might provide a clue.

He then began exhuming bodies that were often weeks or months old and comparing the human remains with the available information on potential identities. By comparing the information, he achieved the previously impossible task of identifying all of these Soldiers. This marked the beginning of modern identification procedures.

Responsibility for the human remains did not end with identification. Pierce also ensured that each Soldier received a new uniform for burial. With the aid of some of his Soldiers, he pioneered techniques for embalming human remains in the tropical climate.

In time, however, the combination of hard work and tropical climate left Pierce too sick to remain in the Philippines, so he returned to the United States. In 1908 the lingering effects of duty in the Philippines resulted in his retirement from the Army, and he resumed his career as an Episcopal minister.

Dog Tag Concept Born

As he left the Philippines, Pierce made one last recommendation: All Soldiers should be required to wear identification tags. Those tags became famously known as "dog tags." Since the Civil War, Soldiers had frequently purchased some form of identification to be worn around the neck. Pierce recommended that instead of Soldiers voluntarily purchasing the tags, the Army should provide aluminum disks and require their use.

In his final report to the Adjutant General, Pierce noted, "It is better that all men should wear these marks [ID tags] as a military duty than one should fail to be identified." By World War I, the dog tag was widely accepted, and it has been standard Army practice ever since.

Graves Registration Service

After the Quartermaster Department changed to the Quartermaster Corps in 1912, military units could be organized to provide necessary services that had previously been contracted. As a result, military units would eventually replace the contracted burial corps.

As the United States watched Europeans fight during World War I, it realized that entering the war would result in massive casualties and the need for a system to handle human remains. On May 31, 1917, less than two months after the United States entered World War I, the Army recalled Pierce to

active duty, this time as a major in the Quartermaster Corps.

Because of his experience in the Philippines, the Army placed him in charge of the emerging Graves Registration Service for the war. Subsequently he rose to full colonel (with an administrative reduction to lieutenant colonel after the war).

The Graves Registration Service was established in August 1917, and Pierce arrived in France in October. His organization initially consisted of only two officers and approximately 50 enlisted personnel. From this nucleus, the organization grew to 150 officers and 7,000 enlisted personnel in 19 companies. Over the course of the war, the organization supervised more than 73,000 temporary burials. These initial graves registration Soldiers established how the service would operate during major conflicts.

Like so many logistics functions, graves registration seemed simple in theory but was complicated in practice. Because the Army lacked the assets to transport human remains back to the United States, casualties were placed in temporary graves until after the war. Timely identification and burial was considered the key to ensuring correct identification of the Soldiers.

Combat units performed much of the labor, with graves registration personnel assisting the units and recording all temporary burials. In addition to religious services, the unit chaplains typically helped to record the necessary information.

The French government purchased the land for temporary cemetery sites on behalf of the United States. This process required careful coordination. The French wanted to avoid graves located near water supplies or heavily trafficked areas. When combat conditions produced isolated graves or small clusters, the rules were frequently ignored.

Developing Identification Procedures

In practice, the work proved to be more complicated than expected. With no comparable experience to work from, the Soldiers in France had to create their own procedures. For example, since there was no standard grave marker, Pierce and his staff decided on a simple cross for Christian Soldiers and a Star of David for Jewish Soldiers. The identification information was to be recorded carefully and placed with the grave marker.

The graves registration Soldiers needed to design and create forms for documenting their activities. In theory, the deceased received temporary burials at locations far enough from the battlefield to allow the graves to remain undisturbed in temporary, reasonably large cemeteries for the rest of the war. In reality, combat conditions frequently produced burials in isolated graves or in very small plots. Often the graves were shallow or improperly prepared. Artillery or troop movement could disturb the grave and the identification information.

Identification of the human remains relied heavily on the units' ability to identify their own Soldiers in a timely manner and on the new dog tags, which had been adopted as standard issue in 1913. When necessary, however, the graves registration personnel used the procedures of comparing physical characteristics to known information, which Pierce had pioneered in the Philippines. Their work resulted in a 97-percent identification rate—something previously unimaginable for battlefield deaths on such large scale.

Post War Operations

After the hostilities ended, the work of the Graves Registration Service entered a new phase. First, the graves registration personnel needed to relocate the human remains of the Soldiers to a manageable number of locations since the human remains of more than 70,000 Soldiers were scattered in 23,000 burial sites. After extensive searches and labor, the Army moved the human remains into 700 temporary cemeteries to await final disposition.

Next, the United States resolved the issue of closing the temporary cemeteries and moving the deceased Soldiers to their final resting places. After much discussion, the War Department decided to place the decision with the families. Families could chose burial in an overseas U.S. cemetery, in a government cemetery in the United States, or in a private cemetery. In the first two options, the government paid all the costs. In the last option, the family provided for the cost of the private burial plot.

Overseas Cemeteries

Overseas, the United States obtained eight permanent cemeteries, one each in Great Britain and Belgium and six in France. Until the American Battle Monuments Commission was established in 1923, the Quartermaster Corps developed and maintained these cemeteries. To this day, these cemeteries are impeccably maintained by the American Battle Monuments Commission.

From 1930 to 1933 the Quartermaster Corps sponsored the visits of widows and mothers of the casualties to the overseas cemeteries.

Disposition of Human Remains

Transferring human remains to the United States presented an entirely different set of problems, especially within a war-ravaged nation. Exhumation required careful observance of French health regulations, especially for Soldiers who died from disease. Transportation of the human remains required close coordination with France and Belgium to manage scarce transportation resources and allow the Europeans to render a last salute to the American casualties.

Inevitably, thousands of requests for exceptions to policy were received and had to be decided individually. Parents living in Europe often requested the transfer of remains to their own homeland. Marines who fought and died with the Army were managed according to Department of the Navy policies. In cases where the grave markings were disturbed by combat or other activities, the Army

needed to verify the identity of the human remains.

Following the example of France and the United Kingdom, the United States decided to honor all of its war dead by placing one unidentified World War I Soldier into a special tomb at Arlington National Cemetery on Nov. 11, 1921. This became the Tomb of the Unknown Soldier.

Pierce's Final Contributions

Pierce remained in France until July 1919, when he transferred to Washington D.C. to take charge of the Cemetery Division of the Office of the Quartermaster General. From there he continued to direct the work of moving the remains of U.S. Soldiers to their final resting places.

In May 1921, Pierce and his wife went to France with members of the National Fine Arts Commission to oversee the development of the U.S. cemeteries. While in France, both Pierce and his wife died from illness within three weeks of each other.

In June 2013 Charles C. Pierce was inducted into the Quartermaster Hall of Fame in recognition of his pioneering work in graves registration.

The Army changed the name of the Graves Registration Service to Mortuary Affairs in 1991. During the century since World War I, much has changed in the Army's mortuary affairs procedures. The practice of temporary overseas burials ended during the Korean conflict when the communist counteroffensive overran some cemeteries and threatened others. It was better to return the remains during the conflict than to risk having remains fall into enemy hands. By the Vietnam War, Air Force transportation could return the remains of fallen Soldiers within days.

Modern technology has established a standard for 100-percent identification of American service members killed in recent conflicts, yet the professional ethos established in the early years remains. The United States makes every reasonable effort to ensure that the remains of fallen service members are recovered and returned with all due respect and care.

Dr. Leo Hirrel is the Quartermaster School historian. He holds a Ph.D. in American history from the University of Virginia and a master's of library science from the Catholic University of America. He is the author of several books and articles.

The Somme American Cemetery at Bony, France, contains the remains of Soldiers who died fighting alongside the British forces.

The Chief of Staff of the Army Deployment Excellence Award Program
Get Recognized for Deployment

The Chief of Staff of the Army (CSA) Deployment Excellence Award (DEA) program was implemented in 2000 by the Headquarters, Department of the Army, G–3 and G–4 to recognize Active, Reserve, and National Guard units and their supporting installations for outstanding deployment accomplishments and to capture and share innovative deployment initiatives.

Since 2000, the Deployment Process Modernization Office at Fort Lee, Virginia, has managed the DEA program for the CSA. This award program is not branch specific; it is open to all Army units and their supporting installations (including joint bases) that deployed a unit during the competition year.

Deployments are not limited to operational deployments, such as Afghanistan. Humanitarian assistance, annual training exercise, homeland defense, and peacekeeping mission deployments also qualify.

The 2014 competition year runs from Dec. 1, 2013, to Nov. 30, 2014. Units and installations can compete in either the Deploying Unit (company or larger), Supporting Unit (team or larger), or Installation categories. Winners will be recognized by the CSA at the annual Combined Logistics Excellence Awards ceremony, along with the supply and maintenance awards winners.

A new nomination packet format is planned for the 2014 competition year.

For more information and guidelines, call (804) 765-0987/0930, or visit the website at http://www.transportation.army.mil/dea.

Submitting an Article to *Army Sustainment*

We are always looking for quality articles to share with the Army sustainment community. If you are interested in submitting an article to *Army Sustainment*, please follow these guidelines:

- ☐ Ensure your article is appropriate to the magazine's subjects, which include Army logistics, human resources, and financial management.
- ☐ Ensure that the article's information is technically accurate.
- ☐ Do not assume that those reading your article are Soldiers or that they have background knowledge of your subject; *Army Sustainment*'s readership is broad.
- ☐ Write your article specifically for *Army Sustainment*. If you have submitted your article to other publications, please let us know at the time of submission.
- ☐ Keep your writing simple and straightforward.
- ☐ Attribute all quotes to their correct sources.
- ☐ Identify all acronyms, technical terms, and publications.
- ☐ Review a past issue of the magazine; it will be your best guide as you develop your article.

Submitting an Article

Submit your article by email to usarmy.lee.tradoc.mbx.leeeasm@mail.mil.

Submit the article as a simple Microsoft Word document—not in layout format. We will determine the layout for publication.

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Army Sustainment Departments

Your submission should be geared toward one of *Army Sustainment*'s departments, which are described in detail below. If you have an article that does not fit into one of our departments but you think it is appropriate for our audience, feel free to contact us.

Commentary articles contain opinions and informed criticisms. Commentaries are intended to promote independent thoughts and new ideas. Commentary articles typically are 800 to 1,600 words.

Features includes articles that offer broader perspectives on topics that affect a large portion of our readers. These can focus on current hot topics, or the future of the force. These articles can be referenced, but it is not required if the content is within the purview of the author. While these articles can be analytic in nature and can draw conclusions, they should not be opinion pieces. Features typically are 1,600 to 5,000 words.

Spectrum is a department of *Army Sustainment* intended to present well-researched, referenced articles typical of a scholarly journal. Spectrum articles most often contain footnotes that include bibliographical information or tangential thoughts.

In cooperation with the Army Logistics University, *Army Sustainment* has implemented a double-blind peer review for all articles appearing in its Spectrum section. Peer review is an objective process at the heart of good scholarly publishing and is carried out by most reputable academic journals. Spectrum articles typically are 2,500 to 5,000 words.

Operations includes articles that describe units' recent deployments or operations. These articles should include lessons learned and offer suggestions for other units that will be taking on similar missions. These articles require an official clearance for open publication from the author's unit. Photo submissions are highly encouraged in this section. Please try to include five to 10 high-resolution photos of varying subject matter. Operations articles typically are 1,200 to 2,400 words.

Training and Education is dedicated to sharing new ideas and lessons learned about how Army sustainers are being taught, both on the field and in the classroom. Training and Education articles typically are 600 to 1,100 words.

Tools articles contain information that other units can apply directly or modify to use in their current operations. These articles typically contain charts and graphs and include detailed information regarding unit formations, systems applications, and current regulations. Tools articles typically are 600 to 1,800 words.

History includes articles that discuss sustainment aspects of past wars, battles, and operations. History articles should include graphics such as maps, charts, old photographs, etc., that support the content of the article. History articles typically are 1,200 to 3,000 words.

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Sustainer Spotlight

Col. Charles Brown, director of the Sustainment Battle Lab, moderates the discussion at the Globally Responsive Sustainment Rehearsal of Concept Drill held April 28 to May 2, 2014, at Fort Lee, Virginia. This year's event focused on validating the roles, responsibilities, and redundancies in O–5 and higher sustainment headquarters . The Combined Arms Support Command, home of the Army's Sustainment Think Tank, hosted the drill. (Photo by Adam Gramarossa; Army Sustainment*).*